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*Proposed Bmps*

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**CONSTRUCTION OF THE Davies GU A #2  
Supplemental STORM WATER MANAGEMENT PLAN (SWMP)**

Appendix MH 20 May 2009  
revised 15 December 2009

**1.0 SITE AND PROJECT INFORMATION**

Project Name: Davies GU A #2; Well Pad Construction

Project Location: The project is located on private lands located in Sec 13;  
T33N, R10W SUL La Plata County, Colorado N.M.P.M.  
Lat/Long: 37°06 '16.128" N 107°52'58.872" W

Owner Name and Address: BP America Production Company  
380 Airport Road  
Durango, CO 81301

Facility Contact and Telephone Number: Dan Fauth  
(970) 247-6800

**Project Specifics**

- a. Description of the Construction Activity: Construction of a well pad for a natural gas well on a 280' x 195' level well pad. Construction of ~2300' Access Road.
- b. Sequence of Major Construction Activities:
- . Access Road Construction
  - . Well Pad Construction-Clearing and Grading
  - . Well Drilling and Completion
  - . Interim Pad and ROW Reclamation
- c. Estimated Total Area of Site disturbance ~2.28 Acres
- d<sub>a</sub>. Estimated Runoff Coefficient, Before and After
- | Resource:       | Before: | After:    |
|-----------------|---------|-----------|
| Sagebrush       | 0.40    | 0.35/0.75 |
| Irrigated Field | 0.35    | 0.35/0.75 |
- d<sub>b</sub>. Existing Soil Data:

Soil:	Area:	Erosion:
Nehar Stony Sandy Loam	40% of Pad 40% of Access Road	Slight
Ustic Torriorthents-Ustollic Haplargids Complex	40% of Pad	High
Agua Fria Loam	20% of Pad	Slight
Arboles Silti Clay Loam	30% of Access	Moderate
Shalona Loam	10% of	Slight

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- |  |        |  |
|--|--------|--|
|  | Access |  |
|--|--------|--|
- e. Description of Existing Vegetation and Estimate of Percent Aerial Cover: Sagebrush ~45%  
Irrigated Field ~100%
- f. Description of Potential Pollution Sources: 1) Diesel fuel and gasoline for equipment and vehicles; 2) Lubricating oil 3) Drilling mud (bentonite -based viscous fluid); 4) Casing cement.
- g. Description of Anticipated Non-storm water Discharges: None Anticipated
- h. Name of Receiving Water and Type of Outfalls: Trumble Draw via overland flow

## 2.0 SITE MAPS

The attached maps (Exhibit C) illustrate the approximate location of the well pad. Construction activities and areas of cut and fill and soil disturbance are limited to the area surveyed for the location. The maps illustrate the features required by the CDPS General Permit for field wide construction activities on fee lands under the field wide permit. There are no point-source outfall structures; runoff enters the receiving watersheds and water bodies by overland flow.

## 3.0 BEST MANAGEMENT PRACTICES FOR STORMWATER POLLUTION PREVENTION

The Best Management Practices (BMP) to be employed during the construction of this well site and pipeline project are outlined in the field wide Storm Water Management Plan. Specific BMPs to be implemented during the proposed project are described in Exhibit B.

## 4.0 INSPECTION AND MAINTENANCE

Inspections of the project site and maintenance of BMPs installed shall be conducted in accordance with the CDPHE CDPS permit and the field wide plan.

## 5.0 TERMINATION

At this time no formal permit termination is necessary as the PHASE II rule under the CDPHE is covered under a field wide permit. Upon final stabilization of the site covered under this supplemental plan, the plan and its associated inspections should be kept for at least three years following the date of final stabilization.

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## BMPs

### Identified Implementation Locations:

#### 1. Access Road Clearing and Grading (See attached Figure 3)

BMPs: 2, 14, 24 & 40

- Implement wattles where shown on map.
- Implement 8" Diameter Sch. 40 Steel Pipe (Pipe) where indicated. Install sediment control logs at inlet & outlet of CMP (as shown on map).
- Construct Curtain Drain at low spot where indicated—refer to detail in engineering drawings.

#### 2. Drilling Pad Construction (See attached Figure 1)

BMPs: 2, 14, 24 & 40

- Implement wattles where shown on maps.
- Establish sub-base to route surface water as sheet flow off of the north-west edge of location.
- Establish base lift gravel to accommodate level drilling operations and stabilize pad surface.

#### 3. Drilling and Completion Operations

BMPs: Spill and Contaminated Soil Management

- Fuel, Mud Products, drill cutting spoils, Trailer Septic Tanks, etc. that may contribute to storm water run-off shall be maintained within the graveled well pad area and contained in proper containers and/or sheltered from exposure.
- Any equipment maintenance shall be avoided during drilling and completion—in the event maintenance must occur, it shall be conducted within the graveled pad area, fluids shall be captured within spill proof containers, and absorbent mats shall be utilized beneath maintenance operations.
- Contaminated soil should be collected and disposed of at an appropriate soil farm or similar facility.

#### 4. Interim Pad and Access Road Reclaim (See attached Figures 2 & 10-16)

BMPs: 2, 24, & 34

- Reclaim north and east cut and fill slopes to 3:1 or less.
- Reclaim slopes along access road with stripped top soil.
- Install rip-rap inlet and outlet protection for all CMP's—utilize on-site rock if available, otherwise  $D_{50}=6$  in. Place sediment control logs in a horse shoe shape fashion at inlet and outlet of CMP.
- Trench and bury remaining drill cuttings when material is 95-100% dry.
- Spread top-soil over fill slopes & blend to existing grade areas where sloping meets pre-disturbance grade.
- Reseed shoulders and cut slopes of access road and borrow ditches.
- Maintain CMP's.
- Repair or replace drilling pad wattles if necessary.

#### 5. Re-seeding & BMP Removal

- Re-seed as soon as possible following reclamation of pad—provided season and weather permits and cover with 2 tons/acre of weed free straw mulch. Tackify or crimp the mulch to the exposed soil surfaces.
  - Cut/Fill Slopes, diversions, & Top-Soil Storage Area.
  - Recommend SS seed mix for access road. G-P seed mix for Well pad reclaim

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- Seed mix should implement an annual cover or triticale.
- Upon 70% Re-Vegetation across site, remove wattles and any other temporary erosion and sediment control BMP.



# STORM WATER CONTROL MAP-DRILL PAD LAYOUT CLEARING AND GRADING

Figure 1



## NOTES:

1. TOPO LINES 4-7 B. PROJECTION: NAD83 (CONUS)
2. This map is informational in nature, not accurate by surveying standards, and is presented without representations or warranties by Pryor Environmental Consulting, Inc.



Sec. 13, T. 33N, R. 10W.  
N.M.P.M.  
(La Plata County, CO.)

## LEGEND

- Limit of Disturbance
- SCL Sediment Control Log (Wattle)
- Offsite Water Flow Pattern
- Onsite Water Flow Pattern
- Proposed Access Road

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"Calculating resources to tomorrow's environment for today's industry"



# STORM WATER CONTROL MAP-INTERIM RECLAIM

Figure 2



## NOTES:

1. TOPOLINES 4-7.8. PROJECTION: NAD83 (CONUS)
2. This map is informational in nature, not accurate by surveying standards, and is presented without representation or warranty by Primavera Environmental Consulting, Inc.



Sec. 13; T 33N, R10W.  
N.M.P.M.  
(La Plata County, CO.)

## LEGEND

- Limit of Disturbance
- Permanent Seeding & Mulching (2 tons/acre of weed free straw mulch)
- Onsite Water Flow Pattern
- Offsite Water Flow Pattern
- Proposed Access Road

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**NOTES:**

1. TOPO LINES 4-7 ft. PROJECTION: NAD83 (Cross)
2. This map is informational in nature, not accurate by surveying standards, and is presented without representations or warranties by Proterra Environmental Consulting, Inc.



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# STORM WATER CONTROL MAP- ACCESS ROAD CLEARING & GRADING

Figure 4

Install Curtain Drain-See  
Engineering Drawings for  
Spec



## NOTES:

1. TOPO LINES 4-7 ft. PROJECTION: NAD83 (Contour)
2. This map is informational in nature, not accurate to surveying standards, and is presented without representation or warranty by Primoris Environmental Consulting, Inc.



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(La Plata County, CO.)

## LEGEND

- Limit of Disturbance
- Sediment Control Log
- Offsite Water Flow Pattern
- Proposed Access Road

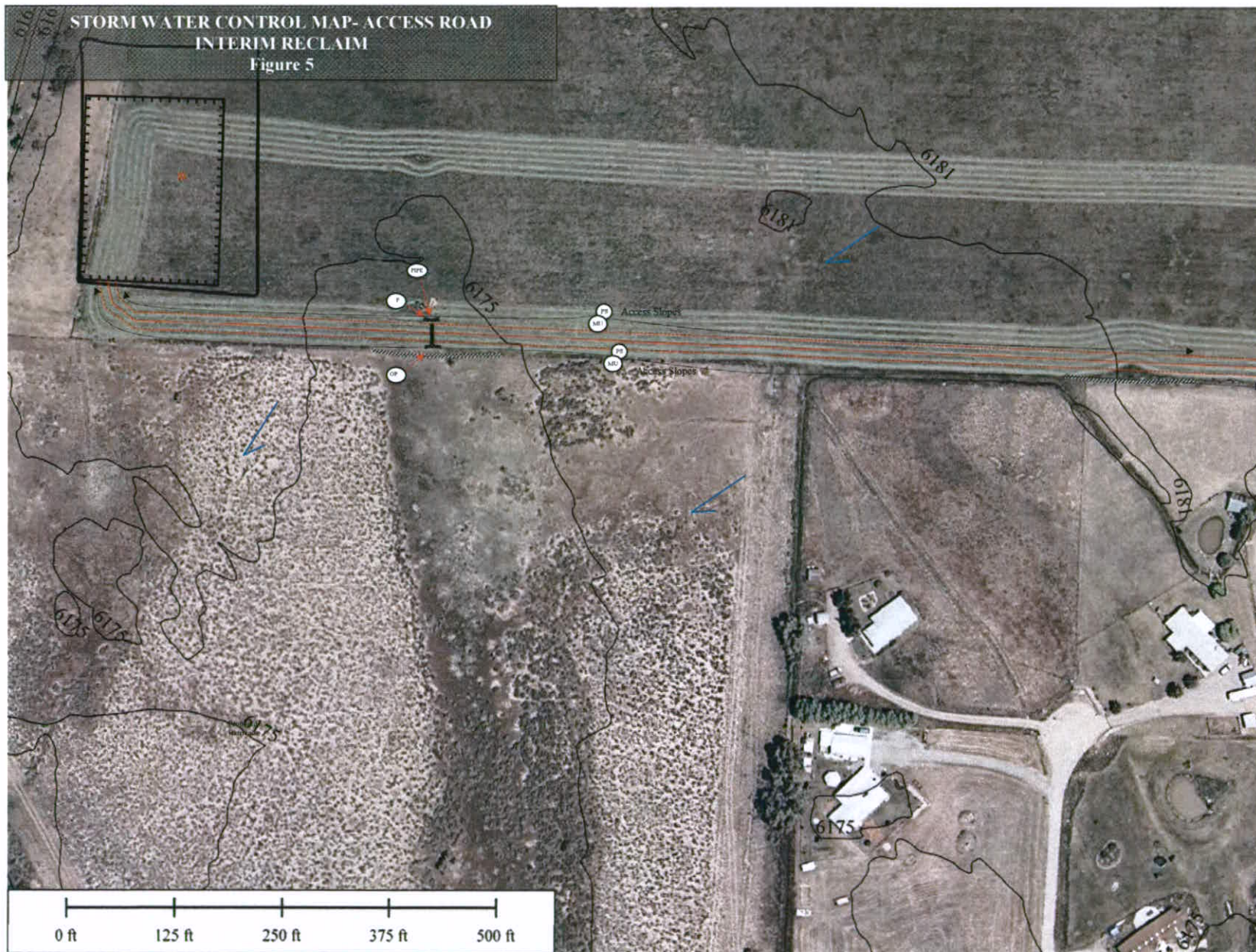
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**NOTES:**

1. TOPO LINES 6-7.8. PROJECTION: NAD83 (GCS83)
2. This map is informational in nature, not accurate by surveying standards, and is presented without representation or warranty by Primerra Environmental Consulting, Inc.



Sec. 13, T 33N, R10W,  
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(La Plata County, CO.)

**LEGEND**

	Limit of Disturbance
	Sediment Control Log
	Steel Pipe Schedule 40-48"
	Inlet Protection-D50-6"
	Outlet Protection-D50-6"
	Permanent Seeding & Mulching @ 2 tons/acre
	Offsite Water Flow Pattern
	Proposed Access Road

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**STORM WATER CONTROL MAP- ACCESS ROAD  
INTERIM RECLAIM**  
Figure 11



**NOTES:**

1. TOPO LINES 4-7 ft. PROJECTION: NAD83 (CONUS)
2. This map is informational in nature, not accurate by surveying standards, and is presented without representations or warranties by Primary Environmental Consulting, Inc.



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(La Plata County, CO.)

**LEGEND**

- Limit of Disturbance
- Sediment Control Log
- Permanent Seeding & Mulching @ 2 tons/acre
- Offsite Water Flow Pattern
- Proposed Access Road

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