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# **Revisions to the Point Arguello Field Development and Production Plans to Include the Rocky Point Unit Development**

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**Submitted to:  
The Minerals Management Service  
Pacific OCS Region**

**Submitted by:  
Arguello Inc.**

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## SECTION 1 INTRODUCTION

This document presents proposed revisions to the Point Arguello Unit Platforms Harvest, Hermosa and Hidalgo Development and Production Plans (DPPs). The proposed revisions to the DPPs cover the following.

- Development and production of oil and gas from the Rocky Point Unit from all three platforms,
- Injection of Rocky Point Unit gas at Platforms Hidalgo and Harvest, and
- Injection of Point Arguello Unit gas at Platform Hidalgo.

These DPP revisions have been developed to address all of the requirements specified in 30 CFR 250.204(a). The DPP supporting information as required by 30 CFR 250.204 (b) can be found in the supporting information document, which has been submitted with this DPP revision document.

The proposal is to develop the Rocky Point Unit oil and gas reserves from the three existing Point Arguello Platforms. The location of the Rocky Point Unit and the Point Arguello Platforms are shown in Figure 1-1.

Arguello Inc., operator of both the Point Arguello and Rocky Point Units, is proposing to drill development wells from Platforms Hermosa, Harvest and/or Hidalgo. The proposal is to drill a maximum of 20 wells for development of the Rocky Point Unit reserves. Up to seven wells will be drilled from Platforms Hermosa and Harvest and six from Platform Hidalgo. The 20 wells will be drilled in three phases. The first phase will involve the drilling of ten wells, the second phase four wells, and if needed, the third phase would cover the remaining six wells. However, it should be noted that the exact number of wells needed to develop the Rocky Point Unit reserves will not be known until the first few development wells have been completed, placed on production, and evaluated. As part of these DPP revisions, Arguello Inc. has identified the approximate bottom hole location of 14 wells. It may be possible to sidetrack a number of the existing Point Arguello wells, and/or use existing wellheads for development of the Rocky Point Unit wells once some of the Point Arguello wells have reached the end of their productive life.

Development of the Rocky Point Unit oil and gas reserves will not require any new equipment on the platforms or at the Gaviota Facility. All of the wells will be directionally drilled using existing well slots on the platforms. For some of the new Rocky Point wells it may be possible to use existing Point Arguello wellheads once some of the Point Arguello wells have reached the end of their productive life. 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 Rocky Point Unit wells is expected to last four to six years with production lasting between 10 and 12 years. It is

expected that drilling and production from the Rocky Point Unit will be completed within the remaining productive life of 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 Rocky Point Unit oil production will be combined with Point Arguello Unit oil and transported to Gaviota in the existing PAPCO oil pipeline. From Gaviota, combined Rocky Point Unit and Point Arguello Unit oil will be transported to refineries in the existing All America Pipeline.

Rocky Point Unit gas will be combined with Point Arguello Unit 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 re-injected into the producing reservoir for later recovery and use or sales. Sweetened Rocky Point Unit gas that is sent to shore, along with Point Arguello Unit gas, 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. Development and production of Rocky Point Unit gas will enable sales of electricity for a longer period of time beyond that which electricity can be produced with Point Arguello Unit gas alone.

In brief, the development and production of Rocky Point Unit oil and gas reserves will be accomplished by drilling extended reach wells from the existing Point Arguello Unit platforms using existing wells slots, pipelines, equipment and facilities. Development of the Rocky Point Unit reserves will be accomplished within the expected lifetime of the Point Arguello Field. The total number of Point Arguello and Rocky Point Unit wells will be significantly less than the number of wells originally anticipated and approved for the Point Arguello Unit alone.

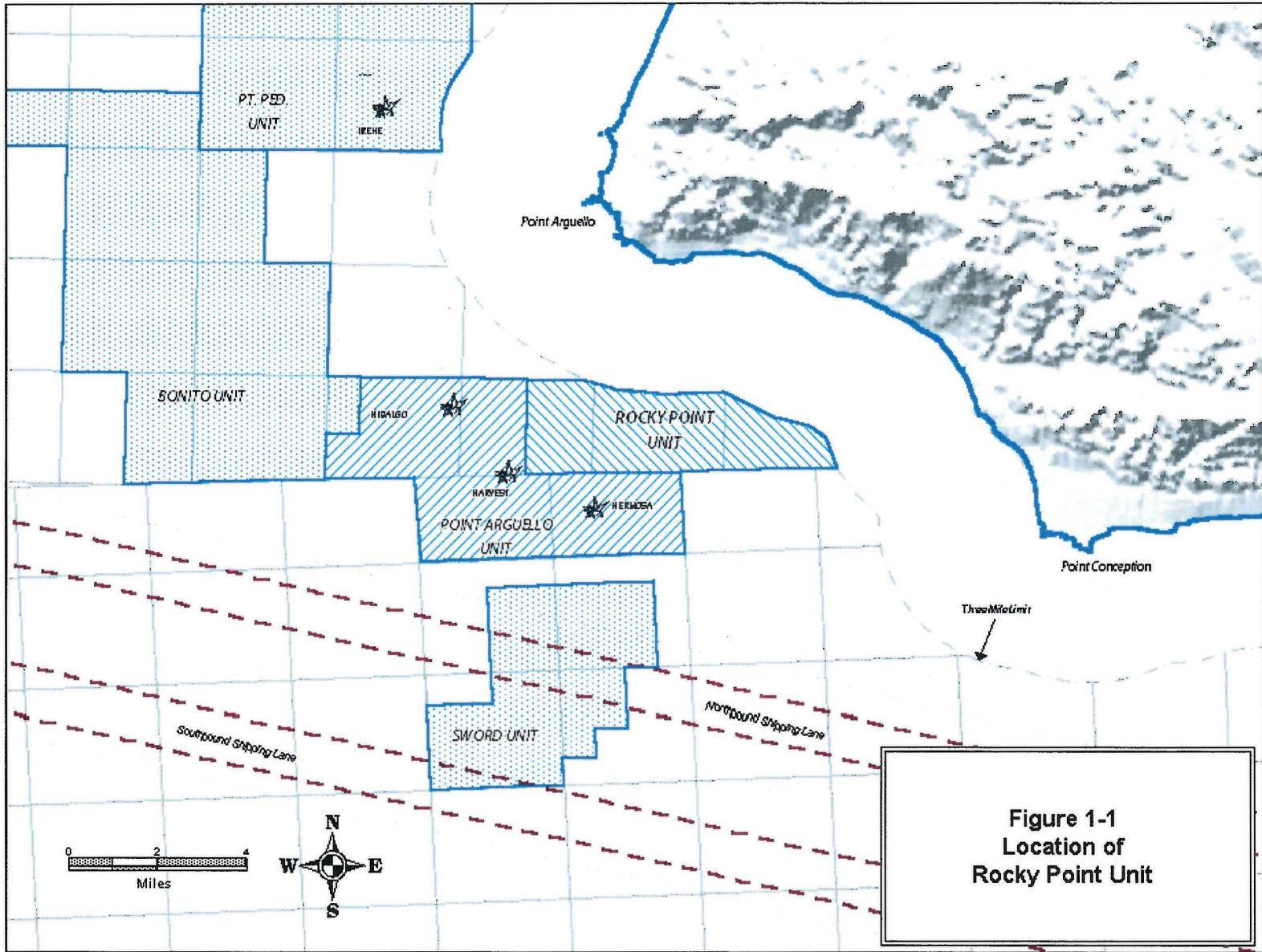
In developing the Rocky Point Unit reserves, Arguello Inc. will comply with all lease stipulations for leases OCS-P 0451, 0452, and 0453.

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 Rocky Point Unit Suspension of Production, and a guide to the DPP revision document structure and content.
- ***Proposed Rocky Point Unit Development Schedule*** – Presents the proposed development and production schedule for Rocky Point.
- ***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 Rocky Point reserves and gas injection at Platform Hidalgo.

- ***Drilling Facilities*** – Provides an overview on the drilling facilities that will be required to develop the Rocky Point Unit reserves.
- ***Platform Facilities*** – This section contains a description of the oil and gas facilities on the three existing Point Arguello platforms. Oil and gas production from the proposed Rocky Point Unit Development will use the existing oil and gas production facilities on each of the platforms. No new platform facilities will be required to handle the Rocky Point Unit production or for injection of gas at Platform Hidalgo.
- ***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 Rocky Point Unit production or for injection of gas at Platform Hidalgo.

The Rocky Point Unit Development Project is a unique project in that the development will utilize existing infrastructure. No new facilities will be required to develop the Rocky Point Unit reserves. The only new infrastructures that will be needed are the development wells. No modifications will be needed to any of the facilities to handle the Rocky Point Unit production.

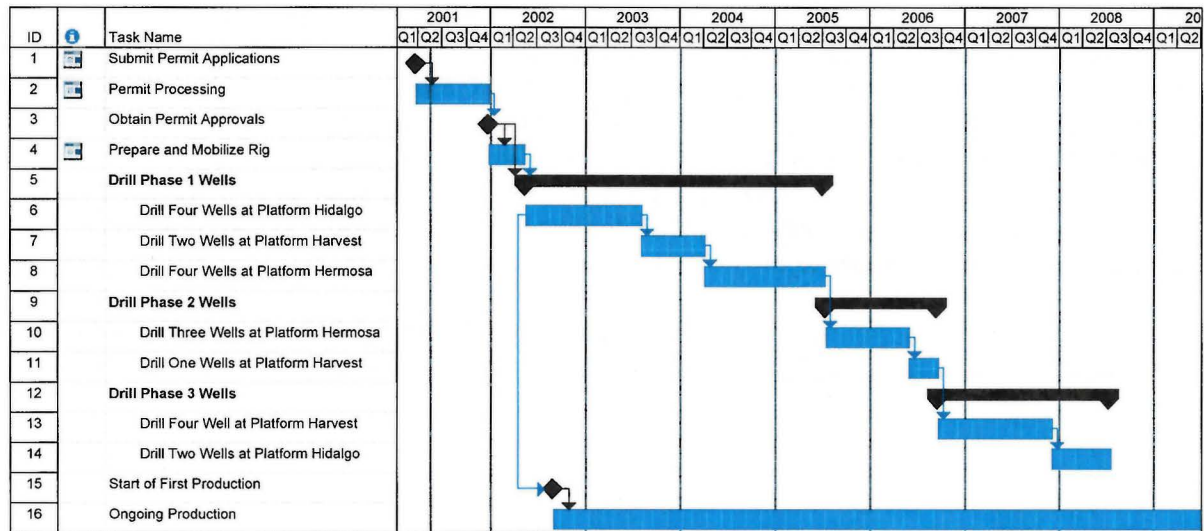


## SECTION 2

### PROPOSED ROCKY POINT UNIT DEVELOPMENT SCHEDULE

Figure 2-1 shows the projected schedule for development of the Rocky Point Unit.

**Figure 2-1 Estimated Rocky Point Development Schedule**



The schedule shows drilling of the first well beginning in June of 2002, with production beginning three to four months after the start of the first well. The Phase 1 and 2 drilling program should be complete by the middle of 2006, assuming permit approvals allow drilling to commence as stated above. If the Phase 3 drilling program were needed, then drilling would continue until the middle of 2008.

The order and number of wells drilled from each platform may be modified upon completion of the reprocessed 3D seismic data interpretation and/or actual production data from the initial Phase 1 and Phase 2 wells drilled for Rocky Point.

Based upon current data, Arguello Inc. has estimated that 14 wells will be needed to develop the Rocky Point Unit Field. However, Arguello Inc. requests approval for a total of 20 wells to account for the possibility of unexpected geologic success, or improved economics. Depending on geologic interpretation and economic conditions at the time, unsuccessful wells may be redrilled to offset locations. In view of the extended reach of the initial wells, drilling times will likely limit the number drilled and completed per year to between three (3) and four (4), which in turn sets the drilling and production schedule. With a June 1, 2002 first spud date, and the estimated 6 to 7 year life of a typical well, drilling should be complete by the middle of 2008, and the last well should finish its productive life around 2014. These dates assume that all three

Phases (20 wells) of the drilling program are complete. Currently, it is expected that only Phase 1 and 2 (14 wells) will be required to develop the Rocky Point Unit reserves. With only fourteen wells, drilling would be completed by the middle of 2006, and production from Rocky Point would end around 2012.

At the end of production for Rocky Point (2012 to 2014), Point Arguello Unit production will be fairly low, (forecast approximately 3,000 bpd), but due to the lower operating cost of the normal-reach wells in that field, and their gradual late life decline, it is expected that production will be economic for at least a further one to three years.

Currently, Arguello Inc. 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. Since drilling costs of wells into Rocky Point Unit are so high, Arguello Inc. would plan to inject the field's early-life surplus of gas into selected wells in the Point Arguello Unit, for future recovery. Again, the efficiency of this recovery will be unknown until it is attempted. There is a possibility that one or more sub-economic production wells at Rocky Point Unit could be converted for use as gas or water injection wells, as has happened at the Point Arguello Unit.

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 three existing DPPs for the Point Arguello Field Development to address the proposed Rocky Point Unit Development. No new platforms will need to be built to develop the Rocky Point Unit. All of the development will occur from the three existing Point Arguello platforms using existing well slots and the oil and gas handling equipment on the platform.

## SECTION 4 DRILLING FACILITIES

### 4.1 Introduction

This section discusses the drilling facilities that are proposed for the development of the Rocky Point Unit reserves. It is anticipated that initially 14 wells will be drilled for development of the Rocky Point Unit. These 14 wells will be drilled in two phase. Phase 1 will involve drilling ten wells, and Phase 2 will cover the remaining four wells. However, depending upon the results from these wells, an additional six wells (Phase 3 drilling program) could be drilled for development of the Rocky Point Unit. It may be possible to sidetrack a number of the existing Point Arguello wells, and/or use existing wellheads for development of the Rocky Point Unit wells once some of the Point Arguello wells have reached the end of their productive life.

The Rocky Point wells will be drilled from the three existing Point Arguello platforms. During Phase 1, it is expected that four wells will be drilled from Platform Hidalgo, then two wells from Platform Harvest and then four wells from Platform Hermosa. In Phase 2, it is anticipated that three additional wells will be drilled from Platform Hermosa and then one drilled from Platform Harvest. Basically, the Hidalgo wells will develop the northern portion of the field (northwest pool of northeastern block). Harvest will develop the central portion and Hermosa will develop the southern portion of the field. In Phase 3, a maximum of six additional wells is possible with the locations to be determined as needed at a later date. The maximum number of wells for each platform is seven for Harvest, seven for Hermosa and six for Hidalgo. The order and number of wells from each platform may be modified upon completion of the reprocessed 3D seismic data interpretation and/or actual production data from the initial Phase 1 and Phase 2 wells drilled for Rocky Point.

A new well into the Rocky Point Field will require approximately 90 to 120 days to drill and 20 to 30 days to complete (i.e., 110 to 150 days total). Drilling duration will depend on the directional program undertaken and the mechanical condition of the hole. Actual drilling will occur within 80 to 90 percent of this total timeframe. The total drilling program is expected to last four to six years 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 the Rocky Point Development 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 4.1.

**Table 4.1 Typical Drill Rig Specifications**

<b>Item</b>	<b>Specification</b>
Clear Working Height of Mast (ft)	165
Base Width of Mast (ft)	25
Hook Load-Gross Nominal Capacity (lbs)	1,333,000
Maximum wind load (mph)	125
Motors (hp)	
• Drawworks	2 at 1,000
• Mud Pumps	2 at 1,000
• Rotary Table	1 at 1,000
• Top Drive	1 at 1,000

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 will be equipped with a SCR system that will distribute power to individual rig components (e.g., drawworks, mud pumps, and rotary table). 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 injections. Standby diesel generators will be used to power the rig and mud pumps during emergencies should electrical power fail on the platform.

### **4.3 Well Construction**

A new Rocky Point development well will be completed in the Monterey and Sisquoc zones and will range in measured depth (MD) of 14,000 to approximately 22,000 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 the MMS through the Application for Permit to Drill process required for each proposed well.

As needed a 24-inch structural conductor will set at approximately 450 feet below the ocean floor (1,285 feet TVD). To the extent possible, existing conductors on the Point Arguello platforms will be used. The 18-5/8-inch conductor casing will be set at approximately 1,535 feet vertical depth (i.e., 700 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 slightly because of directional drilling programs and mechanical and borehole conditions, as well as formation pressures and fracture gradients. Installation of casings will follow MMS requirements.

The 13-3/8-inch surface casing will be set at approximately 6,500 feet MD (3,256 feet TVD and 2,421 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 (i.e., Monterey or Sisquoc), and cemented with a sufficient quantity of light cement to allow for a minimum of 500 feet of cement above the 13-3/8-inch shoe. The top of the cement would be approximately 6,000 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 16,991 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 21,464 feet. Electric line logs may be run from the shoe of the intermediate casing to total depth. If the zones are productive, then a 5-1/2-inch casing will be run to total depth and hung from the intermediate casing, with a minimum of 150 feet of over lap inside the intermediate casing. The 5-1/2-inch casing will be cemented in place. The hydrocarbon bearing zones across the cemented 5-1/2-inch casing will be jet perforated using the tubing conveyed perforating technique.

Production tubing will be lowered near 100 feet above the 5-1/2-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.

#### **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 MMS regulations. MMS-approved drilling operations and procedures will not be altered without the prior approval of the MMS.

A blowout prevention (BOP) system will be used to shut-in the well in the event of an emergency and will prevent oil 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 daily, monthly, quarterly, and annual review of specific components according to manufacturer's recommendations. 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 H<sub>2</sub>S Contingency Plan, which will be used during the drilling program. The reader is referred to this MMS-approved plan for further information.

**SECTION 5**  
**PLATFORM FACILITIES**

Development of the Rocky Point Unit will not involve any changes to the platform facilities for handling the oil and gas production. Rocky Point production will be commingled with the Point Arguello production on each platform, and the processing and handling will be the same as is occurring today.

The remainder of 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 is currently occurring at the Point Arguello Platforms, and includes the sweet sales gas project which was approved by Santa Barbara County, and implemented at the end of March 2001.

**5.1 Introduction**

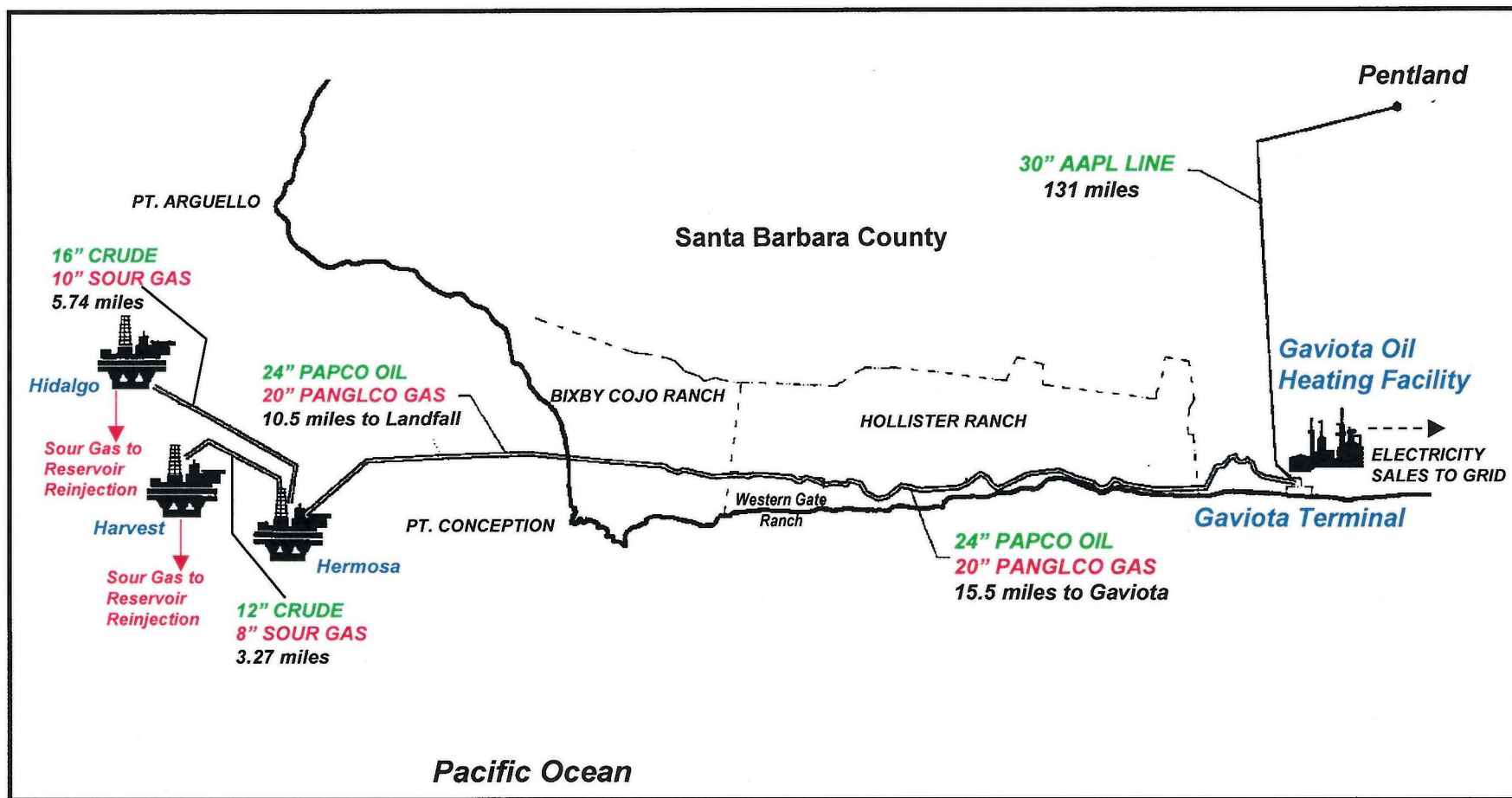
The proposed project is to develop the Rocky Point Unit from the three existing platforms in the Point Arguello Unit. No new offshore structures will be needed to develop the Rocky Point Unit. It is anticipated that wells will be drilled from the three Point Arguello Platforms using extended reach drilling (ERD) technology. Table 5.1 provides general information on these three platforms. Figure 5-1 shows the location of the platforms.

**Table 5.1 General Data for the Point Arguello Platforms**

<b>Platform/Location</b>	<b>Harvest</b>	<b>Hermosa</b>	<b>Hidalgo</b>
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 Development	18	17	17
Projected Number of Well Slots Needed for Rocky Point Unit Development <sup>1</sup>	0-7	0-7	0-6
Projected Future Well Slots for Point Arguello <sup>1</sup>	6	6	6
Well Slots Available for Future Development	19-26	18-25	26-33
OCS Lease	P-0315	P-0316	P-0450

*1. Actual number of new wells will depend on analysis of seismic data, and results for initial production wells.*

Figure 5-1 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. Current (March 2001) oil production from the Point Arguello Field is 18.4 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. In the future new wells may be drilled into the Point Arguello reservoir depending upon the results of the new analysis of the 3D seismic data.

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. 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, or sent ashore via the PANGL pipeline as sales gas. The sales gas sent ashore via the PANGL pipeline is used at the facility. The major portion of the sales gas is used in the Gaviota turbines to generate electricity and steam. The electricity is used by the facility and sold to the grid. Any remaining gas that is not used as fuel or for sales is dehydrated and injected back into the reservoir at either Platform Harvest or Hidalgo.

The fuel and sales gas is processed through an amine system to remove the hydrogen sulfide (H<sub>2</sub>S). The H<sub>2</sub>S removed from the fuel gas is injected back into 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 platform's NPDES permit, or injected back into the reservoir.

The electrical power requirements for Platform Hermosa are met using three 2,400-kW gas-turbine generators along with one 3,100 kW stand-by turbine generator. 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. In the future, new wells may be drilled into the Point Arguello reservoir depending upon the results of the new analysis of the 3D seismic data.

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.

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 sent 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 that gas from Platform Harvest can be routed 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 inter-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 (H<sub>2</sub>S). The H<sub>2</sub>S 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 gas turbine generator is installed as a back up.

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. In the future new wells may be drilled into the Point Arguello reservoir depending upon the results of the new analysis of the 3D seismic data.

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. After leaving the production separators, the oil is sent to Platform Hermosa via pipeline where it is dehydrated and stabilized.

The produced gas is dehydrated on the platform and then 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 inter-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 (H<sub>2</sub>S). The H<sub>2</sub>S 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 three 2,400 kW gas-turbines generators along with one 3,100 kW stand-by turbine generator. 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;
- Critical operations curtailment plans;
- H<sub>2</sub>S 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.

### ***H<sub>2</sub>S Contingency Plan***

H<sub>2</sub>S contingency plans have been developed that detail emergency plan to be followed when encountering formations that contain H<sub>2</sub>S 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 H<sub>2</sub>S can also occur during production operations from accidents involving the gas wells or gas processing equipment. H<sub>2</sub>S sensors and alarms are located at the intake for the air ventilation system, and in other process areas where concentrations of H<sub>2</sub>S are likely to occur. In these areas, H<sub>2</sub>S 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.

### ***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 has been developed, and submitted to and approved by the MMS, 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. 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.

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 the MMS.

## **5.6 Oil and Gas Handling and Metering for Rocky Point Unit Oil and Gas**

Development of the Rocky Point Unit will not involve any changes to the platform facilities for handling the oil and gas production. Rocky Point production will be commingled with the Point Arguello production on each platform, and the processing and handling will be the same as is occurring today.

The produced oil, gas, and water from both Rocky Point and Point Arguello wells 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. 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 MMS 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 Rocky Point well based on well test data.

The separated oil stream at Hidalgo will be metered for allocation purposes and then pumped to Hermosa where it will be commingled with Hermosa production, and metered (for allocation and leak detection only) before it is sent to shore. The commingled Hermosa and Hidalgo oil stream is also 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 Rocky Point and Point Arguello wells at each platform 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.

**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 Rocky Point Unit Development. No new pipelines will need to be built to develop the Rocky Point Unit. The existing inter-platform pipelines and the pipelines from Platform Hermosa to the Gaviota Facility will be used to move the co-mingled production from the Rocky Point and Point Arguello fields.

