12) Non-industrial waste sources such as worker trash and portable toilets'; and
13) Other areas or procedures where potential spills can occur.

TABLE 3.2 Potential Pollutant Sources		
Pollutant Source or Activity	**Narrative**	**Stormwater Discharge Potential**
Disturbed and Stored Soils	Topsoil storage	Sediment Erosion and Sediment Control
Vehicle Tracking	Off-site soil tracking	Sediment Vehicle Tracking Control
Contaminated Soils	Not Applicable	Not identified as a potential pollutant
Loading and Unloading Operations	Not an oil and gas construction activity	Not identified as a potential pollutant
Outdoor Storage Activities	Not an oil and gas construction activity	Not identified as a potential pollutant
Vehicle and Equipment Maintenance and Fueling	Maintenance and fueling are not conducted at the construction site	Not identified as a potential pollutant
Dust or Particulate Generating Processes	Dust control measures during dry season only	Sediment Erosion and Sediment Control
Routine Maintenance Activities; fertilizers, pesticides & other chemicals	Not an oil and gas construction activity	Not identified as a potential pollutant
On-site Waste Management Practices	No on-site waste storage	Not identified as a potential pollutant
Concrete Truck/Equipment Washing	Truck and Equipment washing is not conducted at the construction site	Not identified as a potential pollutant
Dedicated Asphalt and Concrete Batch Plants	Not an oil and gas construction activity	Not identified as a potential pollutant
Non-industrial waste sources (Worker trash, portable toilets)	Trash sources are removed daily Portable toilets not provided as part of construction activities	Not identified as a potential pollutant
Areas or Procedures where spills can occur	None identified as an oil and gas construction activity	Not identified as a potential pollutant

3.3 BEST MANAGEMENT PRACTICES FOR STORMWATER POLLUTION PREVENTION

c) Best Management Practices (BMPs) for Stormwater Pollution Prevention – The SWMP shall identify and describe appropriate BMPs, including but not limited to those required by paragraphs 1 through 8 below, that will be implemented at the facility to reduce the potential of sources identified in Part I.C. 3. b. to contribute pollutants to stormwater discharges. The SWMP shall clearly describe the installation and implementation specifications for each BMP identified in the SWMP to ensure proper implementation, operation and maintenance of the BMP.

1) Structural Practices for Erosion and Sediment Control. The SWMP shall clearly describe and location all structural practices implemented at the site to minimize erosion and sediment transport. Practices may include but are not limited to: straw bales, wattles/sediment control logs, silt fences, earth dikes,

drainage swales, sediment traps, subsurface drains, pipe slope drains, inlet protection, outlet protection, gabions, and temporary or permanent sediment basins.

2) *Non-Structural Practices for Erosion and Sediment Control. The SWMP shall clearly describe and locate, as applicable, all non-structural practices implemented at the site to minimize erosion and sediment transport. Description must include interim and permanent stabilization practices, and site-specific scheduling for implementation of the practices. The SWMP should include practices to ensure that existing vegetation is preserved where possible. Non-structural practices may include but are not limited to: temporary vegetation, permanent vegetation, mulching geotextiles, sod stabilization, slope roughening, vegetative buffer strips, protection of trees, and preservation of mature vegetation.*
3) *Phased BMP Implementation. The SWMP shall clearly describe the relationship between the phases of construction, and the implementation and maintenance of both structural and non-structural stormwater management controls. The SWMP must identify the stormwater management controls to be implemented during the project phases, which can include, but not limited to, clearing and grubbing; road construction; utility and infrastructure installation; vertical construction; final grading and final stabilization.*

TABLE 3.3
CONTROLS AND MEASURES

Construction Activity	Structural BMPs (as needed)	Non-Structural BMPs
Road Construction	Slope breakers Cross-drain culverts Hay bales and/or silt fencing at natural drainages	Utilize existing roads Minimize road grades Minimize stream crossings Vegetative Buffers when streams or sensitive habitat are present Measures to prevent construction debris
Drilling Pad Construction	Hay bales and/or silt fencing at natural drainages, reduce storm water run-on and run-off Diversion Ditches (as needed) with velocity reducers	Minimize pad size Minimize slopes Construct away from streams and sensitive habitat Regular trash and construction debris removal
Pit Construction	Construction within Drilling Pad Construction controls Lined and/or compacted pits	No siphons or openings
End of Construction	Maintain structural controls until area is stabilized Compact and/or stabilize new roads and well location	Limed, fertilized, seeded and/or mulched (as needed) as soon as practicable

3.3.1 STRUCTURAL BMPs

Erosion control techniques selected for controls will be installed using the following techniques:

3.3.1.1 Silt Fence Construction

Silt fences will be installed with the following considerations:

(a) Fence support posts shall be of metal or wood. Metal posts shall be of

greater than ½ inch diameter solid rod or drive fence post. Wood posts shall be of greater than 2 inches diameter.

(b) Post will be solidly driven into the ground..

(c) Maximum distance between posts shall be 5 feet.

(d) The silt fence material will be attached to the post at maximum extension of the material.

(e) The material will have a minimum bottom burial of 3 inches.

(f) Silt fence material will be supported on top by wire or cord attached to the post and strung between the post and attached to the material. This may be eliminated if backed by hay bales.

(g) Silt fences will extend outward beyond the main flow channels or areas a minimum of 5 feet on each side.

(h) Where it is necessary to offset silt fences, the offset overlap will be a minimum of 5 feet and should be spaced at distances, as required by the terrain and slope, to prevent erosion and reduce flow velocity.

(i) In areas where silt fences are impractical, hay bales may be used as a silt fence. It is necessary to stake or anchor these to prevent movement.

(j) Silt fencing material will conform to specifications outlined in this BMP.

FIGURE 3.1

TYPICAL SILT FENCE PLAN AND PROFILE VIEW

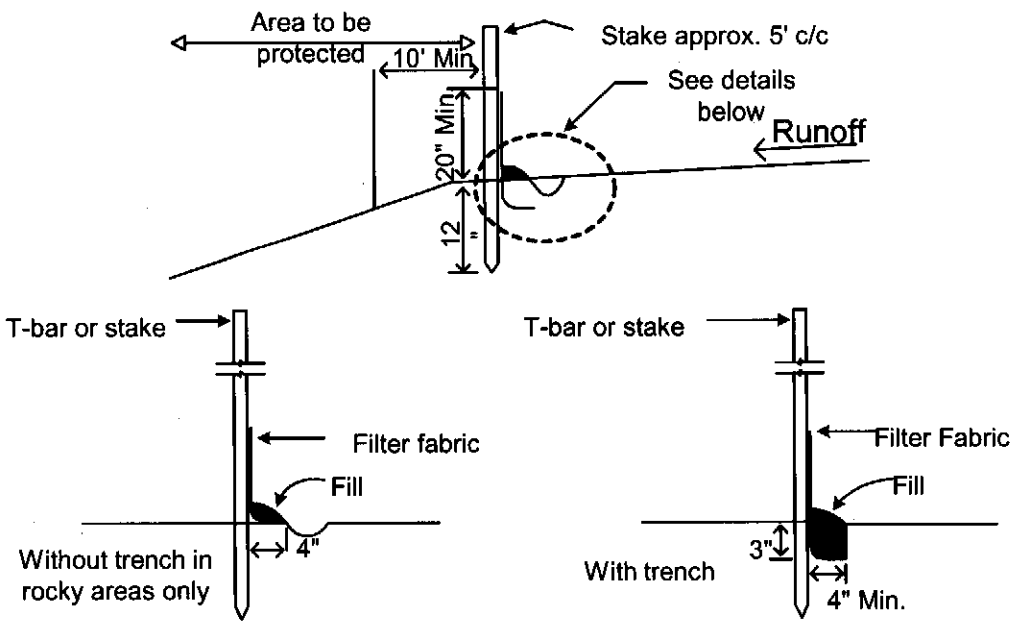
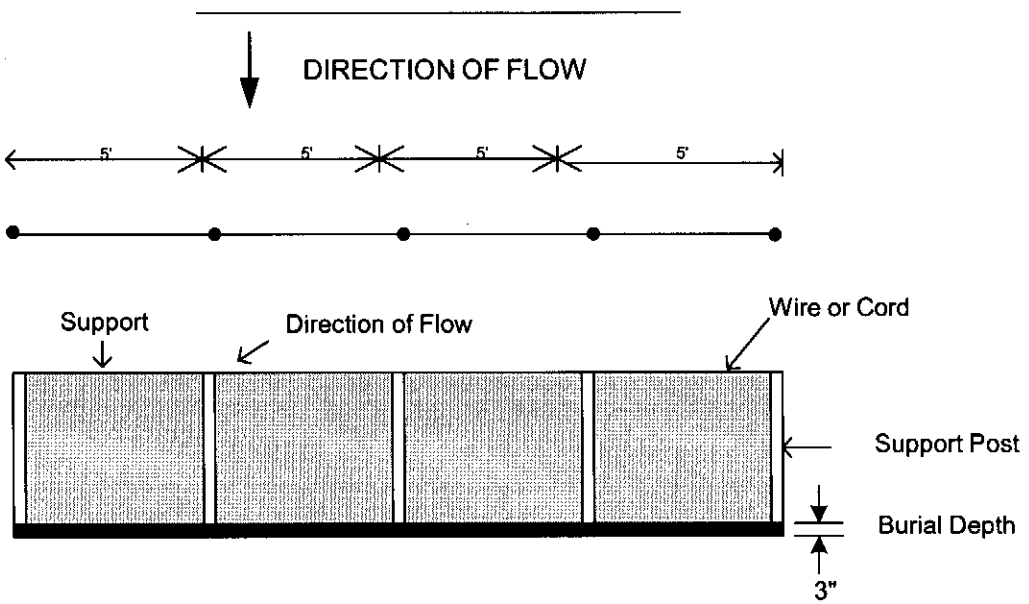


FIGURE 3.2

TYPICAL SILT FENCE SIDE VIEW



3.3.1.2 Hay Bale Construction & Placement

Hay bales will be installed with the following considerations:

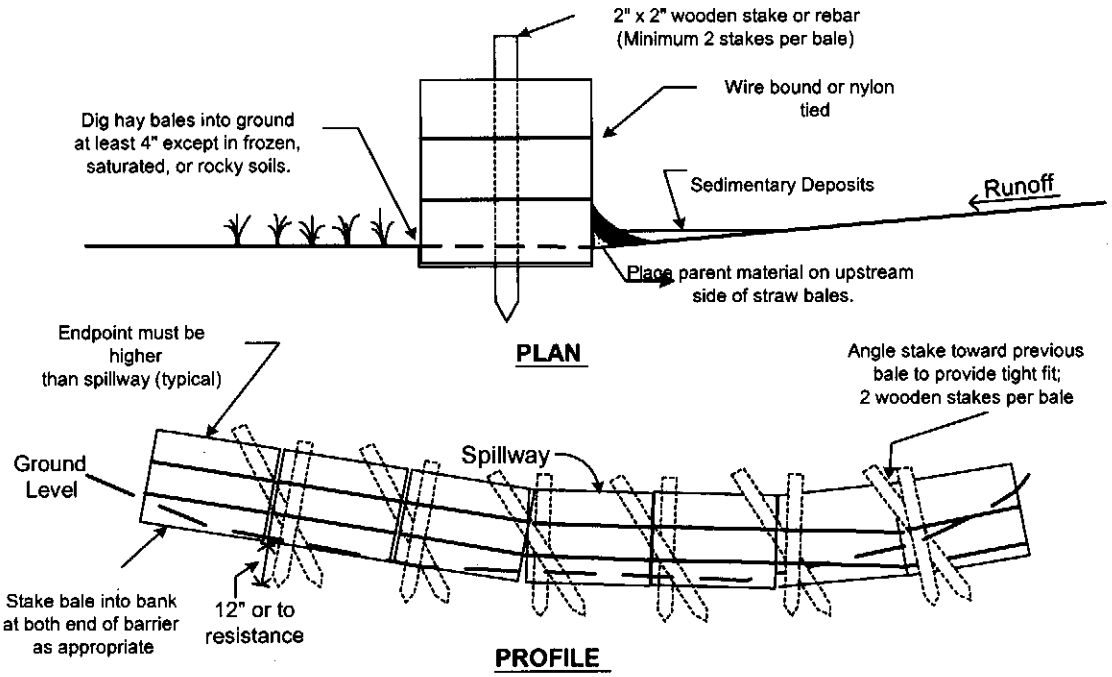
a) Hay bales will be anchored in place with tow stake; the first stake driven at an angle toward the previously positioned bale, and the second stake driven perpendicular to ground surface.

b) Bindings on bales will be horizontal.

c) Hay bales will be repaired or replaced as required.

FIGURE 3.3

TYPICAL HAY BALE PLAN & PROFILE



3.3.1.3 Slope Breaker Construction & Placement

Slope breakers will be used and installed with the following considerations:

a) Slope Breaker or Water Bar use depends on slope which dictates consideration for size, shape and placement.
b) Sequence of construction will normally follow clearing and grading activities.
c) Silt fence and/or hay bales can be a supplement control for runoff in non-vegetated or sparsely vegetated areas.
d) Temporary slope breakers will be maintained/repaired at the end of each workday during active construction equipment operation. Minimum distances for spacing are:

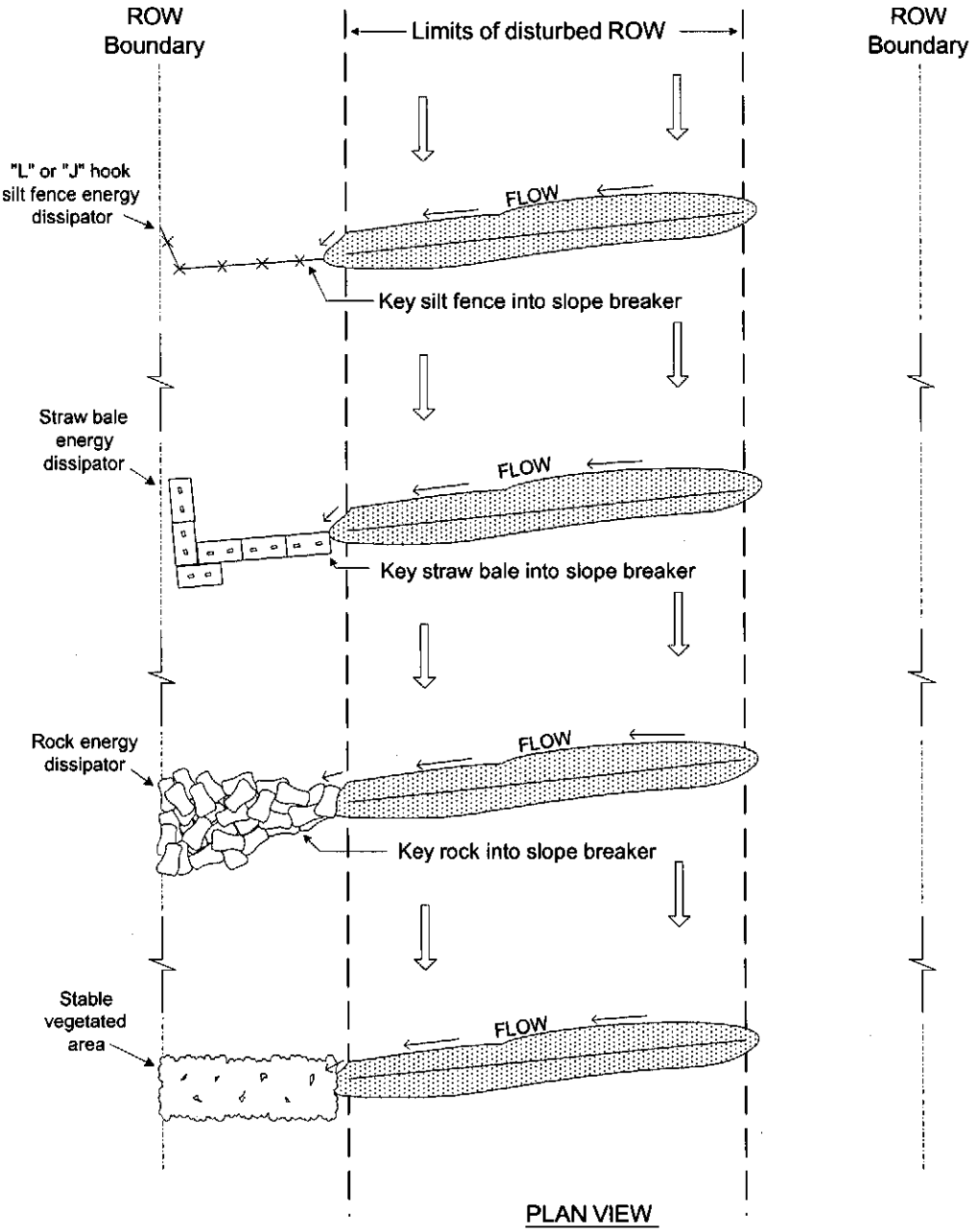
TABLE 3.3.1.3
SLOPE BREAKER SPACING

Slope	Slope Breaker Spacing
2	250

TABLE 3.3.1.3 SLOPE BREAKER SPACING	
Slope	**Slope Breaker Spacing**
5	135
10	80
15	60
20	45
25	40
30	35
40	30

FIGURE 3.4

TYPICAL SLOPE BREAKER PLAN & PROFILE



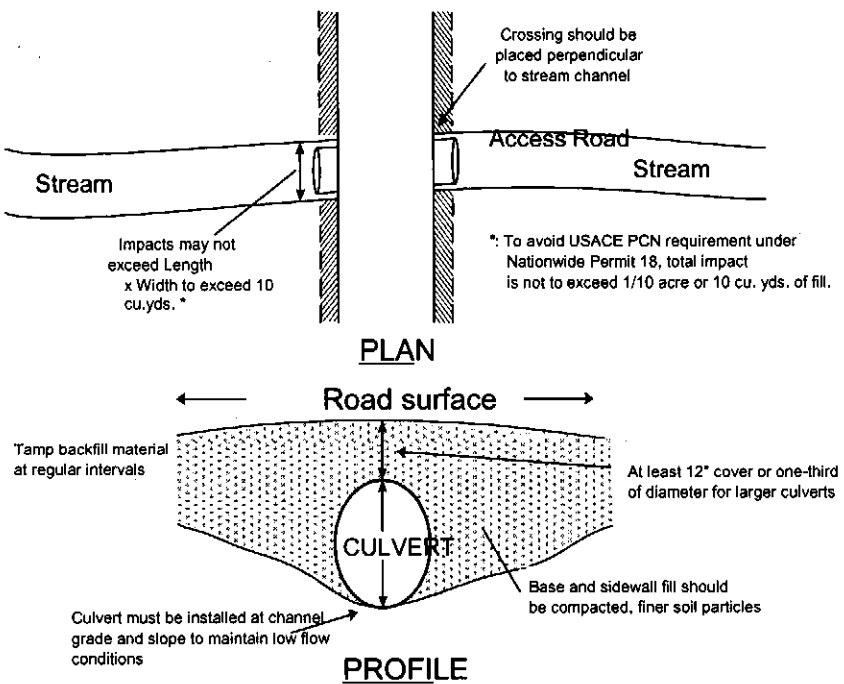
3.3.1.4 Cross-drain Culverts (Road Stream-Crossing) Plans

Cross-drains will be used and installed with the following considerations:

a) Crossing design will be constructed according to accepted engineering practices.
b) Typical design will allow opening sized to pass water flow during both low <5 cfs and high volume conditions.
c) Crossing considered to be permanent (greater than 120 days), design criteria will be based on a 25-year flood event.
d) Crossing considered temporary (less than 120 days), design criteria will be based on a 2-year flood event.
e) Rock fill inlet protection (and dissipaters) will be included at the opening for water passage and biota.
f) If operations are not eligible for Nationwide Permit No. 18 for Minor Discharges, a review of NWP 12, NWP 43 may be appropriate. An individual 404 permit from the Corp of Engineers may be required.

FIGURE 3.5

TYPICAL STREAM CROSSING PLAN & PROFILE



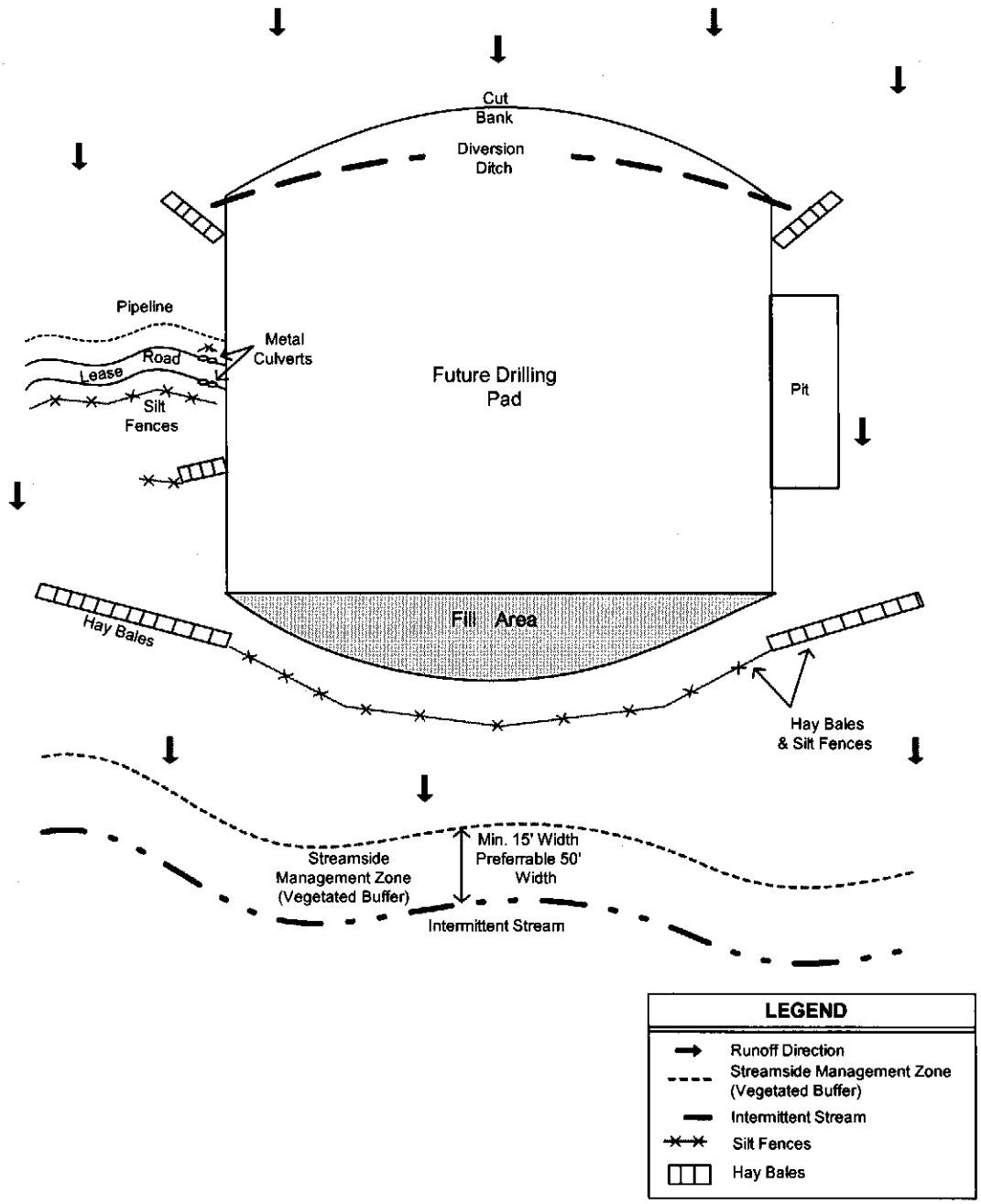
3.3.1.5 Drilling Pad and Drilling Pit Construction

Drilling pad and pit construction will follow these considerations:

a) Construction will be minimized in areal extent, away from streams and/or special aquatic sites to the extent possible, and contoured to prevent runoff from creating erosion paths.
b) Erosion control measures will be implemented prior to or at the time of construction.

FIGURE 3.6

TYPICAL SITE PLAN



3.3.2 NON-STRUCTURAL BMPs

Non-structural control techniques selected for controls will be implemented:

a) Prevent runoff from off-site areas from flowing across disturbed areas to the extent possible.
b) Reduce runoff velocities across the site when necessary to reduce erosion.
c) Minimize soil disturbance at the site.
d) Include mulching, liming, temporary seeding, or other stabilizing techniques at appropriate times and locations.

3.3.3 PHASED BMP IMPLEMENTATION

BMP implementation is provided in Table 3.3 Controls and Measures.

3.3.4 MATERIALS HANDLING AND SPILL PREVENTION

4) The SWMP shall clearly describe and locate all practices implemented at the site to minimize impacts from procedures or significant materials handled at the site that could contribute pollutants to runoff. Such procedures or significant materials could include: exposed storage of building materials, paints or solvents; fertilizers or chemicals; waste material and equipment maintenance or fueling procedures. Areas or procedures where potential spills can occur must have spill prevention and response procedures identified.

The Grand Mesa SPCC Plan includes detailed information of the bulk storage container installations including storage locations, condition, construction, dimensions and contents of temporary bulk storage containers. All bulk storage containers are compatible with the material stored and means of containment. The SPCC Plan also provides information regarding the location of the containers for electrical and other operational uses. Secondary containment for these facilities is either provided by local dikes, berms or other drainage control. The containment systems are designed not to discharge and therefore, materials will not come in contact with stormwater. The provisions of the SPCC applicable to spill prevention and response procedures are provided below.

The Grand Mesa spill prevention practices include:

- Training of personnel with respect to spill prevention procedures;
- Routine inspections of control facilities;
- Placement of spill response kits; and
- Procedures for oil unloading activities that provide for all unloading activities to be manned at all times.

3.3.4.1 SPILL RESPONSE PROCEDURES

The spill response procedures identified in this section are designed to mitigate spills that may occur at the facility.

SPILL RESPONSE

It is the intent of these emergency response procedures to accomplish the following in the event of an on-site release:

1. Protect all Grand Mesa and contract employees from injuries or health exposure.