

PXP

Plains Exploration & Production Company

Revisions to the Platform Hidalgo Development and Production Plan to Include Development of the Western Half NW/4 of Lease OCS-P 0450

**Submitted to:
Bureau of Ocean Energy Management
Pacific OCS Region**

**Submitted by:
Plains Exploration and Production Company**

October 2012

Address Inquires To:

Mr. David Rose
Manager Environmental, Health & Safety
Plains Exploration and Production Company
201 S Broadway Street
Orcutt, CA 93455
(805) 934-8220
drose@pxp.com

Table of Contents

	<u>Page</u>
SECTION 1 INTRODUCTION.....	1
SECTION 2 PROPOSED DEVELOPMENT SCHEDULE FOR THE WESTERN HALF NW/4 OF LEASE OCS-P 0450.....	5
SECTION 3 PLATFORM SITE AND CONSTRUCTION	6
SECTION 4 DRILLING FACILITIES	7
4.1 Introduction.....	7
4.2 Drilling Rig.....	7
4.3 Well Construction	8
4.4 Drilling Safety.....	9
SECTION 5 PLATFORM FACILITIES.....	11
5.1 Introduction.....	11
5.2 Platform Hermosa	14
5.3 Platform Harvest	15
5.4 Platform Hidalgo.....	17
5.5 Platform Safety Systems	19
5.6 Oil and Gas Handling and Metering for the Western Half NW/4 of lease OCS-P 0450 Oil and Gas	22
SECTION 6 PIPELINE SYSTEM	24

List of Tables

Table 1	Typical Drill Rig Specifications	8
Table 2	General Data for the Point Arguello Platforms.....	11

List of Figures

Figure 1	Location of Western Half NW/4 of lease OCS-P 0450	4
Figure 2	Estimated Development Schedule for the Western Half NW/4 of lease OCS-P 0450	5
Figure 3	Location of Point Arguello Field Platforms and Pipelines	12

SECTION 1 INTRODUCTION

This document presents proposed revisions to the Point Arguello Unit Platform Hidalgo Development and Production Plan (DPP). The proposed revisions to the DPP cover development and production of oil and gas from the western half of the northwestern quarter (NW/4) of Federal Lease OCS-P 0450 (western half NW/4 of lease OCS-P 0450).

The DPP revisions have been developed to address all of the requirements specified in 30 CFR 550.241 that would be applicable to this DPP revision. The applicable DPP accompanying information, as required by 30 CFR 550.242, can be found in the accompanying information document, which has been submitted with this DPP revision document.

The proposal is to develop the oil and gas reserves from western half NW/4 of lease OCS-P 0450 from platform Hidalgo, which is one of the existing Point Arguello Platforms. The location of the western half NW/4 of lease OCS-P 0450 and the Point Arguello Platforms are shown in Figure 1.

Plains Exploration and Production Company (PXP), operator of the Point Arguello Unit and the western half NW/4 of lease OCS-P 0450, is proposing to drill development wells from Platform Hidalgo. The proposal is to drill a maximum of two (2) wells for development of the reserves on the western half NW/4 of lease OCS-P 0450. The eastern half of lease OCS-P 0450 is already being developed as part of the Point Arguello Unit.

As part of these DPP revisions, PXP has identified the approximate bottom hole locations of the two wells, which will be used to develop the western half NW/4 of lease OCS-P 0450. All of the wells will be directionally drilled using existing well slots on the platforms. The drill rig that will be used will be similar in size to drill rigs that have been used on the Point Arguello platforms in the past.

Drilling of the wells on the western half NW/4 of lease OCS-P 0450 is expected to last about six months with production lasting about six years. It is expected that drilling and production from the western half NW/4 of lease OCS-P 0450 will be completed within the remaining productive life of the Point Arguello platforms. This will maximize the reserves recovered in the shortest period of time and within the environmental time frame and footprint of the existing Point Arguello facilities as actually foreseen and evaluated in the Point Arguello/Southern Santa Maria Basin Area Study EIS/EIR.

All the oil production from the western half NW/4 of lease OCS-P 0450 will be combined with Point Arguello Unit and Rocky Point oil and transported to Gaviota in the existing PAPCO oil pipeline. From Gaviota, combined oil production from the western half NW/4 of lease OCS-P 0450 the Point Arguello Unit and Rocky Point will be transported to refineries in the existing All America Pipeline.

Gas from the western half NW/4 of lease OCS-P 0450 will be combined with Point Arguello Unit and Rocky Point gas on the production platforms. The combined gas will be sweetened for platform use or sale to shore via the existing PANGL pipeline. Gas volumes in excess of platform needs or sales to shore will be used for gas lift or injected into the producing reservoir for later recovery. Sweetened gas that is sent to shore, will be used as fuel for the PAPCO turbine generators that produce steam for oil heating and electricity for facility use and sales to the grid.

In brief, the development and production of the oil and gas reserves from the western half NW/4 of lease OCS-P 0450 will be accomplished by drilling extended reach wells from Platform Hidalgo using existing well slots, pipelines, equipment and facilities. Development of the reserves from the western half NW/4 of lease OCS-P 0450 will be accomplished within the expected lifetime of the Point Arguello Field. The total number of development wells for Point Arguello, Rocky Point, and the western half NW/4 of lease OCS-P 0450 will be significantly less than the number of wells originally anticipated and approved for the Point Arguello Unit alone.

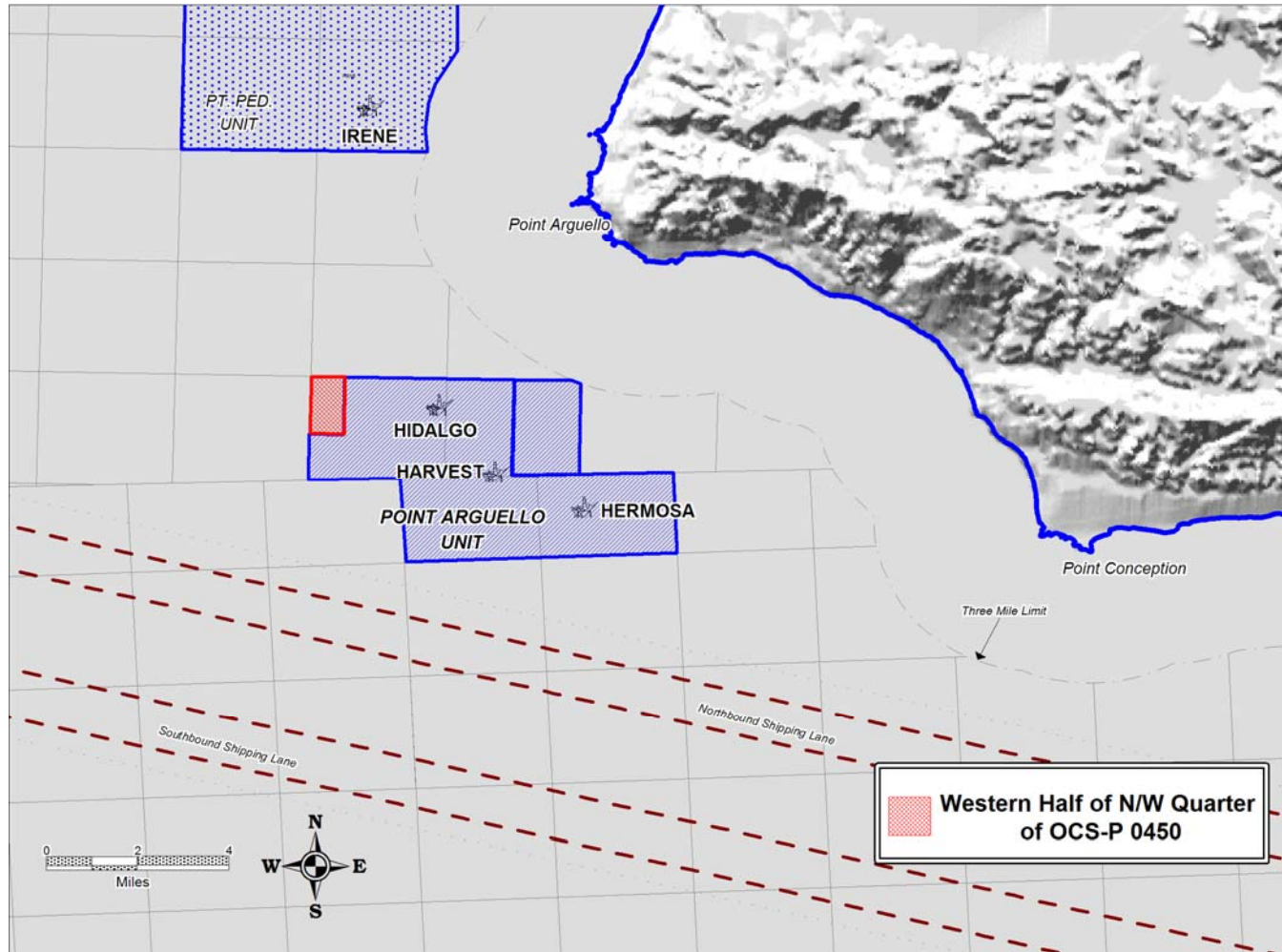
In developing the reserves on the western half NW/4 of lease OCS-P 0450, PXP will comply with all lease stipulations for lease OCS-P 0450.

This DPP revision document has been divided into six (6) major sections that include the following.

- ***Introduction*** – Provides a brief overview of the proposed DPP revisions, background information on the western half NW/4 of lease OCS-P 0450 and a guide to the DPP revision document structure and content.
- ***Proposed Development Schedule for the Western Half NW/4 of lease OCS-P 0450*** – Presents the proposed development and production schedule for the western half NW/4 of lease OCS-P 0450.
- ***Platform Site and Construction*** – Discusses the fact that there is no new platform sites or construction, other than development wells, associated with development of the oil and gas reserves from the western half NW/4 of lease OCS-P 0450.
- ***Drilling Facilities*** – Provides an overview on the drilling facilities that will be required to develop the reserves from the western half NW/4 of lease OCS-P 0450.
- ***Platform Facilities*** – Contains a description of the oil and gas facilities on the three existing Point Arguello platforms and the possible changes that may be needed to accommodate oil and gas production from the western half NW/4 of lease OCS-P 0450. Oil and gas production from the western half NW/4 of lease OCS-P 0450 will use the existing oil and gas production facilities on each of the platforms. The only new equipment that may be required for development of the western half NW/4 of lease OCS-P 0450 is an oil stabilizer on Platform Hidalgo. It may also be necessary to make some minor modifications to an existing vessel on Platform Hidalgo to accommodate the increased oil production.

- ***Pipeline System*** – Discusses the fact that the existing oil and gas pipeline system for Point Arguello will not have to be modified to handle the oil and gas production from the western half NW/4 of lease OCS-P 0450.

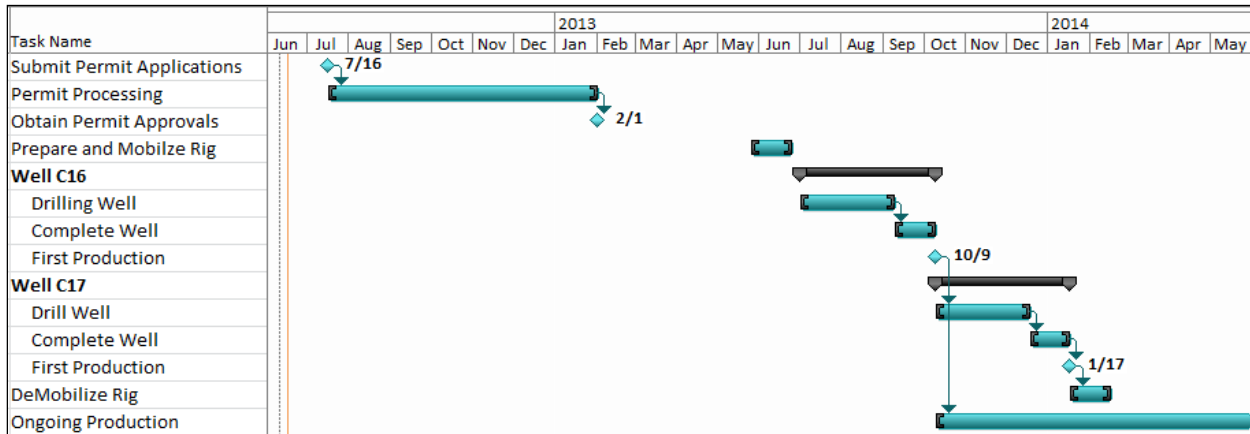
Figure 1 Location of Western Half NW/4 of lease OCS-P 0450



**SECTION 2
PROPOSED DEVELOPMENT SCHEDULE FOR
THE WESTERN HALF NW/4 OF LEASE OCS-P 0450**

Figure 2 shows the projected schedule for development of the western half NW/4 of lease OCS-P 0450.

Figure 2 Estimated Development Schedule for the Western Half NW/4 of lease OCS-P 0450



The schedule shows drilling of the first well beginning in the 2nd quarter of 2013, with production beginning two to three months after the start of the first well. The drilling program should be complete by the end of the 1st quarter of 2014, assuming permit approvals allow drilling to commence as stated above.

Based on current data, PXP has estimated that two (2) wells will be needed to develop the western half NW/4 of lease OCS-P 0450.

Currently, PXP does not anticipate the drilling of any specific service wells for water disposal or gas injection. The existing water disposal capability of the Point Arguello platforms is assessed as adequate for the combined development.

When Point Arguello Unit production has no further economic potential, the field abandonment process will likely commence, unless other uses for the platforms arise and are approved.

SECTION 3
PLATFORM SITE AND CONSTRUCTION

There are no revisions needed to this section of the Hidalgo DPP to address the proposed development of the western half NW/4 of lease OCS-P 0450. No new platforms will need to be built to develop the western half NW/4 of lease OCS-P 0450. All of the development will occur from Platform Hidalgo using existing well slots and the oil and gas handling equipment on the Point Arguello platforms.

SECTION 4 DRILLING FACILITIES

4.1 Introduction

This section discusses the drilling facilities that are proposed for the development of the reserves from the western half NW/4 of lease OCS-P 0450. It is anticipated that two (2) wells will be drilled for development of the western half NW/4 of lease OCS-P 0450. The wells on the western half NW/4 of lease OCS-P 0450 will be drilled from the Platform Hidalgo.

A new well into the western half NW/4 of lease OCS-P 0450 will require approximately 70 days to drill and 30 days to complete (i.e., 100 days total). Drilling duration will depend on the directional program undertaken and the mechanical condition of the hole. The total drilling program is expected to last six months using one rig.

The remainder of this section provides information on the drilling rig, well construction, and drilling safety.

4.2 Drilling Rig

The exact drill rig that will be used for development of the western half NW/4 of lease OCS-P 0450 will not be known until a drilling contract is in place, and will depend on the availability of rigs. The typical specifications of a rig used for this type of drilling operation are shown in Table 1.

A portable drilling rig will be transported to the platform and placed on the upper main deck (i.e., drill deck). The drilling rig will be mounted on a rail system that allows for access to all well slots. The drilling rig will be electrically powered and equipped with a SCR system that will distribute power to individual rig components (e.g., drawworks, mud pumps, and rotary table). Some minor modifications to the transformer capacity and electrical distribution system may be necessary but no major modifications to any of the platforms are anticipated for installation of the drilling rig.

The platform turbine generators will provide the electrical power that is required for the drilling operations. If the platform generators are unable to supply adequate power to the rig, then the rig turbine generator or diesel generators will be used. Additional electrical loads include operation of the drilling rig, cranes, production equipment, oil/water separators, and water injection pumps. Standby diesel generators will be used to power the rig and mud pumps during emergencies, should electrical power fail on the platform.

Table 1 Typical Drill Rig Specifications

Item	Specification
Clear Working Height of Mast (feet)	165
Base Width of Mast (feet)	25
Hook Load-Gross Nominal Capacity (pounds)	1,333,000
Maximum wind load (mile per hour)	125
Motors (hp)	
• Drawworks	2 at 1,000
• Mud Pumps	2 at 1,600
• Rotary Table	1 at 1,000
• Top Drive	1 at 1,000

4.3 Well Construction

New development wells for the western half NW/4 of lease OCS-P 0450 will be completed in the Monterey Formation and will range in measured depth (MD) of 18,000 to approximately 20,000 feet, depending on bottom hole displacement from the platform. The well construction discussion presented below is what is anticipated for a typical well. The exact casing/cementing design will be approved by BSEE through the Application for Permit to Drill process required for each proposed well.

As needed a 24-inch structural conductor will set at approximately 460 feet below the ocean floor. The 18-5/8-inch conductor casing will be set at approximately 1,221 feet below the ocean floor. Once set, the conductor casing will be cemented with a sufficient amount to cause a return of cement to the mud line. Measured depths of conductor casing will vary because of directional drilling programs and mechanical and borehole conditions, as well as formation pressures and fracture gradients. Installation of casings will follow BSEE requirements.

The 13-3/8-inch surface casing will be set at approximately 2,835 feet below the mud line. The surface casing will be cemented with a sufficient amount to cause a return of cement to the mud line. Measured depths of surface casing will vary slightly because of directional drilling programs and mechanical and borehole conditions, as well as formation pressures and fracture gradients.

The 9-5/8-inch intermediate casing will be set above the reservoir zone to be produced and cemented. The top of the cement would be approximately 10,000 feet MD. The plan is not to bring the cement cap of the intermediate casing string above the shoe of the surface casing. Using this approach, the intermediate casing string can be cut and pulled to accommodate future redrills. The intermediate casing will be set at a total measured depth of approximately 16,980 feet, depending on the geological top of the Monterey zone. All zones which contain oil or gas shall be fully protected by casing and cement.

An 8-1/2-inch hole will be drilled from below the intermediate casing to total depth of 20,000 feet. If the zones are productive, then a 7-inch casing will be run to total depth and hung from the

intermediate casing, with a minimum of 150 feet of overlap inside the intermediate casing. The 7-inch casing will be cemented in place. The hydrocarbon bearing zones across the cemented 7-inch casing will be jet perforated using tubing or wireline conveyed perforating tools.

Production tubing will be lowered near 100 feet above the 7-inch liner top. The 4-1/2-inch tubing string may consist of a 9-5/8-inch casing packer, gas lift mandrels, chemical injection mandrel, and surface controlled subsurface safety valve to allow delivery of hydrocarbons to the wellhead. It is possible electric submersible pumps may also be used to lift the production.

4.4 Drilling Safety

Drilling operations will be performed with “good engineering practices” using conventional drilling equipment and procedures, and will be in compliance with the current Bureau of Safety and Environmental Enforcement (BSEE) regulations. BSEE-approved drilling operations and procedures will not be altered without the prior approval of BSEE.

A blowout prevention (BOP) system will be used to shut-in the well in the event of an emergency and is designed to prevent any well fluids from entering the environment. The system is composed of an annular preventer, blind ram, two sets of pipe rams, choke and kill lines, and a diverter system. Attachment A, which is part of the supporting information document, contains a detailed description of a typical well control program.

Lifesaving and fire suppression systems are maintained on the platforms at all times. Evacuation and fire drills will be held on a regular basis to ensure familiarity with the equipment and with the responsibilities of individual crew members. Drills will be coordinated with production personnel to maximize effectiveness.

The platforms are equipped with Class 1 U.S. Coast Guard-approved navigational aids. All navigational components are connected to an emergency standby generator. Sufficient numbers of escape boats, PPE, and life jackets are readily accessible in the event evacuation of the platform becomes necessary.

For all phases of the drilling operation, lighting will be in place around the rig and its components (including the derrick), the cementing unit and its components, and the drill deck itself. All electrical work for the lighting will be Class 1, Division 1 or Division 2, as outlined by API Recommended Practices 500 or API Recommended Practices 505.

Crane lifts will be conducted from attendant supply and crew boats only when meteorological, oceanic, and logistical conditions allow for safe operations. All crane operators will be trained according to the API Recommended Practice 2D. The cranes will have regularly scheduled maintenance with pre-use daily, monthly, quarterly, and annual review of specific components according to manufacturer’s recommendations and as provided for in APR RP 2D. The cranes are inspected and certified annually.

The drilling or production supervisor on a regular basis—to promote safety awareness—will conduct safety meetings. These meetings will cover a wide variety of subjects relating to the current activity (e.g., cementing, well control familiarity, wireline work, etc.).

The Point Arguello Field has an approved H₂S Contingency Plan, which will be used during the drilling program. The reader is referred to this BSEE-approved plan for further information.

SECTION 5 PLATFORM FACILITIES

This section provides some general information on the three Point Arguello drilling and production platforms, and a brief discussion of the oil and gas handling operations. The discussion presented below represents what may occur with the development of the western half NW/4 of lease OCS-P 0450.

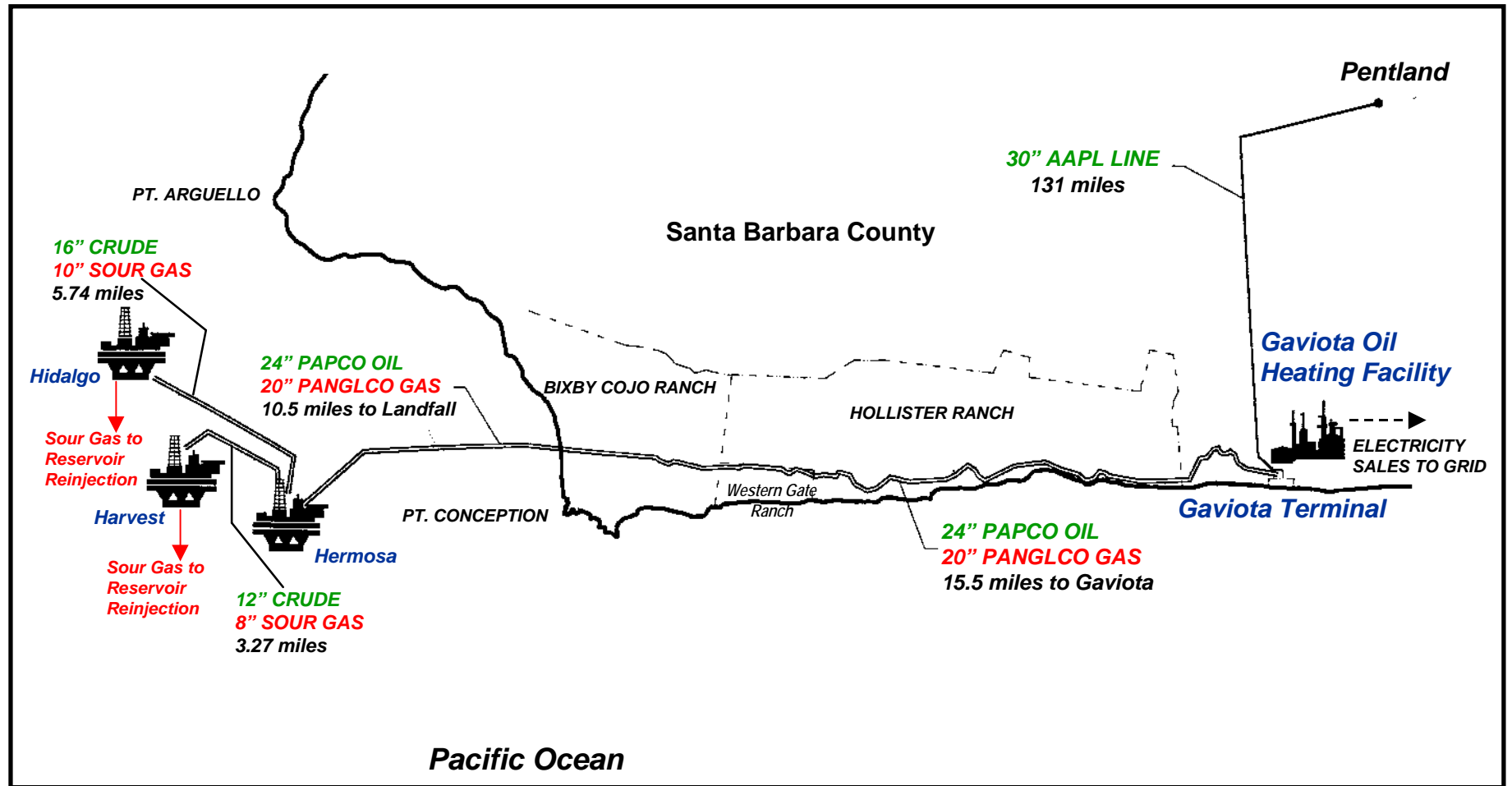
5.1 Introduction

The proposed project is to develop the western half NW/4 of lease OCS-P 0450, which is currently held by production, from Platform Hidalgo, which is part of the Point Arguello Unit. No new offshore structures will be needed to develop the western half NW/4 of lease OCS-P 0450. It is anticipated that wells will be drilled from Platform Hidalgo using extended reach drilling (ERD) technology. Table 2 provides general information on the three existing Point Arguello platforms. Figure 3 shows the location of the platforms.

Table 2 General Data for the Point Arguello Platforms

Platform/Location	Harvest	Hermosa	Hidalgo
Water Depth at Platform, ft	675	603	430
Platform location	Lambert Zone 6(ft) X=664,622 Y=866,189	Lambert Zone 6(ft) X=674,783 Y=860,793	UTM 10(m) X=710,975 Y=3,819,245
Well Slots	50	48	56
Number of Well Slots Used for Arguello Field and Rocky Point Development	18	17	21
Projected Number of Well Slots Needed for the western half NW/4 of lease OCS-P 0450 Development	0	0	2
Projected Future Well Slots for Point Arguello and Rocky Point	6	6	6
Well Slots Available for Future Development	25	25	27
OCS Lease	P 0315	P 0316	P 0450

Figure 3 Location of Point Arguello Field Platforms and Pipelines



Platforms Harvest and Hermosa were installed in 1985 and Platform Hidalgo was installed in 1986. All three platforms were installed for the development and production of Point Arguello Field oil and gas reserves. Production peaked from the Point Arguello Field in August 1993 at 89 mbd of oil and 27 mmscfd of gas. In August 1998 production from the field was approximately 23 mbd of oil and 3.6 mmscfd of gas. In 2003, a DPP revision was approved to allow the development of the eastern half of lease OCS-P 0451 (i.e., Rocky Point). Current oil production from the Point Arguello Field is approximately 5.0 mbd.

5.2 Platform Hermosa

Platform Hermosa is a three-deck structure that consists of a production/wellhead deck, a drilling deck, and a main deck. The height of the production/wellhead deck above mean lower low water (MLLW) approximates 51 feet. The main deck is approximately 79 feet above MLLW. Currently the only drilling that is occurring on Platform Hermosa is for well workovers and sidetracks. In the future new wells may be drilled into the Point Arguello reservoir depending upon economics and other factors.

The producing wells are arranged in rows, with short flowlines connecting each well to the manifold system. Each well is equipped with a “Christmas tree” valve stack. The manifold system allows production to be switched between production and test separators. A portion of the produced gas is used for gas lift on the production wells. All wells are equipped with down-hole surface controlled subsurface safety valves. These subsurface valves are hydraulically controlled from the platform. The wells are manifolded so the wells can be isolated for individual testing through one of three test separators.

No changes to the oil and gas processing operations on Platform Hermosa are anticipated with the development of the western half NW/4 of lease OCS-P 0450. During normal operations all the wells are ‘pooled’ into 3-phase production separator trains, which separate the produced oil, gas, and free water. A cleanup separator is provided for the initial unloading of wells to remove mud and water until the well is flowing sufficiently to be diverted into the normal production separators. After leaving the production separators, the oil is dehydrated and stabilized. Double-case positive displacement type meters equipped with a mechanical prover then meter the dry, stabilized oil. From the meters the oil is boosted to pipeline discharge pressures by electric motor-driven screw-type pumps. The oil is then sent ashore via the PAPCO pipeline to the Gaviota Facility.

A major portion of the produced gas is sweetened and then either used as fuel in the offshore turbines, as gas lift gas, or sent ashore via the PANGL pipeline as sales gas. The sales gas is used in the Gaviota plant turbines to generate electricity and steam to heat the crude oil stream to shipping specifications. The electricity is used by the facility, with any surplus sold to the grid. Produced gas that is not used as fuel or for sales is dehydrated and injected back into the reservoir at either Platform Harvest or Hidalgo with some gas injection taking place at Hermosa.

The fuel and sales gas is processed through an amine system to remove the hydrogen sulfide (H₂S). The H₂S removed from the fuel gas is injected back into formation via a separate acid gas injection system or the gas that is sent to Platforms Harvest or Hidalgo for injection.

Additional information on this project is provided in Gaviota Facility section of the DPP Revision Supporting Information Document.

The produced water is treated on the platform and then discharged into the ocean in accordance with the platform's NPDES permit, or injected back into the reservoir.

The electrical power requirements for Platform Hermosa are met using two 2,800-kW and one 3,100 kW gas-turbine generators. There is also one 2,800-kW stand-by turbine generator that is currently limited by APCD permit to operate 550 hours per year. The turbines have diesel alternate fuel capability, but are primarily run on produced gas.

The platform houses two vapor compression desalination units (one standby) to produce fresh water from seawater for potable and demineralized water systems.

The process heating requirements are obtained from the cogeneration system. This system utilizes the waste heat recovered from the turbine drivers on the electrical generators.

Utility and instrument air is provided at 125 psi and 100 psi, respectively. Two air compressors that are electrically driven provide the utility and instrument air.

Two salt water systems are used for fire suppression, washdown, process cooling, desalination, etc. The fire suppression system is designed for 2,500 gpm and is a diesel-driven system. An additional system supplies 3,000 gpm for other platform requirements. This system's pumps are electrically driven.

A packaged sewage treatment unit is used to process the sewage from the crew quarters building. The effluent from this unit complies with United States Coast Guard and EPA NPDES requirements.

5.3 Platform Harvest

Harvest is a four-deck platform consisting of a cellar deck, lower main production deck, and upper main production deck. The total overall height of the structure, including the drilling rig, is approximately 296 feet above MLLW. Currently the only drilling that is occurring on Platform Harvest is for well workovers and sidetracks. In the future new wells may be drilled into the Point Arguello reservoir depending upon economics and other factors.

The producing wells are arranged in two 5x5 wellbays, with short flowlines connecting each well to the manifold system. Each well is equipped with a "Christmas tree" valve stack. The manifold system allows production to be switched between production and test separators. A portion of the produced gas is used for gas lift on the production wells. All wells are equipped with down-hole surface controlled subsurface safety valves. These subsurface valves are hydraulically controlled from the platform. The wells are manifolded so the wells can be isolated for individual testing through one of three test separators.

No changes to the oil and gas processing operations on Platform Harvest would occur with the development of the western half NW/4 of lease OCS-P 0450. During normal operations, all the wells are 'pooled' into 3-phase production separator trains, which separate the produced oil, gas, and free water. A cleanup separator is provided for the initial unloading of wells to remove mud and water until the well is flowing sufficiently to be diverted into the normal production separators. After leaving the production separators, the oil is dehydrated, stabilized, metered, and shipped to Platform Hermosa via an inter-platform pipeline. At Platform Hermosa, the oil uses the PAPCO pipeline for shipment to the Gaviota Facility.

The produced gas is dehydrated on the platform, and then injected back into the reservoir. Produced gas can also be imported from Platforms Hermosa and Hidalgo for injection back into the reservoir at Platform Harvest. In addition, gas from Platform Harvest can be sent to Platform Hermosa for sweetening and then on to the Gaviota Facility as sales gas. Another option is to route gas from Platform Harvest to Platform Hidalgo for injection into the light pool reservoir. Under this scenario, gas is routed to Platform Hermosa and then on to Platform Hidalgo via the intra-platform gas pipelines.

A portion of the produced gas is used for fuel in the offshore turbines, which provide the platform's electrical power and heat needs. The gas used as fuel is processed through an amine system to remove the hydrogen sulfide (H₂S). The H₂S removed from the fuel gas is injected back into the gas that is injected back into the reservoir.

The produced water is treated on the platform and then discharged into the ocean in accordance with platform's NPDES permit, or injected back into the reservoir.

Platform Harvest generates the power requirements for drilling and production by using four 3,700-kW gas-fired turbine generators. A fifth 3,700-kW gas turbine generator is installed as a backup, which can operate full time.

The platform has two vapor compression-desalination units to produce fresh water from seawater for potable and demineralized water.

All process-heating requirements are obtained from the cogeneration system via a hot oil circulating system. This system utilizes the waste heat recovered from the turbine drivers on the electrical generators. Utility and instrument air is provided at 100 psi by two electrically driven air compressors.

Salt water systems are used for fire suppression, washdown, process cooling, desalination, etc. The fire suppression system is designed for 3,000 gpm and is a diesel-driven system. An additional system supplies 3,000 gpm for other platform requirements. This system's pumps are electrically driven.

A packaged sewage treatment unit is used to process the sewage from the crew quarters building. The effluent from this unit complies with United States Coast Guard and EPA NPDES requirements.

5.4 Platform Hidalgo

Platform Hidalgo is a three-deck structure that consists of a production/wellhead deck, a drilling deck, and a main deck. The height of the production/wellhead deck above MLLW is 62 feet. The main deck is 95 feet above MLLW. The total overall height of the structure, including the drilling rig approximates 260 feet above MLLW. Currently the only drilling that is occurring on Platform Hidalgo is for well workovers and sidetracks. In the future new wells may be drilled into the Point Arguello reservoir depending upon economics and other factors.

The producing wells are arranged in rows, with short flowlines connecting each well to the manifold system. Each well is equipped with a “Christmas tree” valve stack. The manifold system allows production to be switched between production and test separators. A portion of the produced gas is used for gas lift on the production wells. All wells are equipped with down-hole surface controlled subsurface safety valves. These subsurface valves are hydraulically controlled from the platform. The wells are manifolded so the wells can be isolated for individual testing through one of three test separators.

During normal operations all the wells are ‘pooled’ into 3-phase production separator trains, which separate the produced oil, gas, and free water. A cleanup separator is provided for the initial unloading of wells to remove mud and water until the well is flowing sufficiently to be diverted into the normal production separators. With the current Point Arguello production, the oil undergoes a primary dehydration process on Hidalgo and is then sent to Platform Hermosa via pipeline where it is undergoes additional dehydration and stabilization. With the western half NW/4 of lease OCS-P 0450 project, there may not be enough oil dehydration and stabilization capacity on Platform Hermosa to handle all the production from Platform Hidalgo.

PXP may need to install additional oil dehydration and new stabilization capacity on Platform Hidalgo as part of the western half NW/4 of lease OCS-P 0450 project. This would allow the oil production to be treated on Platform Hidalgo. Implementation of oil stabilization on Platform Hidalgo would require the installation on the platform of a vessel approximately 55.5 feet tall by 42 inches in diameter (tapering to 20 inches in diameter at 36 feet of elevation), and a re-boiler vessel which is 15 feet long by 27 inches in diameter. These vessels would be set upon a small deck extension on the platforms that would be installed on Platform Hidalgo. Minor piping modifications and instrumentation changes would be performed to implement oil stabilization. It is expected that 200 feet of piping would need to be added to Platform Hidalgo.

Installation of the oil stabilization equipment would be conducted utilizing permitted scheduled boat and helicopter trips. Installation of the vessel on Platform Hidalgo would be done in conjunction with routine maintenance that is required on the platforms and other installations proposed as part of this project. During tie-ins, the platforms may be shut-in for a brief period of time to allow for safe working conditions as needed. Installation would proceed as follows:

1. All prefabricated vessels and pipe spools and installation equipment will be sent to the platforms on scheduled boat runs and staged in the work areas.
2. Scaffolding equipment will then be installed in overhead hot work and bolt-up areas.

3. As a safety measure, during certain tie-ins, hot work or bolt-up, the platform may need to be shutdown depending on the particular work involved. After shutdown, affected process areas may need to be blown down, purged with nitrogen and then isolated for hot work or bolt-up. During shutdown, the platform generators are required to run on diesel because fuel gas processing systems are also shut-in; however, such will be done in compliance with existing air permits for the platform.
4. Hot work to make field welds will be conducted for installation of pipe spools and supports, and installation of the wing deck extensions on Platform Hidalgo (18' x 20'). During this shut down, other required repairs and maintenance will also be done.
5. Upon completion of the installations, affected vessels will be pressure tested and the platform will be put on production.
6. Equipment and personnel will be demobilized on regularly scheduled boat or helicopter trips.

With the addition and modification of this equipment the produced oil will be 'pooled' into 3-phase production separator trains, which separate the produced oil, gas, and free water. After leaving the production separators, the oil will be dehydrated, stabilized, metered and shipped to Platform Hermosa via an intra-platform pipeline. At Platform Hermosa, the oil uses the PAPCO pipeline for shipment to the Gaviota Facility.

The produced gas is dehydrated on the platform and used for gas lift purposes or shipped to Platform Hermosa via an inter-platform pipeline, where it is co-mingled with the Hermosa gas and then sent to Platform Harvest for injection back into the reservoir. Another option that is available is to inject the produced gas at Platform Hidalgo into the Light Pool reservoir, using existing compressors on the platform. Additional gas from Platforms Hermosa and Harvest can also be routed to Platform Hidalgo for injection into the Light Pool reservoir using the intra-platform gas pipelines. Injection of gas into the Light Pool reservoir at Platform Hidalgo does not require any new equipment. All of the injection is done with existing compressors.

A portion of the produced gas is used for fuel in the offshore turbines, which provide the platform's electrical power and heat needs. The gas used as fuel is processed through an amine system to remove the hydrogen sulfide (H₂S). The H₂S removed from the fuel gas is injected back into the gas that is injected back into the reservoir.

The produced water is treated on the platform and then discharged into the ocean in accordance with platform's NPDES permit, or injected back into the reservoir.

The electrical power requirements for Platform Hidalgo are met using two 2,800-kW and one 3,100 kW gas-turbine generators. There is also one 2,800-kW stand-by turbine generator that is currently limited by APCD permit to operate 550 hours per year. The turbines have diesel alternate fuel capability but are primarily run on produced gas.

Utility and instrument air is provided at 125 psi and 100 psi, respectively. Two air compressors that are electrically driven provide the utility and instrument air.

Two salt water systems are used for fire suppression, washdown, process cooling, desalination, etc. The fire suppression system is designed for 2,500 gpm and is a diesel-driven system. An additional system supplies 3,000 gpm for other platform requirements. This system's pumps are electrically driven.

A packaged sewage treatment unit is used to process the sewage from the crew quarters building. The effluent from this unit complies with United States Coast Guard and EPA NPDES requirements.

5.5 Platform Safety Systems

Safety systems can be broadly classified as those devices and practices that safeguard life and limb, the environment, and equipment. They relate specifically to good design practices, personnel training and operational and emergency modes. The safety features on the Point Arguello Platforms include:

- Fire detection and suppression systems;
- Navigational aids;
- Corrosion control program;
- H₂S contingency plans;
- Emergency power and lighting;
- Communication facilities;
- Escape and lifesaving equipment; and
- Oil Spill Response Plan.

Each of these safety systems is briefly described below.

Fire Detection and Suppression Systems

Each platform has a firewater system that uses a combination of electrically and diesel-driven fire water pumps. The firewater is distributed to hose reel stations, monitor nozzles, and deluge systems appropriately located around the platform. Additional fire fighting systems on the platforms include items such as fixed fire protection system for gas turbine generators and portable fire extinguishers appropriately located around the platform. The fire detection system makes extensive use of smoke detectors and flame detectors to provide early warning in the event of any fire. Pushbutton fire alarm stations are located around the platforms for use by platform personnel.

Navigational Aids

Each of the platforms has been painted in accordance with United States Coast Guard (USCG) recommendations to increase the visibility of the platforms to ocean vessels. In addition, the platforms are equipped with navigational lights and fog horns in accordance with Federal requirements. The USCG has also established a 500 meter exclusion zone around the platforms.

Platform Harvest is equipped with a vessel tracking system that allows personnel on the platform to monitor vessel movement in the area of the Point Arguello Platforms.

Corrosion Control Program

Corrosion on the platforms is controlled using corrosion-resistant coatings on the top-side structures and equipment. For the underwater portions of the jackets, a sacrificial anode system is used to control corrosion. A number of the vessels and piping on the platforms have an internal coating to control corrosion. In addition, a corrosion inhibitor program is used to provide additional corrosion control.

H₂S Contingency Plan

H₂S contingency plans have been developed that detail emergency plan to be followed when encountering formations that contain H₂S while drilling. The platforms are equipped with self-contained breathing apparatus for all working crews and supervisors. Spare air bottles with refill capability are also available. Releases of H₂S can also occur during production operations from accidents involving the gas wells or gas processing equipment. H₂S sensors and alarms are located at the intake for the air ventilation system, and in other process areas where concentrations of H₂S are likely to occur. In these areas, H₂S sensors have both visible and audible alarms set to activate if a concentration of 10 ppm is reached.

Emergency Power and Lighting

Emergency AC power for lighting, communications equipment, hazard detection systems, quarters, controls, and minor utility systems is provided by a battery-backup uninterruptable power supply. Battery-powered emergency lighting units are installed in several areas of the platform to illuminate critical escape or facility work areas. Battery chargers and battery systems are provided for aids to navigation, communications, general alarm systems, generator starting, electrical switchgear control, and control and monitoring systems.

Communication Facilities

Intra-platform communication utilizes hardwired speakers and handsets. Additionally, there are hand-held portable radios for operational communication. For external communication with crew boats, supply boats, helicopters, shore bases, etc., there is a wide-area radio system for each platform, as well as a microwave system to provide telephone service and circuits for the pipeline leak detection system and onshore emergency shutdown system. In addition to the above each platform has intrinsically safe cell phones for emergency use.

Escape and Life-Saving Equipment

Each platform is equipped with United States Coast Guard-approved escape capsules or life boats, plus an adequate number of life preservers, life floats, ring life buoys, first aid kits, litters, and other lifesaving appliances as required by 33 CFR144.

Oil Spill Response Plan

An Oil Spill Response Plan for each platform, which describes the measures that will be taken in the event of an oil spill and the personnel and equipment available to implement spill containment and cleanup procedures, has been developed and submitted to and approved by the BSEE. The basic procedure for a spill is to immediately ensure personnel safety, stop the

pollutant flow, begin the containment and cleanup procedure, and contact designated company personnel and Government agencies. The platform personnel would conduct the initial response activity. For a spill beyond the capability of the platform personnel and equipment, the primary sources of assistance would be the industry-sponsored spill containment cooperative—Clean Seas.

As per CFR 550.250, development of the western half of OCS-P 0450 would increase the maximum oil spill volume of Platforms Hidalgo and from associated pipelines (with a small increase along the Hermosa pipeline due to increase flow rates). The increase due to a well blowout would only last during the drilling period, when the wells are flowing under natural pressure. After the drilling period, the maximum oil spill volume for Platform Hidalgo would be slightly more than their current values due to increased flow rates.

PXP determined that the blow-out related worst-case discharge estimated flow rate for the proposed well (C-16) is 1,190 barrels of oil per day, which could result in a blow-out total volume of 132,090 barrels of oil released over a period of 111 days, the time it is estimated to mobilize a drilling rig and drill a relief well. The calculations for determining the worst-case discharge flow rate are contained in the attachments.

In a blowout scenario surface intervention would be attempted unless safety concerns ruled this option out (e.g. uncontrolled fire, unstable structure, etc.). Assuming there were no safety impediments that would prevent surface intervention, PXP would attempt to intervene as allowed by the situation. Based on this blowout scenario there is no functioning BOPE, therefore, if possible, the BOPE would be repaired to a functioning state, or a functioning BOPE would be positioned over the well and secured so that the well could be shut-in. This could be done in a number of ways depending upon the situation. All possible methods and attempts would be evaluated and attempted based upon the situation and as assessment of safety.

Primary response to the above scenario will be by the Clean Seas oil spill response vessel (OSRV) normally located in the Point Arguello/Point Pedernales area. Additional response resources maintained by Clean Seas that would be mobilized to the release are also listed in Appendix C of the Core Oil Spill Response Plan.

Aerial surveillance operations will be initiated as soon as possible. The primary Clean Seas OSRV will initiate site entry procedures prior to beginning the deployment of containment equipment and recovery operations to contain the initial spill volumes. Secondary response equipment mobilized to the spill location will be the Clean Seas OSRVs and smaller spill response vessels normally located in the Santa Barbara Channel, these additional response resources can be onsite and deployed within 3 - 6 hours.

Clean Seas has Environmental Response Contractor Agreements (ERCA), Master Time Charters, Memorandums of Understanding and Master Rental Agreements with specialized subcontractors who can assist in the operations of equipment deployment and recovery of spilled oil. These subcontractors can be mobilized and on scene within approximately 4 – 24 hours. Metson Marine Services (Ventura) provides approximately 15 employees who operate Clean Seas' vessels and barges. Patriot Environmental Services (Ventura) and National Response Corporation Environmental Services (Ventura) provide personnel and equipment for shoreline

protection, beach cleanup, waste disposal, and DECON services. Southern California Ships Services (Terminal Island) provides licensed crew and vessels for booming and logistical support. Aspen Helicopter Inc. (Oxnard) provides personnel and equipment for surveillance and dispersant application. T & T Trucking (Ventura) provides material handling and transfer services. Maritime Logistics (Creston) and Castignola Tug Company (Santa Barbara) provides vessels for Vessels of Opportunity Skimming Systems (VOSS). Harley Marine Services (Port of L.A.) provides tank barges for the temporary storage of recovered oil. Harley Marine Services has approximately 202,000 barrels of tank barge storage capacity, with single tank barge storage capacity ranging between 23,000 – 60,000 barrels. Rain for Rent (Santa Paula) and Baker Tanks (Seal Beach) provide temporary on-shore storage equipment. TracTide Marine (Port Hueneme) provides approximately 8,800 barrels of onshore storage equipment as well as decontamination and vessel fueling services. General Petroleum (Port of L.A.) provides tug boat services. Associated Pacific (Morro Bay) provides crane barges and tug boat services as well. In addition, Clean Seas maintains agreements with local fisherman who participate in Clean Seas' Fisherman's Oil Spill Response Team (FORT) program. The current program consists of approximately 80 personnel and 40 vessels. Members of the FORT attend annual 8 hour Hazwoper training.

The Clean Seas "Ocean Keeper" (15,000 bbl. oil spill response barge) will most likely be staged in Cojo Bay for the temporary storage of oil recovered by the skimming vessels. It would take approximately 24 hours for the Ocean Keeper to be transferred to Cojo Bay. Transfer pump resources listed in Appendix C of the Core Oil Spill Response Plan will be used to offload the skimming vessels into the Ocean Keeper. Given the worst case discharge volume referenced in the scenario above, the Ocean Keeper can store 100% of the daily discharge volume for 12 days. The three OSRV's can store 100% of the daily discharge volume for another 2 days. In the meantime additional barge/s, between 23,000 - 60,000 barrel capacities, will be contracted through Harley Marine Services and brought on scene within approximately 7 days. These additional subcontracted temporary storage resources will facilitate the remainder of the storage requirement if the well were to continue releasing for the above referenced 111 days.

Additional information on the oil spill equipment and response can be found in the Oil Spill Response Plans that have been submitted to and approved by BSEE.

5.6 Oil and Gas Handling and Metering for the Western Half NW/4 of lease OCS-P 0450 Oil and Gas

The produced oil, gas, and water will typically be separated on each platform. The oil, gas, and water volumes will be prorated back to the individual wells based on periodic well test information for each well.

Some of the produced gas will be processed to remove sulfur and burned on the platform for pilot gas, purge gas, or for fuel to generate electricity or for gas lift purposes. Some produced gas will be sweetened offshore and sold to the onshore facility. This sales stream will be used to generate electricity for use at the onshore facility and sold to the grid. Gas which is sold to the onshore facility will be measured as described in the approved metering and allocation plan. This

gas will be subject to OCS royalties. The remaining produced gas that is not used for pilot, purge, flare, or fuel will be injected on either Hidalgo or Harvest. The gas which goes to fuel, sales, flare, pilot, purge, or injection will be prorated back proportionally to each Point Arguello and western half NW/4 of lease OCS-P 0450 well based on well test data.

The oil stream at Hidalgo will be metered for allocation purposes and then pumped to Hermosa where it will be commingled with Hermosa production, stabilized and metered (for allocation and leak detection only) before it is sent to shore. The commingled Hermosa and Hidalgo oil stream is then metered; the difference between the Hidalgo meter reading and the Hidalgo/Hermosa commingled meter reading is equal to the Hermosa production. Harvest production is also passed through a meter for allocation purposes prior to leaving the platform. The Harvest oil stream commingles with the combined Hidalgo/Hermosa stream after metering.

The wells on each platform for the western half NW/4 of lease OCS-P 0450 and Point Arguello will be allocated their fair share of production based on the well test information applied to the allocation meter readings. At the Gaviota Facility the oil will pass through another meter (leak detection only), be heated, and finally pass through a lease automatic custody transfer (LACT) meter. This LACT is the meter that determines the volumes of oil that are subject to royalty.

When and if development of the western half NW/4 of lease OCS-P 0450 is approved, changes to the Measurement and Allocation Plan in effect for Point Arguello will be needed, which would include a full description of the measurement points, allocation procedures, and products subject to royalty for the western half NW/4 of lease OCS-P 0450 production streams.

SECTION 6 PIPELINE SYSTEM

There are no revisions needed to this section of the three existing DPPs for the Point Arguello Field Development to address the proposed development of the western half NW/4 of lease OCS-P 0450. No new pipelines will need to be built to develop the western half NW/4 of lease OCS-P 0450. The existing intra-platform pipelines and the pipelines from Platform Hermosa to the Gaviota Facility will be used to move the co-mingled production from the western half NW/4 of lease OCS-P 0450 and Point Arguello field.