# 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

## Accompanying Information Volume
## Cementing Program and Muds and Cuttings

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

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

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**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

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This application for revisions to the Platform Hidalgo DPP is for development of the western half NW/4 of OCS-P 0450.

## 1.0 Cementing Program

A cementing system will be used to force cement down the well to seal the annulus between the casing and the hole or between concentric casing strings. The cementing program details are provided in Table 1.

## 2.0 Mud System

A mud system is used to control well pressure, lubricate the drill pipe and bit, and return drill cuttings to the surface. In addition, muds containing additives not approved by the EPA, or containing concentrations above EPA limits will be taken ashore via boats. Attachment B provides a more detailed description of the mud equipment. Attachment C contains the estimated mud composition for a sample well (C-16).

Mud monitoring equipment will be installed and maintained for all drilling below the 24-inch diameter conductor casing, primarily for the purpose of well control. The equipment includes: sensors, which continuously record mud pit level and flowline flow; alarms at the driller's station will indicate lost circulation displacement volume; and on-bottom kicks.

The trip tank monitors fluid gain or loss from the wellbore while the drill string is being pulled out of the hole.

**Table 1 Cementing Program Details C-16**

| Casing Diameter (in) | Type | Seawater or Fresh | Density (ppg) | Yield, (cft/sack) | Top of Cement[1] (feet) MD | Openhole Excess (%) | Number of Sacks | Blend |
|---|---|---|---|---|---|---|---|---|
| 24 | Lead | Seawater | 14.28 | 1.64 | 543 (mudline) | 100 | 1,347 | Type III + 10% A-10 + 1 ghs FP-6L |
| 18.625 | Lead | Seawater | 14.2 | 1.64 | 0 | 100 | 1,068 | Type III + 10% A-10 + 1 ghs FP-6L |
| 13.375 | Lead | Seawater | 12.5 | 2.28 | 0 | 50 | 1,914 | Type III + 10% bwoc BA-90 + 0.75% bwoc EC-1 + 6% bwoc LW-6 + 0.25 lbs/sack Cello Flake + 0.2% bwoc CD-32 + 15 lbs/sack LCM-1 + 0.7% bwoc FL-62 + 1 ghs FP-6L + 0.5% bwoc Sodium Metasilicate + 91.9% Sea Water |
| 13.375 | Tail | Seawater | 16 | 1.14 | 5,000 | 50 | 487 | Class G + 6 ghs sack R- 21L + 1 ghs FP-6L + 2 ghs ASA-301L + 5 ghs CD-32L + 20 ghs FL-67L + 41.8% Sea Water |
| 9.625 | Lead | Seawater | 16.0 | 1.14 | 10,000 | 25 | 2426 | Class G + 6 ghs R- 21L + 1 ghs FP-6L + 2 ghs ASA-301L + 5 ghs CD-32L + 20 ghs FL-67L + 41.8% Sea Water |
| 7 | Lead | Seawater | 13.5 | 1.29 | 16,480 | 29 | 460 | Class G + 8 ghs R-21L + 1 ghs FP-6L + 2 ghs ASA-301L + 5 ghs CD-32L + 20 ghsFL-67L + 68.6% Sea Water |

*1. Measured from rig floor. Numbers assume Platform Hidalgo.*

**Nomenclature:**

**ghs – gallons per 100 sacks of cement**
**cft/sack – cubic feet per sack of cement**
**A-10 – liquid thixotropic additive**
**CD-32 – dispersant**
**Cello – Flake – cellophane flakes for lost circulation**
**CD-31L – liquid cement dispersant, friction reducer**
**LCM-1 lost circulation material**
**R-21L – liquid retarder**
**FL-67L – liquid fluid loss**
**ppg – pounds per gallon**
**FP-6L – liquid foam preventer**
**BA-90 – liquid free water control and anti setting agent**
**CD-32L – liquid dispersant**
**EC-1 – bond improver**
**FL-62 – fluid loss**
**LW-6 – microspheres to reduce weight**
**Sodium Metasilicate – Cement extender**
**ASA-301L – liquid anti-setting**

As is evident by the lengthy production history of Point Arguello Field, it is not expected that any shallow gas will be encountered. Diligent efforts will be maintained to keep the wellbore full of fluid whenever possible.

## 3.0 Drilling Fluids and Cutting Disposal

The estimated water based cuttings and drilling fluid volumes for C-16 is 19,773 bbls and for C-17 is 19,087 bbls. The information is based on use of an environmentally acceptable water base drilling fluid. All water-based drill cuttings and drilling fluid will be discharged into the ocean in accordance with the current approved NPDES permit assuming they contain concentrations below EPA approved limits. Table 2 provides an estimate of the properties of the water based drilling fluids that will be used for the drilling program.

**Table 2 Proposed Water Based Drilling Fluid Properties**

| Property | Drill Hole Size | | | | |
|---|---|---|---|---|---|
| | **30"** | **22"** | **17 1/2"** | **12 1/4"** | **8 1/2"** |
| MW, ppg | 8.8 – 10.0 | 9.0 – 10.5 | 9.0 – 10.5 | 9.0 – 10.5 | 8.8 – 9.0 |
| Plastic Viscosity (cp) | 12 - 20 | 12 - 20 | 12 - 20 | ALAP | ALAP |
| Fluid Loss (cc 30 min) | NC | <20 | <6 | 4 - 8 | 4 - 8 |
| Yield Point (lb/100ft2) | 20 - 30 | 20 - 30 | 15 - 25 | 10 - 16 | 10 - 16 |
| Solids Content | <8 LGS | <8 LGS | <8 % LGS | < 5 % LGS | < 5 % LGS |
| Mud Components | Seawater MI Gel Soda Ash | Seawater MI Gel Soda Ash Polypac Sodium Bicarb | Seawater MI Gel SP101 Soda Ash Polypac Lube167 | ULTRAHIB ULTRACAP ULTRAFREE Duovis Polypac M-I BarDefoam X | ULTRAHIB ULTRACAP ULTRAFREE Duovis Polypac M-I Bar Defoam X |

ALAP-as low as possible