A Study for the Bureau of Safety and Environmental Enforcement (BSEE)

Decommissioning Cost Update for Pacific Outer Continental Shelf Region Facilities

Volume 2

Conducted by

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1	08-13-20	Final report	Lerma, et. al	M. Pasini	J.Dull
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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Appendix A Well Abandonment Regulations and Procedures

This appendix details the federal requirements for Well Plugging and Abandonment (P&A) and outlines the three phases of P&A procedures used to generate cost for each well and slot category as appropriate to meet these requirements.

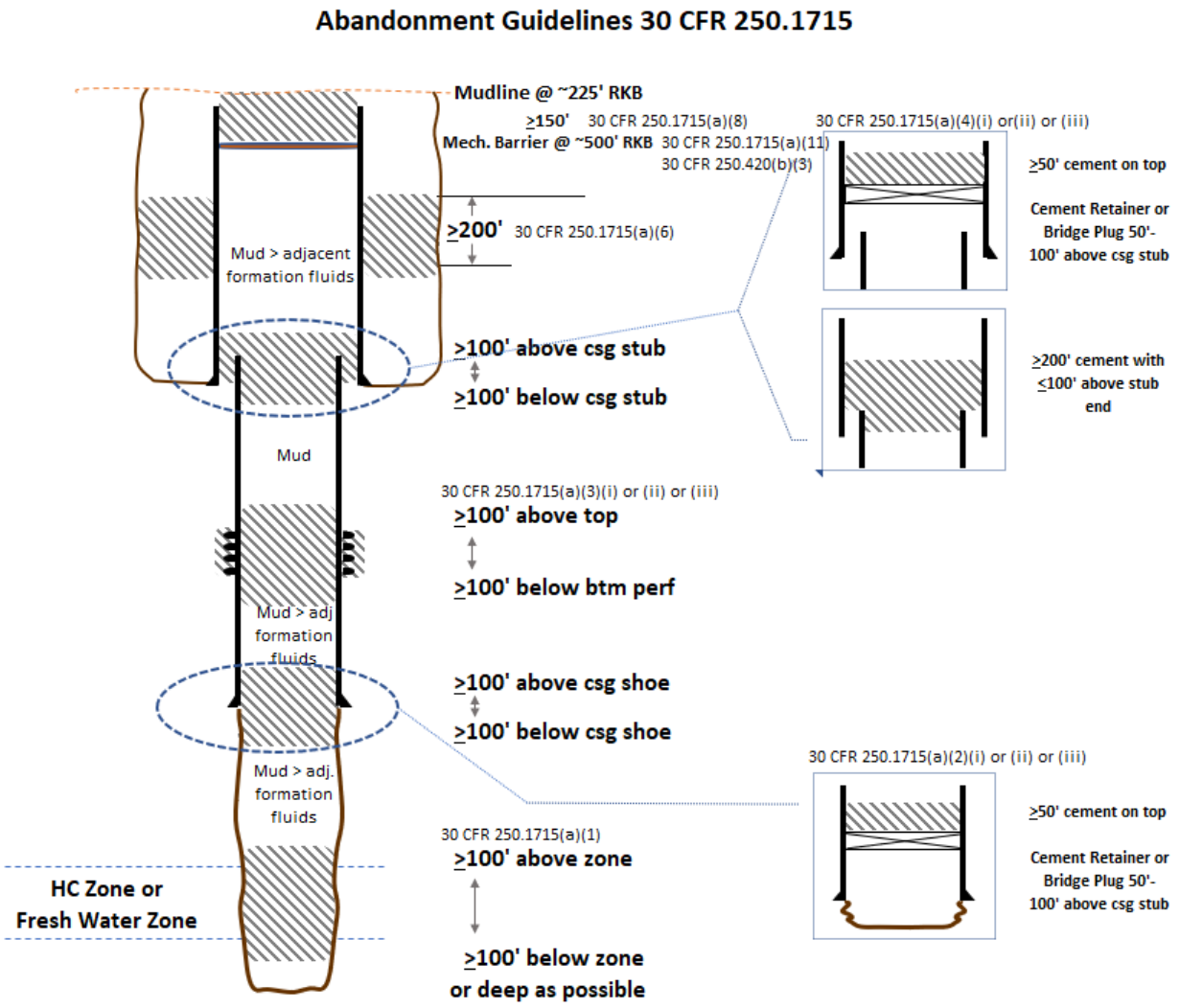

Figure A.1 Well P&A Schematics

All non-cemented intervals are to be filled with fluid of adequate density such that fluid pressure is greater than offsetting formation pressures per **30 CFR 250.1715(a)(9).**

***Phase I**. Abandonment for High and Medium Wells*

1. Move-in rig-up (MIRU) workover rig, riser and blowout preventer (BOP). Test BOP and ensure well is dead.
2. Pull pump equipment for wells containing a rod pump, electric submersible pump (ESP), hydraulic rod pump, or progressive cavity. Completion strings for injection wells and gas lift wells would remain in the well.
3. Pickup workstring and scraper. Run in hole (RIH) to top of liner or deepest point of production casing. Clean out well and test casing strings for integrity. Lay down scraper.
4. If necessary, fish or mill equipment restricting placement of the bottom plug per code **30 CFR 250.1715(a)(3)**.
5. Make up cement bond log and run to plug back total depth (PBTD).
6. Place a 200-foot cement plug no more than 100 feet above the top perforated interval per the displacement method under regulation **30 CFR 250.1715(a)(3)(iii)(C)**, unless wellbore condition mandates the use of a cement retainer or casing bridge plug per **30 CFRs 250.1715(a)(3)(iii)(A) or 250.1715(a)(3)(iii)(B)**.
7. Lay down work string and rig down and move off (RDMO) workover rig.

***Phase II**. Continuation of High and Medium Wells*

8. MIRU coiled tubing unit (CTU). Test equipment.
9. If well has a lack of annular cement above the hydrocarbon zone and/or sustained casing pressure, RIH with CTU nozzle. Open casing where necessary to place annular cement plugs to prevent flow of fluids to the mudline. Establish circulation. Pull out of hole (POH) with CTU nozzle.
10. RIH with CTU and cement retainer approximately 75 feet above liner top to displace cement. Displace 200 feet of cement outside of casing, thus placing a cement plug per **30 CFRs 250.1715(a)(4)(iii) and 250.1715(a)(6)**. Test plug to verify integrity and POH.
11. RIH with CTU and cement retainer to place one additional internal plug (two plugs for a high category well) per **30 CFR 250.1715(a)(4)**. Test plug integrity per **30 CFR 250.1715(b)**. POH with CTU.
12. RIH with CTU nozzle and cut production casing 225 feet below the mudline and remove production casing with CTU or casing jacks as appropriate.
13. RIH with scraper to top of casing stub. POH and lay down scraper.

14. RIH with bridge plug placing 75 feet above production casing cut. Bridge plug to be set in intermediate casing string per **30 CFRs 250.1715(a)(4) and 250.1715(a)(11)**. Test.
15. Place at least 150-foot cement plug on bridge plug per **30 CFR 250.1715(a)(11)**. Polish off cement to prepare for C&R. Test.
16. POH with CTU and RDMO.

***Phase II**. Abandonment for Medium-Low and Low Wells*

1. MIRU CTU. Test equipment.
2. RIH with CTU 50 feet above the completed interval. Place a 200-foot cement plug no more than 100 feet above the top perforated interval per the displacement method under regulation **30 CFR 250.1715(a)(3)(iii)(C)**. Test plug to verify integrity and POH.
3. RIH with CTU and CTU nozzle 75 feet above the liner top and create holes in tubing (if present). Place one 200-foot internal cement plug (two plugs for a medium-low category well) per **30 CFRs 250.1715(a)(4) and 250.1715(a)(6)**. Test plug integrity per **30 CFR 250.1715(b)**. POH with CTU.
4. RIH with CTU nozzle and cut production casing 225 feet below the mudline and remove production casing with CTU or casing jacks as appropriate.
5. RIH with scraper to top of casing stub. POH and lay down scraper.
6. RIH with bridge plug placing 75 feet above production casing cut. Bridge plug to be set in intermediate casing string per **30 CFRs 250.1715(a)(4) and 250.1715(a)(11)**. Test.
7. Place at least 150-foot cement plug on bridge plug per **30 CFR 250.1715(a)(11)**. Polish off cement to prepare for C&R. Test.
8. POH with CTU and RDMO.

***Phase III**. Cut and Recover Conductor and Shallow Casing Strings.*

1. MIRU workover rig and riser. Verify all casing strings are dead.
2. Remove wellhead.
3. Mobilize casing cutters and cut casing and conductor 15 feet below the mudline per **30 CFR 250.1716**.
4. POH with conductor and casing, removing marine growth from conductor while pulling.
5. Cut strings into 40-foot joints, laying onto floating barge.
6. RDMO workover rig and casing cutters.

Appendix B Complete Well and Conductor Plugging & Abandonment Estimate

The methods of abandonment described below in Phase I, II and III are the methods utilized to determine time and cost estimates for well and conductor abandonment. Wells may be currently active, idle or temporarily abandoned. Conductors installed but undrilled and undeveloped are included in this cost estimate. The task duration within each phase is used to generate the cost for each well and conductor abandonment. The estimated cost for each well type and conductor is discussed in detail below.

Activity and Task Duration

The activity to abandon a well or conductor is described in three phases and the duration to complete tasks within each phase are provided. The hours are summarized in Table B.1 below. The time estimates do not include time for PMEP, contingencies or disposal.

Phase I

This activity would be carried out with a workover rig where available. There are 545 wells in the medium and high categories that would utilize the workover rig for pulling production equipment, cleaning out the well, fishing and/or milling, running a cement bond log and finally setting the bottom plug.

Phase II

This activity would be completed with the use of a Coiled Tubing Unit (CTU). There are 75 wells in the medium-low and low category that would have the bottom plug placed with the CTU noted as Internal Plug 1. For high and medium category wells, this first internal plug set by the CTU may include an annular squeeze. All wells would include at least one more cement plug referred to as Internal Plug 2 in order to isolate liner tops and/or create an additional flow barrier. High category wells and deeper medium-low category wells would include one final cement plug noted as Internal Plug 3. Prior to setting the surface plug, the production casing along with any tubulars still in the well may be cut and recovered below the depth of the subsea safety valve. A scraper would be run in advance of setting a mechanical barrier and surface plug against the intermediate casing string. The surface plug would then be polished off in preparation of Phase III. Once complete, the CTU would be demobilized from the platform.

Phase III

This activity would once again utilize the platform workover rig to remove the conductor and casing strings to 15 feet below the mudline. While all wells would undergo Phase III, there are 20 wells in the TA-Low category and 59 undrilled conductors that would only undergo Phase III. While some conductors on the platforms are curved or slanted, it is expected that the fit-for-purpose workover rig would not be impeded by this design issue as per operator's input. A workover rig may be substituted with casing jacks. The conductors and casing strings would be cut in 40'

joints. Marine growth would be removed during retrieval of the pipe, and the joints would be loaded onto a barge. Platforms would be grouped into one of three categories based upon length of conductors installed in the slots. Conductor lengths less than 300 feet would take an average of 27 hours to remove while conductors longer than 300 feet but less than 500 feet would take an average of 34 hours to remove. Lastly, conductors longer than 500 feet would take an average of 79 hours to remove.

Table B.1 Well P&A Estimated Hours per Task

Activity	Abandonment Category - Hours				
	High	Medium	Med-Low	Low	TA-Low
Phase I					
Rig Move: MIRU, NU BOP and Test; RDMO, ND BOP	30	30	0	0	0
Pull Pump	24	10	0	0	0
Run Scraper and Clean Out Well	30	10	0	0	0
Fish/Mill and Run Cement Bond Log	56	6	0	0	0
Set Bottom Plug	36	15	0	0	0
Phase II					
Rig Up CTU	10	10	10	10	0
Squeeze and/or Set Internal Plug 1	34	14	12	12	0
Set Internal Plug 2	24	10	10	10	0
Set Internal Plug 3	10	0	10	0	0
C&R Production Casing and SSSV	12	12	12	12	0
Run Scraper and Set Mechanical Barrier	6	6	6	6	0
Set Surface Plug	12	12	12	12	0
Safety Meetings/BOP Inspection	12	6	3	3	0
Phase III					
Rig Move: MIRU and RDMO	5	5	5	5	5
Cut & Recover Pipe: Weighted Average	60	42	33	26	22
Total Time					
Well Abandonment (Hours)	361	188	113	96	27
Well Abandonment (Days) [1]	***15.0***	***7.8***	***4.7***	***4.0***	***1.1***
Well Count	45	500	110	84	20

[1] Time does not include mobilization of rigs on Gilda and Habitat.

Table B.2 Slot with Conductor P&A Estimated Hours per Task

Activity	Conductor Length - Hours		
	< 300'	< 500'	> 500'
Phase III			
Rig Move: MIRU and RDMO	5	5	5
C&R Conductor, Remove Marine Growth, Barge Load	22	29	74
Slot with Only Conductors			
Slot P&A Time (Hours)	27	34	79
Slot P&A Time (Days) [1]	**1.1**	**1.4**	**3.3**
Slot with Conductor Only Count	19	13	27

[1] Time does not include mobilization of rig Habitat.

Well Abandonment Costs

Costs utilized in the estimates to P&A below are comprised from vendor information, operator information, and recent abandonment data for wells located on Platform Hogan. Costs are comprised of daily/hourly rates for crews and equipment. Some costs are per use items. Expenses are rounded to the nearest hundred. The costs provided below do not include PMEP, contingencies or disposal.

Daily Cost Components

Daily costs to conduct plugging operations consist of the following, when applicable:

- Rig and crew

  Daily rig and crew costs is $15,000. This estimate is based upon current average costs to operate a platform rig and crew provided by operators. The crew would work 12-hour shifts to be transported to land daily. The estimate is within 2% of daily cost incurred between 2016 and 2018 on Platform Hogan abandonments.

- Diesel per well

  Diesel/electricity charges to run the rig or CTU are estimated at $1,000 per well.

- Marine Transportation

  Daily cost allocated for operation of the crew boat and transport of P&A related-equipment is $4,000. Marine transportation would be utilized throughout all phases of the operation.

- Crane operations and supevisor

  Daily cost for the crane operations and supervisor is $2,800. The crane would be utilized throughout all phases of the operation.

- CTU and superintendent

  CTU and related costs were provided by vendors, based upon large scale work as proposed in this study. Daily costs for the CTU and supervisor are estimated at $21,600 per day.

- Cement crew and equipment.

  Daily costs for the crew and equipment are estimated at $12,000.

- Cut and recovery equipment

  Daily costs for the crew and cutting equipment, including travel time is $20,500.

- Power swivel or similar

  The power swivel or similar is estimated to cost approximately $2,400 per day.

- Miscellaneous rentals

  Rentals would vary, but are assumed to cost $3,500 to $7,000 per day. Rentals are utilized daily in all phases of the operation.

- Fishing or milling equipment

  Fishing or milling equipment in excess of rentals are assumed to cost an additional $2,000 per day.

- Cut & Recovery crew and equipment

  Daily costs for the crew and equipment to clean and cut the conductor is $20,500.

To estimate plugging costs in Phase I and Phase II, daily expenses discussed above are multiplied by 150% for high category wells and 100% for low, medium-low and medium category wells.

Per Use Components

Other costs expected on a per stage, per use or per well basis consist of the following, when applicable:

- Cement bond log per well

  A cement bond log run on wireline is expected to cost $7,500 per well with three days of standby time plus a mob/demob charge of $10,000, to be shared by all wells on the platform, which is estimated at $500 per well. The total cost is $8,000 per well.

- Cement per stage

  Cementing per stage is estimated at $11,800 per stage except the bottom plug which is estimated to cost $23,600.

- CTU nozzle per use

  The CTU nozzle would be utilized to open holes in tubing or casing in lieu of perforating, so no wireline costs are included. This specialty tool is estimated at $4,000 per use.

- CTU setting tool per use

  The CTU setting tool is estimated at $2,400 per use.

- CTU cement retainer per use

  Cement retainers set with the CTU when utilized are estimated at $3,300.

- Workstring per well

The workstring used with the rig for cleaning out the well, fishing, milling and placing the bottom plug is estimated at $12,000 per well.

- Fluids and trucking per well

  Fluids and trucking are estimated at $1,500 per well.

- Miscellaneous fees per well

  Miscellaneous fees for consumables are estimated at $1,500 per well.

- Abrasive cutting consumables

  Wells with conductors less than 500 feet would incur $2,000 per well on abrasive cutting consumables. Greater than 500 feet but less than 1300 feet would incur $4,000 per well on abrasive cutting consumables.

- End-Capping

  To cap the end of each section of the conductor as it is cut and removed from the hole is $1,000 per cut.

The above mentioned costs are the basis for the individual well and conductor P&A costs provided below.

Table B.3 Well P&A Cost Components (759 Wells)

Activity	Abandonment Category - Cost				
	High	Medium	Med-Low	Low	TA-Low
Phase I					
Rig Move: MIRU, NU BOP and Test; RDMO, ND BOP	$58,900	$40,300			
Pull Pump	$44,700	$12,400			
Run Scraper and Clean Out Well	$72,400	$25,400			
Fish/Mill and Run Cement Bond Log	$127,700	$16,100			
Set Bottom Plug	$123,100	$51,200			
Phase II					
Rig Up CTU	$22,400	$15,000	$15,000	$15,000	
Squeeze and/or Set Internal Plug 1	$123,300	$49,400	$71,000	$71,000	
Set Internal Plug 2	$93,400	$41,500	$41,500	$41,500	
Set Internal Plug 3	$48,100		$38,200		
C&R Production Casing and SSSV	$40,600	$27,100	$27,100	$27,100	
Run Scraper and Set Mechanical Barrier	$16,800	$12,300	$12,300	$12,300	
Set Surface Plug	$54,100	$42,200	$42,200	$42,200	
Safety Meetings/BOP Inspection	$29,300	$9,900	$5,800	$5,800	
Phase III					
Rig Move: MIRU and RDMO	$5,700	$5,700	$5,700	$5,700	$5,700
Cut & Recover Pipe Average: Weighted Average	$143,900	$102,600	$81,500	$64,800	$56,100
Well Cost					
P&A Cost	$1,004,400	$451,100	$340,300	$285,400	$61,800
Total P&A Cost [1]	$45,198,000	$225,550,000	$37,433,000	$23,973,600	$1,236,000
Well Count	45	500	110	84	20

[1] Cost does not include $300,000 to mobilize workover rigs on Gilda and Habitat.

Table B.4 Slot with Conductor Only P&A Cost Components (59 Slots)

Activity	Conductor Length - Cost		
	< 300'	< 500'	> 500'
Phase III			
Rig Move: MIRU and RDMO	$ 5,700	$ 5,700	$ 5,700
C&R Conductor, Remove Marine Growth, Barge Load	$56,100	$72,700	$176,000
Slots with Only Conductors			
Slot P&A Cost	$61,800	$78,400	$181,700
Total Slot P&A Cost [1]	$1,174,200	$1,019,200	$4,905,900
Slot with Conductor Only Count	19	13	27

[1] Cost does not include $150,000 to mobilize workover rig on Habitat.

Appendix C Power Cable Removal Cost Calculations

Table C.1 Power Cable Removal Estimated Cost

Cable Origin	Cable Terminus	Length (ft)	Depth (ft)	Mobilization	Cargo Mobilization	Remove cable from J-tube	Reel Cable	Demobilization**	Cargo Barge Demob**	Total Excluding Contingencies
A	B	2,640	188-200	$ 7,175	$ 6,422	$ 70,911	$ 66,034	$ 7,175	$ 6,422	$ 164,139
B	C	2,640	200-193	$ 7,175	$ 6,422	$ 70,911	$ 66,034	$ 7,175	$ 6,422	$ 164,139
C	Shore	26,400	193-0	$ 7,175	$ 6,422	$ 141,823	$ 660,338	$ 7,175	$ 6,422	$ 829,354
Edith	Shore	36,960	150-0	$ 7,175	$ 6,422	$ 141,823	$ 924,472	$ 7,175	$ 6,422	$ 1,093,488
Ellen		-								
Elly		-								
Eureka	Ellen (2)	15,297	700-265	$ 7,175	$ 6,422	$ 94,548	$ 191,311	$ 7,175	$ 6,422	$ 313,053
Gail		-								
Gilda	Shore	36,960	205-0	$ 7,175	$ 6,422	$ 141,823	$ 924,472	$ 7,175	$ 6,422	$ 1,093,488
Gina	Shore	1,584	90-0	$ 7,175	$ 6,422	$ 141,823	$ 39,620	$ 7,175	$ 6,422	$ 208,636
Grace		-								
Habitat	P/FA	19,536	292-188	$ 18,177	$ 14,450	$ 141,823	$ 488,649	$ 18,177	$ 14,450	$ 695,726
Harmony	Shore (2)	59,664	1200-0	$ 17,363	$ 14,450	$ 170,187	$ 746,181	$ 17,363	$ 14,450	$ 979,995
Harvest		-								
Henry	Hillhouse	13,200	170-189	$ 7,175	$ 6,422	$ 141,823	$ 330,168	$ 7,175	$ 6,422	$ 499,184
Heritage	Harmony	39,072	1075-1200	$ 17,363	$ 14,450	$ 170,187	$ 977,300	$ 17,363	$ 14,450	$ 1,211,114
Heritage	Shore	104,544	1075-0	$ 17,363	$ 14,450	$ 170,187	$ 2,614,937	$ 17,363	$ 14,450	$ 2,848,750
Hermosa		-								
Hidalgo		-								
Hillhouse	Shore	17,952	189-0	$ 7,175	$ 6,422	$ 141,823	$ 449,029	$ 7,175	$ 6,422	$ 618,045
Hogan	Shore	4,752	150-0	$ 18,177	$ 14,450	$ 141,823	$ 118,861	$ 18,177	$ 14,450	$ 325,937
Hondo	Harmony(2)	47,520	842-1200	$ 17,363	$ 14,450	$ 170,187	$ 594,304	$ 17,363	$ 14,450	$ 828,117
Houchin	Hogan	3,800	176-150	$ 18,177	$ 14,450	$ 141,823	$ 95,049	$ 18,177	$ 14,450	$ 302,125
Irene	Shore	14,784	242-0	$ 18,177	$ 14,450	$ 141,823	$ 369,789	$ 18,177	$ 14,450	$ 576,865
Total				**$ 206,732**	**$ 173,400**	**$ 2,335,344**	**$ 9,656,548**	**$ 206,732**	**$ 173,400**	**$ 12,752,156**

* Data represents combined length and cost of both cables
** Connects to Elly by bridge, no sub-sea cable

Appendix D Platform Transport and Waste Disposal

West Coast Waste Handling Facilities

Several waste handling facilities on the west coast were investigated. Disposal sites would have 1) sufficient area to handle the volume of scrap that would be processed, 2) docksides of sufficient strength to enable unloading of the cargo barges, 3) crane capacity to offload and maneuver each lift, 4) skilled crews to handle the disassembly of each offloaded piece, and 5) designated procedures to handle material that cannot be recycled, and/or contains hazardous waste.

In southern California, potential facilities include:

- Port Hueneme
- Port of Los Angeles (LA)
- Port of Long Beach (LB)

Terminal Island in the Port of Long Beach was used for disposal of the Chevron 4-H platforms. However, decaying marine growth caused a miasma that prompted an unfavorable appetite, and ultimately ordinance, to prevent undertaking similar projects ever again. However, clean, non-hazardous materials weighing less than 50-tons can be handled by waste processing facilities at both the Port of LA and the Port of LB by SA Recycling.

On the northern west coast, potential facilities operated by Schnitzer include:

- Port of Tacoma, Washington
- Port of Seattle, Washington
- Oakland, California

The Schnitzer processing facilities are capable of handling clean, non-hazardous materials weighing less than 50-tons.

SA Recycling, Schnitzer and HazMat, another waste processing facility off the coast of California, confirmed that processing cost of $100/ton for recyclable and $200/ton for non-recyclable materials is a valid cost estimate.

In summary, west coast facilities are capable of handling piece-small lifts (<50-ton), but none are currently able to handle larger lifts without considerable modifications, third party contracts and permit modifications.

Gulf of Mexico (GOM) Waste Handling Facilities

Two companies with extensive platform waste handling experience were identified in the GOM:

- Industrial Scrap Metals (ISM) in Port Fourchon in Louisiana
- Modern American Recycling Services (MARS) in Gibson, Louisiana

Both ports have adequate dock space, crane capacity, dockside load capacity, experienced cutting crews for piece-large/modular lifts, and the ability to handle non-recyclable waste. The MARS facility has the ability to handle hazardous waste such as naturally occurring radioactive material (NORM) and asbestos. Both facilities confirmed that they do not charge processing fees for offshore platform waste based on their experience with the recycling value of the waste received. Thus, the GOM waste handling facilities are both capable of handling piece-large/modular lifts (up to the anticipated maximum lift of 1500-tons cut to fit on barges that can travel through the Panama Canal) whereas local ports are not.

Platform Transport and Disposal Alternatives Considered

Kaiser Steel also once operated an assembly yard from which topside and jackets were dispatched. The jacket for Eureka was one such notable example. However, this facility no longer exists, and loads were limited by bridge heights.

Expanding the limitation of 50-ton loads for west coast waste processing facilities was considered. The crane capacity, deck strength, and ability to process loads larger than this would require a substantial upgrade and is beyond the capability of current facilities. Third party contract crews and equipment would be required. Additionally, permit modifications would be required to allow for this additional equipment and scope of work.

HydroChem PSC was contacted and confirmed that they do not have the capability to take lifts in excess of 50-tons, but they have investigated the feasibility of building a west coast facility. They have not yet identified or quantified required environmental risks and pollution concerns. Their Gulf of Mexico (GOM) facility was constructed to manage waste with high risk of hazardous materials. They estimated the cost of a small facility is on the order of $50 million, but this cost does not include the cost or feasibility of obtaining permits.

MARS also investigated the possibility of building a west coast facility but determined that permitting such a facility anywhere on the west coast was not a viable option. They built a facility to handle waste in the North Sea for an order of magnitude cost of $200 million.

MARS' sister company, Shore Offshore, LLC owns derrick barges (DBs) that can be used as offshore cutting stations to reduce loads prior to offloading. Idle dry docks were also identified as possible cutting stations. While this option was considered to allow for local disposal, the cost of cutting the structures into 50-ton lifts is likely to be more expensive than transporting the lifts to Gibson.

Finally, Hazmat, Inc., a west coast provider of waste processing at both Los Angeles and Long Beach ports, conveyed that they are looking into building a waste processing facility large enough to process topside and jacket waste, but no firm plans have yet been made.

Platform Transport and Disposal Cost Model Inputs

After consideration of all alternatives, lifts less than 50-tons may be disposed of at local west coast facilities, but larger loads would be transported to the GOM for disposal.

Local waste processing providers can handle piece-small lifts such as 40 foot conductor sections, 40 foot pipeline sections, and power cables removed. Based on conversations with Schnitzer Steel and SA Recycling, recyclable materials (such as empty conductors and recovered pipelines) are estimated to cost $100/ton. Based on conversations with Schnitzer and HazMat, non-recyclable materials (such as casings with cement and power cables) are estimated to cost $200/ton. Loading, transportation and processing costs for these items are included in the Platform Transportation and Disposal cost estimate.

GOM providers ISM in Port Fourchon, Louisiana and MARS in Gibson, Louisiana are capable of handling large platform waste from the POCSR. ISM stated that they handle 30-40 platforms from the GOM annually, and MARS stated that they've handled up to 150 platforms from the GOM in a single year. MARS also stated they are able to handle hazardous waste, such as NORM and asbestos, on site. Both companies confirmed that no processing fees are charged for this waste in anticipation of the value of recycled scrap metal. Loading costs for heavy lifts are included in the Platform and Structure Removal cost estimate, but the transportation to GOM is included in the Platform Transportation and Disposal cost estimate.

The Gibson dockside and cranes are designed for the heavy lifts anticipated from POCSR decommissioning. The platform would be offloaded, and skilled crews would reduce the structures to recyclable dimensions. The yard has facilities to handle waste disposal, including hazardous waste. Marine growth remaining on the structures is also acceptable at MARS's Gibson yard.

The yard has 74 acres with 1700 feet of waterfront with 950 feet of bulkhead. It was opened in 2010 with the main focus being offshore platform and rig scrapping. It has several heavy lift cranes including:

- 600-ton derrick barge
- 1000-ton derrick barge
- 250-ton Manitowoc crane

Figure D.1 MARS Yard in Gibson, Louisiana [20]

Other equipment used to assist with downsizing of the platforms includes:

- Manitowac 250-ton truck crane
- Five material handlers utilizing magnets
- Four material handlers utilizing grapples/claws
- Two front-end loaders and a genesis 1000 shear

MARS already has contracts with McMoran, Chevron, and others in their Gibson waste handling facilities.

Figure D.2 MARS Yard in Gibson, Louisiana [20]

The round trip through the Panama Canal is estimated to take 75 days. This travel time was estimated using online ocean route estimators such as https://sea-distances.org, and confirmed by local barge companies familiar with this route. This includes a wait time passage through the canal and barge offloading. A 5% weather contingency factor was added to transportation costs to provide for potential delays in the journey. The transportation and disposal cost for each platform also includes a canal transit fee for the round trip of $200,000 per barge.

The Panama Canal Authority stated that cargo barges are either charged by the container or by the ton. For the cost estimate, barges are expected to be fully loaded. Actual weights would likely be less due to the square footage capacity of each barge.

Costs were estimation using the following assumptions:

Small barge, 3500-ton and 15,000 square feet load capacity:	$4,000/day
Medium barge, 5000-ton and 15,000 square feet load capacity:	$5,000/day
Large barge, 6000-ton and 30,0000 square feet load capacity:	$6,000/day

Tug capable of handling one barge	$9,000/day
Fuel for tug at $2.00/gallon	$5,600/day
Panama Canal fee fully loaded barge	$125,000
Panama Canal fee empty barge	$ 75,000
Round trip time from southern California to Gibson, LA at 7 knots/hr	75 days
Round trip time from platform to southern California ports	3 days
Time to anchor barge near platform	1 day
West coast processing fee for recyclable waste	$100/ton
West coast processing fee for non-recyclable waste	$200/ton

Finally, adequate barge capacity would be available at prices comparable to those quoted by local vendors for continuous service to support the POCSR decommissioning effort.

Appendix E Conductor, Casing, Power Cable and Pipeline Disposal

Conductor and casing strings are assumed to be cut into 40 foot sections. The heaviest density of casing strings, cement and conductor pipe is 647 lbs/ft. The 40 foot section would then weigh 25,880 lbs or 13-tons, well suited for west coast waste processing facilities available.

The Table below provides the conductor count, length, and weight per foot for those conductors.

Table E.1 Platform Total Well and Total Slot Weight per Foot

Platform	Water Depth (feet)	Well and Slot Conductor Count	Conductor Lenghts (feet)	Total Slot Weight per foot (lbs)	Total Well Weight per foot (lbs)
A	188	55	268	68	193.7
B	190	57	270	68	193.7
C	192	37	272	107	278.4
Edith	161	29	241	55	133.4
Ellen	265	64	345	246	575.7
Elly	155	0	0	0	0.0
Eureka	700	60	780	246	575.7
Gail	139	29	819	201	632.2
Gilda	205	63	285	94	355.3
Gina	95	12	175	94	355.3
Grace	318	38	398	201	647.2
Habitat	290	21	370	201	547.5
Harmony	1,198	43	1,278	201	637.3
Harvest	675	25	755	201	640.8
Henry	173	24	253	107	278.4
Heritage	1,075	49	1,155	133	455.9
Hermosa	603	16	683	201	640.8
Hidalgo	430	14	510	201	647.2
Hillhouse	190	50	272	107	278.4
Hogan	154	39	234	88	309.2
Hondo	842	28	922	133	455.9
Houchin	163	36	243	88	313.2
Irene	242	29	322	133	394.7
Total		**818**			

Local recycling yards accept up to 50-tons of waste and charge processing fees depending on whether the material is recyclable or not. If the material is recyclable, the fee is $100/ton. This would apply to empty conductors and recovered pipeline segments.

If the material is not recyclable, the fee is estimated at $200/ton. This would apply to conductors with casing cemented inside, and to power cables.

Cost for disposal of this material includes the appropriate processing fee, the barge and tug time to standby as the material is loaded and transported to west coast ports.

Platform cranes would be used to load conductor/casing/cement waste onto barges anchored next to the platform. The estimated time to load each barge is based on the time required to cut and recover the casing/conductor for each well on each platform. Platform crane information was provided by BSEE and appears adequate for these piece-small lifts as shown in the table below.

Table E.2 Platform Crane Capacities

Platform	Crane 1 Capapcity (1000 lbs)	Crane 2 Capapcity (1000 lbs)
A	75	34
B	75	34
C	75	39
Edith	70	107
Ellen	92	82
Elly	92	82
Eureka	86	62
Gail	47	153
Gilda	59	59
Gina	67	
Grace	67	88
Habitat	61	12
Harmony	103	128
Harvest	30	50
Henry	31	89
Heritage	103	128
Hermosa	93	93
Hidalgo	95	95
Hillhouse	66	36
Hogan	81	49
Hondo	80	105
Houchin	81	49
Irene	96	124

Appendix F Pipeline Decommissioning Costs

This appendix provides details of the estimated costs to decommission all POCSR pipelines. The segment numbers used for each pipeline are identified in Tables F.1 and used in F.2 for reference.

The pipeline decommissioning regulatory requirements, methods and assumptions used to calculate cost estimates are described in Decommissioning Cost Update for POCSR Facilities, Volume 1, Section 10.

Source of Data

The pipeline data were compiled from the following sources:

- TSB 2016 Report: Decommissioning Cost Update for POCSR Facilities
- Spreadsheets labeled "BOEM request 5-29-2020" provided by BSEE via email dated June 4, 2020
- Numerous discussions with BSEE and BOEM staff

Quality of Data and Assumptions

The data provided by BSEE was used to update the pipeline information from the prior report, resulting in the following modifications and recommendations for continued investigation:

- Pipeline Segment IDs and status (active vs. out of service (OOS)) were updated across all platforms. Several instances of mislabeled segments were identified and corrected.
- Segment lengths and start/end points were updated.
- All pipeline segments from Platforms Gail and Grace, and the 8" waterline from Henry have different status (active vs. OOS) on the spreadsheets provided by BSEE. This report assumes the Gail and Grace lines to be OOS (no OOS date reported), as they are shut-in, but shows the Henry waterline as active. Continued investigation is recommended to confirm these assumptions.
- The 8" active pipelines segments from Platform Irene identify different fluid types on the spreadsheets provided by BSEE and the prior report. Continued investigation is recommended to resolve this discrepancy.
- The various pipeline segments between Platforms A and B, and to the Rincon Onshore Facility, are represented differently in each of the data sources. This report uses information gleaned from the operator, DOCR LLC, to resolve the discrepancies but continued investigation is recommended to confirm its accuracy.
- The Platform A active 6" waterline to Rincon (Segment #1, no segment ID) is assumed to exist as it was included in the dataset provided by BSEE and the prior report, although the

prior report did not include the OOS 6" waterline to Platform B (Segment #6) which is also assumed to exist.

- The three OOS pipelines from Platform B (Segment #s 3-5) are assumed to go to the sub-sea tie-in, and to have formerly connected to the Rincon Facility from tie-in location prior to 2011. They are shown as going to Rincon in the dataset provided by BSEE, but this report assumes the segments connecting to the Rincon Facility now originate at Platform A, following rework of the pipelines in 2011 and 2012.

The following Tables include assumed pipeline specifications, a summary of the cost of each pipeline segment by platform, and an example of the calculation used to determine the decommissioning cost of each pipeline segment.

Table F.1 POCSR Pipeline Specifications

Platform	Segment #	Segment ID	Type	Length (feet)	Length (miles)	Platform	Onshore Facility	OOS Date	Decommission
A	1		6" Water	59,200	11.2		Rincon (Via Sub-Sea Tie-In)		Remove
	2	6210241	12" Oil/Water	59,200	11.2				Remove
	3	6320241	12" Gas	59,200	11.2				Remove
	4	810241 (OOS)	8" Oil	3,974	0.8	B		2012	In Place
	5	920241 (OOS)	8" Gas	3,974	0.8			2012	In Place
	6	1030241 (OOS)	6" Water	3,974	0.8			2012	In Place
B	1	6620241	8" Gas	2,600	0.5	A			In Place
	2	6510241	8" Oil	2,600	0.5				In Place
	3	1330241 (OOS)	6" Water	2,600	0.5	Sub-Sea Tie-In		2011	In Place
	4	1110241 (OOS)	12" Oil	2,600	0.5			2011	In Place
	5	1220241 (OOS)	12" Gas	2,600	0.5			2011	In Place
C	1	510241	6" Oil/Water	2,600	0.5	B			In Place
	2	620241	6" Gas	2,600	0.5				In Place
	3	730241	6" Water	2,600	0.5				In Place
Edith	1	3720296	6" Gas	35,000	6.6	Eva			In Place
	2	3610296	6" Oil	6,000	1.1	Ellen/Elly			In Place
Ellen/Elly	1	2610300	16" Oil	80,200	15.2		San Pedro		Remove
Eureka	1	6010301	10" Oil/Water	8,350	1.6	Ellen/Elly			In Place
	2	6130301	10" Gross Fluids	8,400	1.6				In Place
	3	4020301	6" Gas	8,500	1.6				In Place
	4	3910301 (OOS)	12" Oil	8,400	1.6			2012	In Place
	5	4130301 (OOS)	10" Gas	8,400	1.6			2011	In Place
Gail	1	5220205 (OOS)	8" Gas	32,000	6.1	Grace			In Place
	2	5110205 (OOS)	8" Oil	32,500	6.2				In Place
	3	5300205 (OOS)	8" Sour Gas	33,200	6.3				In Place
Gilda	1	3210216	12" Oil/Water	52,000	9.8		Mandaley		Remove
	2	3320216	10" Gas	52,000	9.8				Remove
	3	3430216	6" Water	52,000	9.8				Remove
Gina	1	3010202	10" Oil/Water	31,690	6.0		Mandalay		Remove
	2	3130202	6" Gas	31,690	6.0				Remove
Grace	1	2120217 (OOS)	10" Gas	80,600	15.3		Carpinteria		Remove
	2	2220217 (OOS)	12" Oil	80,600	15.3				Remove

Platform	Segment #	Segment ID	Type	Length (feet)	Length (miles)	Platform	Onshore Facility	OOS Date	Decommission
Habitat	1	3820454*	12" Gas	43,980	8.3		Carpinteria	2015	Remove
Harmony	1	5510190*	20" Oil	50,950	9.6		Las Flores Canyon	2015	Remove
	2	5630190	12" Water	51,000	9.7				Remove
	3	5720190*	12" Gas	15,350	2.9	Hondo		2015	In Place
Harvest	1	4210315 (OOS)	12" Oil/Water	15,500	2.9	Hermosa		2015	In Place
	2	4320315	8" Fuel Gas	15,050	2.9			2015	In Place
Henry	1	241040	8" Oil	12,900	2.4	Hillhouse			In Place
	2	2320240	6" Gas	12,900	2.4				In Place
	3	2530240	8" Water	12,900	2.4				In Place
Heritage	1	5810182*	20" Oil/Water	35,800	6.8	Harmony		2015	In Place
	2	5920182*	12" Gas	35,350	6.7			2015	In Place
Hermosa	1	4410316 (OOS)	24" Oil/Water	54,900	10.4		Gaviota	2015	Remove
	2	4520316	20" Fuel Gas	54,800	10.4			2015	Remove
Hidalgo	1	5010450 (OOS)	16" Oil/Water	25,450	4.8	Hermosa		2015	In Place
	2	4920450	10" Fuel Gas	25,100	4.8			2015	In Place
Hillhouse	1	1810240	8" Oil	2,560	0.5	A			In Place
	2	6420240	6" Gas	2,560	0.5				In Place
	3	1920240 (OOS)	6" Spare	2,560	0.5			2012	In Place
	4	2030240 (OOS)	8" Gas	2,560	0.5			1998	In Place
Hogan	1	0110166 (OOS)	10" Oil/Water	30,250	5.7		La Conchita	2019	Remove
	2	0440166 (OOS)	10" Gas Lift	30,250	5.7			1997	Remove
	3	0220166 (OOS)	10" Gas	30,250	5.7			2019	Remove
	4	0330166 (OOS)	4" Water	30,250	5.7			2019	Remove
Hondo	1	5410188*	14" Oil/Water	15,350	2.9	Harmony		2015	In Place
	2	3520188*	12" Gas	36,400	6.9		Las Flores Canyon	2015	Remove
Houchin	1	1410166 (OOS)	10" Oil/Water	3,800	0.7	Hogan		2019	In Place
	2	1720166 (OOS)	10" Gas Lift	3,800	0.7			1997	In Place
	3	1520166 (OOS)	12" Gas	3,800	0.7			2019	In Place
	4	1630166 (OOS)	4" Water	3,800	0.7			2019	In Place
Irene	1	4610441 (OOS)	20" Oil/Water	53,050	10.0		Orcutt	2016	Remove
	2	4730441	Gas	53,050	10.0				Remove
	3	4820441	Oil	53,050	10.0				Remove

- **Preserved with potential to come back online**

Table F.2 POCSR Pipeline Segments Decommissioning Cost Summary

Platform	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Total
A	$ 857,438	$ 853,577	$ 848,927	$ 188,379	$ 188,379	$ 188,379	$ 3,125,080
B	$ 200,943	$ 200,943	$ 200,528	$ 199,200	$ 199,200		$ 1,000,814
C	$ 203,717	$ 203,717	$ 203,717				$ 611,151
Edith	$ 190,580	$ 177,825					$ 368,404
Ellen/Elly	$ 1,770,411						$ 1,770,411
Eureka	$ 954,873	$ 954,972	$ 946,336	$ 948,547	$ 948,249		$ 4,752,977
Gail	$ 938,811	$ 959,313	$ 960,697				$ 2,858,822
Gilda	$ 1,838,903	$ 1,836,918	$ 1,798,618				$ 5,474,440
Gina	$ 273,545	$ 273,545					$ 547,090
Grace	$ 1,465,965	$ 1,469,042					$ 2,935,007
Habitat	$ 1,082,386						$ 1,082,386
Harmony	$ 1,190,495	$ 1,254,164	$ 738,415				$ 3,183,074
Harvest	$ 928,757	$ 918,534					$ 1,847,291
Henry	$ 191,823	$ 189,782	$ 191,823				$ 573,429
Heritage	$ 826,624	$ 784,042					$ 1,610,666
Hermosa	$ 1,303,909	$ 1,161,649					$ 2,465,559
Hidalgo	$ 952,515	$ 936,518					$ 1,889,033
Hillhouse	$ 204,100	$ 203,717	$ 203,717	$ 204,100			$ 815,634
Hogan	$ 291,122	$ 288,618	$ 289,925	$ 281,747			$ 1,151,411
Hondo	$ 734,392	$ 1,193,844					$ 1,928,236
Houchin	$ 176,715	$ 176,715	$ 176,747	$ 174,738			$ 704,916
Irene	$ 1,236,119	$ 1,129,019	$ 1,129,019				$ 3,494,158
Total							**$ 44,189,987**

Table F.3 Example Pipeline Segment Decommissioning Cost Calculation

Task	Note	Task Hours	Percentage of Total Hours	Task Cost	Percentage of Total Cost
Mobilize Flushing Crew & Equipment	Mob shared w/ 23 PLs	0.0	0.00%	$ 3,231	0.30%
Mobilize Dive Boat	Man Calc, mob of DP2 boat & Portable SAT System from Seattle, WA. Shared w/ 15 PLs	1.5	0.53%	$ 36,667	3.39%
Set Up Dive Boat		3.0	1.04%	$ 29,778	2.75%
Rig Up Decommissioning Equipment		5.0	1.73%	$ 49,629	4.59%
Pig & Flush Pipeline	Pumping @ 350 gpm	12.2	4.21%	$ 120,897	11.17%
Derig Decommissioning Equipment		2.0	0.69%	$ 19,852	1.83%
Demobilize Flushing Crew & Equipment	Demob shared w/ 23 PLs	0.0	0.00%	$ 3,231	0.30%
Cut & Plug Pipeline	Cut PL from Riser	10.5	3.63%	$ 96,872	8.95%
Cut Pipeline Riser		6.8	2.34%	$ 62,459	5.77%
Remove Tube Turn		6.8	2.34%	$ 68,457	6.32%
Mobilize PL Removal Spread		1.8	0.62%	$ 16,544	1.53%
Expose Pipeline		10.5	3.63%	$ 97,589	9.02%
Cut & Plug Pipeline	Plug shore end of PL	10.5	3.63%	$ 97,589	9.02%
Mobilize Vessel	Mob is for CB 180 & Tug	12.2	4.22%	$ 34,090	3.15%
Remove Tube Turn	Remove 0.9 miles of PL to State Tideland Boundary	15.8	5.48%	$ 155,536	14.37%
Bury Pipeline		7.0	2.42%	$ 68,734	6.35%
Demobilize Vessel	Demob is for CB 180 & Tug	12.2	4.22%	$ 13,420	1.24%
Demobilize PL Removal Spread		1.8	0.62%	$ 16,544	1.53%
Demobilize Dive Boat	Man Calc, demob DP2 boat from Seattle, WA & Portable SAT System. Shared w/ 15 PLs	1.5	0.53%	$ 36,667	3.39%
Offload CB 180		168.0	58.12%	$ 54,600	5.04%
Task Total		**289.1**	**100.00%**	**$ 1,082,386**	**100.00%**

Appendix G Platform Decommissioning Task Information

Platform A

Platform A is assumed to be decommissioned during the second campaign.

All 50 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing the existing platform rig (DCOR Rig 7) supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The 5 slots with only conductors would also be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which utilizes Claxton's abrasive cutting equipment and the use of the rig for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial phase includes securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. All lines would be flushed and gas free. Any salvageable equipment would be removed and transported to local ports for disposal. The second phase includes preparing the platform to be removed in sections. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for transport and disposal to Gulf of Mexico (GOM) waste handling facilities. The jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the jacket. Marine growth would be removed from the top 100 feet of the jacket just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that four cargo barges would be required for material disposal. A small cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Two small cargo barges (300 ft x 100 ft) and one large cargo barge (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 0.5 miles of power cable that would be removed and transported to shore for disposal locally.

There are 35.9 miles of pipeline associated with Platform A that would be flushed and cleaned and either removed or abandoned in place. Of the 35.9 miles, a minimum of 20.2 miles of pipeline would be removed.

Site clearance requirements include utilization of an ROV for debris removal, verification that there is no debris that would impact trawling (due to platform water depth <300 ft), and a shell mound survey.

Platform A

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
188'	1968	California	OCS-P 0241	50	6

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	12	40"	0.5"	Yes	No	80'
Skirt/Braced	0					

Deck Dimensions

	Dimensions	Elevation
Upper	112' x 134'	70'
Middle	90' x 115 feet	43'
Lower	10' x 40'	28'

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
57	55	13-3/8"	0.48"	20

Jacket Data

	Weight (Tons)
Submerged	
Dry	1,500

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
1,357	12

BSEE-POCSR
Platform Decommission Task Information
A

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	657,000	1.32%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	330,400	0.67%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	750,000	1.51%
Platform Preparation	Lift Prep.	☑	☑	☑	$	545,000	1.10%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	28,100	0.06%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	5,234,400	10.54%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	10,115,000	20.37%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	3,399,000	6.85%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,704,400	3.43%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	1,233,500	2.48%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	5,749,600	11.58%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	3,125,100	6.29%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	164,100	0.33%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	5,181,800	10.44%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	338,500	0.68%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	4,900	0.01%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	283,400	0.57%
Site Clearance	Site Clearance	☑	☑	☑	$	566,800	1.14%

Sub Task Total		**$39,411,000**	79.38%
Misc. Work Provision (15%)		$5,656,000	11.39%
Weather Provision (5 %)		$1,562,100	3.15%
Project Management, Engineering & Planning (8%)		$3,016,500	6.08%
	Total:	**$49,645,600**	100.00%

Platform B

Platform B is assumed to be decommissioned during the second campaign.

All 54 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing an existing platform rig (DCOR rig 8 or 411) supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The 3 slots with conductors only would also be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of the rig for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports. One additional subsea well included in the count of Platform B does not surface at this location and is added for inventory purposes per BSEE.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. The jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the jacket. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that four cargo barges would be required for material disposal. A small cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Two small cargo barges (300 ft x 100 ft) and one large cargo barge (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 0.5 miles of power cable that would be removed and transported to shore for disposal locally.

There are 1.5 miles of pipeline associated with Platform B that would be flushed and cleaned and removed or abandoned in place.

Site clearance requirements include utilization of an ROV for debris removal, verification that there is no debris that would impact trawling (due to platform water depth <300 ft), and a shell mound survey.

Platform B

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
190'	1968	California	OCS-P 0241	55	5

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	12	40"	0.5"	Yes	No	80'
Skirt/Braced	0					

Deck Dimensions

	Dimensions	Elevation
Upper	112' x 134'	70'
Middle	90' x 115 feet	43'
Lower	10' x 40'	28'

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
63	57	13-3/8"	0.48"	20

Jacket Data

	Weight (Tons)
Submerged	
Dry	1,500

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
1,357	12

BSEE-POCSR
Platform Decommission Task Information
B

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	657,000	1.34%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	336,700	0.69%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	750,000	1.53%
Platform Preparation	Lift Prep.	☑	☑	☑	$	545,000	1.11%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	28,100	0.06%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	5,806,600	11.84%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	11,323,000	23.08%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	3,522,600	7.18%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,704,400	3.47%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	1,233,500	2.51%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	5,755,300	11.73%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	1,000,800	2.04%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	164,100	0.33%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	5,181,800	10.56%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	354,300	0.72%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	4,900	0.01%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	-	0.00%
Site Clearance	Site Clearance	☑	☑	☑	$	566,800	1.16%
	Sub Task Total					**$38,934,900**	79.38%
	Misc. Work Provision (15%)					$5,584,600	11.39%
	Weather Provision (5%)					$1,551,600	3.16%
	Project Management, Engineering & Planning (8%)					$2,978,400	6.07%
				Total:		**$49,049,500**	100.00%

Platform C

Platform C is assumed to be decommissioned during the second campaign.

All 35 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing existing platform rig (DCOR Rig 9) supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The 2 slots with conductors only would also be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of the rig for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that four cargo barges would be required for material disposal. A small cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Two small cargo barges (300 ft x 100 ft) and one large cargo barge (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 5 miles of power cable that would be removed and transported to shore for disposal locally.

There are 1.5 miles of pipeline associated with Platform C that would be flushed and cleaned and either removed or abandoned in place.

Site clearance requirements include utilization of an ROV for debris removal, verification that there is no debris that would impact trawling (due to platform water depth <300 ft), and a shell mound survey.

Platform C

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
192'	1977	California	OCS-P 0241	35	3

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	12	40"	0.5"	Yes	No	80'
Skirt/Braced	0					

Deck Dimensions

	Dimensions	Elevation
Upper	112' x 134'	70'
Middle	90' x 115 feet	43'
Lower	10' x 40'	28'

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
60	37	20"	0.5"	10

Jacket Data

	Weight (Tons)
Submerged	
Dry	1,500

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
1,357	12

BSEE-POCSR
Platform Decommission Task Information
C

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	657,000	1.67%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	287,100	0.73%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	750,000	1.90%
Platform Preparation	Lift Prep.	☑	☑	☑	$	545,000	1.38%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	28,100	0.07%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	3,489,600	8.85%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	7,101,500	18.01%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	2,286,600	5.80%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,704,400	4.32%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	1,233,500	3.13%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	5,760,900	14.61%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	611,200	1.55%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	829,400	2.10%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	5,181,800	13.14%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	342,300	0.87%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	48,600	0.12%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	-	0.00%
Site Clearance	Site Clearance	☑	☑	☑	$	566,800	1.44%
	Sub Task Total					**$31,423,800**	79.69%
	Misc. Work Provision (15%)					$4,457,900	11.30%
	Weather Provision (5%)					$1,174,500	2.98%
	Project Management, Engineering & Planning (8%)					$2,377,600	6.03%
				Total:		**$39,433,800**	100.00%

Platform Edith

Platform Edith is assumed to be decommissioned during the second campaign.

All 20 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing an existing platform rig (DCOR Rig 455 shared with Gina) supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The 9 slots with conductors only would also be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of the rig for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that six cargo barges would be required for material disposal. A small cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Two small cargo barges (300 ft x 100 ft) and three large cargo barges (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 7 miles of power cable that would be removed and transported to shore for disposal locally.

There are 7.8 miles of pipeline associated with Platform Edith that would be flushed and cleaned and either removed or abandoned in place.

Site clearance requirements include utilization of an ROV for debris removal, verification that there is no debris that would impact trawling (due to platform water depth <300 ft), and a shell mound survey.

Platform Edith

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
161'	1983	California	OCS-P 0296	20	2

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	12	48"	1.75"	Yes	No	200'-280'
Skirt/Braced	24	60"		No	No	

Deck Dimensions

	Dimensions	Elevation
Upper	116' x 66'	63'
Lower	170' x 194'	46'

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
70	29	13-3/8"	0.38"	0

Jacket Data

	Weight (Tons)
Submerged	
Dry	3,454

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
4,134	36

BSEE-POCSR
Platform Decommission Task Information
Edith

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	657,000	1.51%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	456,600	1.05%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	450,000	1.04%
Platform Preparation	Lift Prep.	☑	☑	☑	$	1,678,200	3.86%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	28,700	0.07%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	2,181,000	5.02%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	4,150,100	9.55%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	1,792,200	4.12%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,704,400	3.92%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	2,120,100	4.88%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	8,412,300	19.35%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	368,400	0.85%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	1,093,500	2.52%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	8,846,300	20.35%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	144,600	0.33%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	68,000	0.16%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	-	0.00%
Site Clearance	Site Clearance	☑	☑	☑	$	566,800	1.30%

Sub Task Total		**$34,718,200**	79.86%
Misc. Work Provision (15%)		$4,952,100	11.39%
Weather Provision (5 %)		$1,164,900	2.68%
Project Management, Engineering & Planning (8%)		$2,641,100	6.07%
	Total:	**$43,476,300**	100.00%

Platform Ellen

Platform Ellen is assumed to be decommissioned during the second campaign.

All 63 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing an existing platform rig (Beta Rig 1) supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The 1 slot with only a conductor would also be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of the rig for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Due to water depth, saturation diving techniques or ROV's would be required for cuts below 200'. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that six cargo barges would be required for material disposal. A small cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Two small cargo barges (300 ft x 100 ft) and three large cargo barges (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 0 miles of pipeline associated with Ellen.

Site clearance requirements include utilization of an ROV for debris removal, verification that there is no debris that would impact trawling (due to platform water depth <300 ft), and a shell mound survey.

Platform Ellen

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
265'	1980	California	OCS-P 0300	63	0

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main Skirt/Braced	80	60"	2.25"	Yes	No	230'-260'

Deck Dimensions

	Dimensions	Elevation
Upper	155' x 132'	64'
Lower	175' x 108'	46'

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
80	64	24"	1"	0

Jacket Data

	Weight (Tons)
Submerged Dry	3,200

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
5,300	24

BSEE-POCSR

Platform Decommission Task Information
Ellen

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	657,000	1.03%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	649,400	1.02%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	500,000	0.78%
Platform Preparation	Lift Prep.	☑	☑	☑	$	1,286,100	2.01%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	40,900	0.06%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	6,252,200	9.78%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	13,473,800	21.07%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	5,017,600	7.85%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,704,400	2.67%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	2,123,800	3.32%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	8,254,900	12.91%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	-	0.00%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	-	0.00%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	8,846,300	13.83%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	1,329,900	2.08%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	-	0.00%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	49,200	0.08%
Site Clearance	Site Clearance	☑	☑	☑	$	566,800	0.89%
	Sub Task Total					**$50,752,300**	79.37%
	Misc. Work Provision (15%)					$7,357,200	11.51%
	Weather Provision (5 %)					$1,908,300	2.98%
	Project Management, Engineering & Planning (8%)					$3,923,800	6.14%
				Total:		**$63,941,600**	100.00%

Platform Elly

Platform Elly is assumed to be decommissioned during the second campaign.

There are no wells or conductors on Platform Elly as it is a processing platform.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Due to water depth, saturation diving techniques or ROV's would be required for cuts below 200'. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that five cargo barges would be required for material disposal. Two small cargo barges (300 ft x 100 ft) and three large cargo barges (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 15.2 miles of pipeline associated with Platform Elly that would be flushed and cleaned and either removed or abandoned in place. Of the 15.2 miles, 4.5 miles of pipeline would be removed.

Site clearance requirements include utilization of an ROV for debris removal, verification that there is no debris that would impact trawling (due to platform water depth <300 ft), and a shell mound survey.

Platform Elly

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
255'	1980	California	OCS-P 0300	n/a	1

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	12	48"	2"	Yes	No	220'-250'
Skirt/Braced	0					

Deck Dimensions

	Dimensions	Elevation
Lower	250' x 200'	43'

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
0	n/a	n/a	n/a	n/a

Jacket Data

	Weight (Tons)
Submerged	
Dry	3,300

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
8,000	32

BSEE-POCSR

Platform Decommission Task Information

Elly

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	657,000	1.91%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	480,200	1.40%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	750,000	2.18%
Platform Preparation	Lift Prep.	☑	☑	☑	$	1,140,500	3.31%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	40,900	0.12%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	-	0.00%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	-	0.00%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	-	0.00%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,704,400	4.95%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	1,856,200	5.39%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	9,775,000	28.40%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	1,770,400	5.14%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	-	0.00%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	8,846,300	25.70%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	-	0.00%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	-	0.00%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	49,200	0.14%
Site Clearance	Site Clearance	☑	☑	☑	$	566,800	1.65%
	Sub Task Total					**$27,636,900**	80.29%
	Misc. Work Provision (15%)					$3,889,900	11.30%
	Weather Provision (5 %)					$819,000	2.38%
	Project Management, Engineering & Planning (8%)					$2,074,600	6.03%
				Total:		**$34,420,400**	100.00%

Platform Eureka

Platform Eureka is assumed to be decommissioned during the second campaign.

All 50 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing an existing platform rig (Beta Rig 2) supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The 10 slots with conductors only would also be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of the rig for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. The derrick barge would be equipped with a single heavy lift winch due to water depth greater 300ft. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Due to water depth, saturation diving techniques or ROV's would be required for cuts below 200'. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that eleven cargo barges would be required for material disposal. A medium cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Four small cargo barges (300 ft x 100 ft) and six large cargo barges (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 2.9 miles of power cable that would be removed and transported to shore for disposal locally.

There are 4.8 miles of pipeline associated with Platform Eureka that would be flushed and cleaned and either removed or abandoned in place.

Site clearance requirements include utilization of an ROV for debris removal, ROV for verification of site clearance (due to platform water depth >300 ft), and a shell mound survey.

Platform Eureka

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
700'	1984	California	OCS-P 0301	50	5

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	0	0				
Skirt/Braced	24	60"	2.75"	No	No	

Deck Dimensions

	Dimensions	Elevation
Upper	165' x 160'	71'
Lower	175' x 180'	45'

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
60	60	24"	1"	0

Jacket Data

	Weight (Tons)
Submerged	
Dry	19,000

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
4,700	40

BSEE-POCSR

Platform Decommission Task Information
Eureka

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	657,000	0.56%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	897,100	0.77%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	500,000	0.43%
Platform Preparation	Lift Prep.	☑	☑	☑	$	3,247,600	2.78%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	40,900	0.03%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	5,225,000	4.47%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	10,915,400	9.34%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	10,902,000	9.32%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,704,400	1.46%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	1,775,300	1.52%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	30,682,300	26.24%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	4,753,000	4.07%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	313,100	0.27%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	17,692,500	15.13%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	2,419,500	2.07%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	28,100	0.02%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	-	0.00%
Site Clearance	Site Clearance	☑	☑	☑	$	776,600	0.66%
	Sub Task Total					**$92,529,800**	79.14%
	Misc. Work Provision (15%)					$13,623,800	11.65%
	Weather Provision (5 %)					$3,501,400	2.99%
	Project Management, Engineering & Planning (8%)					$7,266,000	6.21%
				Total:		**$116,921,000**	100.00%

Platform Gail

Platform Gail is assumed to be decommissioned during the first campaign.

All 29 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing an existing platform rig (Kenai Rig 2) supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of the rig for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. The derrick barge would be equipped with a single heavy lift winch due to water depth greater 300ft. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Due to water depth, saturation diving techniques or ROV's would be required for cuts below 200'. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that twelve cargo barges would be required for material disposal. Two small cargo barges (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Four small cargo barges (300 ft x 100 ft) and six large cargo barges (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 18.5 miles of pipeline associated with Platform Gail that would be flushed and cleaned and either removed or abandoned in place.

Site clearance requirements include utilization of an ROV for debris removal, verification that there is no debris that would impact trawling (due to platform water depth <300 ft), and a shell mound survey.

Platform Gail

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
739'	1987	California	OCS-P 0205	29	3

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	8	60"		Yes	No	
Skirt/Braced	12	72"		No	No	

Deck Dimensions

	Dimensions	Elevation

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
36	29	24"	0.812"	0

Jacket Data

	Weight (Tons)
Submerged	
Dry	18,300

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
7,693	32

BSEE-POCSR

Platform Decommission Task Information

Gail

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	702,000	0.70%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	935,000	0.94%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	1,000,000	1.00%
Platform Preparation	Lift Prep.	☑	☑	☑	$	1,913,000	1.92%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	37,900	0.04%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	3,780,400	3.79%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	5,891,700	5.91%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	5,269,300	5.29%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,833,700	1.84%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	1,683,300	1.69%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	31,258,400	31.37%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	2,858,800	2.87%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	-	0.00%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	17,692,500	17.76%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	1,206,300	1.21%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	-	0.00%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	-	0.00%
Site Clearance	Site Clearance	☑	☑	☑	$	776,600	0.78%
	Sub Task Total					**$76,838,900**	77.12%
	Misc. Work Provision (15%)					$11,250,800	11.29%
	Weather Provision (10 %)					$5,540,400	5.56%
	Project Management, Engineering & Planning (8%)					$6,000,400	6.02%
				Total:		**$99,630,500**	100.00%

Platform Gilda

Platform Gilda is assumed to be decommissioned during the second campaign.

All 63 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing an existing platform rig (DCOR Rig to be mobilized) supplemented by a coil tubing unit and associated well servicing equipment. This would require mobilization of a platform rig. All casing and conductor equipment would be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of the rig for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Due to water depth, saturation diving techniques or ROV's would be required for cuts below 200'. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that six cargo barges would be required for material disposal. A small cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Two small cargo barges (300 ft x 100 ft) and three large cargo barges (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 7 miles of power cable that would be removed and transported to shore for disposal locally.

There are 29.5 miles of pipeline associated with Platform Gilda that would be flushed and cleaned and either removed or abandoned in place. Of the 29.5 miles, a minimum of 12.5 miles of pipeline would be removed.

Site clearance requirements include utilization of an ROV for debris removal, verification that there is no debris that would impact trawling (due to platform water depth <300 ft), and a shell mound survey.

Platform Gilda

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
205'	1981	California	OCS-P 0216	63	3

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	12	48"	2"	Yes	No	150'-190'
Skirt/Braced	0					

Deck Dimensions

	Dimensions	Elevation
Upper	155' x 132'	75'
Middle	155' x 132'	48'

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
96	64	20"	0.438"	0

Jacket Data

	Weight (Tons)
Submerged	
Dry	3,220

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
3,792	16

BSEE-POCSR

Platform Decommission Task Information
Gilda

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	657,000	0.90%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	594,100	0.81%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	450,000	0.61%
Platform Preparation	Lift Prep.	☑	☑	☑	$	942,900	1.29%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	43,900	0.06%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	6,965,000	9.50%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	13,858,600	18.90%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	3,893,400	5.31%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,704,400	2.32%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	1,456,300	1.99%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	8,849,200	12.07%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	5,474,400	7.46%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	1,093,500	1.49%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	8,846,300	12.06%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	712,300	0.97%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	68,000	0.09%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	174,300	0.24%
Site Clearance	Site Clearance	☑	☑	☑	$	566,800	0.77%
	Sub Task Total					**$56,350,400**	76.84%
	Misc. Work Provision (15%)					$8,196,900	11.18%
	Weather Provision (10 %)					$4,418,800	6.03%
	Project Management, Engineering & Planning (8%)					$4,371,700	5.96%
				Total:		**$73,337,800**	100.00%

Platform Gina

Platform Gina is assumed to be decommissioned during the second campaign.

All 12 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing an existing platform rig (DCOR Rig 455) supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of the rig for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that three cargo barges would be required for material disposal. A small cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Two small cargo barges (300 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 0.3 miles of power cable that would be removed and transported to shore for disposal locally.

There are 12 miles of pipeline associated with Platform Gina that would be flushed and cleaned and either removed or abandoned in place. Of the 12 miles, a minimum of 0.6 miles of pipeline would be removed.

Site clearance requirements include utilization of an ROV for debris removal, verification that there is no debris that would impact trawling (due to platform water depth <300 ft), and a shell mound survey.

Platform Gina

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
95'	1980	California	OCS-P 0202	12	2

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	6	48"	2"	Yes	No	140'
Skirt/Braced	0					

Deck Dimensions

	Dimensions	Elevation
Upper	80' x 120'	63'
Middle	40' x 103'	43'
Lower	40' x 40'	27'

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
15	12	20"	0.438"	0

Jacket Data

	Weight (Tons)
Submerged	
Dry	434

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
447	4

BSEE-POCSR
Platform Decommission Task Information
Gina

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	657,000	3.43%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	163,000	0.85%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	300,000	1.56%
Platform Preparation	Lift Prep.	☑	☑	☑	$	212,300	1.11%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	29,800	0.16%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	872,400	4.55%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	2,703,000	14.10%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	741,600	3.87%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,704,400	8.89%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	893,300	4.66%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	2,408,700	12.56%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	547,100	2.85%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	208,600	1.09%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	3,349,500	17.47%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	149,000	0.78%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	2,900	0.02%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	7,400	0.04%
Site Clearance	Site Clearance	☑	☑	☑	$	566,800	2.96%
	Sub Task Total					**$15,516,800**	80.92%
	Misc. Work Provision (15%)					$2,071,900	10.80%
	Weather Provision (5 %)					$482,300	2.52%
	Project Management, Engineering & Planning (8%)					$1,105,000	5.76%
				Total:		**$19,176,000**	100.00%

Platform Grace

Platform Grace is assumed to be decommissioned during the first campaign.

All 28 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing an existing platform rig (Ensign Rig 333) supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The 10 slots with conductors only would also be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of a hoisting system such as casing jacks for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. The derrick barge would be equipped with a single heavy lift winch due to water depth greater 300ft. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Due to water depth, saturation diving techniques or ROV's would be required for cuts below 200'. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that six cargo barges would be required for material disposal. A small cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Two small cargo barges (300 ft x 100 ft) and three large cargo barges (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 30.5 miles of pipeline associated with Platform Grace that would be flushed and cleaned and either removed or abandoned in place. Of the 30.5 miles, a minimum of 4.6 miles of pipeline would be removed.

Site clearance requirements include utilization of an ROV for debris removal, ROV for verification of site clearance (due to platform water depth >300 ft), and a shell mound survey.

Platform Grace

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
318'	1979	California	OCS-P 0217	28	2

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	12	42"		Yes	No	
Skirt/Braced	8	48"		No	No	

Deck Dimensions

	Dimensions	Elevation

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
48	38	24"	0.812"	0

Jacket Data

	Weight (Tons)
Submerged	
Dry	3,090

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
3,800	32

BSEE-POCSR

Platform Decommission Task Information
Grace

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	702,000	1.32%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	541,400	1.02%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	750,000	1.41%
Platform Preparation	Lift Prep.	☑	☑	☑	$	1,580,600	2.98%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	37,900	0.07%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	872,400	1.65%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	6,294,200	11.87%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	2,979,200	5.62%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,833,700	3.46%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	1,465,500	2.76%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	10,565,400	19.93%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	2,935,000	5.54%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	-	0.00%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	8,846,300	16.69%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	839,600	1.58%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	-	0.00%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	78,800	0.15%
Site Clearance	Site Clearance	☑	☑	☑	$	776,600	1.47%

Sub Task Total		**$41,098,600**	77.53%
Misc. Work Provision (15%)		$5,889,700	11.11%
Weather Provision (10 %)		$2,879,800	5.43%
Project Management, Engineering & Planning (8%)		$3,141,200	5.93%
	Total:	**$53,009,300**	100.00%

Platform Habitat

Platform Habitat is assumed to be decommissioned during the first campaign.

All 20 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing an existing platform rig (DCOR Rig to be mobilized) and supplemented by a coil tubing unit and associated well servicing equipment. This would require mobilization of a platform rig. All casing and conductor equipment would be removed to 15 feet below the mudline. The 1 slot with only a conductor would also be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of the rig for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Due to water depth, saturation diving techniques or ROV's would be required for cuts below 200'. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that six cargo barges would be required for material disposal. A small cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Two small cargo barges (300 ft x 100 ft) and three large cargo barges (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 3.7 miles of power cable that would be removed and transported to shore for disposal locally.

There are 8.3 miles of pipeline associated with Platform Habitat that would be flushed and cleaned and either removed or abandoned in place. Of the 8.3 miles, a minimum of 0.9 miles of pipeline would be removed.

Site clearance requirements include utilization of an ROV for debris removal, verification that there is no debris that would impact trawling (due to platform water depth <300 ft), and a shell mound survey.

Platform Habitat

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
290'	1981	California	OCS-P 0234	20	1

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	8	54"	1.5"	Yes	No	
Skirt/Braced	0					

Deck Dimensions

	Dimensions	Elevation
Upper	75' x 165'	57'
Lower	85' x 165'	40'

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
24	21	24"	0.812"	0

Jacket Data

	Weight (Tons)
Submerged	
Dry	2,550

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
3,514	16

BSEE-POCSR
Platform Decommission Task Information
Habitat

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	702,000	1.59%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	483,500	1.09%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	450,000	1.02%
Platform Preparation	Lift Prep.	☑	☑	☑	$	873,800	1.97%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	43,900	0.10%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	3,747,400	8.47%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	5,037,500	11.38%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	1,646,400	3.72%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,833,700	4.14%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	1,483,800	3.35%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	7,339,700	16.59%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	1,082,400	2.45%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	695,700	1.57%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	8,846,300	19.99%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	483,300	1.09%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	35,900	0.08%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	15,500	0.04%
Site Clearance	Site Clearance	☑	☑	☑	$	566,800	1.28%
	Sub Task Total					**$35,367,600**	79.92%
	Misc. Work Provision (15%)					$5,030,100	11.37%
	Weather Provision (5 %)					$1,172,500	2.65%
	Project Management, Engineering & Planning (8%)					$2,682,700	6.06%
				Total:		**$44,252,900**	100.00%

Platform Harmony

Platform Harmony is assumed to be decommissioned during the third campaign.

All 35 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing an existing platform rig (Parker 402) supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The 8 slots with conductors only would also be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of the rig for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. The derrick barge would be equipped with a single heavy lift winch due to water depth greater 300ft. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Due to water depth, saturation diving techniques or ROV's would be required for cuts below 200'. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that seventeen cargo barges would be required for material disposal. Three large cargo barges (400 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Fourteen large cargo barges (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 11.3 miles of power cable that would be removed and transported to shore for disposal locally.

There are 22.2 miles of pipeline associated with Platform Harmony that would be flushed and cleaned and either removed or abandoned in place. Of the 22.2 miles, a minimum of 1.1 miles of pipeline would be removed.

Site clearance requirements include utilization of an ROV for debris removal, ROV for verification of site clearance (due to platform water depth >300 ft), and a shell mound survey.

Platform Harmony

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
1198'	1989	California	OCS-P 0190	35	3

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	8	72"		Yes	No	
Skirt/Braced	20	84"		No	No	

Deck Dimensions

	Dimensions	Elevation

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
60	43	24"	0.812"	0

Jacket Data

	Weight (Tons)
Submerged	
Dry	42,900

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
9,839	40

BSEE-POCSR

Platform Decommission Task Information
Harmony

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	1,437,000	0.77%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	1,218,200	0.66%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	1,400,000	0.75%
Platform Preparation	Lift Prep.	☑	☑	☑	$	2,446,600	1.32%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	43,900	0.02%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	7,058,800	3.80%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	8,523,200	4.59%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	7,813,100	4.20%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	5,153,600	2.77%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	2,479,700	1.33%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	71,903,200	38.69%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	3,183,100	1.71%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	980,000	0.53%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	25,651,500	13.80%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	3,077,000	1.66%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	109,800	0.06%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	27,400	0.01%
Site Clearance	Site Clearance	☑	☑	☑	$	776,600	0.42%

Sub Task Total		**$143,282,700**	77.10%
Misc. Work Provision (15%)		$20,719,400	11.15%
Weather Provision (10 %)		$10,782,600	5.80%
Project Management, Engineering & Planning (8%)		$11,050,300	5.95%
	Total:	**$185,835,000**	100.00%

Platform Harvest

Platform Harvest is assumed to be decommissioned during the first campaign.

All 19 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing a rig or hoisting system supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The 6 slots with conductors only would also be removed would also be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of a hoisting system such as casing jacks for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. The derrick barge would be equipped with a single heavy lift winch due to water depth greater 300ft. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Due to water depth, saturation diving techniques or ROV's would be required for cuts below 200'. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that eleven cargo barges would be required for material disposal. A medium cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Four small cargo barges (300 ft x 100 ft) and six large cargo barges (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 5.8 miles of pipeline associated with Platform Harvest that would be flushed and cleaned and either removed or abandoned in place.

Site clearance requirements include utilization of an ROV for debris removal, ROV for verification of site clearance (due to platform water depth >300 ft), and a shell mound survey.

Platform Harvest

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
675'	1985	California	OCS-P 0315	19	2

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	8	60"		Yes	No	255'
Skirt/Braced	20	72"		No	No	235'

Deck Dimensions

	Dimensions	Elevation
Upper	210' x 100'	107'
Middle		
Lower	210' x 100'	87'

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
50	25	24"	0.812"	0

Jacket Data

	Weight (Tons)
Submerged	
Dry	16,633

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
9,024	40

BSEE-POCSR

Platform Decommission Task Information
Harvest

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	702,000	0.75%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	1,245,100	1.32%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	1,400,000	1.49%
Platform Preparation	Lift Prep.	☑	☑	☑	$	2,383,400	2.53%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	37,900	0.04%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	2,471,800	2.62%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	3,823,800	4.06%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	4,542,500	4.82%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,833,700	1.95%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	2,154,600	2.29%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	28,879,800	30.66%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	1,847,300	1.96%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	-	0.00%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	17,692,500	18.78%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	1,082,400	1.15%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	-	0.00%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	-	0.00%
Site Clearance	Site Clearance	☑	☑	☑	$	776,600	0.82%
	Sub Task Total					**$70,873,400**	75.25%
	Misc. Work Provision (15%)					$10,356,000	11.00%
	Weather Provision (15 %)					$7,434,400	7.89%
	Project Management, Engineering & Planning (8%)					$5,523,200	5.86%
				Total:		**$94,187,000**	100.00%

Platform Henry

Platform Henry is assumed to be decommissioned during the second campaign.

All 24 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing an existing platform (DCOR Rig 12) rig supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of the rig for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that four cargo barges would be required for material disposal. A small cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Two small cargo barges (300 ft x 100 ft) and one large cargo barge (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 2.5 miles of power cable that would be removed and transported to shore for disposal locally.

There are 7.3 miles of pipeline associated with Platform Henry that would be flushed and cleaned and either removed or abandoned in place.

Site clearance requirements include utilization of an ROV for debris removal, verification that there is no debris that would impact trawling (due to platform water depth <300 ft), and a shell mound survey.

Platform Henry

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
173'	1979	California	OCS-P 0240	24	3

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	6	42"	0.5"	Yes	No	170'
Skirt/Braced	0					

Deck Dimensions

	Dimensions	Elevation
Drilling	125" x 80'	61'

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
24	24	20"	0.5"	0

Jacket Data

	Weight (Tons)
Submerged	
Dry	1,311

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
1,371	12

BSEE-POCSR
Platform Decommission Task Information
Henry

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	657,000	2.05%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	254,300	0.79%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	750,000	2.34%
Platform Preparation	Lift Prep.	☑	☑	☑	$	550,600	1.72%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	28,100	0.09%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	3,198,800	9.98%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	4,810,800	15.01%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	1,483,200	4.63%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,704,400	5.32%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	1,226,200	3.83%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	3,897,200	12.16%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	573,400	1.79%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	499,200	1.56%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	5,181,800	16.17%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	243,400	0.76%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	24,300	0.08%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	-	0.00%
Site Clearance	Site Clearance	☑	☑	☑	$	566,800	1.77%
	Sub Task Total					**$25,649,500**	80.03%
	Misc. Work Provision (15%)					$3,591,800	11.21%
	Weather Provision (5 %)					$891,900	2.78%
	Project Management, Engineering & Planning (8%)					$1,915,600	5.98%
				Total:		**$32,048,800**	100.00%

Platform Heritage

Platform Heritage is assumed to be decommissioned during the third campaign.

All 49 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing an existing platform rig (Parker 403) supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of the rig for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. The derrick barge would be equipped with a single heavy lift winch due to water depth greater 300ft. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Due to water depth, saturation diving techniques or ROV's would be required for cuts below 200'. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that Seventeen cargo barges would be required for material disposal. Two medium cargo barges (300 ft x 100 ft) and one small cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Fourteen large cargo barges (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 27.2 miles of power cable that would be removed and transported to shore for disposal locally.

There are 13.5 miles of pipeline associated with Platform Heritage that would be flushed and cleaned and either removed or abandoned in place.

Site clearance requirements include utilization of an ROV for debris removal, ROV for verification of site clearance (due to platform water depth >300 ft), and a shell mound survey.

Platform Heritage

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
1075'	1989	California	OCS-P 0182	49	2

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	8	72"		Yes	No	
Skirt/Braced	26	84"		No	No	

Deck Dimensions

	Dimensions	Elevation

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
60	49	20"	0.635"	0

Jacket Data

	Weight (Tons)
Submerged	
Dry	32,420

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
9,826	40

BSEE-POCSR

Platform Decommission Task Information
Heritage

Task	Sub Task	PMEP	Misc.Work Provision	Weather	Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$ 1,437,000	0.76%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$ 1,224,200	0.65%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$ 1,400,000	0.74%
Platform Preparation	Lift Prep.	☑	☑	☑	$ 2,443,400	1.29%
Platform Preparation	Under Water Inspection	☑	☑	☑	$ 43,900	0.02%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$ 11,627,000	6.16%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$ 13,362,200	7.08%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$ 8,903,300	4.72%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$ 5,153,600	2.73%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$ 2,490,800	1.32%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$ 58,598,000	31.05%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$ 1,610,700	0.85%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$ 4,059,900	2.15%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$ 25,651,500	13.59%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$ 2,355,500	1.25%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$ 264,300	0.14%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$ -	0.00%
Site Clearance	Site Clearance	☑	☑	☑	$ 776,600	0.41%
	Sub Task Total				**$141,401,900**	74.93%
	Misc. Work Provision (15%)				$20,437,200	10.83%
	Weather Provision (15 %)				$15,981,000	8.47%
	Project Management, Engineering & Planning (8%)				$10,899,900	5.78%
				Total:	**$188,720,000**	100.00%

Platform Hermosa

Platform Hermosa is assumed to be decommissioned during the first campaign.

All 13 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing a rig or other hoisting system, supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The 3 slots with conductors only would also be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of a hoisting system such as casing jacks for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. The derrick barge would be equipped with a single heavy lift winch due to water depth greater 300ft. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Due to water depth, saturation diving techniques or ROV's would be required for cuts below 200'. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that eleven cargo barges would be required for material disposal. A medium cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Four small cargo barges (300 ft x 100 ft) and six large cargo barges (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 20.8 miles of pipeline associated with Platform Hermosa that would be flushed and cleaned and either removed or abandoned in place. Of the 20.8 miles, a minimum of 1.1 miles of pipeline would be removed.

Site clearance requirements include utilization of an ROV for debris removal, ROV for verification of site clearance (due to platform water depth >300 ft), and a shell mound survey.

Platform Hermosa

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
603'	1985	California	OCS-P 0316	13	2

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	8	60"		Yes	No	
Skirt/Braced	20	72"		No	No	

Deck Dimensions

	Dimensions	Elevation

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
48	16	24"	0.812"	0

Jacket Data

	Weight (Tons)
Submerged	
Dry	17,000

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
7,830	32

BSEE-POCSR

Platform Decommission Task Information
Hermosa

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	702,000	0.79%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	1,087,300	1.23%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	1,400,000	1.58%
Platform Preparation	Lift Prep.	☑	☑	☑	$	2,068,000	2.33%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	37,900	0.04%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	1,890,200	2.13%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	2,566,200	2.89%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	2,907,200	3.28%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,833,700	2.07%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	1,882,700	2.12%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	28,841,900	32.50%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	2,465,600	2.78%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	-	0.00%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	17,692,500	19.93%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	707,200	0.80%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	-	0.00%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	42,700	0.05%
Site Clearance	Site Clearance	☑	☑	☑	$	776,600	0.87%
	Sub Task Total					**$66,901,700**	75.38%
	Misc. Work Provision (15%)					$9,760,200	11.00%
	Weather Provision (15 %)					$6,888,500	7.76%
	Project Management, Engineering & Planning (8%)					$5,205,400	5.86%
				Total:		**$88,755,800**	100.00%

Platform Hidalgo

Platform Hidalgo is assumed to be decommissioned during the first campaign.

All 14 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing a rig or other hoisting system, supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of a hoisting system such as casing jacks for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. The derrick barge would be equipped with a single heavy lift winch due to water depth greater 300ft. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Due to water depth, saturation diving techniques or ROV's would be required for cuts below 200'. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that ten cargo barges would be required for material disposal. A small cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Three small cargo barge (300 ft x 100 ft) and six large cargo barges (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 9.6 miles of pipeline associated with Platform Hildalgo that would be flushed and cleaned and either removed or abandoned in place.

Site clearance requirements include utilization of an ROV for debris removal, ROV for verification of site clearance (due to platform water depth >300 ft), and a shell mound survey.

Platform Hidalgo

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
430'	1986	California	OCS-P 0450	14	2

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	8	60"		Yes	No	
Skirt/Braced	8	72"		No	No	

Deck Dimensions

	Dimensions	Elevation

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
56	14	24"	0.812"	0

Jacket Data

	Weight (Tons)
Submerged	
Dry	10,950

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
8,100	36

BSEE-POCSR

Platform Decommission Task Information
Hidalgo

Task	Sub Task	PMEP	Misc.Work Provision	Weather	Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$ 702,000	0.93%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$ 1,072,800	1.42%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$ 1,400,000	1.85%
Platform Preparation	Lift Prep.	☑	☑	☑	$ 2,139,300	2.83%
Platform Preparation	Under Water Inspection	☑	☑	☑	$ 37,900	0.05%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$ 3,297,200	4.36%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$ 3,934,100	5.20%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$ 2,543,800	3.36%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$ 1,833,700	2.42%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$ 2,083,400	2.76%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$ 18,873,800	24.96%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$ 1,889,000	2.50%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$ -	0.00%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$ 16,017,800	21.18%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$ 579,700	0.77%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$ -	0.00%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$ -	0.00%
Site Clearance	Site Clearance	☑	☑	☑	$ 776,600	1.03%
	Sub Task Total				**$57,181,100**	75.62%
	Misc. Work Provision (15%)				$8,302,100	10.98%
	Weather Provision (15 %)				$5,707,200	7.55%
	Project Management, Engineering & Planning (8%)				$4,427,800	5.86%
				Total:	**$75,618,200**	100.00%

Platform Hillhouse

Platform Hillhouse is assumed to be decommissioned during the second campaign.

All 50 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing an existing platform rig (DCOR Rig 13) supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of the rig for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that four cargo barges would be required for material disposal. A small cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Two small cargo barges (300 ft x 100 ft) and one large cargo barge (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 3.4 miles of power cable that would be removed and transported to shore for disposal locally.

There are 1.5 miles of pipeline associated with Platform Hillhouse that would be flushed and cleaned and either removed or abandoned in place.

Site clearance requirements include utilization of an ROV for debris removal, verification that there is no debris that would impact trawling (due to platform water depth <300 ft), and a shell mound survey.

Platform Hillhouse

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
190'	1969	California	OCS-P 0240	50	4

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	8	39"	0.5"	Yes	No	
Skirt/Braced	0					

Deck Dimensions

	Dimensions	Elevation

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
60	50	20"	0.5"	No

Jacket Data

	Weight (Tons)
Submerged	
Dry	1,500

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
1,200	12

BSEE-POCSR

Platform Decommission Task Information
Hillhouse

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	657,000	1.41%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	312,200	0.67%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	750,000	1.61%
Platform Preparation	Lift Prep.	☑	☑	☑	$	481,900	1.03%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	28,100	0.06%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	5,952,000	12.77%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	10,484,100	22.49%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	3,090,000	6.63%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,704,400	3.66%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	1,231,700	2.64%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	4,661,400	10.00%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	815,600	1.75%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	618,000	1.33%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	5,181,800	11.12%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	471,600	1.01%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	33,000	0.07%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	-	0.00%
Site Clearance	Site Clearance	☑	☑	☑	$	566,800	1.22%
	Sub Task Total					**$37,039,600**	79.46%
	Misc. Work Provision (15%)					$5,300,300	11.37%
	Weather Provision (5 %)					$1,449,600	3.11%
	Project Management, Engineering & Planning (8%)					$2,826,800	6.06%
				Total:		**$46,616,300**	100.00%

Platform Hogan

Platform Hogan is assumed to be decommissioned during the first campaign.

All 39 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing an existing platform rig (Republic Rig 2) supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of the rig for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mudline.

It is estimated that six cargo barges would be required for material disposal. A small cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Two small cargo barges (300 ft x 100 ft) and three large cargo barges (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 0.9 miles of power cable that would be removed and transported to shore for disposal locally.

There are 22.9 miles of pipeline associated with Platform Hogan that would be flushed and cleaned and either removed or abandoned in place. Of the 22.9 miles, a minimum of 0.6 miles of pipeline would be removed.

Site clearance requirements include utilization of an ROV for debris removal, verification that there is no debris that would impact trawling (due to platform water depth <300 ft), and a shell mound survey.

Platform Hogan

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
154'	1967	California	OCS-P 0166	39	4

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	12	36"		Yes	No	
Skirt/Braced	0					

Deck Dimensions

	Dimensions	Elevation
Upper	86' x 170'	
Middle	86' x 170'	
Lower	87' x 170'	

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
66	39	18-5/8"	0.435"	0

Jacket Data

	Weight (Tons)
Submerged	
Dry	1,263

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
2,259	12

BSEE-POCSR

Platform Decommission Task Information
Hogan

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	702,000	1.57%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	370,100	0.83%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	750,000	1.67%
Platform Preparation	Lift Prep.	☑	☑	☑	$	542,300	1.21%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	31,900	0.07%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	2,898,600	6.47%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	6,338,700	14.14%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	2,410,200	5.38%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,833,700	4.09%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	1,741,400	3.89%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	6,662,900	14.87%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	1,151,400	2.57%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	325,900	0.73%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	8,846,300	19.74%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	625,200	1.39%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	8,700	0.02%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	8,300	0.02%
Site Clearance	Site Clearance	☑	☑	☑	$	566,800	1.26%
	Sub Task Total					**$35,814,400**	79.91%
	Misc. Work Provision (15%)					$5,097,100	11.37%
	Weather Provision (5%)					$1,189,500	2.65%
	Project Management, Engineering & Planning (8%)					$2,718,500	6.07%
				Total:		**$44,819,500**	100.00%

Platform Hondo

Platform Hondo is assumed to be decommissioned during the third campaign.

All 28 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing a rig or other hoisting system, supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of the rig for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. The derrick barge would be equipped with a single heavy lift winch due to water depth greater 300ft. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Due to water depth, saturation diving techniques or ROV's would be required for cuts below 200'. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that eleven cargo barges would be required for material disposal. A large cargo barge (400 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Four small cargo barges (300 ft x 100 ft) and six large cargo barges (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 9 miles of power cable that would be removed and transported to shore for disposal locally.

There are 9.8 miles of pipeline associated with Platform Hondo that would be flushed and cleaned and either removed or abandoned in place. Of the 9.8 miles, a minimum of 0.6 miles of pipeline would be removed.

Site clearance requirements include utilization of an ROV for debris removal, ROV for verification of site clearance (due to platform water depth >300 ft), and a shell mound survey.

Platform Hondo

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
842'	1976	California	OCS-P 0188	28	2

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	8	40"		Yes	No	340'
Skirt/Braced	12	54"		No	No	250'

Deck Dimensions

	Dimensions	Elevation

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
28	28	20"	0.635"	0

Jacket Data

	Weight (Tons)
Submerged	
Dry	12,200

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
8,450	36

BSEE-POCSR

Platform Decommission Task Information
Hondo

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	1,437,000	1.48%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	1,037,300	1.07%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	1,400,000	1.44%
Platform Preparation	Lift Prep.	☑	☑	☑	$	2,101,200	2.16%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	43,900	0.05%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	4,915,400	5.06%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	6,219,000	6.41%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	5,087,600	5.24%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	5,153,600	5.31%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	2,468,700	2.54%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	23,327,100	24.04%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	1,928,200	1.99%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	828,100	0.85%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	17,692,500	18.23%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	1,280,000	1.32%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	87,400	0.09%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	10,400	0.01%
Site Clearance	Site Clearance	☑	☑	☑	$	776,600	0.80%
	Sub Task Total					**$75,794,000**	78.09%
	Misc. Work Provision (15%)					$10,596,100	10.92%
	Weather Provision (10 %)					$5,013,300	5.17%
	Project Management, Engineering & Planning (8%)					$5,651,200	5.82%
				Total:		**$97,054,600**	100.00%

Platform Houchin

Platform Houchin is assumed to be decommissioned during the first campaign.

All 36 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing an existing platform rig (Republic Rig 23) supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of the rig for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that six cargo barges would be required for material disposal. A small cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Two small cargo barges (300 ft x 100 ft) and three large cargo barges (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 0.7 miles of power cable that would be removed and transported to shore for disposal locally.

There are 2.9 miles of pipeline associated with Platform Houchin that would be flushed and cleaned and either removed or abandoned in place.

Site clearance requirements include utilization of an ROV for debris removal, verification that there is no debris that would impact trawling (due to platform water depth <300 ft), and a shell mound survey.

Platform Houchin

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
163'	1968	California	OCS-P 0166	36	4

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	8	48"		Yes	No	
Skirt/Braced	0					

Deck Dimensions

	Dimensions	Elevation

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
60	36	18-5/8"	0.435"	0

Jacket Data

	Weight (Tons)
Submerged	
Dry	1,486

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
2,591	24

BSEE-POCSR
Platform Decommission Task Information
Houchin

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	702,000	1.72%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	382,900	0.94%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	750,000	1.84%
Platform Preparation	Lift Prep.	☑	☑	☑	$	1,040,500	2.55%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	31,900	0.08%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	717,600	1.76%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	6,300,300	15.45%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	2,224,800	5.46%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,833,700	4.50%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	1,870,200	4.59%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	5,754,100	14.11%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	704,900	1.73%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	302,100	0.74%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	8,846,300	21.70%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	617,000	1.51%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	7,000	0.02%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	-	0.00%
Site Clearance	Site Clearance	☑	☑	☑	$	566,800	1.39%

Sub Task Total		**$32,652,100**	80.08%
Misc. Work Provision (15%)		$4,622,800	11.34%
Weather Provision (5 %)		$1,032,300	2.53%
Project Management, Engineering & Planning (8%)		$2,465,500	6.05%
	Total:	**$40,772,700**	100.00%

Platform Irene

Platform Irene is assumed to be decommissioned during the first campaign.

All 28 non-plugged wells would be plugged and abandoned to BSEE requirements utilizing an existing platform rig (FMOG Rig 104) supplemented by a coil tubing unit and associated well servicing equipment. All casing and conductor equipment would be removed to 15 feet below the mudline. The 1 slot with only a conductor would also be removed to 15 feet below the mudline. The cost of removal for wells and conductors assumes a process which uses Claxton's abrasive cutting equipment and the use of the rig for recovery. As the conductors are being recovered, marine growth would be removed. The conductor and casing strings would be cut into 40-foot sections and placed on a barge for disposal at local west coast ports.

Platform preparation would be split into two phases. The initial tasks include securing the platform and performing required inspections to determine if there are any issues that would affect removal operations. Any salvageable equipment would be removed and recycled. The second phase includes preparing the platform to be removed in sections using a derrick barge. This involves cutting electrical cables, capping pipes to prevent fluid loss and installation of lifting padeyes.

Topsides and decking would be cut into sections by cutting the welded connections between the piles and the legs. The pieces would then be lifted using a derrick barge and placed on cargo barges for disposal. Jacket would be removed in sections optimized to maximize barge loading. Shears or abrasive cutting tools would be used to cut the Jacket. Due to water depth, saturation diving techniques or ROV's would be required for cuts below 200'. Marine growth would be removed from the jackets just prior to removal. Piles and skirts would be severed to 15 feet below the mud-line.

It is estimated that six cargo barges would be required for material disposal. A small cargo barge (300 ft x 100 ft) would transport the conductors to the port of Long Beach where they would be processed. Two small cargo barges (300 ft x 100 ft) and three large cargo barges (400 ft x 100 ft) would transport the topsides and jacket to Louisiana for processing.

There are 2.8 miles of power cable that would be removed and transported to shore for disposal locally.

There are 30.1 miles of pipeline associated with Platform Irene that would be flushed and cleaned and either removed or abandoned in place. Of the 30.1 miles, a minimum of 4.6 miles of pipeline would be removed.

Site clearance requirements include utilization of an ROV for debris removal, verification that there is no debris that would impact trawling (due to platform water depth <300 ft), and a shell mound survey.

Platform Irene

General Data

Water Depth	Year Installed	District	Lease Number	# Wells to P&A	# Pipelines to Abandon
242'	1985	California	OCS-P 0441	28	3

Pile/Tendon Data

	Number	Outside Diameter	Wall Thickness	Grout Annulus	Grout Internal	Depth Below Mudline
Main	8	60"	0.688"	Yes	No	
Skirt/Braced	0					

Deck Dimensions

	Dimensions	Elevation

Conductors

Number of Slots	Number Installed	Outside Diameter	Wall Thickness	Number of Curved
72	29	20"	0.635"	0

Jacket Data

	Weight (Tons)
Submerged	
Dry	3,100

Deck Data

Lift Weight w/Equip (Tons)	Number of Padeyes Required
2,500	12

BSEE-POCSR
Platform Decommission Task Information
Irene

Task	Sub Task	PMEP	Misc.Work Provision	Weather		Task Cost,$	Task Cost %
Permitting and Regulatory	Permitting and Regulatory	☑	☑	☐	$	702,000	1.30%
Platform Preparation	Initial Cost of Immediate Prep.	☑	☑	☑	$	490,200	0.91%
Platform Preparation	Removal of Salvageable Equipment	☑	☑	☑	$	1,050,000	1.95%
Platform Preparation	Lift Prep.	☑	☑	☑	$	660,300	1.22%
Platform Preparation	Under Water Inspection	☑	☑	☑	$	37,900	0.07%
Well Plugging and Abandonment	Phase I	☑	☑	☑	$	3,752,200	6.96%
Well Plugging and Abandonment	Phase II	☑	☑	☑	$	6,626,400	12.29%
Well Plugging and Abandonment	Phase III, included Conductor Removal	☑	☑	☑	$	2,273,600	4.22%
Mobilization and Demobilization	Mob/Demob of Heavy Lift Vehicles	☐	☐	☐	$	1,833,700	3.40%
Platform and Structure Removal	Topside Removal	☑	☑	☑	$	1,507,000	2.79%
Platform and Structure Removal	Jacket Removal	☑	☑	☑	$	7,702,000	14.28%
Pipeline and Power Cable Decommissioning	Pipeline Decom In Place - Federal Waters	☑	☑	☑	$	3,494,200	6.48%
Pipeline and Power Cable Decommissioning	Power Cable Decom In Place - Federal Waters	☑	☑	☑	$	576,900	1.07%
Platform Transportation and Disposal	Platform Disposal	☑	☑	☐	$	8,846,300	16.40%
Platform Transportation and Disposal	Conductor Disposal	☑	☑	☐	$	451,000	0.84%
Platform Transportation and Disposal	Power Cable Disposal	☑	☑	☐	$	27,200	0.05%
Platform Transportation and Disposal	Pipeline Disposal	☑	☑	☐	$	85,000	0.16%
Site Clearance	Site Clearance	☑	☑	☑	$	566,800	1.05%

Sub Task Total		**$40,682,700**	75.44%
Misc. Work Provision (15%)		$5,827,400	10.81%
Weather Provision (15 %)		$4,310,600	7.99%
Project Management, Engineering & Planning (8%)		$3,107,900	5.76%
	Total:	**$53,928,600**	100.00%