

## **Master Stormwater Management Plan**

### **for:**

Red Mesa Field  
Sections 11-12, 13-16, 21-23, 26-28 and 33-35  
Township 33 North, Range 12 West  
Sections 4-5, Township 32 North, Range 12 West  
Marvel, Colorado  
970-588-3302

### **Operator(s):**

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970-588-3302

### **SWMP Contact(s):**

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### **SWMP Preparation Date:**

**March 2009**

#### *Estimated Project Dates:*

**Project Start Date: 03/15/2009**  
**Project Completion Date: 12/31/2009**

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## SECTION 1: SITE EVALUATION, ASSESSMENT, AND PLANNING

### 1.1 Project/Site Information

Project/Site Name: Red Mesa Gas Field

Project Street/Location: Red Mesa Gas Field

City: Marvel

State: CO

ZIP Code: 81329

County or Similar Subdivision: LaPlata County

Latitude/Longitude (Location of field office)

Latitude:

37.111679° N

Longitude:

108.125058° W

Method for determining latitude/longitude:

USGS topographic map (specify scale: \_\_\_\_\_)

EPA Web site  GPS

Other (please specify): \_\_\_\_\_

Is the project located in Indian country?  Yes  No

If yes, name of Reservation, or if not part of a Reservation, indicate "not applicable." \_\_\_\_\_

Not Applicable – Project not within established Reservation boundaries. \_\_\_\_\_

Is this project considered a federal facility?  Yes  No

NPDES project or permit tracking number\*: \_\_\_\_\_

### 1.2 Contact Information/Responsible Parties

**Operator(s):**

Red Mesa Holdings, LLC

P.O. Box 9

Marvel, CO 81329

970-588-3302

**Project Manager(s) or Site Supervisor(s):**

Red Mesa Holdings, LLC

Rich Larson

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**SWMP Contact(s):**

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**Subcontractor(s):**

TBD/various – See Appendix I for detailed list and certifications.

**Emergency 24-Hour Contact:**

Red Mesa Holdings, LLC  
Rich Larson  
970-588-3302 or 970-769-4841 (cell)

### **1.3 Nature and Sequence of Construction Activity**

Describe the general scope of the work for the project, major phases of construction, etc:

General field development including existing location work to maintain, bring locations into compliance with existing regulations and SPCC plan provisions, new well location(s) for drilling, conversion of new locations to production locations after drilling and completion operations, build lease access roads as required, install and maintain pipelines and perform general maintenance as part of routine oil and gas production operations within the confines of the field as described above.

What is the function of the construction activity?

- Residential     Commercial     Industrial     Road Construction     Linear Utility  
 Other    Oil and Gas Operations, see general scope above.

Estimated Project Start Date:                      03/15/2009

Estimated Project Completion Date:              12/31/2009

## **1.4 Soils, Slopes, Vegetation, and Current Drainage Patterns**

Soil type(s): Generally red clay loam and sand mixture well adapted to farming grains and alfalfa and indicative of high desert. Sporadic river rock throughout area of interest. Area is subject to erosion over the long term. A portion of the field is dedicated to farming and ranching. Mixed pinon pine and juniper/cedar trees throughout the area.

Slopes (describe current slopes and note any changes due to grading or fill activities): See attached location diagram and associated berm calculation sheets, also made part of SPCC Plan dated December, 2008. Main drainage is generally NW and SE with secondary drainage from the far NW portion of location running generally SW.

Drainage Patterns (describe current drainage patterns and note any changes due to grading or fill activities): Main drainage is generally NW and SE with secondary drainage from the far NE portion of location running generally SW.

Vegetation: Vegetation is mixed scrub pine, pinion pine and cedar/juniper trees. Scrub sage is resident throughout the area.

Other: All drainage ultimately flows to the La Plata River.

## **1.5 Construction Site Estimates**

The following are estimates of the construction site.

Total project area:	Approximately 138 acres
Construction site area to be disturbed:	Approximately 22.5 acres
Percentage impervious area before construction:	0 %
Runoff coefficient before construction:	.30
Percentage impervious area after construction:	10 %
Runoff coefficient after construction	.41

## **1.6 Receiving Waters**

Description of receiving waters: All drainage will ultimately terminate in the La Plata River via either Long Hollow Creek or Bragg Draw. The major possible conduits from the various locations to Long Hollow Creek are Chureb Hollow, Mooney Draw, Butch Henry Draw, Cannibal Canyon, Third Canyon and Spring Hollow. Bragg Draw is a lone structure that drains directly into the La Plata River. Total depletion is estimated at approximately 23.7 acre-feet of

produced water per year. This plan and the field SPCC Plan provide for 0% non stormwater/snowmelt runoff into the receiving waters.

Description of storm sewer systems: This is a rural area with no established storm water drainage systems. Local roads are predominantly gravel/clay. Several major paved roads exist in the area. Established drainage systems in place provide from drainage from the road to a dig on each side of the road. Transport is then via normal contours following topographic contours to the LaPlata River via various washes and canyons with intermittent streams.

Description of unique features that are to be preserved: Trees and foliage will be preserved to the maximum extent possible.

Describe measures to protect these features: Plan access roads to minimize destruction of trees and other foliage. Adjust staked location as allowed by geologic constraints to allow preservation of trees.

Description of impaired waters or waters subject to TMDLs: LaPlata River and tributaries to the Southern Ute Boundary have a 300 µg/l Fe TMDL. This TMDL is low priority and is not on either the EPA or State of Colorado monitored lists available on 2/1/09.

Other: None

### **1.7 Site Features and Sensitive Areas to be Protected**

The area includes numerous intermittent streams as part of drainage to the LaPlata River. Several steep slopes exist in the area adjacent to existing locations. Existing locations are hardpanned clay susceptible to wave erosion. Slopes may be susceptible to rill and channel erosion. Native vegetation, especially trees are to be retained to the maximum extent possible to maximize absorption of rainfall.

### **1.8 Potential Sources of Pollution**

Potential sources of sediment to stormwater runoff:

Location excavation, preparation of drilling pit, sheet erosion from rain moving over location.

Potential pollutants and sources, other than sediment, to stormwater runoff:

Oil and grease from vehicles and from prime movers on production locations (most are electric engines, with few natural gas engines). Oil and produced water spills. Lubricating oil spills. Chemical spill and entry into runoff. Silt and sediment from spoilage storage piles.

Trade Name Material	Stormwater Pollutants	Location


### **1.9 Endangered Species Certification**

Are endangered or threatened species and critical habitats on or near the project area?

Yes       No

Describe how this determination was made:

Review of the Forest Service Critical Habitat mapper web site indicates that there are no critical habitats in La Plata County. Consultation with the Durango Office of the Forest Service indicates that several animal species on the T&E list are possible in the area. The Forest Service referred project engineer to the U.S. Fish and Wildlife Services office in Grand Junction, CO. Such consultation was made and a project fact sheet and maps were emailed to the USFWS. FWS deferred to the State of Colorado since no Federal cause of action is noted. Contact was made with the State Wildlife department. Deferral was made until a drilling application is received.

If yes, describe the species and/or critical habitat: State of Colorado indicated that no significant impact is anticipated. There are no critical habitats in the project area.

### **1.10 Historic Preservation**

Are there any historic sites on or near the construction site?

Yes       No

Describe how this determination was made:

An extensive review was made of Federal and State Historic sites documenting historic districts and sites within each county of Colorado. Primary reference is the Colorado Historical Society Office of Archeology and Historic Preservation web site located at:

<http://coloradohistory-oahp.org/programareas/register/1503/cty/lp.htm#red>.

Additional resources are found on the National Register of Historic Places web site located at:

<http://www.nationalregisterofhistoricplaces.com/co/La+Plata/districts.html>.

If yes, describe or refer to documentation that determines the likelihood of an impact on this historic site and the steps taken to address that impact.

There are no historic site/districts located within the project area or within the near vicinity.

### **1.11 Applicable Federal, Tribal, State or Local Programs**

State of Colorado Department of Public Health and Environment, Water Quality Control Division – Stormwater Program requirements apply to this SWMP. The permit application and SWMP guidance revised 3/09 was used in the preparation of this plan. Information was obtained from CDPHE at: [www.cdphe.state.co.us/wq/PermitsUnit](http://www.cdphe.state.co.us/wq/PermitsUnit).

La Plata County regulations Chapter 90, effective 1/1/09 are also in place for the project area. These regulatory requirements are also incorporated into this plan.

### **1.12 Maps**

See Appendix B for existing location drawings/maps. See Appendix C for new location drawings/maps (locations built after plan was written and implemented).

## **SECTION 2: EROSION AND SEDIMENT CONTROL BMPS**

BMP reference for this section is the State of California DOT Construction Site Best Management Practice (BMP) Field Manual and Troubleshooting Guide (January, 2003)

## **2.1 Minimize Disturbed Area and Protect Natural Features and Soil**

Most of the project area consists of existing production locations. Primary activities on these sites will consist of production operations, inspection and maintenance operations. Existing disturbed areas will not be expanded without specific need and approval from the land owner. Maintenance operations will include the evaluation of each site for stormwater runoff implications and the initiation of corrective action to ensure that the site is in compliance with this plan. Appropriate sediment management BMP's will be applied as needed to revamp these locations. Reference is made to the field SPCC for spill control procedures that will be put into place on all locations. Most existing locations are in areas of relatively little relief topographically. Locations are generally on the flat mesa or located near the bottom of exiting natural drainages. All rights of way and construction use areas will be marked.

No new drilling locations are in place at this time. The potential drilling locations will be surveyed prior to any work being performed, a detailed diagram of the location will be generated and areas not to be disturbed will be physically marked on the ground. The location site supervisor and/or manager will be the responsible party for monitoring work and insuring that only approved areas are disturbed. Most areas within the field that are suitable for well site construction are relatively flat with little or no relief in the immediate area of construction. Those natural features in the area will be retained to the maximum degree permissible. All rights or way and construction easements will be marked.

## **2.2 Phase Construction Activity**

### **1. For existing locations:**

- Phase I
  - Evaluate existing location and plan work.
  - Determine BMP's as necessary to location to preclude runoff of contaminants.
- Phase II
  - Move in equipment
  - Implement BMP's as necessary to resolve location issues:
    - Straw Mulch for sloping areas to mitigate sheet erosion
    - Install raised ramp area at entrance and provide gravel base to stop runoff thru location entrance.
    - Ditch or dike location as necessary to control runoff.
      - Check dams may be installed. These sediment control devices may be used for both drilling locations and production locations where the total disturbed area is 10 acres or less. This is the most economical method for

sediment control and the first choice for all locations. If the check dam fails or is not effective,

- prepare collection point/desilting basin to collect water and allow for silt to drop out of water. Basin must be approximately 35' long x 15' wide x 3' deep for each acre of disturbed area (note that basin length must be at least 2 times the width.) If the area disturbed is 2 acres or less, installation of a sediment trap in place of the basin is permissible.
- Install silt fencing along perimeter of location in place of ditching or dikes.
  - When silt fencing is installed either a check dam or desilting basin/sediment trap should be evaluated for installation to control sediment discharge from the entrance area.

## 2. For new locations:

- Phase I
  - Evaluate planned location and plan work.
  - Determine BMP's as necessary to location to preclude runoff of contaminants.
- Phase II
  - Prepare entrance and access road using BMP's to preclude movement of polluted stormwater from location
  - Move in equipment onto location
  - Scrape topsoil and pile as necessary for storage
  - Prepare cellar as necessary
  - Using rig plat, prepare reserve pit as approved by permit
  - Implement BMP's as necessary to resolve location issues:
    - Straw Mulch for sloping areas to mitigate sheet erosion
    - Install raised ramp area at entrance and provide gravel base to stop runoff thru location entrance.
    - Ditch or dike location as necessary to control runoff.
      - Check dams may be installed. These sediment control devices may be used for both drilling locations and production locations where the total disturbed area is 10 acres or less. This is the most economical method for sediment control and the first choice for all locations. If the check dam fails or is not effective,
      - Prepare collection point/desilting basin to collect water and allow for silt to drop out of water. Basin must be approximately 35' long x 15' wide x 3' deep for each acre of disturbed area (note that basin length must be at least 2 times the width.) If the area disturbed is 2 acres or less, installation of a sediment trap in place of the basin is permissible.
  - Install silt fencing along perimeter of location in place of ditching or dikes.
    - When silt fencing is installed either a check dam or desilting basin/sediment trap should be evaluated for installation to control sediment discharge from the entrance area.

### **2.3 Control Stormwater Flowing onto and through the Project**

This is the primary BMP to intercept, divert and convey stormwater and runoff originating from outside the project area around the project area.

***BMP Description:* Utilize natural drainage swales when possible when planning location to intercept, divert and convey stormwater and runoff around the project site. Some minor contouring may be necessary to enhance the drainage and take advantage of the natural drainage characteristics of the terrain.**

<b><i>Installation Schedule:</i></b>	Existing locations: ASAP New locations: when location is built
<b><i>Maintenance and Inspection:</i></b>	Weekly and during/after any major storm or runoff event.
<b><i>Responsible Staff:</i></b>	Existing locations: Production New locations: construction contractor

If the above BMP is not successful, implement the following:

***BMP Description:* Earthen dikes established on high side of location to intercept, divert and convey stormwater and/or runoff around the project site.**

<b><i>Installation Schedule:</i></b>	Existing locations: ASAP New locations: when location is built
<b><i>Maintenance and Inspection:</i></b>	Weekly and during/after any major storm or runoff event.
<b><i>Responsible Staff:</i></b>	Existing locations: Production New locations: construction contractor

If the earthen dikes are not practical or not effective employ the following:

***BMP Description:* Trenching/ditching around high side of location to intercept, divert and convey surface runoff around the project site.**

<b><i>Installation Schedule:</i></b>	Existing locations: ASAP New locations: when location is built
<b><i>Maintenance and Inspection:</i></b>	Weekly and during/after any major storm or runoff event.
<b><i>Responsible Staff:</i></b>	Existing locations: Production New locations: construction contractor

## 2.4 Stabilize Soils

The soils that generally will require stabilization are those used for berm construction. Existing locations should already be stabilized, although bare in heavily travelled areas. Reseeding should be used in areas that have no traffic, if foliage has not grown in those areas already. Destruction/removal of existing vegetation should be minimized on new locations.

### ***BMP Description: Preservation of existing vegetation***

<input checked="" type="checkbox"/> <b><i>Permanent</i></b> <input type="checkbox"/> <b><i>Temporary</i></b>	
<b><i>Installation Schedule:</i></b>	Plan to minimize removal of existing vegetation on new locations. Use approved seed to reseed/revegetate existing locations in areas no longer traveled.
<b><i>Maintenance and Inspection:</i></b>	Weekly and during/after any major storm or runoff event.
<b><i>Responsible Staff:</i></b>	Production staff will be responsible for existing locations. Construction staff/production staff will be responsible for restoration of new locations.

### ***BMP Description: Stabilize berms with gravel and mats***

<input checked="" type="checkbox"/> <b><i>Permanent</i></b> <input type="checkbox"/> <b><i>Temporary</i></b>	
<b><i>Installation Schedule:</i></b>	To stabilize all berms install fabric mats and cover with gravel
<b><i>Maintenance and Inspection:</i></b>	Weekly and during/after any major storm or runoff event.
<b><i>Responsible Staff:</i></b>	Production staff for maintenance and inspection. Designated contractor staff and site supervisor for installation.

### ***BMP Description: Stabilize spoil piles with mats***

<input type="checkbox"/> <b><i>Permanent</i></b> <input checked="" type="checkbox"/> <b><i>Temporary</i></b>	
<b><i>Installation Schedule:</i></b>	On new locations and existing locations where spoil piles have been created to temporarily store topsoil or fill, stabilize the spoil piles with fabric mats. Insure that the mats are properly anchored.
<b><i>Maintenance and Inspection:</i></b>	Weekly and during/after any major storm or runoff event.
<b><i>Responsible Staff:</i></b>	Production staff for maintenance and inspection. Designated contractor staff and site supervisor for installation.

## 2.5 Protect Slopes

The most effective method is not to build on slopes. No existing locations are on slopes, though several are adjacent to significant slopes leading to the various drainages which are tributary to Long Hollow Creek and the La Plata River. Most existing slopes are already eroded due to the forces of nature over centuries, creating the canyons that the mesa drains into. The intent of our BMP's is to prevent any damage to existing areas due to transported sediments or adding any erosion burden by diverting stormwater runoff into sensitive areas. Our intent is not to vegetate areas that are not naturally vegetated and to not increase any erosion rates over and above what is caused by natural drainage in the area.

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***BMP Description: Use berms to divert location flow from slopes to established drainage***

<b><i>Installation Schedule:</i></b>	On existing locations which do drain to a slope.
<b><i>Maintenance and Inspection:</i></b>	Weekly and during/after any major storm or runoff event.
<b><i>Responsible Staff:</i></b>	Production staff for maintenance and inspection. Designated contractor staff and site supervisor for installation.

If berms are not practical or not effective:

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***BMP Description: Use fiber rolls to control sediment loss down slopes***

<b><i>Installation Schedule:</i></b>	On existing locations where drainage ultimately goes to a slope
<b><i>Maintenance and Inspection:</i></b>	Weekly and during/after any major storm or runoff event.
<b><i>Responsible Staff:</i></b>	Production staff for maintenance on existing locations. Designated contractor staff and site supervisor for installation and both existing and new locations.

## **2.6 Protect Storm Drain Inlets**

There are no storm drains in the project area. Project area is rural with only basic drainage ditches along dirt, gravel and paved county roads in place.

## **2.7 Establish Perimeter Controls and Sediment Barriers**

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***BMP Description: Install silt fences along lower perimeter of locations***

<b><i>Installation Schedule:</i></b>	Install on existing locations as necessary to provide a sediment barrier. Install on new locations as necessary.
<b><i>Maintenance and</i></b>	Weekly and during/after any major storm or runoff event.

<b>Inspection:</b>	
<b>Responsible Staff:</b>	Production staff for maintenance on existing locations. Designated contractor staff and site supervisor for installation and both existing and new locations.

An alternative BMP if the silt fences are not effective is to:

<b>BMP Description: Install fiber rolls along lower perimeter of locations</b>	
<b>Installation Schedule:</b>	Install on existing locations as necessary to provide a sediment barrier. Install on new locations as necessary.
<b>Maintenance and Inspection:</b>	Weekly and during/after any major storm or runoff event.
<b>Responsible Staff:</b>	Production staff for maintenance on existing locations. Designated contractor staff and site supervisor for installation and both existing and new locations.

## **2.8 Retain Sediment On-Site**

<b>BMP Description: Install straw bales in ditches along lower perimeter of locations</b>	
<b>Installation Schedule:</b>	Install on existing locations as necessary to provide a sediment barrier. Install on new locations as necessary.
<b>Maintenance and Inspection:</b>	Weekly and during/after any major storm or runoff event.
<b>Responsible Staff:</b>	Production staff for maintenance on existing locations. Designated contractor staff and site supervisor for installation and both existing and new locations.

If straw bales are not effective within the drainage ditching,

<b>BMP Description: Install silt fences along lower perimeter of locations</b>	
<b>Installation Schedule:</b>	Install on existing locations as necessary to provide a sediment barrier. Install on new locations as necessary.
<b>Maintenance and Inspection:</b>	Weekly and during/after any major storm or runoff event.
<b>Responsible Staff:</b>	Production staff for maintenance on existing locations. Designated contractor staff and site supervisor for installation and both existing and new locations.

***BMP Description: Install fiber rolls along lower perimeter of locations***

<b><i>Installation Schedule:</i></b>	Install on existing locations as necessary to provide a sediment barrier. Install on new locations as necessary.
<b><i>Maintenance and Inspection:</i></b>	Weekly and during/after any major storm or runoff event.
<b><i>Responsible Staff:</i></b>	Production staff for maintenance on existing locations. Designated contractor staff and site supervisor for installation and both existing and new locations.

If neither of the above BMP's are effective, installation of more complex systems are required.

***BMP Description: Install sediment trap along discharge path from location***

<b><i>Installation Schedule:</i></b>	Install on existing locations as necessary to provide a sediment barrier. Install on new locations as necessary. Location must be analyzed in detail to determine how to route stormwater and runoff into existing drainage ditches and not allow any sediment to be discharged. Trap may be used to control sediment from a location of 5 acres or less. Trap must be at least three times as long as it is wide. Drain the trap a clean out the sediment when the trap is 1/3 full.
<b><i>Maintenance and Inspection:</i></b>	Weekly and during/after any major storm or runoff event.
<b><i>Responsible Staff:</i></b>	Production staff for maintenance on existing locations. Designated contractor staff and site supervisor for installation and both existing and new locations.

If the location in question is greater than 5 acres but less than 10 acres a desilting basin should be installed in place of the sediment trap described above.

***BMP Description: Install desilting basin along discharge path from location***

<b><i>Installation Schedule:</i></b>	Install on existing locations as necessary to provide a sediment barrier. Install on new locations as necessary. Location must be analyzed in detail to determine how to route stormwater and runoff into existing drainage ditches and not allow any sediment to be discharged. Trap may be used to control sediment from a location greater than 5 acres in size but less than 10 acres. Basin must be at least two times as long as it is wide. Drain basin and remove sedimentation when the basin is 1/3 full.
<b><i>Maintenance and Inspection:</i></b>	Weekly and during/after any major storm or runoff event.
<b><i>Responsible Staff:</i></b>	Production staff for maintenance on existing locations. Designated contractor staff and site supervisor for installation and both existing and new locations.

## **2.9 Establish Stabilized Construction Exits**

Existing location entrances/exits are assumed to be stabilized. All roads begin on established county roads and have proper entrances established with provisions for drainage. County roads are gravel with established drainage. Control of sediment deposition is required prior to accessing the country road from the lease road.

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***BMP Description: Install cattle guard across entrance to location.***

<b><i>Installation Schedule:</i></b>	Install on all new locations. Install on existing locations as necessary after individual site evaluation. As required on existing location where access road reaches county road.
<b><i>Maintenance and Inspection:</i></b>	Weekly. Check for sediment fillup in ditch under cattle guard. Remove sediment when 1/3 full.
<b><i>Responsible Staff:</i></b>	Production staff for maintenance on existing locations. Designated contractor staff and site supervisor for installation and both existing and new locations.

If the cattle guard is not effective, consider installing a section of gravel/stone to alleviate any problems.

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***BMP Description: Install gravel/mat coverage across entrance/exit***

<b><i>Installation Schedule:</i></b>	Install on all new locations. Install on existing locations as necessary after individual site evaluation. As required on existing location where access road reaches county road.
<b><i>Maintenance and Inspection:</i></b>	Weekly. Install fabric mat under gravel. Gravel should be sized between 3” and 6” to allow for sediment to settle below rock. Check drainage and install desilting pond if necessary.
<b><i>Responsible Staff:</i></b>	Production staff for maintenance on existing locations. Designated contractor staff and site supervisor for installation and both existing and new locations.

## **2.10 Additional BMPs**

Optional BMP’s for use as necessary when other methods are not effective.

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***BMP Description: Straw bales within site drainage ditching to strip***

<b><i>Installation Schedule:</i></b>	Install on all new locations. Install on existing locations as necessary after individual site evaluation. As required on existing location where access road reaches county road.
<b><i>Maintenance and</i></b>	Weekly. Maintenance as necessary. Check after any rain or runoff

<b>Inspection:</b>	event.
<b>Responsible Staff:</b>	Production staff for maintenance on existing locations. Designated contractor staff and site supervisor for installation and both existing and new locations.

**BMP Description:** Sand bag barrier

<b>Installation Schedule:</b>	Install on all new locations. Install on existing locations as necessary after individual site evaluation. As required on existing location where access road reaches county road.
<b>Maintenance and Inspection:</b>	Weekly. Maintenance as necessary. Check after any rain or runoff event.
<b>Responsible Staff:</b>	Production staff for maintenance on existing locations. Designated contractor staff and site supervisor for installation and both existing and new locations.

**BMP Description:** Check dam

<b>Installation Schedule:</b>	Install on all new locations. Install on existing locations as necessary after individual site evaluation. As required on existing location where access road reaches county road.
<b>Maintenance and Inspection:</b>	Weekly. Maintenance as necessary. Check after any rain or runoff event.
<b>Responsible Staff:</b>	Production staff for maintenance on existing locations. Designated contractor staff and site supervisor for installation and both existing and new locations.

## SECTION 3: GOOD HOUSEKEEPING BMPS

### 3.1 Material Handling and Waste Management

**BMP Description:** Storage of materials

<b>Installation Schedule:</b>	Store materials indoors when possible. Do not store any hazardous materials on the ground. Store bags and boxes on pallets under cover and liquids in drums under cover. Insure that all bags/boxes are completely covered when not being used. Store all materials in their original packages with the original product labels. Have MSDS information available on site for all materials. Provide for proper containment in accordance with SPCC Plan. Store all products with sufficient space to allow for spill cleanup and emergency response access.
<b>Maintenance</b>	Daily. Maintenance as necessary. Check after any rain or runoff event.

<b><i>and Inspection:</i></b>	
<b><i>Responsible Staff:</i></b>	Production staff for maintenance on existing locations. Designated contractor staff and site supervisor for installation and both existing and new locations.

### **3.2 Establish Proper Building Material Staging Areas**

This covers the storage of drilling materials (mud materials, lubricants, soaps, grease and fuel) on a drilling site. Also covers daylight rig/workover materials as described above. Also applicable to frac/acidizing operations, coiled tubing operations and snubbing operations. Slickline and wireline materials are normally stored on the servicing vehicle. Any cementing materials should be brought to location in contractor provided bins/bin trucks. Contractor to clean up any spills immediately.

***BMP Description:*** Storage of materials

<b><i>Installation Schedule:</i></b>	Store materials indoors when possible. Do not store any hazardous materials on the ground. Store bags and boxes on pallets under cover and liquids in drums under cover. Insure that all bags/boxes are completely covered when not being used. Store all materials in their original packages with the original product labels. Have MSDS information available on site for all materials. Provide for proper containment in accordance with SPCC Plan. Store all products with sufficient space to allow for spill cleanup and emergency response access.
<b><i>Maintenance and Inspection:</i></b>	Daily. Maintenance as necessary. Check after any rain or runoff event.
<b><i>Responsible Staff:</i></b>	Production staff for maintenance on existing locations. Designated contractor staff and site supervisor for installation and both existing and new locations.

***BMP Description:*** Stockpile management

<b><i>Installation Schedule:</i></b>	Cover all soil piles to prevent washout or movement by wind. Provide perimeter containment to prevent the ingress and egress of stormwater. Aggregate stockpiles need to be protected in a similar manner. The cover may also provide the perimeter protection if it is sealed/secured along the ground level. If not, consider use of berms, dikes, silt fences, straw bales or sandbag barriers.
<b><i>Maintenance and Inspection:</i></b>	Daily. Maintenance as necessary. Check after any rain or runoff event.
<b><i>Responsible Staff:</i></b>	Production staff for maintenance on existing locations. Designated contractor staff and site supervisor for installation and

	both existing and new locations.
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<b>BMP Description:</b> Spill Prevention Control	
<b>Installation Schedule:</b>	Reference is made to the field SPCC Plan incorporated by reference.
<b>Maintenance and Inspection:</b>	Daily. Maintenance as necessary. Check after any rain or runoff event.
<b>Responsible Staff:</b>	As designated by the SPCC Plan.

### 3.3 Designate Washout Areas

<b>BMP Description:</b> Cement washout area	
<b>Installation Schedule:</b>	Install on all drilling/new locations as part of the reserve pit. Insure that pit is lined. Designate area to be used for cement truck and bin washout by contractor. Washout not permitted anywhere else on or off of location. Existing locations will require a small pit for cement washout whenever cementing operations are planned on a workover/completion. Pit shall be lined.
<b>Maintenance and Inspection:</b>	Daily. Maintain as necessary. Check after any rain or runoff event for excessive fluid levels.
<b>Responsible Staff:</b>	Drilling/workover crew. Site supervisor. Production roustabout crew as necessary.

### 3.4 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices

<b>BMP Description:</b> Spill Prevention Control and Countermeasure Plan	
<b>Installation Schedule:</b>	Reference is made to the field SPCC Plan incorporated by reference.
<b>Maintenance and Inspection:</b>	Daily. Maintenance as necessary. Check after any rain or runoff event.
<b>Responsible Staff:</b>	As designated by the SPCC Plan.

### **3.5 Control Equipment/Vehicle Washing**

**BMP Description:** Vehicles to be washed at commercial wash facilities. No wash facilities are to be provided.

<b>Installation Schedule:</b>	None provided. If excessive mud is on vehicles, use brooms to brush off as required prior to entering county roads.
<b>Maintenance and Inspection:</b>	Site supervisor responsible for monitoring and insuring that no vehicles are washed on location.
<b>Responsible Staff:</b>	Site supervisor. Production crews.

### **3.6 Spill Prevention and Control Plan**

Reference is made to the Red Mesa Field Spill Prevention Control and Countermeasure Plan, dated December, 2008. The SPCC Plan is incorporated by reference into this Stormwater Management Plan.

### **3.7 Any Additional BMPs**

These additional BMP's may be necessary after some experience has been acquired in the project area. Use as necessary.

**BMP Description:** Solid waste management

<b>Installation Schedule:</b>	Keep area policed of all trash and debris. Provide dumpster/trash containers to place all trash awaiting proper disposal.
<b>Maintenance and Inspection:</b>	Daily. Maintenance as necessary. Check after any rain or runoff event.
<b>Responsible Staff:</b>	As designated by site superintendent.

**BMP Description:** Hazardous waste management

<b>Installation Schedule:</b>	Install containment facilities as necessary on each location. Locate all waste containment facilities away from any drainage on the location.
<b>Maintenance and Inspection:</b>	Daily.
<b>Responsible Staff:</b>	Site supervisor.

***BMP Description:*** Contaminated soil management

<b><i>Installation Schedule:</i></b>	Test soils when discovered to determine the type of contamination and disposal that may be required.
<b><i>Maintenance and Inspection:</i></b>	Daily.
<b><i>Responsible Staff:</i></b>	Site supervisor.

***BMP Description:*** Sanitary/Septic waster management

<b><i>Installation Schedule:</i></b>	Do not locate near drainage facilities or in areas that will collect/accumulate water. Contract equipment and facility maintenance to provide for approved disposal and maintenance.
<b><i>Maintenance and Inspection:</i></b>	Daily inspection by supervisor. Contractor to be on schedule for maintenance, with provisions for callout as necessary.
<b><i>Responsible Staff:</i></b>	Site supervisor.

### **3.8 Allowable Non-Stormwater Discharge Management**

Allowable non-stormwater discharges are:

1. Fresh water used for dust control.
2. Fresh uncontaminated water used to test pipelines and flowlines.
3. Air Conditioning condensate from vehicles on location.
4. Any existing uncontaminated groundwater and/or spring water.
5. Any irrigation flows or return lines/flow.
6. Any dewatering of existing flows on location.

***BMP Description:*** Existing catch basin, retention facility, desilting facility, drainage/diversion ditches, straw bales, fabric rolls, sandbag barriers, check dams, etc.

<b><i>Installation Schedule:</i></b>	Previously installed on location.
<b><i>Maintenance and Inspection:</i></b>	Daily, weekly and monthly. Special inspection after any stormwater or runoff event.
<b><i>Responsible Staff:</i></b>	Production staff for maintenance on existing locations. Designated contractor staff and site supervisor for installation and both existing and new locations.

## SECTION 4: SELECTING POST-CONSTRUCTION BMPs

Post construction activities shall, as a minimum, include:

1. Reseeding/restoration of areas not needed for production operations.
2. Return of the unused/excess acreage to the rancher/farmer for his best use.
3. All drainage ditches, earthen dikes, drainage swales, and other sediment control and diversion structures shall remain in place. Those not permatized should be permatized prior to final stabilization of the project area.
4. Consideration should be given, where economical and beneficial from a stormwater management perspective to using gravel roadbase on lease roads to provide a more porous road surface.
5. Any slopes exposed should be protected using already established BMP's cited above.
6. Reference is made to all of the above BMP specifications mentioned previously in this plan and they are hereby incorporated into this section of the plan.

## SECTION 5: INSPECTIONS

### 5.1 *Inspections*

**1. *Inspection Personnel:*** During day to day operations, inspections will be conducted by production operations personnel. Each wellsite is normally visited at least once per week. An inspection shall be conducted at this time and any problems areas noted on the daily production log. If all BMP's are in place and functioning properly, a negative report should be entered. Personnel shall receive training in the plan, plan implementation and BMP purpose, construction, use and inspection. On drilling locations the responsible party shall be the onsite supervisor. All drilling and daylight supervisors/consultants shall be trained in the plan, plan implementation and BMP purpose, construction, use and inspection.

**2. *Inspection Schedule and Procedures:***

Inspection schedules are either daily or weekly. Formal inspections should occur weekly and be conducted by the designated production staff or wellsite supervisor. A monthly inspection by the field superintendent or his designated representative should be conducted. An inspection shall be conducted prior to and after any major rain event or runoff event.

The planned scheme for inspections is:

1. Daily inspections shall be conducted by the production personnel with notations being made on daily production/operations reports. These reports are normally kept on file for at least 3 years, meeting the documentation requirements of this section. Reports are

only required for effected locations (locations having SWMP structures/BMP's in place or under construction).

2. Understanding that each effected location may not be visited every day, each effected location shall be inspected at least once per week.
3. The field superintendent or his designated representative shall make a complete inspection of each effected location in the field once per month and record the findings.
4. Each drilling/daylight site supervisor/consultant shall make a daily inspection of his area of responsibility, record the inspection and results and report same on the daily drilling/workover report.
5. An inspection shall be make of each effected location prior to and after any major rainfall event or at least weekly during snowmelt.
6. All inspection records shall be retained for at least 3 years after final stabilization of each location.

If problems are encountered, the issue shall be promptly reported to the field superintendent or his designated representative. Corrected action shall be planned immediately and initiated as soon as feasible. Corrective action shall be initiated within two working days.

See Appendix F for the inspection report to be used.

## **5.2 Delegation of Authority**

### **Duly Authorized Representative(s) or Position(s):**

Red Mesa Holdings, LLC  
Rich Larson, Production Superintendent  
P.O. Box 9  
Marvel, CO 81329

See Appendix K for a complete listing of all approved Delegations of Authority.

## **5.3 Corrective Action Log**

Corrective Action Log: See Appendix G for the Corrective Action Log.

## **SECTION 6: RECORDKEEPING AND TRAINING**

### **6.1 *Recordkeeping***

Records will be retained for a minimum period of at least 3 years after the permit is terminated.

Date(s) when major grading activities occur:

See Appendix I for appropriate construction log and dates.

Date(s) when construction activities temporarily or permanently cease on a portion of the site:

See Appendix I for appropriate construction log and dates.

Date(s) when an area is either temporarily or permanently stabilized:

See Appendix J for appropriate construction log and dates.

### **6.2 *Log of Changes to the SWMP***

Log of changes and updates to the SWMP

See Appendix H for Log of SWMP Changes.

### **6.3 *Training***

Individual(s) Responsible for Training:

Please see Appendix K for the Training Log.

Describe Training Conducted:

- General stormwater and BMP awareness training for staff and subcontractors:
- Detailed training for staff and subcontractors with specific stormwater responsibilities:

## SECTION 7: FINAL STABILIZATION

<b><i>BMP Description:</i></b> Reseeding of non used areas	
<b><i>Installation Schedule:</i></b>	Upon completion of production location
<b><i>Maintenance and Inspection:</i></b>	Monitor weekly. May return area to landowner without reseeding if this is agreeable to the rancher/farmer.
<b><i>Responsible Staff:</i></b>	Production staff or other approved contractor

<b><i>BMP Description:</i></b> Stabilize heavily used areas	
<b><i>Installation Schedule:</i></b>	Upon completion of production location
<b><i>Maintenance and Inspection:</i></b>	Monitor weekly. Maintain as necessary. Install gravel on road and around wellhead and equipment to stabilize soils.
<b><i>Responsible Staff:</i></b>	Production crew or designated contractor.

## SECTION 8: CERTIFICATION AND NOTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## **SWMP APPENDICES**

Attach the following documentation to the SWMP:

***Appendix A – General Location Map***

***Appendix B – Existing Location Site Drawings***

***Appendix C – New Location Site Drawings***

***Appendix D – Construction General Permit***

***Appendix E – NOI and Acknowledgement Letter from State***

***Appendix F – Inspection Reports***

***Appendix G – Corrective Action Log***

***Appendix H – SWMP Amendment Log***

***Appendix I – Subcontractor Certifications/Agreements***

***Appendix J – Grading and Stabilization Activities Log***

***Appendix K – Training Log***

***Appendix L – Delegation of Authority***

***Appendix M – T & E documentation***

***Appendix N – Historic structure documentation***

***Appendix O – State of Colorado SWMP Requirements***

***Appendix P – BMP Manual***

***Appendix Q – EPA BMP fact sheets***

***Appendix R – SWMP Self Audit checklist***

***Appendix S – Depletion calculations***

***Appendix T – Training curriculum***

# Appendix G – Corrective Action Log

Project Name:  
SWMP Contact:

Inspection Date	Inspector Name(s)	Description of BMP Deficiency	Corrective Action Needed (including planned date/responsible person)	Date Action Taken/Responsible person



# Appendix I – Subcontractor Certifications/Agreements

## SUBCONTRACTOR CERTIFICATION STORMWATER POLLUTION PREVENTION PLAN

Project Number: \_\_\_\_\_

Project Title: \_\_\_\_\_

Operator(s): \_\_\_\_\_

As a subcontractor, you are required to comply with the Stormwater Pollution Prevention Plan (SWMP) for any work that you perform on-site. Any person or group who violates any condition of the SWMP may be subject to substantial penalties or loss of contract. You are encouraged to advise each of your employees working on this project of the requirements of the SWMP. A copy of the SWMP is available for your review at the office trailer.

Each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement:

**I certify under the penalty of law that I have read and understand the terms and conditions of the SWMP for the above designated project and agree to follow the BMPs and practices described in the SWMP.**

This certification is hereby signed in reference to the above named project:

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Type of construction service to be provided: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

# Appendix J – Grading and Stabilization Activities Log

Project Name:  
SWMP Contact:

Date Grading Activity Initiated	Description of Grading Activity	Date Grading Activity Ceased (Indicate Temporary or Permanent)	Date When Stabilization Measures are Initiated	Description of Stabilization Measure and Location

## Appendix K – SWMP Training Log

### Stormwater Pollution Prevention Training Log

Project Name: \_\_\_\_\_

Project Location: \_\_\_\_\_

Instructor's Name(s): \_\_\_\_\_

Instructor's Title(s): \_\_\_\_\_

Course Location: \_\_\_\_\_ Date: \_\_\_\_\_

Course Length (hours): \_\_\_\_\_

Stormwater Training Topic: *(check as appropriate)*

- Erosion Control BMPs       Emergency Procedures  
 Sediment Control BMPs       Good Housekeeping BMPs  
 Non-Stormwater BMPs

Specific Training Objective: \_\_\_\_\_  
\_\_\_\_\_

Attendee Roster: *(attach additional pages as necessary)*

No.	Name of Attendee	Company
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

# Appendix L – Delegation of Authority Form

## Delegation of Authority

I, \_\_\_\_\_ (name), hereby designate the person or specifically described position below to be a duly authorized representative for the purpose of overseeing compliance with environmental requirements, including the Construction General Permit, at the \_\_\_\_\_ construction site. The designee is authorized to sign any reports, stormwater pollution prevention plans and all other documents required by the permit.

\_\_\_\_\_ (name of person or position)  
\_\_\_\_\_ (company)  
\_\_\_\_\_ (address)  
\_\_\_\_\_ (city, state, zip)  
\_\_\_\_\_ (phone)

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in \_\_\_\_\_ (Reference State Permit), and that the designee above meets the definition of a “duly authorized representative” as set forth in \_\_\_\_\_ (Reference State Permit).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

**Name:** \_\_\_\_\_  
**Company:** \_\_\_\_\_  
**Title:** \_\_\_\_\_  
**Signature:** \_\_\_\_\_  
**Date:** \_\_\_\_\_