| | Storm Water Management Plan for |
|---------|---|
| | Brands West Industrial - Phase 1 Owner: Hines |
| INX MAR | |
| | submitted to: City of Loveland, Colorado |
| No. | |
| | Administrator: Email: Phone: |
| | TST, INC. CONSULTING ENGINEERS Prepared May 2021 |

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1.0 Site Description

1.1 Introduction

The following Storm Water Management Plan (SWMP) has been prepared for use during the construction of the Brands West Industrial – Phase 1 project, located east of the Fort Collins / Loveland Airport in the northeast corner of Section 34, Township 6 North, Range 68 West, in the City of Loveland, Colorado. This plan describes recommended procedures and best management practices, BMP's, to assist the contractor in complying with the Colorado Water Quality Control Act and the Federal Water Pollution Control Act.

The stormwater discharge permit application shall be completed on the CDPHE at <u>http://ceos.colorado.gov/CO/CEOS/Public</u>. Log in with your username and password or select "Create a New Account" from the right-hand side and follow the prompts. For more information setting up a user account with CDPHE go to https://environmentalrecords.colorado.gov/HPRMWebDrawer/RecordView/1333974.

A copy of the CDPS permit application is provided in **Appendix A** for submittal to the State **at least 10 days prior to beginning grading activities**. The intent of this plan is to provide the contractor a place to consolidate records, logs, permits, applications etc. as well as guidance on water quality protection. It is critical that the contractor understands that **this plan is a living document that must be updated and maintained throughout the construction process.**



NOT TO SCALE



1.2 Project Description

In October of 2021, construction is expected begin on this phase of the project which includes two buildings. It includes a site access point from Byrd Drive with accompanying parking lots, and drainage. One onsite detention pond and structures will also be constructed with this phase of the project. The site consisting of roughly 20.8 acres, is expected to be disturbed by grading activities and utility installation. A map of the erosion control measures, and proposed utilities are included in the **back pocket** of this report. The map is an important document that the contractor will need to use throughout the construction project and is discussed in later sections.

1.3 Proposed Sequence of Activities

The contractor is the SWMP Administrator and will be responsible for implementing and maintaining the erosion and sediment control, and pollution prevention measures described in this document and the accompanying construction drawings and specifications. The contractor may designate certain tasks as he sees fit, but the ultimate responsibility for ensuring the implementation of these controls and their proper function remains with the contractor. All BMP's must be shown on the Erosion Control Plan in the back pocket of this report. Some BMP locations must be determined by the contractor and marked on the plans in addition to the ones already shown. The order of major activities will be as follows:

- 1. Phase One Grading Phase:
 - a. Site Preparation: Confirm project disturbance limitations with those indicated on the Erosion Control Plan and install initial sediment and erosion control and pollution prevention BMP's
 - b. Schedule pre-construction inspection of BMPs with the City of Loveland to insure proper installation and functionality. Fill out an inspection report (sample provided in Appendix C) and file it in this report notebook.
 - c. The general site construction process will start with mobilization, clearing/stripping and grading activities.
 - d. Control measures implemented in Phase One include:
 - i. Vehicle traction control pad to remove excess sediment from traveling off the project site.
 - ii. Silt fence to protect water quality in nearby water sources from sediment in stormwater runoff
 - iii. Stabilized staging area for appropriate storage and to provide for loading/ unloading operations with minimal disturbance.
 - iv. Sediment basin to capture eroded or disturbed soil that is washed off during rain storms.
- 2. Phase Two Infrastructure Phase:
 - a. Utility installation will be the next phase where attention should be given to waste management, outdoor storage areas, dewatering requirements.
 - b. With the completion of utilities, the hardscape will start, which will require that attention be given to items such as spill containment and concrete washout areas.
 - c. Control measures implemented in Phase Two include:
 - i. Concrete washout area allows concrete liquids to pool, evaporate, dry out or soak into the ground.



- ii. Curb inlet block and drop inlet protection to prevent sediment from entering storm drains before stabilizing the contributing watershed.
- iii. Wattle dikes to detain surface runoff long enough to reduce flow velocity and reduce erosion.
- iv. Slope protection to inhibit rill/gulley erosion.
- 3. Phase Three and Four: Vertical Construction Phase:
 - a. As areas are completed the installation of permanent BMP's, such as seeding, mulching, riprap, and turf reinforcement.
 - b. Temporary seeding shall be added to areas that won't be stabilized within 30 days.
 - c. Remove all temporary BMPs upon establishment of sufficient vegetative cover or other permanent stabilization.
 - d. Control Measures implemented in Phase Three and Four are described as follows:
 - i. Seeding and mulching to prevent erosion of sediment on sloped areas.
 - ii. Rip rap to prevent erosion down stream of high velocity channelized flows.
 - iii. Turf reinforcement matt for permanent support for vegetation on slopes, and permanent armoring and vegetation support for ditches, swales, and channels.

Construction may cease for a period exceeding 30 days due to phased construction. Should a 30-day cease occur, temporary seeding of future phases shall be installed until construction of each future phase has begun. Should the project become suspended, the permit may need to be inactivated or reassigned to the next administrator.

Below is a construction sequence chart linking possible erosion control measure implementation to the specific construction phase:

| | | | Constructi | on Sequence | Chart | | | | |
|---------------------------------------|-----------------|-----------------|-------------------|---------------|-------------------|--------------|-----------------|------------------|-----------------|
| | | Clear, Strip, | Utility | | Curb, Gutter, | | Building | | |
| Construction Phase | Mobilization | Grade | Installation | Subgrade | and Sidewalk | Paving | Construction | Landscape | Demobilization |
| Best Management Practices (BMPs) | | | | | | | | | |
| Structural | | | | | | | | | |
| Concrete Washout Area | | | | | | | | | |
| Erosion Control Blanket | | | | | | | | | |
| Inlet Filter (Curb/Drop) | | | | | | | | | |
| Riprap Pad | | | | | | | | | |
| Silt Fencing | | | | | | | | | |
| Surface Roughness | | | | | | | | | |
| Vehicle Tracking Control Pad | | | | | | | | | |
| Wattle Dike (Flow area) | | | | | | | | | |
| Wattle Dike (Staked) | | | | | | | | | |
| Vegetative | | | | | | | | | |
| Mulching | | | | | | | | | |
| Temporary Seeding/Planting | | | | | | | | | |
| Permanent Seeding/Planting | | | | | | | | | |
| | | | | | | | | | |
| Note: All structural BMPs, other than | Riprap pads ar | nd erosion cont | rol blankets, ar | e to be remov | ed once construc | tion has bee | n completed and | d the site has b | een stabilized. |
| Temporary seeding and mulchi | ng to occur any | time construct | tion ceases for a | a period expe | cted to exceed 30 | days. | | | |
| 1.4 Evicting Soi | land C | urface (| Conditio | na | | | | | |

Existing Soil and Surface Conditions

Generally, the site consists of a grass and weed mix with roughly 90% cover and existing slopes around 3.0% in the north and west direction toward the existing drainage structures and detention ponds.



According to the USDA Web Soil Survey, the site surface consists of mostly Weld Silt Loam (Type C) and Wiley Silt Loam (Type B).

1.5 Wetlands and Receiving Waters

There are no known wetlands being impacted by this project.

Runoff from the site discharges into existing and proposed storm infrastructure and multiple detention ponds and ultimately into the Cache La Poudre River.

1.6 Storm Water Management Plan Administrator

It will be the responsibility of the SWMP Administrator to insure the SWMP's adequacy at all times to effectively manage potential storm water pollutants throughout the course of construction. Please refer to cover page for Administrator name and contact information.

1.7 Potential Pollutants

Below is a list of potential pollution sources that can occur during the construction of site improvements and potential remedies, or the appropriate section that should be referenced for controlling these pollution sources:

- All disturbed and stored soils (*Surface roughening, reseeding, mulching and silt fence*)
- Vehicle tracking of sediments (*Vehicle tracking pads, street sweeping*)
- Management of contaminated soils (See Section 2.3.2)
- Loading and unloading operations (See Section 2.2.3 Stabilized Staging Area)
- Outdoor storage activities (building materials, fertilizers, chemicals, etc.) (See Section 2.3)
- Vehicle and equipment maintenance and fueling (See Section 2.3.2)
- Significant dust or particulate generating processes (See Section 2.2.3 Wind Erosion/Dust Control)
- Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc. (See Section 2.3.2)
- On-site waste management practices (waste piles, liquid wastes, dumpsters, etc.) (See Section 2.3)
- Concrete truck/equipment washing, including the concrete truck chute and associated fixtures and equipment (*Use concrete wash-out*)
- Dedicated asphalt and concrete batch plants (Not used on this project)
- Non-industrial waste sources such as worker trash and portable toilets (See Section 2.3.2.- BMP's for San/Septic Waste)
- Other areas or procedures where potential spills can occur (See Section 2.3)



2.0 Pollution Controls

2.1 Controls Overview

During construction, several control measures shall be implemented under the direction of the contractor to prevent discharge of contaminated water. In addition to those structural measures, other controls include non-structural practices, materials management, spill prevention and management, and other miscellaneous controls as described in the following sections.

2.2 Erosion and Sediment controls

The objective of erosion control is to limit the amount of erosion occurring on disturbed areas until stabilized. The objective of sediment control is to capture soil that has eroded before it leaves the construction site. Despite the use of both erosion and sediment control measures, it is recognized that some sediment could remain in runoff, especially during very large storm events. The contractor shall utilize the best management practices (BMP's) described in the following sections to minimize the above potential to the maximum extent practicable.

During all phases of construction, the contractor should plan ahead of possible rainfall events and work to limit erosion from occurring where potential exists. Where potential does exist provide adequate conveyance, temporary or permanent, and direct runoff to BMP's that trap sediment. The erosion and sediment BMP's anticipated for use on the site include both structural and non-structural practices.

2.2.1 Structural Practices

Structural BMPs are structures that limit erosion and sediment transport. Such Practices include check dams, silt fence, inlet and outlet protection, water quality ponds, and grading techniques. The structural BMP's that will be utilized on the subject site are described in more detail as follows

Check Dams

- Can be constructed of rock, gravel bags or sandbags across a swale or channel
- Used to slow the velocity of concentrated flow in a channel and reduce erosion
- Used to catch sediment by capturing contaminated runoff
- Most effective when used with other erosion prevention BMPs
- Should not be used for basins exceeding 2-5 acres
- Should be used in series with the base elevation of the upstream dam set at the same elevation or lower than the downstream dam.

Sediment Control Logs (Wattles)

- A linear roll made of natural materials such as straw or coconut fiber and staked to the ground with a wooden stake
- To be used as a sediment barrier to intercept sheet flow from disturbed areas as perimeter control around stockpiles, inlet protection, check dams for small drainage swales with low velocity
- To be installed along the contour
- Remove accumulated sediment once the depth is one half the height of the

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sediment log and repair damage

Brush Barrier

- A perimeter sediment control constructed with stacked shrubs, tree limbs and bushy vegetation that has been cleared from the construction area
- Appropriate for areas where adequate brush has been cleared from the site
- Used at toe of slopes and should be implemented in combination with other BMP's such as surface roughening and seeding.
- Considered short-term BMP because the materials naturally decompose
- An effective brush barrier will be constructed with small shrubs and limbs with 6" diameter or less. The brush barrier mound should be at least 3' high and 5' wide at its base.
- A filter fabric can be placed over the top of the pile to avoid significant movement.

Silt Fence

- A temporary vertical barrier attached to and supported by posts entrenched in the ground
- Utilized to intercept sediment from disturbed areas during construction
- For use in areas of shallow flow, not concentrated runoff
- Typically used at the toe of fills and in transitions between cuts and fills and along streams
- Usually used as a perimeter control.
- Installed prior to any land disturbing activity
- Shall be inspected periodically and after each rain or snowmelt event
- Not effective as a wind break.

Water Quality Ponds

- A small temporary or permanent ponding area with a hard-lined spillway
- Utilized to detain sediment laden storm water and allow particles to settle out
- Should be installed prior to other land disturbing activities upstream
- Best used with other erosion prevention practices to limit sediment load in pond
- During construction, sediment shall be removed when the wet storage is reduced by half
- Full capacity of ponds shall be re-established following stabilization

Grading Techniques

- Soil surface roughening, terracing and rounding at tops of cuts, transitions and roadway ditches to facilitate vegetation and minimize erosion
- Disk surface to create ridges at least 6 inches deep following the land contour
- Used to temporarily stabilize disturbed areas immediately after grading
- After rain storm events, rills that formed should be repaired immediately

2.2.2 Non-Structural Practices

Non-structural BMPs are both temporary and permanent stabilization practices. Such practices may include surface roughening, temporary or permanent seeding, mulching, geotextiles and maintaining existing vegetation. The non-structural BMPs that will be used on the site include the following:

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Surface Roughening

- Tracking, scarifying, tilling a disturbed area to provide temporary stabilization and minimize wind and water erosion.
- Not a stand-alone BMP and should be used with other BMP's

Temporary and Permanent Seeding

- Soil preparation, disking, and soil amendments are necessary for proper seed bed establishment.
- Seeded areas should be inspected regularly. Areas that fail to establish shall be re-seeded promptly.
- Any area exposed for more than 30 days after construction has ceased shall be seeded and mulched
- Permanent landscape cover shall be installed according to the landscape plan

Mulching

- Application of plant residues to the soil surface. Typical mulching materials include certified weed free hay or straw, certified under the Colorado Department of Agriculture Weed Free Forage Certification Program.
- Utilized in combination with tackifier during high winds, steep slopes, or due to seasonal constraints.
- Used to cover permanent and temporarily seeded areas.
- Inspect frequently and reapply in areas where mulching has loosened or removed.

Maintain Existing Vegetation – Vegetated Buffers

- Preserved natural vegetation helps protect waterways and wetlands from land disturbing activities and improve stormwater runoff quality by straining sediment and promoting infiltration.
- Concentrated flow should not be directed through a vegetated buffer, instead runoff should be in the form of sheet flow
- Used in conjunction with other perimeter control BMP's such as sediment control logs or silt fence
- Clearly delineate the boundary of the natural buffer area using construction or silt fencing

Construction Fence

- Used to restrict site access to designated entrances and exits and delineates construction site boundaries
- Used to protect natural areas or areas that should not be disturbed
- Construction fencing may be chain link or plastic mesh fencing

Rolled Erosion Control Products:

- A special blanket or liner that prevents erosion while vegetation is established and aids in establishment by preserving moisture available to the seed
- The blankets need to cover the necessary area of the graded slope and bottom channel.
- The blanket will be installed according to the manufacturer's instructions and specifications. The number of staples or fasteners is critical while vegetation is

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still germinating

- The erosion control blankets will be installed once the slopes of the vegetated swales have reached final grade or on areas where erosion is occurring during construction.
- The erosion control blanket will be inspected weekly and immediately after storm events to determine if cracks, tears, or breaches have been formed in the fabric. If so the blanket will be repaired or replaced immediately.
- Good contact with the soil will be maintained and erosion will not occur under the blanket. Any areas where the blanket is not in close contact with the ground will be repaired or replaced.
- Utilized as both temporary and permanent feature depending on grade.

2.2.3 Other Controls

Vehicle Tracking Control/ Construction Entrance

- A temporary stabilized layer of aggregate underlined with geotextile or gravel located where traffic enters or exits the construction site
- Should be installed prior to any construction and inspected daily
- Does not work well alone in muddy conditions use tire washing when mud is present. Implementation of tire washing should include provisions for collecting wash water and directing it to a treatment pond
- Whenever possible locate the construction entrance as far from the disturbed area as possible to allow maximum travel time for sediment removal from tires.
- Public and Private roadways shall be kept clear of accumulated sediment.
- Cleaning sediment shall not be accomplished by flushing with water. Sediment should be shoveled or swept from the street and placed away from storm water improvements.
- Consider limiting vehicles from entering the site when conditions are wet or muddy.

Wind Erosion / Dust Control

- Dust from the site will be controlled using a mobile pressure-type distributor truck to apply portable water to disturbed areas. The mobile unit will apply water only as necessary to prevent runoff and ponding.
- Dust control will be implemented as needed once site grading has been initiated and during windy conditions while site grading is occurring.
- Spraying of portable water will be performed whenever the dryness of the soil warrants it.
- At least one mobile unit will be available at all time to distribute portable water to control dust on the project area.
- During high winds limit traffic speeds to 12 mph or less on areas without gravel or pavement.
- Gravel can be placed on construction roads, entrances, and construction staging areas. Stone/gravel provides an effective protective cover over the soil.
- In areas where wind erosion is expected soil-binding tackifiers can be applied with high success.

Stabilized Staging Area



- A clearly designated area where construction equipment and vehicles, waste bins and other construction related materials are stored
- This area should be designated on the SWMP map.
- Appropriate space to provide loading/unloading operations and parking
- A stabilized surface, paved or covered in 3" diameter aggregate or larger
- Perimeter controls such as silt fence, sediment control logs or construction fencing
- Vehicle Tracking Control pad to be used in conjunction with a Stabilized Staging Area if this area is adjacent to a public roadway

Dewatering Operations

- Dewatering typically involves pumping water from an inundated area to a BMP and then downstream to a receiving waterway, sediment basin or vegetated area. Dewatering typically involves the use of several BMP's in sequence
- All dewatering discharges must be treated to remove sediment before discharging from a construction site. Discharging water into a sediment trap or basin or filter bag, series of straw bales or sediment logs are options.

Stockpile Management

- Implement measures to minimize erosion and sediment transport from stockpiles.
- Locate stockpiles away from all drainage system components
- Place BMP's around the perimeter of the stockpile such as sediment control logs, rock socks, silt fence, straw bales and sand bags
- For active use stockpiles, provide a stabilized access point upgradient of the stockpile.
- Surface roughening, temporary seeding and mulching, erosion control blankets may be needed for stockpiles older than 30 days.

2.3 Materials Management

2.3.1 Potential Pollution Sources

Abnormal or especially hazardous materials are not expected to be utilized during the construction of the project, but like most construction projects, some materials or substances used have the potential to be hazardous when leaked into the storm water runoff. The following materials could potentially be present onsite during construction:

| Concrete/Additives/Wastes | Cleaning Solvents |
|------------------------------|--------------------------|
| Detergents | Petroleum based products |
| Paints/Solvents | Pesticides |
| Acids | Fertilizers |
| Construction Wastes | Sanitary wastes |
| Soil Stabilization additives | |

Activities on the site that may impact storm water include the following:

- Equipment storage/Washing/Fueling
- Storage of Fertilizers/Chemicals/Paint/Fuel
- Waste storage/disposal

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• Sanitary facility use and disposal

As construction progresses, specific areas shall be designated for the above-mentioned activities and materials management operations. The contractor is responsible to marking the location of these facilities on the site map and reporting on the condition, effectiveness and corrections or changes made and why.

2.3.2 Pollution Prevention Measures

Pollution prevention measures should be utilized to prevent construction materials with the potential for polluting storm water from coming in contact with runoff. Measures include good housekeeping, proper disposal and storage, spill prevention, and secondary containment. BMPs for most common construction materials and wastes with the greatest potential for adversely affecting water quality are as follows:

BMPs for Construction Waste:

- Select a designated waste collection area onsite
- Locate containers in level areas away from storm water conveyance structures
- Provide covers for containers that contain very hazardous or soluble chemicals
- Avoid putting paint/solvent containers in open dumpsters or allow them to dry completely before disposing
- If a container does spill, provide clean up immediately
- Make sure waste is disposed of at authorized disposal areas

BMPs for Hazardous Waste Disposal

- Check with local waste management authorities with regard to requirements for disposing of hazardous materials
- Use entire product before disposing
- Dispose of containers with lids on and tightly sealed
- Provide a separate dumpster for large amounts of chemical or hazardous material and maintain more stringent controls on that dumpster
- Do not remove the product label from containers, it contains important disposal information

BMPs for Sanitary/Septic Wastes

- If self-contained, temporary sanitary facilities are used, the waste disposal company should service the facilities based on the number of workers anticipated to avoid over use.
- All facilities should be anchored to the ground to prevent overturning due to wind or accident
- Locate portable toilets away from curbs, swales or other locations where concentrated runoff may occur.
- Do not dump any hazardous materials into the sanitary waste disposal systems.

BMPs for pesticides/fertilizers

- Store pesticides in a dry covered area and elevate above the ground
- Provide secondary containment barriers around areas where a lot of material is





stored. Straw Wattles are NOT appropriate containment barriers!

- Strictly follow recommended application rates and application methods
- Apply fertilizer more frequently and at lower rates.
- Reduce exposure of nutrients to storm events by working fertilizer deep into soil

BMPs for petroleum products

- Fueling operations shall occur in a designated area.
- Store petroleum products in covered areas and away from areas where concentrated runoff occurs.
- Provide secondary containment barriers around areas where a lot of material is stored. Straw Wattles are NOT appropriate containment barriers!
- Schedule preventative maintenance for onsite equipment and fix any gas/oil leaks on a regular basis
- Follow procedures for proper handling of asphalt and sealers
- Secure fueling equipment and install valves to prevent vandalism/theft

2.4 Spill Management

Construction site supervisors should create and adopt a spill control plan that includes measures and procedures to stop the source of the spill, contain the spill, clean up, and dispose of contaminated materials. Key personnel should be identified and trained to be responsible for spill prevention and control. The following measures would be appropriate for a spill prevention response plan:

Store and handle materials to prevent spills

- Tightly seal containers
- Make sure all containers are neatly labeled
- Stack containers carefully for stability to avoid spills.
- Limit the height of stacks of stored materials
- Whenever possible store materials on covered pallets or in trailers with adequate ventilation
- Eliminate storm water contact if there is a spill
- Have cleanup procedures clearly posted
- Have cleanup materials readily available and posted
- Immediately contain any liquid
- Stop the source of the spill
- Cover spill with absorbent material and dispose of properly

Additionally, records of spills, leaks, or overflows that result in the discharge of pollutants must be documented and maintained.

When any spill occurs:

1) Notify the controlling operator of the site immediately following a hazardous spill.

2) Document the spill and its clean-up procedures whether reporting is required or not.

3) At a minimum document the following:



- Nature of spill
- Quantity of spill
- Date/time spill occurred
- Agency notification if necessary
- Clean-up procedures used
- Daily monitoring (7 days) after clean-up
- Photographs
- Interview(s) with any witnesses of the event

Some spills will need to be reported to the Division of Water Quality immediately including the following:

- Over 25 gallons of petroleum
- 5 CCs of mercury
- a release of any chemical, oil, petroleum product which entered waters of the State of Colorado (which include surface water, groundwater, dry gullies or storm sewers leading to surface water).
- Any spill or release of raw sewage

If any of the above criteria is met or exceeded, the Colorado Department of Public Health and Environment, Local Emergency Planning committee, downstream users and other agencies (MS4s) will be notified. The CDPHE will be notified by telephone within 24 hours. In addition, written notification describing the spill and the clean up procedures used will be sent to the agencies 5 days following the spill. If a spill does not meet the above criteria, reporting is not mandatory.

See **Appendix B** for the Divisions requirements. The Divisions 24-hour environmental emergency spill reporting line is 1-877-518-5608.

2.5 Non-Storm Water Components of Discharge

Non-storm water discharges must be avoided or reduced to the maximum extent possible. This SWMP plan assumes construction dewatering will be required. Pumping or draining groundwater, even groundwater that has infiltrated an excavation, requires a separate permit from the State. Storm water that mixes with groundwater is also subject to the controls in the general permit for Construction Dewatering. The permit requirements and application for Construction dewatering is available at:

http://www.cdphe.state.co.us/wq/PermitsUnit/construction.html.

No materials shall be discharged in quantities that may impact storm water runoff. Possible discharge sources that need to be contained include:

- Locations where water tanks are being filled. Seal all leaks and avoid over filling. Any leaks should be directed to a water quality pond or protected to prevent erosion.
- Contain excess water during fire hydrant blow off, water system cleaning or other instances where potable water is discharged onto the surface. Convey any discharge to a water quality pond and avoid causing erosion by avoiding steep slopes, disturbed areas, etc.
- Monitor irrigation systems and fix leaks promptly. Avoid over irrigating areas where



vegetation is not yet established.

3.0 Inspection and Maintenance

3.1 Inspection and Maintenance Overview

A site inspection of all erosion control facilities shall be conducted at least once every two weeks and immediately following any significant storm event, including snowmelt that can cause surface erosion and at least every 30 days for inactive projects. The inspection must determine if there is any evidence of, or the potential for, pollutants entering the drainage system. BMPs should be inspected to see if they meet the design and operation criteria in the SWMP and that they are adequately controlling potential pollutants. Any defects shall be corrected promptly. Where spill kits have been used, or storage areas moved, supplies shall be restocked and reprotected. The site shall be inspected by the SWMP administrator or someone with adequate training who should monitor and follow the procedures outlined below:

3.2 Minimum Monitoring and Requirements

- Inspections of the site shall be conducted by the contractor (or agent) every two weeks and after significant storm events.
- Inspections are required at least every 30 days and after measurable storm events for sites that are no longer under construction, but do not have 70% established ground cover.
- A qualified superintendent familiar with this SWMP and BMPs shall perform the inspections.
- The contractor shall certify that the site is in compliance with the permit by:
- Ensuring areas where significant runoff is occurring are identified on the site map
- Storm water outfall shall be observed to determine whether or not measurable quantities of sediment or other pollutants have been or are being transported offsite.
- BMPs shall be addressed to determine if they are functioning properly or if they are in need of repair or maintenance. If the report describes deficiencies in pollution control structures or procedures, such deficiencies shall be corrected immediately
- A brief description of measures taken to correct deficiencies shall be recorded.
- Determine if additional controls will be needed to next week's activities.
- When an inspection does not identify any incidents of non-compliance, the report shall contain a certification that the site is in compliance with the SWMP and this permit.
- The date and inspector identity shall also be recorded. This record shall be signed made available to the State or City upon request.

Based on the results of the inspection, the description of potential pollutant sources, and the control measures used should be updated on the SWMP and Site Maps as soon as possible. Typically, corrective action shall commence immediately when a deficiency is observed. SWMP and Map updates shall be completed within 72 hours. Another inspection should follow up and include the date, corrective action taken, and initials of who certified the work.



3.3 Reporting Requirements/ Inspection Reports

The contractor is responsible for reporting of all BMP inspections and maintaining records of reports and maps throughout the project. The record shall be retained onsite and/or readily available until the inactivation notice has been filed. All inspection reports shall be submitted to the owner when the permit becomes inactive. A recommended/example inspection for is included in **Appendix E.** At a minimum, the inspection reports shall contain the following:

- Dates
- Name(s) of inspectors
- Purpose of inspection e.g. spill event, leakage of materials, storm event, biweekly inspection, etc.
- When a bi-weekly report, an assessment of the entire property as related to SWMP issues
- An estimated area of currently disturbed area.
- Evaluation of all active BMPs
- Actions needed to assure continued compliance with SWMP guidelines
- Document all areas of potential pollution sources and how they are protected
- Documentation of any needed changes
- Training events
- Uncontrolled releases of mud or muddy water or measureable amounts of sediment
- An estimated amount of precipitation. An onsite rain gauge is suggested.

3.4 Site Maps

In the back pocket of this report notebook there is an Erosion Control Plan for use during construction. The purpose of this plan is to provide the contractor a place to document and plan BMP's used during construction. Because the placement of individual BMP's will depend on the condition of the site and the contractor's judgment, not all BMP's are shown on the plans. It is the contractor's duty as site administrator to determine the need for and placement of BMPs and mark them on the map.

4.0 Final Stabilization/ Conclusion

Permanent stabilization will be achieved by establishing vegetative or permanent surface cover on all disturbed areas. The final vegetative cover is specified on the Erosion Control Plan. Vegetative cover is considered complete when 70 percent of the pre-disturbance plant density is restored. In cases where the site was already disturbed, the existing gravel ponds for example, the pre-disturbance density will be the naturally occurring cover on currently vegetated areas.

The contractor shall remove all temporary erosion and sediment control BMPs after stabilization is achieved or after temporary BMPs are no longer needed. Trapped sediment (including within pipes) will be removed by the contractor or stabilized onsite. Disturbed soil areas resulting from



removal of BMPs or the contractor will permanently stabilize vegetation as soon as possible.

Again, this plan is a living document that will need to be updated and maintained throughout the construction process and until all areas of the site have been stabilized. This permit will remain active until an inactivation notice has been filed with the State. Additionally, this permit may be transferred to another party in the event that the contractor or sub-contractor responsible for its implementation leaves the site before stabilization has occurred. The Inactivation Notice and Reassignment Notices are included in **Appendix F.**

5.0 References

- 1. CDOT Erosion Control and Storm Water Quality Guide, Colorado Department of Transportation, 2002
- 2. Urban Storm Drainage Criteria Manual, Urban Drainage and Flood Control District (Rev. Oct, 2019)
- 3. Storm Water Risk Management, LLC; April 11, 2008; Pre-Construction & Engineering Training for Construction Storm Water Management Manual.
- 4. Construction Site Storm Water Runoff Control National Menu of best practices, U.S. Environmental Protection Agency, 1999
- 5. Anderson Consulting Engineers Inc., May 9, 2008, Airport Basin Master Drainage Plan Update.
- 6. City of Loveland Storm Drainage Criteria (Addendum to the Urban Storm Drainage Criteria Manuals (Volumes 1, 2 and 3) (LSDC), September 1, 2002.
- 7. CH2M HILL, March 15, 2006, Drainage Master Plan Report Ft. Collins-Loveland Airport, Volumes A and B.
- 8. Anderson Consulting Engineers Inc., December 15, 2017, Houts-Equalizer MDP Amendment.



APPENDIX A

CDHPE General Permit for Storm Water

Discharge - Construction Activity



COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT Water Quality Control Division



CDPS GENERAL PERMIT

STORMWATER DISCHARGES ASSOCIATED WITH

CONSTRUCTION ACTIVITY

AUTHORIZATION TO DISCHARGE UNDER THE

COLORADO DISCHARGE PERMIT SYSTEM (CDPS)

In compliance with the provisions of the Colorado Water Quality Control Act, (25-8-101 et seq., CRS, 1973 as amended) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq.; the "Act"), this permit authorizes the discharge of stormwater associated with construction activities (and specific allowable non-stormwater discharges in accordance with Part I.A.1. of the permit) certified under this permit, from those locations specified throughout the State of Colorado to specified waters of the State.

Such discharges shall be in accordance with the conditions of this permit. This permit specifically authorizes the facility listed on the certification to discharge in accordance with permit requirements and conditions set forth in Parts I and II hereof. All discharges authorized herein shall be consistent with the terms and conditions of this permit.

This permit becomes effective on April 1, 2019, and shall expire at midnight March 31, 2024.

Issued and signed this 1st day of November 2018.

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Glebalkty

Ellen Howard Kutzer, Permits Section Manager Water Quality Control Division

<u>Permit History</u> Originally signed and issued October 31, 2018; effective April 1, 2019.

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Part I

Note: At the first mention of terminology that has a specific connotation for the purposes of this permit, the terminology is electronically linked to the definitions section of the permit in Part I.E.

A. COVERAGE UNDER THIS PERMIT

1. Authorized Discharges

This general permit authorizes permittee(s) to discharge the following to state waters: stormwater associated with construction activity and specified non-stormwater associated with construction activity. The following types of stormwater and non-stormwater discharges are authorized under this permit:

- a. Allowable Stormwater Discharges
 - i. Stormwater discharges associated with construction activity.
 - ii. Stormwater discharges associated with producing earthen materials, such as soils, sand, and gravel dedicated to providing material to a single contiguous site, or within ¼ mile of a construction site (i.e. borrow or fill areas)
 - iii. Stormwater discharges associated with dedicated asphalt, concrete batch plants and masonry mixing stations (Coverage under this permit is not required if alternative coverage has been obtained.)
- b. Allowable Non-Stormwater Discharges

The following non-stormwater discharges are allowable under this permit if the discharges are identified in the stormwater management plan in accordance with Part I.C. and if they have appropriate control measures in accordance with Part I.B.1.

- i. Discharges from uncontaminated springs that do not originate from an area of land disturbance.
- ii. Discharges to the ground of concrete washout water associated with the washing of concrete tools and concrete mixer chutes. Discharges of concrete washout water must not leave the site as surface runoff or reach receiving waters as defined by this permit.
- iii. Discharges of landscape irrigation return flow.
- c. Emergency Fire Fighting

Discharges resulting from emergency firefighting activities are authorized by this permit.

2. Limitations on Coverage

Discharges not authorized by this permit include, but are not limited to, the discharges and activities listed below. Permittees may seek individual or alternate general permit coverage for the discharges, as appropriate and available.

a. Discharges of Non-Stormwater

Discharges of non-stormwater, except the authorized non-stormwater discharges listed in Part I.A.1.b., are not eligible for coverage under this permit.

- b. Discharges Currently Covered by another Individual or General Permit
- c. Discharges Currently Covered by a Water Quality Control Division (division) Low Risk Guidance Document
- 3. Permit Certification and Submittal Procedures
 - a. Duty to apply The following activities shall apply for coverage under this permit:
 - i. Construction sites that will disturb one acre or more; or
 - ii. Construction sites that are part of a common plan of development or sale; or
 - iii. Stormwater discharges that are designated by the division as needing a stormwater permit because the discharge:
 - (a) Contributes to a violation of a water quality standard; or
 - (b) is a significant contributor of pollutants to state waters.
 - b. Application Requirements

To obtain authorization to discharge under this permit, applicants applying for coverage following the effective date of the renewal permit shall meet the following requirements:

- i. Owners and operators submitting an application for permit coverage will be copermittees subject to the same benefits, duties, and obligations under this permit.
- ii. Signature requirements: Both the owner and operator (permittee) of the construction site, as defined in Part I.E., must agree to the terms and conditions of the permit and submit a completed application that includes the signature of both the owner and the operator. In cases where the duties of the owner and operator are managed by the owner, both application signatures may be completed by the owner. Both the owner and operator are responsible for ensuring compliance with all terms and conditions of the permit, including implementation of the stormwater management plan.
- iii. Applicants must use the paper form provided by the division or the electronic form provided on the division's web-based application platform when applying for coverage under this permit.
- iv. The applicant(s) must develop a stormwater management plan (SWMP) in accordance with the requirements of Part I.C. The applicant(s) must also certify that the SWMP is complete, or will be complete, prior to commencement of any construction activity.

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- v. The applicant(s) must submit a complete, accurate, and signed permit application electronically, by mail or hand delivery to the division at least 10 days prior to the commencement of construction activity except that construction activities that are in response to a public emergency related site shall apply for coverage no later than 14 days after the commencement of construction activities. The provisions of this part in no way remove a violation of the Colorado Water Quality Control Act if a point source discharge occurs prior to the issuance of a CDPS permit.
- vi. The application must be signed in accordance with the requirements of Part IA. Applications submitted by mail or hand delivered should be directed to:

Colorado Department of Public Health and Environment Water Quality Control Division Permits Section, WQCD-PS-B2 4300 Cherry Creek Drive South Denver, CO 80246

- vii. The applicant(s) must receive written notification that the division granted permit coverage prior to conducting construction activities except for construction activities that are in response to a public emergency related site
- c. Division Review of Permit Application
 Within 10 days of receipt of the application, and following review of the application, the division may:
 - i. Issue a certification of coverage;
 - ii. request additional information necessary to evaluate the discharge;
 - iii. delay the authorization to discharge pending further review;
 - iv. notify the applicant that additional terms and conditions are necessary; or
 - v. deny the authorization to discharge under this general permit.
- d. Alternative Permit Coverage
 - i. Division Required Alternate Permit Coverage: The Division may require an applicant or permittee to apply for an individual permit or an alternative general permit if it determines the discharge does not fall under the scope of this general permit. In this case, the Division will notify the applicant or permittee that an individual permit application is required.
 - ii. Permittee Request for alternate permit coverage:

A permittee authorized to discharge stormwater under this permit may request to be excluded from coverage under this general permit by applying for an individual permit. In this case, the permittee must submit an individual application, with reasons supporting the request, to the Division at least 180 days prior to any discharge. When an individual permit is issued, the permittee's authorization to discharge under this permit is terminated on the effective date of the individual permit.

e. Submittal Signature Requirements

Documents required for submittal to the division in accordance with this permit, including applications for permit coverage and other documents as requested by the division, must include signatures by both the <u>owner</u> and the <u>operator</u>, except for instances where the duties of the owner and operator are managed by the owner.

Signatures on all documents submitted to the division as required by this permit must meet the Standard Signatory Requirements in Part II.K. of this permit in accordance with 40 C.F.R. 122.41(k).

i. Signature Certification

Any person(s) signing documents required for submittal to the Division must make the following certification:

"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 gather and evaluate 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."

f. Compliance Document Signature Requirements

Documents which are required for compliance with the permit, but for which submittal to the division is not required unless specifically requested by the division, must be signed by the individual(s) designated as the <u>Qualified Stormwater Manager</u>, <u>as defined in Part I.E</u>.

i. Any person(s) signing inspection documents required for compliance with the permit must make the following statement:

"I verify that, to the best of my knowledge and belief, all corrective action and maintenance items identified during the inspection are complete, and the site is currently in compliance with the permit."

g. Field Wide Permit Coverage for Oil and Gas Construction

At the discretion of the division, a single permit certification may be issued to a single oil and gas permittee to cover construction activity related discharges from an oil and gas field at multiple locations that are not necessarily contiguous.

h. Permit Coverage without Application

Qualifying Local Program: When a small construction site is within the jurisdiction of a qualifying local program, the owner and operator of the construction activity are authorized to discharge stormwater associated with small construction activity under this general permit without the submittal of an application to the division. Sites covered by a qualifying local program are exempt from the following sections of this general permit:

Part I.A.3.a.; Part I.A.3.b.; Part I.A.3.c.; Part I.A.3.d.; Part I.A.3.g.; Part I.A.3.i.; Part I.A.3.j.; Part I.A.3.k.

Sites covered by a qualifying local program are subject to the following requirements:

- i. Local Agency Authority: This permit does not pre-empt or supersede the authority of local agencies to prohibit, restrict, or control discharges of stormwater to storm drain systems or other water courses within their jurisdiction.
- ii. Permit Coverage Termination: When a site under a Qualifying Local Program is finally stabilized, coverage under this permit is automatically terminated.
- iii. Compliance with Qualifying Local Program: Qualifying Local Program requirements that are equivalent to the requirements of this permit are incorporated by reference. Permittees authorized to discharge under this permit, must comply with the equivalent requirements of the Qualifying Local Program that has jurisdiction over the site as a condition of this permit.
- iv. Compliance with Remaining Permit Conditions. Requirements of this permit that are in addition to or more stringent than the requirements of the Qualifying Local Program apply in addition to the requirements of the Qualifying Local Program.
- v. Written Authorization of Coverage: The division or local municipality may require any permittee within the jurisdiction of a Qualifying Local Program covered under this permit to apply for, and obtain written authorization of coverage under this permit. The permittee must be notified in writing that an application for written authorization of coverage is required.

i. Permittee Initiated Permit Actions

Permittee initiated permit actions, including but not limited to modifications, contact changes, transfers, reassignments, and terminations, shall be conducted following division guidance and using appropriate division-provided forms.

j. Sale of Residence to Homeowner

Residential construction sites only: The permittee may remove residential lots from permit coverage once the lot meets the following criteria:

- i. the residential lot has been sold to the homeowner(s) for private residential use;
- ii. a certificate of occupancy, or equivalent, is maintained on-site and is available during division inspections;
- iii. the lot is less than one acre of disturbance;
- iv. all construction activity conducted on the lot by the permittee is complete;
- v. the permittee is not responsible for final stabilization of the lot; and
- vi. the SWMP was modified to indicate the lot is no longer part of the construction activity.

If the residential lot meets the criteria listed above then activities occurring on the lot are no longer considered to be construction activities with a duty to apply and maintain permit coverage. Therefore, the permittee is not required to meet the final stabilization requirements and may terminate permit coverage for the lot.

k. Permit Expiration and Continuation of Permit Coverage

Authorization to discharge under this general permit shall expire at midnight on March 31, 2024. While Regulation 61.4 requires a permittee to submit an application for continuing permit coverage 180 days before the permit expires, the division is requiring that permittees desiring continued coverage under this general permit must reapply at least 90 days in advance of this permit expiration. The Division will determine if the permittee may continue to discharge stormwater under the terms of the general permit. An individual permit may be required for any facility not reauthorized to discharge under the reissued general permit.

If this permit is not reissued or replaced prior to the expiration date, it will be administratively continued and remain in force and effect. For permittees that have applied for continued permit coverage, discharges authorized under this permit prior to the expiration date will automatically remain covered by this permit until the earliest of:

- i. An authorization to discharge under a reissued permit, or a replacement of this permit, following the timely and appropriate submittal of a complete application requesting authorization to discharge under the new permit and compliance with the requirements of the new permit; or
- ii. The issuance and effect of a termination issued by the Division; or
- iii. The issuance or denial of an individual permit for the facility's discharges; or
- iv. A formal permit decision by the Division not to reissue this general permit, at which time the Division will identify a reasonable time period for covered dischargers to seek coverage under an alternative general permit or an individual permit. Coverage under this permit will cease when coverage under another permit is granted/authorized; or
- v. The Division has informed the permittee that discharges previously authorized under this permit are no longer covered under this permit.

B. EFFLUENT LIMITATIONS

1. Requirements for Control Measures Used to Meet Effluent Limitations

The permittee must implement control measures to minimize the discharge of pollutants from all potential pollutant sources at the site. Control measures must be installed prior to commencement of activities that may contribute pollutants to stormwater discharges. Control measures must be selected, designed, installed and maintained in accordance with good engineering, hydrologic and pollution control practices. Control measures implemented at the site must be designed to prevent pollution or degradation of state waters.

a. Stormwater Pollution Prevention

The permittee must implement structural and/or nonstructural control measures that effectively minimize erosion, sediment transport, and the release of other pollutants related to construction activity.

i. Control Measures for Erosion and Sediment Control

Control measures for erosion and sediment control may include, but are not limited to, wattles/sediment control logs, silt fences, earthen dikes, drainage swales, sediment traps, subsurface drains, pipe slope drains, inlet protection, outlet protection, gabions, sediment basins, temporary vegetation, permanent vegetation, mulching, geotextiles, sod stabilization, slope roughening, maintaining existing vegetation, protection of trees, and preservation of mature vegetation. Specific non-structural control measures must meet the requirements listed below.

Specific control measures must meet the requirements listed below.

- (a) Vehicle tracking controls shall either be implemented to minimize vehicle tracking of sediment from disturbed areas, or the areas where vehicle tracking occurs shall meet subsection Part I.B.1.a.i(b);
- (b) Stormwater runoff from all disturbed areas and soil storage areas for which permanent or temporary stabilization is not implemented, must flow to at least one control measure to minimize sediment in the discharge. This may be accomplished through filtering, settling, or straining. The control measure must be selected, designed, installed and adequately sized in accordance with good engineering, hydrologic and pollution control practices. The control measure(s) must contain or filter flows in order to prevent the bypass of flows without treatment and must be appropriate for stormwater runoff from disturbed areas and for the expected flow rate, duration, and flow conditions (i.e., sheet or concentrated flow);
- (c) Outlets that withdraw water from or near the surface shall be installed when discharging from basins and impoundments, unless infeasible.
- (d) Maintain pre-existing vegetation or equivalent control measures for areas within 50 horizontal feet of receiving waters as defined by this permit, unless infeasible.
- (e) Soil compaction must be minimized for areas where infiltration control measures will occur or where final stabilization will be achieved through vegetative cover.
- (f) Unless infeasible, topsoil shall be preserved for those areas of a site that will utilize vegetative final stabilization.
- (g) Minimize the amount of soil exposed during construction activity, including the disturbance of steep slopes.
- ii. Practices for Other Common Pollutants
 - (a) Bulk storage, 55 gallons or greater, for petroleum products and other liquid chemicals must have secondary containment, or equivalent protection, in order to contain spills and to prevent spilled material from entering state waters.
 - (b) Control measures designed for concrete washout waste must be implemented. This includes washout waste discharged to the ground as authorized under this permit and washout waste from concrete trucks and masonry operations contained on site. The permittee must ensure the washing activities do not contribute pollutants to stormwater runoff, or receiving waters in accordance Part I.A.1.b.ii. Discharges that may reach groundwater must flow through soil Page 7 of 33

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that has buffering capacity prior to reaching groundwater, as necessary to meet the effluent limits in this permit, including Part I.B.3.a. The concrete washout location shall be not be located in an area where shallow groundwater may be present and would result in buffering capacity not being adequate, such as near natural drainages, springs, or wetlands. This permit authorizes discharges to the ground of concrete washout waste.

iii. Stabilization Requirements

The following requirements must be implemented for each site.

- (a) Temporary stabilization must be implemented for earth disturbing activities on any portion of the site where ground disturbing construction activity has permanently ceased, or temporarily ceased for more than 14 calendar days. Temporary stabilization methods may include, but are not limited to, tarps, soil tackifier, and hydroseed. The permittee may exceed the 14-day schedule when either the function of the specific area of the site requires it to remain disturbed, or, physical characteristics of the terrain and climate prevent stabilization. The SWMP must document the constraints necessitating the alternative schedule, provide the alternate stabilization schedule, and identify all locations where the alternative schedule is applicable on the site map.
- (b) Final stabilization must be implemented for all construction sites. Final stabilization is reached when all ground surface disturbing activities at the construction site are complete; and, for all areas of ground surface disturbing activities, either a uniform vegetative cover with an individual plant density of at least 70 percent of pre-disturbance levels is established, or equivalent permanent alternative stabilization methods are implemented. The division may approve alternative final stabilization criteria for specific operations.
- (c) Final stabilization must be designed and installed as a permanent feature. Final stabilization measures for obtaining a vegetative cover or alternative stabilization methods include, but are not limited to, the following as appropriate:
 - (1) Seed mix selection and application methods;
 - (2) Soil preparation and amendments;
 - (3) Soil stabilization methods (e.g., crimped straw, hydro mulch or rolled erosion control products);
 - (4) Appropriate sediment control measures as needed until final stabilization is achieved;
 - (5) Permanent pavement, hardscape, xeriscape, stabilized driving surfaces;
 - (6) Other alternative stabilization practices as applicable;

- (d) The permittee(s) must ensure all temporary control measures are removed from the construction site once final stabilization is achieved, except when the control measure specifications allow the control measure to be left in place (i.e., bio-degradable control measures).
- b. Maintenance

The permittee must ensure that all control measures remain in effective operating condition and are protected from activities that would reduce their effectiveness. Control measures must be maintained in accordance with good engineering, hydrologic and pollution control practices. Observations leading to the required maintenance of control measures can be made during a site inspection, or during general observations of site conditions. The necessary repairs or modifications to a control measure requiring routine maintenance, as defined in Part I.E., must be conducted to maintain an effective operating condition. This section is not subject to the requirements in Part I.B.1.c. below.

c. Corrective Actions

The permittee must assess the adequacy of control measures at the site, and the need for changes to those control measures, to ensure continued effective performance. When an inadequate control measure, as defined in Part I.E., is identified (i.e., new or replacement control measures become necessary), the following corrective action requirements apply. The permittee is in noncompliance with the permit until the inadequate control measure is replaced or corrected and returned to effective operating condition in compliance with Part I.B.1. and the general requirements in Part I.B.3. If the inadequate control measure results in noncompliance that meets the conditions of Part II.L., the permittee must also meet the requirements of that section.

- i. The permittee must take all necessary steps to minimize or prevent the discharge of pollutants, until a control measure is implemented and made operational and/or an inadequate control measure is replaced or corrected and returned to effective operating condition. If it is infeasible to install or repair of control measure immediately after discovering the deficiency, the following must be documented and kept on record in accordance with the recordkeeping requirements in Part II.
 - (a) Describe why it is infeasible to initiate the installation or repair immediately; and
 - (b) Provide a schedule for installing or repairing the control measure and returning it to an effective operating condition as soon as possible.
- ii. If applicable, the permittee must remove and properly dispose of any unauthorized release or discharge (e.g., discharge of non-stormwater, spill, or leak not authorized by this permit.) The permittee must also clean up any contaminated surfaces to minimize discharges of the material in subsequent storm events.
- 2. Discharges to an Impaired Waterbody
 - a. Total Maximum Daily Load (TMDL)
 If the permittee's discharge flows to or could reasonably be expected to flow to any water body for which a TMDL has been approved, and stormwater discharges

associated with construction activity were assigned a pollutant-specific Wasteload Allocation (WLA) under the TMDL, the division may:

- i. ensure the WLA is implemented properly through alternative local requirements, such as by a municipal stormwater permit; or
- ii. notify the permittee of the WLA and amend the permittee's certification to add specific effluent limits and other requirements, as appropriate. The permittee may be required to do the following:
 - (a) under the permittee's SWMP, implement specific control measures based on requirements of the WLA, and evaluate whether the requirements are met through implementation of existing stormwater control measures or if additional control measures are necessary. Document the calculations or other evidence demonstrating that the requirements are expected to be met; and
 - (b) if the evaluation shows that additional or modified control measures are necessary, describe the type and schedule for the control measure additions or modifications.
- iii. Discharge monitoring may also be required. The permittee may maintain coverage under the general permit provided they comply with the applicable requirements outlined above. The division reserves the right to require individual or alternate general permit coverage.
- 3. General Requirements
 - a. Discharges authorized by this permit shall not cause, have the reasonable potential to cause, or measurably contribute to an exceedance of any applicable water quality standard, including narrative standards for water quality.
 - **b.** The division may require sampling and testing, on a case-by-case basis, in the event that there is reason to suspect that the SWMP is not adequately minimizing pollutants in stormwater or in order to measure the effectiveness of the control measures in removing pollutants in the effluent. Such monitoring may include Whole Effluent Toxicity testing.
 - c. The permittee must comply with the lawful requirements of federal agencies, municipalities, counties, drainage districts and other local agencies including applicable requirements in Municipal Stormwater Management Programs developed to comply with CDPS permits. The permittee must comply with local stormwater management requirements, policies and guidelines including those for erosion and sediment control.
 - **d.** All construction site wastes must be properly managed to prevent potential pollution of state waters. This permit does not authorize on-site waste disposal.
 - e. This permit does not relieve the permittee of the reporting requirements in 40 CFR 110, 40 CFR 117 or 40 CFR 302. Any discharge of hazardous material must be handled in accordance with the division's Noncompliance Notification Requirements (see Part II.L. of the permit).

C. STORMWATER MANAGEMENT PLAN (SWMP) REQUIREMENTS

- 1. SWMP General Requirements
 - a. A SWMP shall be developed for each construction site covered by this permit. The SWMP must be prepared in accordance with good engineering, hydrologic and pollution control practices.
 - i. For public emergency related sites a SWMP shall be created no later than 14 days after the commencement of construction activities.
 - **b.** The permittee must implement the provisions of the SWMP as written and updated, from commencement of construction activity until final stabilization is complete. The division may review the SWMP.
 - c. A copy of the SWMP must be retained onsite or be onsite when construction activities are occurring at the site unless the permittee specifies another location and obtains approval from the division.
- 2. SWMP Content
 - a. The SWMP, at a minimum, must include the following elements.
 - i. <u>Qualified Stormwater Manager</u>. The SWMP must list individual(s) by title and name who are designated as the site's qualified stormwater manager(s) responsible for implementing the SWMP in its entirety. This role may be filled by more than one individual.
 - ii. <u>Spill Prevention and Response Plan</u>. The SWMP must have a spill prevention and response plan. The plan may incorporate by reference any part of a Spill Prevention Control and Countermeasure (SPCC) plan under section 311 of the Clean Water Act (CWA) or a Spill Prevention Plan required by a separate CDPS permit. The relevant sections of any referenced plans must be available as part of the SWMP consistent with Part I.C.4.
 - iii. <u>Materials Handling</u>. The SWMP must describe and locate all control measures implemented at the site to minimize impacts from handling significant materials that could contribute pollutants to runoff. These handling procedures can include control measures for pollutants and activities such as, exposed storage of building materials, paints and solvents, landscape materials, fertilizers or chemicals, sanitary waste material, trash and equipment maintenance or fueling procedures.
 - iv. <u>Potential Sources of Pollution</u>. The SWMP must list all potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges associated with construction activity from the site. This shall include, but is not limited to, the following pollutant sources:
 - (a) disturbed and stored soils;
 - (b) vehicle tracking of sediments;
 - (c) management of contaminated soils;
 - (d) loading and unloading operations;

- (e) outdoor storage activities (erodible building materials, fertilizers, chemicals, etc.);
- (f) vehicle and equipment maintenance and fueling;
- (g) significant dust or particulate generating processes (e.g., saw cutting material, including dust);
- (h) routine maintenance activities involving fertilizers, pesticides, herbicides, detergents, fuels, solvents, oils, etc.;
- (i) on-site waste management practices (waste piles, liquid wastes, dumpsters);
- (j) concrete truck/equipment washing, including washing of the concrete truck chute and associated fixtures and equipment;
- (k) dedicated asphalt, concrete batch plants and masonry mixing stations;
- (I) non-industrial waste sources such as worker trash and portable toilets.
- v. <u>Implementation of Control Measures.</u> The SWMP must include design specifications that contain information on the implementation of the control measure in accordance with good engineering hydrologic and pollution control practices; including as applicable drawings, dimensions, installation information, materials, implementation processes, control measure-specific inspection expectations, and maintenance requirements.

The SWMP must include a documented use agreement between the permittee and the owner or operator of any control measures located outside of the permitted area, that are utilized by the permittee's construction site for compliance with this permit, but not under the direct control of the permittee. The permittee is responsible for ensuring that all control measures located outside of their permitted area, that are being utilized by the permittee's construction site, are properly maintained and in compliance with all terms and conditions of the permit. The SWMP must include all information required of and relevant to any such control measures located outside the permitted area, including location, installation specifications, design specifications and maintenance requirements.

- vi. <u>Site Description</u>. The SWMP must include a site description which includes, at a minimum, the following:
 - (a) the nature of the construction activity at the site;
 - (b) the proposed schedule for the sequence for major construction activities and the planned implementation of control measures for each phase. (e.g.: clearing, grading, utilities, vertical, etc.);
 - (c) estimates of the total acreage of the site, and the acreage expected to be disturbed by clearing, excavation, grading, or any other construction activities;
 - (d) a summary of any existing data used in the development of the construction site plans or SWMP that describe the soil or existing potential for soil erosion;

- (e) a description of the percent of existing vegetative ground cover relative to the entire site and the method for determining the percentage;
- (f) a description of any allowable non-stormwater discharges at the site, including those being discharged under a division low risk discharge guidance policy;
- (g) a description of areas receiving discharge from the site. Including a description of the immediate source receiving the discharge. If the stormwater discharge is to a municipal separate storm sewer system, the name of the entity owning that system, the location of the storm sewer discharge, and the ultimate receiving water(s); and
- (h) a description of all stream crossings located within the construction site boundary.
- vii. <u>Site Map</u>. The SWMP must include a site map which includes, at a minimum, the following:
 - (a) construction site boundaries;
 - (b) flow arrows that depict stormwater flow directions on-site and runoff direction;
 - (c) all areas of ground disturbance including areas of borrow and fill;
 - (d) areas used for storage of soil;
 - (e) locations of all waste accumulation areas, including areas for liquid, concrete, masonry, and asphalt;
 - (f) locations of dedicated asphalt, concrete batch plants and masonry mixing stations;
 - (g) locations of all structural control measures;
 - (h) locations of all non-structural control measures;
 - (i) locations of springs, streams, wetlands and other state waters, including areas that require pre-existing vegetation be maintained within 50 feet of a receiving water, where determined feasible in accordance with Part I.B.1.a.i.(d).; and
 - (j) locations of all stream crossings located within the construction site boundary.
- viii. Final Stabilization and Long Term Stormwater Management. The SWMP must describe the practices used to achieve final stabilization of all disturbed areas at the site and any planned practices to control pollutants in stormwater discharges that will occur after construction operations are completed. Including but not limited to, detention/retention ponds, rain gardens, stormwater vaults, etc.
- ix. Inspection Reports. The SWMP must include documented inspection reports in accordance with Part ID.
- 3. SWMP Review and Revisions

Permittees must keep a record of SWMP changes made that includes the date and identification of the changes. The SWMP must be amended when the following occurs:

- a. a change in design, construction, operation, or maintenance of the site requiring implementation of new or revised control measures;
- **b.** the SWMP proves ineffective in controlling pollutants in stormwater runoff in compliance with the permit conditions;
- c. control measures identified in the SWMP are no longer necessary and are removed; and
- d. corrective actions are taken onsite that result in a change to the SWMP.

For SWMP revisions made prior to or following a change(s) onsite, including revisions to sections addressing site conditions and control measures, a notation must be included in the SWMP that identifies the date of the site change, the control measure removed, or modified, the location(s) of those control measures, and any changes to the control measure(s). The permittee must ensure the site changes are reflected in the SWMP. The permittee is noncompliant with the permit until the SWMP revisions have been made.

4. SWMP Availability

A copy of the SWMP must be provided upon request to the division, EPA, and any local agency with authority for approving sediment and erosion plans, grading plans or stormwater management plans within the time frame specified in the request. If the SWMP is required to be submitted to any of these entities, the submission must include a signed certification in accordance with Part I.A.3.e., certifying that the SWMP is complete and compliant with all terms and conditions of the permit.

All SWMPs required under this permit are considered reports that must be available to the public under Section 308(b) of the CWA and Section 61.5(4) of the CDPS regulations. The permittee must make plans available to members of the public upon request. However, the permittee may claim any portion of a SWMP as confidential in accordance with 40 CFR Part 2.

D. SITE INSPECTIONS

Site inspections must be conducted in accordance with the following requirements. The required inspection schedules are a minimum frequency and do not affect the permittee's responsibility to implement control measures in effective operating condition as prescribed in the SWMP. Proper maintenance of control measures may require more frequent inspections. Site inspections shall start within 7 calendar days of the commencement of construction activities on site.

1. Person Responsible for Conducting Inspections

The person(s) inspecting the site may be on the permittee's staff or a third party hired to conduct stormwater inspections under the direction of the permittee(s). The permittee is responsible for ensuring that the inspector is a qualified stormwater manager.

2. Inspection Frequency
Permittees must conduct site inspections in accordance with one of the following minimum frequencies, unless the site meets the requirements of Part ID.3

- a. At least one inspection every 7 calendar days. Or
- b. At least one inspection every 14 calendar days, if post-storm event inspections are conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. Post-storm inspections may be used to fulfill the 14-day routine inspection requirement.
- c. When site conditions make the schedule required in this section impractical, the permittee may petition the Division to grant an alternate inspection schedule. The alternative inspection schedule may not be implemented prior to written approval by the division and incorporation into the SWMP.
- 3. Inspection Frequency for Discharges to Outstanding Waters

Permittees must conduct site inspections at least once every 7 calendar days for sites that discharge to a water body designated as an Outstanding Water by the Water Quality Control Commission.

4. Reduced Inspection Frequency

The permittee may perform site inspections at the following reduced frequencies when one of the following conditions exists:

a. Post-Storm Inspections at Temporarily Idle Sites

For permittees choosing to combine 14-day inspections and post-storm-eventinspections, if no construction activities will occur following a storm event, post-storm event inspections must be conducted prior to re-commencing construction activities, but no later than 72 hours following the storm event. The delay of any post-storm event inspection must be documented in the inspection record. Routine inspections must still be conducted at least every 14 calendar days.

b. Inspections at Completed Sites/Areas

When the site, or portions of a site are awaiting establishment of a vegetative ground cover and final stabilization, the permittee must conduct a thorough inspection of the stormwater management system at least once every 30 days. Post-storm event inspections are not required under this schedule. This reduced inspection schedule is allowed if all of the following criteria are met:

- i. all construction activities resulting in ground disturbance are complete;
- ii. all activities required for final stabilization, in accordance with the SWMP, have been completed, with the exception of the application of seed that has not occurred due to seasonal conditions or the necessity for additional seed application to augment previous efforts; and
- iii. the SWMP has been amended to locate those areas to be inspected in accordance with the reduced schedule allowed for in this paragraph.
- c. Winter Conditions Inspections Exclusion

Inspections are not required for sites that meet all of the following conditions: construction activities are temporarily halted, snow cover exists over the entire site for an extended period, and melting conditions posing a risk of surface erosion do not exist. This inspection exception is applicable only during the period where melting conditions do not exist, and applies to the routine 7-day, 14-day and monthly inspections, as well as the post-storm-event inspections. When this inspection exclusion is implemented, the following information must be documented in accordance with the requirements in Part II:

- i. dates when snow cover existed;
- ii. date when construction activities ceased; and
- iii. date melting conditions began.
- 5. Inspection Scope
 - a. Areas to be Inspected

When conducting a site inspection the following areas, if applicable, must be inspected for evidence of, or the potential for, <u>pollutants</u> leaving the construction site boundaries, entering the <u>stormwater</u> drainage system, or discharging to state waters:

- i. construction site perimeter;
- ii. all disturbed areas;
- iii. designated haul routes;
- iv. material and waste storage areas exposed to precipitation;
- v. locations where stormwater has the potential to discharge offsite; and
- vi. locations where vehicles exit the site.
- b. Inspection Requirements
 - i. Visually verify whether all implemented control measures are in effective operational condition and are working as designed in their specifications to minimize pollutant discharges.
 - ii. Determine if there are new potential sources of pollutants.
 - iii. Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges.
 - iv. Identify all areas of non-compliance with the permit requirements and, if necessary, implement corrective action in accordance with Part IB.1.c.
- c. Inspection Reports

The permittee must keep a record of all inspections conducted for each permitted site. Inspection reports must identify any incidents of noncompliance with the terms and conditions of this permit. Inspection records must be retained in accordance with Part II.O. and signed in accordance with Part I.A.3.f. At a minimum, the inspection report must include:

i. the inspection date;

- ii. name(s) and title(s) of personnel conducting the inspection;
- iii. weather conditions at the time of inspection;
- iv. phase of construction at the time of inspection;
- v. estimated acreage of disturbance at the time of inspection
- vi. location(s) of discharges of sediment or other pollutants from the site;
- vii. location(s) of control measures needing maintenance;
- viii. location(s) and identification of inadequate control measures;
- ix. location(s) and identification of additional control measures are needed that were not in place at the time of inspection;
- x. description of the minimum inspection frequency (either in accordance with Part I.D.2., I.D.3. or I.D.4.) utilized when conducting each inspection.
- xi. deviations from the minimum inspection schedule as required in Part I.D.2.;
- xii. after adequate corrective action(s) and maintenance have been taken, or where a report does not identify any incidents requiring corrective action or maintenance, the report shall contain a statement as required in Part I.A.3.f.

E. DEFINITIONS

For the purposes of this permit:

- (1) Bypass the intentional diversion of waste streams from any portion of a treatment facility in accordance with 40 CFR 122.41(m)(1)(i) and Regulation 61.2(12).
- (2) Common Plan of Development or Sale A contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules, but remain related. The Division has determined that "contiguous" means construction activities located in close proximity to each other (within ¼ mile). Construction activities are considered to be "related" if they share the same development plan, builder or contractor, equipment, storage areas, etc. "Common plan of development or sale" includes construction activities that are associated with the construction of field wide oil and gas permits for facilities that are related.
- (3) Construction Activity Ground surface disturbing and associated activities (land disturbance), which include, but are not limited to, clearing, grading, excavation, demolition, installation of new or improved haul roads and access roads, staging areas, stockpiling of fill materials, and borrow areas. Construction does not include routine maintenance to maintain the original line and grade, hydraulic capacity, or original purpose of the facility. Activities to conduct repairs that are not part of routine maintenance or for replacement are construction activities and are not routine maintenance. Repaving activities where underlying and/or surrounding soil is exposed as part of the repaving operation are considered construction activities. Construction activity is from initial ground breaking to final stabilization regardless of ownership of the construction activities.
- (4) Control Measure Any best management practice or other method used to prevent or reduce the discharge of pollutants to state waters. Control measures include, but are not limited to, best management practices. Control measures can include other methods such as the installation, operation, and maintenance of structural controls and treatment devices.

- (5) Control Measure Requiring Routine Maintenance Any control measure that is still operating in accordance with its design and the requirements of this permit, but requires maintenance to prevent a breach of the control measure. See also inadequate control measure.
- (6) Dedicated Asphalt, Concrete Batch Plants and Masonry Mixing Stations are batch plants or mixing stations located on, or within ¼ mile of, a construction site and that provide materials only to that specific construction site.
- (7) Final Stabilization The condition reached when all ground surface disturbing activities at the site have been completed, and for all areas of ground surface disturbing activities where a uniform vegetative cover has been established with an individual plant density of at least 70 percent of predisturbance levels, or equivalent permanent, physical erosion reduction methods have been employed.
- (8) Good Engineering, Hydrologic and Pollution Control Practices: are methods, procedures, and practices that:
 - a. Are based on basic scientific fact(s).
 - b. Reflect best industry practices and standards.
 - c. Are appropriate for the conditions and pollutant sources.
 - d. Provide appropriate solutions to meet the associated permit requirements, including practice based effluent limits.
- (9) Inadequate Control Measure Any control measure that is not designed or implemented in accordance with the requirements of the permit and/or any control measure that is not implemented to operate in accordance with its design. See also Control Measure Requiring Routine Maintenance.
- (10) Infeasible Not technologically possible, or not economically practicable and achievable in light of best industry practices.
- (11) Minimize reduce or eliminate to the extent achievable using control measures that are technologically available and economically practicable and achievable in light of best industry practice.
- (12) Municipality A city, town, county, district, association, or other public body created by, or under, State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or a designated and approved management agency under section 208 of CWA (1987).
- (13) Municipal Separate Storm Sewer System (MS4) A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):
 - a) owned or operated by a State, city, town, county, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or a designated and approved management agency under section 208 of the CWA that discharges to state waters;
 - i. designed or used for collecting or conveying stormwater;
 - ii. are not a combined sewer; and
 - iii. are not part of a Publicly Owned Treatment Works (POTW). See 5 CCR 1002-61.2(62).
- (14) Municipal Stormwater Management Program A stormwater program operated by a municipality, typically to meet the requirements of the municipalities MS4 discharge certification.

- (15) Operator The party that has operational control over day-to-day activities at a project site which are necessary to ensure compliance with the permit. This party is authorized to direct individuals at a site to carry out activities required by the permit.(e.g. the general contractor)
- (16) Owner The party that has overall control of the activities and that has funded the implementation of the construction plans and specifications. This is the party with ownership of, a long term lease of, or easements on the property on which the construction activity is occurring (e.g., the developer).
- (17) Permittee(s) The owner <u>and</u> operator named in the discharge certification issued under this permit for the construction site specified in the certification.
- (18) Point Source Any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. Point source does not include irrigation return flow. See 5 CCR 102-61.2(75).
- (19) Pollutant Dredged spoil, dirt, slurry, solid waste, incinerator residue, sewage, sewage sludge, garbage, trash, chemical waste, biological nutrient, biological material, radioactive material, heat, wrecked or discarded equipment, rock, sand, or any industrial, municipal or agricultural waste. See 5 CCR 1002-61.2(76).
- (20) Presentation of credentials a government issued form of identification, if in person; or (ii) providing name, position and purpose of inspection if request to enter is made via telephone, email or other form of electronic communication. A Permittee's non-response to a request to enter upon presentation of credentials constitutes a denial to such request, and may result in violation of the Permit.
- (21) Process Water Any water which, during manufacturing or processing, comes into contact with or results from the production of any raw material, intermediate product, finished product, by product or waste product.
- (22) Public Emergency Related Site a project initiated in response to an unanticipated emergency (e.g., mud slides, earthquake, extreme flooding conditions, disruption in essential public services), for which the related work requires immediate authorization to avoid imminent endangerment to human health or the environment, or to reestablish essential public services.
- (23) Qualified Stormwater Manager An individual knowledgeable in the principles and practices of erosion and sediment control and pollution prevention, and with the skills to assess conditions at construction sites that could impact stormwater quality and to assess the effectiveness of stormwater controls implemented to meet the requirements of this permit.
- (24) Qualifying Local Program A municipal program for stormwater discharges associated with small construction activity that was formally approved by the division as a qualifying local program.
- (25) Receiving Water Any classified or unclassified surface water segment (including tributaries) in the State of Colorado into which stormwater associated with construction activities discharges. This definition includes all water courses, even if they are usually dry, such as borrow ditches, arroyos, and other unnamed waterways.
- (26) Severe Property Damage substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. See 40 CFR 122.41(m)(1)(ii).

- (27) Significant Materials Include, but not limited to, raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical the permittee is required to report under section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA); fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with stormwater discharges.
- (28) Small Construction Activity The discharge of stormwater from construction activities that result in land disturbance of equal to, or greater than, one acre and less than five acres. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale, if the larger common plan ultimately disturbs equal to, or greater than, one acre and less than five acres.
- (29) Spill An unintentional release of solid or liquid material which may pollute state waters.
- (30) State Waters means any and all surface and subsurface waters which are contained in or flow in or through this state, but does not include waters in sewage systems, waters in treatment works of disposal systems, waters in potable water distribution systems, and all water withdrawn for use until use and treatment have been completed.
- (31) Steep Slopes: where a local government, or industry technical manual (e.g., stormwater BMP manual) has defined what is to be considered a "steep slope", this permit's definition automatically adopts that definition. Where no such definition exists, steep slopes are automatically defined as those that are 3:1 or greater.
- (32) Stormwater Precipitation runoff, snow melt runoff, and surface runoff and drainage. See 5 CCR 1002-61.2(103).
- (33) Total Maximum Daily Loads (TMDLs) -The sum of the individual wasteload allocations (WLA) for point sources and load allocations (LA) for nonpoint sources and natural background. For the purposes of this permit, a TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. A TMDL includes WLAs, LAs, and must include a margin of safety (MOS), and account for seasonal variations. See section 303(d) of the CWA and 40 C.F.R. 130.2 and 130.7.
- (34) Upset an exceptional incident in which there is unintentional and temporary noncompliance with permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation in accordance with 40 CFR 122.41(n) and Regulation 61.2(114).

F. MONITORING

The division may require sampling and testing, on a case-by-case basis. If the division requires sampling and testing, the division will send a notification to the permittee. Reporting procedures for any monitoring data collected will be included in the notification.

If monitoring is required, the following applies:

- 1. the thirty (30) day average must be determined by the arithmetic mean of all samples collected during a thirty (30) consecutive-day period; and
- 2. a grab sample, for monitoring requirements, is a single "dip and take" sample.

G. Oil and Gas Construction

Stormwater discharges associated with construction activities directly related to oil and gas exploration, production, processing, and treatment operations or transmission facilities are regulated under the Colorado Discharge Permit System Regulations (5 CCR 1002-61), and require coverage under this permit in accordance with that regulation. However, references in this permit to specific authority under the CWA do not apply to stormwater discharges associated with these oil and gas related construction activities, to the extent that the references are limited by the federal Energy Policy Act of 2005.

Part II: Standard Permit Conditions

A. DUTY TO COMPLY

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Water Quality Control Act and is grounds for:

- a. enforcement action;
- b. permit termination, revocation and reissuance, or modification; or
- c. denial of a permit renewal application.

B. DUTY TO REAPPLY

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain authorization as required by Part I.A.3.k. of the permit.

C. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. DUTY TO MITIGATE

A permittee must take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. PROPER OPERATION AND MAINTENANCE

A permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by the permittee only when the operation is necessary to achieve compliance with the conditions of this permit. This requirement can be met by meeting the requirements for Part I.B., I.C., and I.D. above. See also 40 C.F.R. § 122.41(e).

F. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated for cause. The permittee request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. Any request for modification, revocation, reissuance, or termination under this permit must comply with all terms and conditions of Regulation 61.8(8).

G. PROPERTY RIGHTS

In accordance with 40 CFR 122.41(g) and 5 CCR 1002-61, 61.8(9):

1. The issuance of a permit does not convey any property or water rights in either real or personal property, or stream flows or any exclusive privilege.

- 2. The issuance of a permit does not authorize any injury to person or property or any invasion of personal rights, nor does it authorize the infringement of federal, state, or local laws or regulations.
- 3. Except for any toxic effluent standard or prohibition imposed under Section 307 of the Federal act or any standard for sewage sludge use or disposal under Section 405(d) of the Federal act, compliance with a permit during its term constitutes compliance, for purposes of enforcement, with Sections 301, 302, 306, 318, 403, and 405(a) and (b) of the Federal act. However, a permit may be modified, revoked and reissued, or terminated during its term for cause as set forth in Section 61.8(8) of the Colorado Discharge Permit System Regulations.

H. DUTY TO PROVIDE INFORMATION

The permittee shall furnish to the division, within a reasonable time, any information which the division may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the division, upon request, copies of records required to be kept by this permit in accordance with 40 CFR 122.41(h) and/or Regulation 61.8(3)(q).

I. INSPECTION AND ENTRY

The permittee shall allow the division and the authorized representative, upon the presentation of credentials as required by law, to allow for inspections to be conducted in accordance with 40 CFR 122.41(i), Regulation 61.8(3), and Regulation 61.8(4):

- to enter upon the permittee's premises where a regulated facility or activity is located or in which any records are required to be kept under the terms and conditions of this permit;
- 2. at reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit;
- 3. at reasonable times, inspect any monitoring equipment or monitoring method required in the permit; and
- 4. to enter upon the permittee's premises in a reasonable manner and at a reasonable time to inspect or investigate, any actual, suspected, or potential source of water pollution, or any violation of the Colorado Water Quality Control Act. The investigation may include: sampling of any discharges, stormwater or process water, taking of photographs, interviewing site staff on alleged violations and other matters related to the permit, and assessing any and all facilities or areas within the site that may affect discharges, the permit, or an alleged violation.

The permittee shall provide access to the division or other authorized representatives upon presentation of proper credentials. A permittee's non-response to a request to enter upon presentation of credentials constitutes a denial of such request, and may result in a violation of the permit.

J. MONITORING AND RECORDS

1. Samples and measurements taken for the purpose of monitoring must be representative of the volume and nature of the monitored activity.

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- 2. The permittee must retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date the permit expires or the date the permittee's authorization is terminated. This period may be extended by request of the division at any time.
- 3. Records of monitoring information must include:
 - a. The date, exact place, and time of sampling or measurements;
 - b. The individual(s) who performed the sampling or measurements;
 - c. The date(s) analyses were performed
 - d. The individual(s) who performed the analyses;
 - e. The analytical techniques or methods used; and
 - f. The results of such analyses.
- 4. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in the permit.

K. SIGNATORY REQUIREMENTS

1. Authorization to Sign:

All documents required to be submitted to the division by the permit must be signed in accordance with the following criteria:

- **a.** For a corporation: By a responsible corporate officer. For the purpose of this subsection, a responsible corporate officer means:
 - i. a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or
 - ii. the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
- **b.** For a partnership or sole proprietorship: By a general partner or the proprietor, respectively; or
- c. For a municipality, state, federal, or other public agency: By either a principal executive officer or ranking elected official. For purposes of this subsection, a principal executive officer of a federal agency includes
 - i. (i) the chief executive officer of the agency, or

- ii. (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency. (e.g., Regional Administrator of EPA)
- 2. Electronic Signatures

For persons signing applications for coverage under this permit electronically, in addition to meeting other applicable requirements stated above, such signatures must meet the same signature, authentication, and identity-proofing standards set forth at 40 CFR § 3.2000(b) for electronic reports (including robust second-factor authentication). Compliance with this requirement can be achieved by submitting the application using the Colorado Environmental Online Service (CEOS) system.

3. Change in Authorization to Sign

If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization must be submitted to the division, prior to the re-authorization, or together with any reports, information, or applications to be signed by an authorized representative.

L. REPORTING REQUIREMENTS

1. Planned Changes

The permittee shall give advance notice to the division, in writing, of any planned physical alterations or additions to the permitted facility in accordance with 40 CFR 122.41(I) and Regulation 61.8(5)(a). Notice is required only when:

- a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
- b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.41(a)(1).
- 2. Anticipated Non-Compliance

The permittee shall give advance notice to the division, in writing, of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements. The timing of notification requirements differs based on the type of non-compliance as described in subparagraphs 5, 6, 7, and 8 below.

3. Transfer of Ownership or Control

The permittee shall notify the division, in writing, ten (10) calendar days in advance of a proposed transfer of the permit. This permit is not transferable to any person except after notice is given to the division.

- **a.** Where a facility wants to change the name of the permittee, the original permittee (the first owner or operators) must submit a Notice of Termination.
- **b.** The new owner or operator must submit an application. See also signature requirements in Part II.K, above.
- c. A permit may be automatically transferred to a new permittee if:
 - i. The current permittee notifies the Division in writing 30 calendar days in advance of the proposed transfer date; and
 - ii. The notice includes a written agreement between the existing and new permittee(s) containing a specific date for transfer of permit responsibility, coverage and liability between them; and
 - iii. The division does not notify the existing permittee and the proposed new permittee of its intent to modify, or revoke and reissue the permit.
- iv. Fee requirements of the Colorado Discharge Permit System Regulations, Section 61.15, have been met.
- 4. Monitoring reports

Monitoring results must be reported at the intervals specified in this permit per the requirements of 40 CFR 122.41(I)(4).

5. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule in the permit, shall be submitted on the date listed in the compliance schedule section. The fourteen (14) calendar day provision in Regulation 61.8(4)(n)(i) has been incorporated into the due date.

6. Twenty-four hour reporting

In addition to the reports required elsewhere in this permit, the permittee shall report the following circumstances orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances, and shall mail to the division a written report containing the information requested within five (5) working days after becoming aware of the following circumstances:

- a. Circumstances leading to any noncompliance which may endanger health or the environment regardless of the cause of the incident;
- **b.** Circumstances leading to any unanticipated bypass which exceeds any effluent limitations in the permit;
- c. Circumstances leading to any upset which causes an exceedance of any effluent limitation in the permit;

Permit No.: COR400000

- **d.** Daily maximum violations for any of the pollutants limited by Part I of this permit. This includes any toxic pollutant or hazardous substance or any pollutant specifically identified as the method to control any toxic pollutant or hazardous substance.
- e. The division may waive the written report required under subparagraph 6 of this section if the oral report has been received within 24 hours.
- 7. Other non-compliance

A permittee must report all instances of noncompliance at the time monitoring reports are due. If no monitoring reports are required, these reports are due at least annually in accordance with Regulation 61.8(4)(p). The annual report must contain all instances of non-compliance required under either subparagraph 5 or subparagraph 6 of this subsection.

8. Other information

Where a permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to the Permitting Authority, it has a duty to promptly submit such facts or information.

M. BYPASS

1. Bypass not exceeding limitations

The permittees may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Part II.M.2 of this permit. See 40 CFR 122.41(m)(2).

- 2. Notice of bypass
 - a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, the permittee must submit prior notice, if possible at least ten days before the date of the bypass. ee 40 CFR §122.41(m)(3)(i) and/or Regulation 61.9(5)(c).
 - **b.** Unanticipated bypass. The permittee must submit notice of an unanticipated bypass in accordance with Part II.L.6. See 40 CFR §122.41(m)(3)(ii) .
- 3. Prohibition of Bypass

Bypasses are prohibited and the division may take enforcement action against the permittee for bypass, unless:

i. the bypass is unavoidable to prevent loss of life, personal injury, or severe property damage;

- ii. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
- iii. proper notices were submitted to the division.

N. UPSET

1. Effect of an upset

An upset constitutes an affirmative defense to an action brought for noncompliance with permit effluent limitations if the requirements of Part II.N.2. of this permit are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review in accordance with Regulation 61.8(3)(j).

2. Conditions necessary for demonstration of an Upset

A permittee who wishes to establish the affirmative defense of upset shall demonstrate through properly signed contemporaneous operating logs, or other relevant evidence that

- a. an upset occurred and the permittee can identify the specific cause(s) of the upset;
- b. the permitted facility was at the time being properly operated and maintained; and
- c. the permittee submitted proper notice of the upset as required in Part II.L.6.(24-hour notice); and
- d. the permittee complied with any remedial measure necessary to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. In addition to the demonstration required above, a permittee who wishes to establish the affirmative defense of upset for a violation of effluent limitations based upon water quality standards shall also demonstrate through monitoring, modeling or other methods that the relevant standards were achieved in the receiving water.
- 3. Burden of Proof

In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

O. RETENTION OF RECORDS

1. Post-Expiration or Termination Retention

Copies of documentation required by this permit, including records of all data used to complete the application for permit coverage to be covered by this permit, must be

retained for at least three years from the date that permit coverage expires or is terminated. This period may be extended by request of EPA at any time.

2. On-site Retention

The <u>permittee</u> must retain an electronic version or hardcopy of the SWMP at the construction site from the date of the initiation of construction activities to the date of expiration or inactivation of permit coverage; unless another location, specified by the <u>permittee</u>, is approved by the division.

P. REOPENER CLAUSE

1. Procedures for modification or revocation

Permit modification or revocation of this permit or coverage under this permit will be conducted according to Regulation 61.8(8).

2. Water quality protection

If there is evidence indicating that the stormwater discharges authorized by this permit cause, have the reasonable potential to cause or contribute to an excursion above any applicable water quality standard, the permittee may be required to obtain an individual permit, or the permit may be modified to include different limitations and/or requirements.

Q. SEVERABILITY

The provisions of this permit are severable. If any provisions or the application of any provision of this permit to any circumstances, is held invalid, the application of such provision to other circumstances and the application of the remainder of this permit shall not be affected.

R. NOTIFICATION REQUIREMENTS

1. Notification to Parties

All notification requirements, excluding information submitted using the CEOS portal, shall be directed as follows:

- a. Oral Notifications, during normal business hours shall be to: Clean Water Compliance Section Water Quality Control Division Telephone: (303) 692-3500
- b. Written notification shall be to: Clean Water Compliance Section Water Quality Control Division Colorado Department of Public Health and Environment WQCD-WQP-B2 4300 Cherry Creek Drive South Denver, CO 80246-1530

S. RESPONSIBILITIES

1. Reduction, Loss, or Failure of Treatment Facility

The permittee has the duty to halt or reduce any activity if necessary to maintain compliance with the effluent limitations of the permit. It shall not be a defense for a permittee in an enforcement action that it would be necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

T. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under Section 311 (Oil and Hazardous Substance Liability) of the CWA.

U. Emergency Powers

Nothing in this permit shall be construed to prevent or limit application of any emergency power of the division.

V. Confidentiality

Any information relating to any secret process, method of manufacture or production, or sales or marketing data which has been declared confidential by the permittee, and which may be acquired, ascertained, or discovered, whether in any sampling investigation, emergency investigation, or otherwise, shall not be publicly disclosed by any member, officer, or employee of the Water Quality Control Commission or the division, but shall be kept confidential. Any person seeking to invoke the protection of of this section shall bear the burden of proving its applicability. This section shall never be interpreted as preventing full disclosure of effluent data.

W. Fees

The permittee is required to submit payment of an annual fee as set forth in the 2016 amendments to the Water Quality Control Act. Section 25-8-502 (1.1) (b), and the Colorado Discharge Permit System Regulations 5 CCR 1002-61, Section 61.15 as amended. Failure to submit the required fee when due and payable is a violation of the permit and will result in enforcement action pursuant to Section 25-8-601 et. seq., C.R.S.1973 as amended.

X. Duration of Permit

The duration of a permit shall be for a fixed term and shall not exceed five (5) years. If the permittee desires to continue to discharge, a permit renewal application shall be submitted at least ninety (90) calendar days before this permit expires. Filing of a timely and complete application shall cause the expired permit to continue in force to the effective date of the new permit. The permit's duration may be extended only through administrative extensions and not through interim modifications. If the permittee anticipates there will be no discharge after the expiration date of this permit, the division should be promptly notified so that it can terminate the permit in accordance with Part I.A.3.i.

Y. Section 307 Toxics

If a toxic effluent standard or prohibition, including any applicable schedule of compliance specified, is established by regulation pursuant to Section 307 of the Federal Act for a toxic pollutant which is present in the permittee's discharge and such standard or prohibition is more stringent than any limitation upon such pollutant in the discharge permit, the division

PART II Permit No.: COR400000

shall institute proceedings to modify or revoke and reissue the permit to conform to the toxic effluent standard or prohibition

APPENDIX B

CDHPE Construction Activity Permit Application

ATE OF CO

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S. Denver, Colorado 80246-1530 Phone (303) 692-2000 TDD Line (303) 691-7700 Located in Glendale, Colorado

http://www.cdphe.state.co.us

| For Agency Use Only |
|-----------------------------------|
| Permit Number Assigned |
| COR03- |
| Date Received// Month Day Year |

Colorado Department of Public Health and Environment

COLORADO DISCHARGE PERMIT SYSTEM (CDPS) STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES APPLICATION PHOTO COPIES, FAXED COPIES, PDF COPIES OR EMAILS WILL NOT BE ACCEPTED.

Please print or type. Original signatures are required. All items must be completed accurately and in their entirety for the application to be deemed complete. Incomplete applications will not be processed until all information is received which will ultimately delay the issuance of a permit. If more space is required to answer any question, please attach additional sheets to the application form. Applications must be submitted by mail or hand delivered to:

Colorado Department of Public Health and Environment

Water Quality Control Division

4300 Cherry Creek Drive South

WQCD-P-B2

Denver, Colorado 80246-1530

Any additional information that you would like the Division to consider in developing the permit should be provided with the application. Examples include effluent data and/or modeling and planned pollutant removal strategies.

PERMIT INFORMATION

Reason for Application:
NEW CERT

□ RENEW CERT

EXISTING CERT #

Applicant is:
Property Owner
Contractor/Operator

A. CONTACT INFORMATION - NOT ALL CONTACT TYPES MAY APPLY * indicates required

*PERMITTEE (If more than one please add additional pages)

*ORGANIZATION FORMAL NAME: _____

*PERMITTEE the person authorized to sign and certify the permit application. This person receives all 1) permit correspondences and is legally responsible for compliance with the permit.

| Responsible Positi | on (Title): | | |
|--------------------|-------------|----|----|
| Currently Held By | (Person): | | |
| Telephone No: | | | |
| email address | | | |
| Organization: | | | |
| Mailing Address: | | | |
| City: | State: | Zi | p: |

This form <u>must be signed</u> by the Permittee (listed in item 1) to be considered complete. Per Regulation 61 In all cases, it shall be signed as follows:

- In the case of corporations, by a responsible corporate officer. For the purposes of this section, the responsible a) corporate officer is responsible for the overall operation of the facility from which the discharge described in the application originates.
- b) In the case of a partnership, by a general partner.
- In the case of a sole proprietorship, by the proprietor. c)
- In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official d)

2) DMR COGNIZANT OFFICIAL (i.e. authorized agent) the person or position authorized to sign and certify reports required by the Division including Discharge Monitoring Reports *DMR's, Annual Reports, Compliance Schedule submittals, and other information requested by the Division. The Division will transmit pre-printed reports (ie. DMR's) to this person. If more than one, please add additional pages. Same As 1) Permittee

| Responsible Positio | on (Title): | | |
|---------------------|-------------|------|--|
| Currently Held By (| Person): | | |
| Telephone No: | | | |
| email address | | | |
| Organization: | | | |
| Mailing Address: | | | |
| City: | State: | Zip: | |

Per Regulation 61 : All reports required by permits, and other information requested by the Division shall be signed by the permittee or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(i) The authorization is made in writing by the permittee

(ii) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a **named individual** or any individual occupying a **named position**); and

(iii) The written authorization is submitted to the Division

3) *SITE CONTACT local contact for questions relating to the facility & discharge authorized by this permit for the facility.

| Same As 1) Perr | nittee | | |
|----------------------|------------|------|--|
| Responsible Positio | n (Title): | | |
| Currently Held By (F | Person): | | |
| Telephone No: | | | |
| email address | | | |
| Organization: | | | |
| Mailing Address: | | | |
| City: | State: | Zip: | |

4) * BILLING CONTACT if different than the permittee

| Responsible Position (Title): | | | |
|-------------------------------|--------|------|---|
| Currently Held By (Person): | | | |
| Telephone No: | | | |
| email address | | _ | |
| Organization: | | | _ |
| Mailing Address: | | | |
| City: | State: | Zip: | |

5) OTHER CONTACT TYPES (check below) Add pages if necessary:

| ResponsiblePosition (Title): | | | | |
|--|--|---|---|--|
| Currently Held By (Person): | | | | |
| Telephone No: | | | | |
| email address | | | | |
| Organization: | | | | |
| Mailing Address: | | | | |
| City: | State:Z | Zip: | | |
| Pretreatment Coordinator Environmental Contact Biosolids Responsible Party | Inspection Facility C Consultant Compliance Contact | Contact | Stormwate Pe Stormwate Re | er MS4 Responsible erson er Authorized epresentative |
| Party Property Owner | | | Other | |
| Project/Facility Name Street Address or cross streets_ | e looth e " "ee i | | | |
| Project/Facility Name Street Address or cross streets_ (e.g., "S. of Park St. between 5 th intersection, mile marker, or oth the route of the project should b | Ave. and 10 th Ave.", or "W. side er identifying information desc e described as best as possible | le of C.R. 21, 3. cribing the loca e with the loca | 25 miles N. of Hw ation of the proje tion more accura | /y 10"; A street name without an ct is <u>not</u> adequate. For linear pr tely indicated by a map.) |
| Project/Facility Name Street Address or cross streets_ (e.g., "S. of Park St. between 5 th , intersection, mile marker, or oth the route of the project should b City, | Ave. and 10 th Ave.", or "W. side er identifying information desc e described as best as possible Zip Code | le of C.R. 21, 3. cribing the loca e with the loca Coun | 25 miles N. of Hw ation of the proje tion more accura Y | /y 10"; A street name without an ct is <u>not</u> adequate. For linear pr tely indicated by a map.) |
| Project/Facility Name Street Address or cross streets_ (e.g., "S. of Park St. between 5 th , intersection, mile marker, or oth the route of the project should b City, Facility Latitude/Longitude— (a following formats | Ave. and 10 th Ave.", or "W. side er identifying information desc e described as best as possible Zip Code approximate center of site | le of C.R. 21, 3. cribing the loca e with the loca Coun e to nearest | 25 miles N. of Hw ation of the proje tion more accura Y 15 seconds us | y 10"; A street name without an ct is <u>not</u> adequate. For linear pro tely indicated by a map.) sing one of |
| Project/Facility Name Street Address or cross streets (e.g., "S. of Park St. between 5 th , intersection, mile marker, or oth the route of the project should b City, Facility Latitude/Longitude — (a following formats 001A Latitude degrees (to 3 deci | Ave. and 10 th Ave.", or "W. side er identifying information deso e described as best as possible Zip Code approximate center of site Longitude mal places) | le of C.R. 21, 3. cribing the loca e with the loca Coun e to nearest | 25 miles N. of Hw ation of the proje tion more accura Y 15 seconds us degrees (to 3 d | y 10"; A street name without an ct is <u>not</u> adequate. For linear pro tely indicated by a map.) sing one of (e.g., 39.703°, 104.933°') lecimal places) |
| Project/Facility Name Street Address or cross streets_ (e.g., "S. of Park St. between 5 th , intersection, mile marker, or oth the route of the project should b City, Facility Latitude/Longitude — (a following formats 001A Latitude degrees (to 3 deci 001A Latitude ° | Ave. and 10 th Ave.", or "W. side er identifying information desc e described as best as possible Zip Code approximate center of site Longitude mal places) or '" Longitude es seconds degree | le of C.R. 21, 3. cribing the loca e with the loca Coun e to nearest | 25 miles N. of Hw ation of the proje tion more accura Y 15 seconds us degrees (to 3 d " (e.g., 39° econds | y 10"; A street name without an ct is <u>not</u> adequate. For linear pro tely indicated by a map.) sing one of (e.g., 39.703°, 104.933°') lecimal places) 46'11"N, 104°53'11"W) |
| Project/Facility Name Street Address or cross streets (e.g., "S. of Park St. between 5 th , intersection, mile marker, or oth the route of the project should b City, Facility Latitude/Longitude —(following formats 001A Latitudeo degrees (to 3 deci 001A Latitudeo degrees minute For the approximate center pro either degrees, minutes, and s a variety of sources, including: o Surveyors or engineers fo o EPA maintains a web-bas | Ave. and 10 th Ave.", or "W. side er identifying information desc e described as best as possible Zip Code approximate center of site Longitude mal places) or `" Longitude es seconds degrees point of the property, to the nea econds, or in decimal degrees or the project should have, or h ed siting tool as part of their T | le of C.R. 21, 3. cribing the loca e with the loca Count e to nearest e to nearest | 25 miles N. of Hw ation of the proje tion more accura y 15 seconds us degrees (to 3 d " (e.g., 39° econds ds. The latitude a cimal places. This ulate, this inform wentory program | y 10"; A street name without an ct is <u>not</u> adequate. For linear pro tely indicated by a map.) sing one of (e.g., 39.703°, 104.933°') lecimal places) 46'11"N, 104°53'11"W) and longitude must be provided a s information may be obtained fr ation. n that uses interactive maps and |
| Project/Facility Name Street Address or cross streets_ (e.g., "S. of Park St. between 5 th , intersection, mile marker, or oth the route of the project should b City, Facility Latitude/Longitude— (a following formats 001A Latitude o degrees (to 3 deci 001A Latitude o degrees minute For the approximate center po either degrees, minutes, and s a variety of sources, including: o Surveyors or engineers fo o EPA maintains a web-bas aerial photography to hel www.epa.gov/tri/report o U.S. Geological Survey to | Ave. and 10 th Ave.", or "W. side er identifying information desc e described as best as possible Zip Code approximate center of site Longitude mal places) or ' " Longitude es seconds degree bint of the property, to the nea econds, or in decimal degrees or the project should have, or h ed siting tool as part of their T p users get latitude and longitu /siting_tool/index.htm pographical map(s), available | le of C.R. 21, 3. cribing the loca e with the loca Count e to nearest | 25 miles N. of Hw ation of the proje tion more accura Y 15 seconds us degrees (to 3 d (e.g., 39° econds ds. The latitude a cimal places. This ulate, this inform wentory program tool can be acce | y 10"; A street name without an ct is <u>not</u> adequate. For linear pro tely indicated by a map.) sing one of (e.g., 39.703°, 104.933°') lecimal places) 46'11"N, 104°53'11"W) and longitude must be provided a s information may be obtained fr ation. n that uses interactive maps and ssed at |

Map: Attach a map that indicates the site location and that CLEARLY shows the boundaries of the area that will be disturbed. Maps must be **no larger** than 11x17 inches.

D. LEGAL DESCRIPTION

Legal description: If subdivided, provide the legal description below, or indicate that it is not applicable (**do not** supply Township/Range/Section or metes and bounds description of site)

| Subdivision(s): | Lot(s): | Block(s): |
|-----------------|---------|-----------|
|-----------------|---------|-----------|

OR

□ Not applicable (site has not been subdivided)

E. AREA OF CONSTRUCTION SITE

Total area of project site (acres): Area of project site to undergo disturbance (acres):

Note: aside from clearing, grading and excavation activities, disturbed areas also include areas receiving overburden (e.g., stockpiles), demolition areas, and areas with heavy equipment/vehicle traffic and storage that disturb existing vegetative cover

Total disturbed area of Larger Common Plan of Development or Sale, if applicable: (i.e., total, including all phases, filings, lots, and infrastructure not covered by this application)

> Provide both the total area of the construction site, and the area that will undergo disturbance, in acres. Note: aside from clearing, grading and excavation activities, disturbed areas also include areas receiving overburden (e.g., stockpiles), demolition areas, and areas with heavy equipment/vehicle traffic and storage that disturb existing vegetative cover (see construction activity description under the APPLICABILITY section on page 1). If the project is part of a larger common plan of development or sale (see the definition under the APPLICABILITY section on page 1), the disturbed area of the total plan must also be included.

F. NATURE OF CONSTRUCTION ACTIVITY

Check the appropriate box(s) or provide a brief description that indicates the general nature of the construction activities. (The full description of activities must be included in the Stormwater Management Plan.)

Single Family Residential Development Multi-Family Residential Development **Commercial Development** Oil and Gas Production and/or Exploration (including pad sites and associated infrastructure) Highway/Road Development (not including roadways associated with commercial or residential development) Other – Description:

G. ANTICIPATED CONSTRUCTION SCHEDULE

Construction Start Date: _____ Final Stabilization Date: _____

• Construction Start Date - This is the day you expect to begin ground disturbing activities, including grubbing, stockpiling, excavating, demolition, and grading activities.

• Final Stabilization Date - in terms of permit coverage, this is when the site is finally stabilized. This means that all ground surface disturbing activities at the site have been completed, and all disturbed areas have been either built on, paved, or a uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels. Permit coverage must be maintained until the site is finally stabilized. Even if you are only doing one part of the project, the estimated final stabilization date must be for the overall project. If permit coverage is still required once your part is completed, the permit certification may be transferred or reassigned to a new responsible entity(s).

H. RECEIVING WATERS (If discharge is to a ditch or storm sewer, include the name of the ultimate receiving waters)

Immediate Receiving Water(s):

Ultimate Receiving Water(s):

Identify the receiving water of the stormwater from your site. Receiving waters are any waters of the State of Colorado. This includes all water courses, even if they are usually dry. If stormwater from the construction site enters a ditch or storm sewer system, identify that system and indicate the ultimate receiving water for the ditch or storm sewer. Note: a stormwater discharge permit does not allow a discharge into a ditch or storm sewer system without the approval of the owner/operator of that system.

I. REQUIRED SIGNATURES (Both parts i. and ii. must be signed)

Signature of Applicant: The applicant must be either the owner and/or operator of the construction site. Refer to Part B of the instructions for additional information.

- The application <u>must be signed</u> by the applicant to be considered complete. <u>In all cases</u>, it shall be signed as follows: (Regulation 61.4 (1ei)
 a) In the case of corporations, by the responsible corporate officer is responsible for the overall operation of the facility from which the discharge described in the form originates
- b) In the case of a partnership, by a general partner.
- c) In the case of a sole proprietorship, by the proprietor.
- d) In the case of a municipal, state, or other public facility, by either a principal executive officer, ranking elected official, (a principal executive officer has responsibility for the overall operation of the facility from which the discharge originates).

STOP!: A Stormwater Management Plan must be completed prior to signing the following certifications!

i. STORMWATER MANAGEMENT PLAN CERTIFICATION

"I certify under penalty of law that a complete Stormwater Management Plan, has been prepared for my activity. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the Stormwater Management Plan is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for falsely certifying the completion of said SWMP, including the possibility of fine and imprisonment for knowing violations."

Title

Signature of Legally Responsible Person or Authorized Agent (submission must include original signature) Date Signed

Name (printed)

ii. SIGNATURE OF PERMIT LEGAL CONTACT

"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 gather and evaluate 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."

"I understand that submittal of this application is for coverage under the State of Colorado General Permit for Stormwater Discharges Associated with Construction Activity for the entirety of the construction site/project described and applied for, until such time as the application is amended or the certification is transferred, inactivated, or expired."

XX

XX

Signature of Legally Responsible Person (submission must include original signature)

Name (printed

Title DO NOT INCLUDE A COPY OF THE STORMWATER MANAGEMENT PLAN DO NOT INCLUDE PAYMENT – AN INVOICE WILL BE SENT AFTER THE CERTIFICATION IS ISSUED.

page 5 of 5 revised April 2011

Date Signed

APPENDIX C

Urban Drainage and Flood Control District BMPs

Description

Surface roughening is an erosion control practice that involves tracking, scarifying, imprinting, or tilling a disturbed area to provide temporary stabilization of disturbed areas. Surface roughening creates variations in the soil surface that help to minimize wind and water erosion. Depending on the technique used, surface roughening may also help establish conditions favorable to establishment of vegetation.

Appropriate Uses

Surface roughening can be used to provide temporary stabilization of disturbed areas, such as when



Photograph SR-1. Surface roughening via imprinting for temporary stabilization.

revegetation cannot be immediately established due to seasonal planting limitations. Surface roughening is not a stand-alone BMP, and should be used in conjunction with other erosion and sediment controls.

Surface roughening is often implemented in conjunction with grading and is typically performed using heavy construction equipment to track the surface. Be aware that tracking with heavy equipment will also compact soils, which is not desirable in areas that will be revegetated. Scarifying, tilling, or ripping are better surface roughening techniques in locations where revegetation is planned. Roughening is not effective in very sandy soils and cannot be effectively performed in rocky soil.

Design and Installation

Typical design details for surfacing roughening on steep and mild slopes are provided in Details SR-1 and SR-2, respectively.

Surface roughening should be performed either after final grading or to temporarily stabilize an area during active construction that may be inactive for a short time period. Surface roughening should create depressions 2 to 6 inches deep and approximately 6 inches apart. The surface of exposed soil can be roughened by a number of techniques and equipment. Horizontal grooves (running parallel to the contours of the land) can be made using tracks from equipment treads, stair-step grading, ripping, or tilling.

Fill slopes can be constructed with a roughened surface. Cut slopes that have been smooth graded can be roughened as a subsequent operation. Roughening should follow along the contours of the slope. The

tracks left by truck mounted equipment working perpendicular to the contour can leave acceptable horizontal depressions; however, the equipment will also compact the soil.

| Surface Roughening | | | |
|--------------------------|-----|--|--|
| Functions | | | |
| Erosion Control | Yes | | |
| Sediment Control | No | | |
| Site/Material Management | No | | |

Maintenance and Removal

Care should be taken not to drive vehicles or equipment over areas that have been surface roughened. Tire tracks will smooth the roughened surface and may cause runoff to collect into rills and gullies.

Because surface roughening is only a temporary control, additional treatments may be necessary to maintain the soil surface in a roughened condition.

Areas should be inspected for signs of erosion. Surface roughening is a temporary measure, and will not provide long-term erosion control.

SURFACE ROUGHENING INSTALLATION NOTES

1. SEE PLAN VIEW FOR: -LOCATION(S) OF SURFACE ROUGHENING.

2. SURFACE ROUGHENING SHALL BE PROVIDED PROMPTLY AFTER COMPLETION OF FINISHED GRADING (FOR AREAS NOT RECEIVING TOPSOIL) OR PRIOR TO TOPSOIL PLACEMENT OR ANY FORECASTED RAIN EVENT.

3. AREAS WHERE BUILDING FOUNDATIONS, PAVEMENT, OR SOD WILL BE PLACED WITHOUT DELAY IN THE CONSTRUCTION SEQUENCE, SURFACE ROUGHENING IS NOT REQUIRED.

4. DISTURBED SURFACES SHALL BE ROUGHENED USING RIPPING OR TILLING EQUIPMENT ON THE CONTOUR OR TRACKING UP AND DOWN A SLOPE USING EQUIPMENT TREADS.

5. A FARMING DISK SHALL NOT BE USED FOR SURFACE ROUGHENING.

SURFACE ROUGHENING MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACE UPON DISCOVERY OF THE FAILURE.

4. VEHICLES AND EQUIPMENT SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SURFACE ROUGHENED.

5. IN NON-TURF GRASS FINISHED AREAS, SEEDING AND MULCHING SHALL TAKE PLACE DIRECTLY OVER SURFACE ROUGHENED AREAS WITHOUT FIRST SMOOTHING OUT THE SURFACE.

6. IN AREAS NOT SEEDED AND MULCHED AFTER SURFACE ROUGHENING, SURFACES SHALL BE RE-ROUGHENED AS NECESSARY TO MAINTAIN GROOVE DEPTH AND SMOOTH OVER RILL EROSION.

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

Description

Temporary seeding can be used to stabilize disturbed areas that will be inactive for an extended period. Permanent seeding should be used to stabilize areas at final grade that will not be otherwise stabilized. Effective seeding includes preparation of a seedbed, selection of an appropriate seed mixture, proper planting techniques, and protection of the seeded area with mulch, geotextiles, or other appropriate measures.

Appropriate Uses

When the soil surface is disturbed and will remain inactive for an extended period (typically 30 days or longer),



Photograph TS/PS -1. Equipment used to drill seed. Photo courtesy of Douglas County.

proactive stabilization measures should be implemented. If the inactive period is short-lived (on the order of two weeks), techniques such as surface roughening may be appropriate. For longer periods of inactivity, temporary seeding and mulching can provide effective erosion control. Permanent seeding should be used on finished areas that have not been otherwise stabilized.

Typically, local governments have their own seed mixes and timelines for seeding. Check jurisdictional requirements for seeding and temporary stabilization.

Design and Installation

Effective seeding requires proper seedbed preparation, selection of an appropriate seed mixture, use of appropriate seeding equipment to ensure proper coverage and density, and protection with mulch or fabric until plants are established.

The USDCM Volume 2 *Revegetation* Chapter contains detailed seed mix, soil preparations, and seeding and mulching recommendations that may be referenced to supplement this Fact Sheet.

Drill seeding is the preferred seeding method. Hydroseeding is not recommended except in areas where steep slopes prevent use of drill seeding equipment, and even in these instances it is preferable to hand seed and mulch. Some jurisdictions do not allow hydroseeding or hydromulching.

Seedbed Preparation

Prior to seeding, ensure that areas to be revegetated have soil conditions capable of supporting vegetation. Overlot grading can result in loss of topsoil, resulting in poor quality subsoils at the ground surface that have low nutrient value, little organic matter content, few soil microorganisms, rooting restrictions, and conditions less conducive to infiltration of precipitation. As a result, it is typically necessary to provide stockpiled topsoil, compost, or other

| Temporary and Permanent Seeding | | | |
|---------------------------------|-----|--|--|
| Functions | | | |
| Erosion Control | Yes | | |
| Sediment Control | No | | |
| Site/Material Management No | | | |

EC-2 Temporary and Permanent Seeding (TS/PS)

soil amendments and rototill them into the soil to a depth of 6 inches or more.

Topsoil should be salvaged during grading operations for use and spread on areas to be revegetated later. Topsoil should be viewed as an important resource to be utilized for vegetation establishment, due to its water-holding capacity, structure, texture, organic matter content, biological activity, and nutrient content. The rooting depth of most native grasses in the semi-arid Denver metropolitan area is 6 to 18 inches. At a minimum, the upper 6 inches of topsoil should be stripped, stockpiled, and ultimately respread across areas that will be revegetated.

Where topsoil is not available, subsoils should be amended to provide an appropriate plant-growth medium. Organic matter, such as well digested compost, can be added to improve soil characteristics conducive to plant growth. Other treatments can be used to adjust soil pH conditions when needed. Soil testing, which is typically inexpensive, should be completed to determine and optimize the types and amounts of amendments that are required.

If the disturbed ground surface is compacted, rip or rototill the surface prior to placing topsoil. If adding compost to the existing soil surface, rototilling is necessary. Surface roughening will assist in placement of a stable topsoil layer on steeper slopes, and allow infiltration and root penetration to greater depth.

Prior to seeding, the soil surface should be rough and the seedbed should be firm, but neither too loose nor compacted. The upper layer of soil should be in a condition suitable for seeding at the proper depth and conducive to plant growth. Seed-to-soil contact is the key to good germination.

Seed Mix for Temporary Vegetation

To provide temporary vegetative cover on disturbed areas which will not be paved, built upon, or fully landscaped or worked for an extended period (typically 30 days or more), plant an annual grass appropriate for the time of planting and mulch the planted areas. Annual grasses suitable for the Denver metropolitan area are listed in Table TS/PS-1. These are to be considered only as general recommendations when specific design guidance for a particular site is not available. Local governments typically specify seed mixes appropriate for their jurisdiction.

Seed Mix for Permanent Revegetation

To provide vegetative cover on disturbed areas that have reached final grade, a perennial grass mix should be established. Permanent seeding should be performed promptly (typically within 14 days) after reaching final grade. Each site will have different characteristics and a landscape professional or the local jurisdiction should be contacted to determine the most suitable seed mix for a specific site. In lieu of a specific recommendation, one of the perennial grass mixes appropriate for site conditions and growth season listed in Table TS/PS-2 can be used. The pure live seed (PLS) rates of application recommended in these tables are considered to be absolute minimum rates for seed applied using proper drill-seeding equipment.

If desired for wildlife habitat or landscape diversity, shrubs such as rubber rabbitbrush (*Chrysothamnus nauseosus*), fourwing saltbush (*Atriplex canescens*) and skunkbrush sumac (*Rhus trilobata*) could be added to the upland seedmixes at 0.25, 0.5 and 1 pound PLS/acre, respectively. In riparian zones, planting root stock of such species as American plum (*Prunus americana*), woods rose (*Rosa woodsii*), plains cottonwood (*Populus sargentii*), and willow (*Populus spp*.) may be considered. On non-topsoiled upland sites, a legume such as Ladak alfalfa at 1 pound PLS/acre can be included as a source of nitrogen for perennial grasses.

Seeding dates for the highest success probability of perennial species along the Front Range are generally in the spring from April through early May and in the fall after the first of September until the ground freezes. If the area is irrigated, seeding may occur in summer months, as well. See Table TS/PS-3 for appropriate seeding dates.

| Species ^a (Common name) | Growth Season ^b | Pounds of Pure Live Seed (PLS)/acre ^c | Planting Depth (inches) |
|---------------------------------------|-------------------------------|--|-------------------------------|
| 1. Oats | Cool | 35 - 50 | 1 - 2 |
| 2. Spring wheat | Cool | 25 - 35 | 1 - 2 |
| 3. Spring barley | Cool | 25 - 35 | 1 - 2 |
| 4. Annual ryegrass | Cool | 10 - 15 | 1/2 |
| 5. Millet | Warm | 3 - 15 | 1/2 - 3/4 |
| 6. Sudangrass | Warm | 5–10 | 1/2 - 3/4 |
| 7. Sorghum | Warm | 5–10 | 1/2 - 3/4 |
| 8. Winter wheat | Cool | 20–35 | 1 - 2 |
| 9. Winter barley | Cool | 20–35 | 1 - 2 |
| 10. Winter rye | Cool | 20–35 | 1 - 2 |
| 11. Triticale | Cool | 25-40 | 1 - 2 |

| Table TS/PS-1 | Minimum Drill | Seeding Rates for | Various Temporary | Annual Grasses |
|---------------|---------------|-------------------|-------------------|-----------------------|
|---------------|---------------|-------------------|-------------------|-----------------------|

^a Successful seeding of annual grass resulting in adequate plant growth will usually produce enough dead-plant residue to provide protection from wind and water erosion for an additional year. This assumes that the cover is not disturbed or mowed closer than 8 inches.

Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist. When hydraulic seeding is used, hydraulic mulching should be applied as a separate operation, when practical, to prevent the seeds from being encapsulated in the mulch.

^b See Table TS/PS-3 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.

^c Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

| Common ^a Name | Botanical Name | Growth Season ^b | Growth Form | Seeds/ Pound | Pounds of PLS/acre |
|---------------------------------------|-----------------------------------|-------------------------------------|----------------|-----------------|-----------------------|
| Alakali Soil Seed Mix | | | | | |
| Alkali sacaton | Sporobolus airoides Cool | | Bunch | 1,750,000 | 0.25 |
| Basin wildrye | Elymus cinereus | <i>Elymus cinereus</i> Cool Bunch 1 | | 165,000 | 2.5 |
| Sodar streambank wheatgrass | Agropyron riparium 'Sodar' | Cool | Sod | 170,000 | 2.5 |
| Jose tall wheatgrass | Agropyron elongatum 'Jose' | Cool | Bunch | 79,000 | 7.0 |
| Arriba western wheatgrass | Agropyron smithii 'Arriba' | Cool | Sod | 110,000 | 5.5 |
| Total | | | | | 17.75 |
| Fertile Loamy Soil Seed Mix | · | | | | |
| Ephriam crested wheatgrass | Agropyron cristatum 'Ephriam' | Cool | Sod | 175,000 | 2.0 |
| Dural hard fescue | Festuca ovina 'duriuscula' | Cool | Bunch | 565,000 | 1.0 |
| Lincoln smooth brome | Bromus inermis leyss 'Lincoln' | Cool | Sod | 130,000 | 3.0 |
| Sodar streambank wheatgrass | Agropyron riparium 'Sodar' | Agropyron riparium 'Sodar' Cool Sod | | 170,000 | 2.5 |
| Arriba western wheatgrass | Agropyron smithii 'Arriba' | Agropyron smithii 'Arriba' Cool Sod | | 110,000 | 7.0 |
| Total | | | | | 15.5 |
| High Water Table Soil Seed Mix | | | | | |
| Meadow foxtail | Alopecurus pratensis | Cool | Sod | 900,000 | 0.5 |
| Redtop | Agrostis alba | Warm | Open sod | 5,000,000 | 0.25 |
| Reed canarygrass | Phalaris arundinacea | Cool Sod | | 68,000 | 0.5 |
| Lincoln smooth brome | Bromus inermis leyss 'Lincoln' | Cool Sod | | 130,000 | 3.0 |
| Pathfinder switchgrass | Panicum virgatum 'Pathfinder' | Warm Sod | | 389,000 | 1.0 |
| Alkar tall wheatgrass | Agropyron elongatum 'Alkar' | Cool | Bunch | 79,000 | 5.5 |
| Total | | | | | 10.75 |
| Transition Turf Seed Mix ^c | · | | | | |
| Ruebens Canadian bluegrass | Poa compressa 'Ruebens' | Cool | Sod | 2,500,000 | 0.5 |
| Dural hard fescue | Festuca ovina 'duriuscula' | Cool | Bunch | 565,000 | 1.0 |
| Citation perennial ryegrass | Lolium perenne 'Citation' | Cool Sod 247,000 | | 247,000 | 3.0 |
| Lincoln smooth brome | Bromus inermis leyss 'Lincoln' | Cool | Sod | 130,000 | 3.0 |
| Total | | | | | 7.5 |

| Common Name | BotanicalGrowthGroNameSeason ^b Fo | | Growth Form | Seeds/ Pound | Pounds of PLS/acre |
|---|---|--|----------------|-----------------|-----------------------|
| Sandy Soil Seed Mix | | | | | • |
| Blue grama | Bouteloua gracilis Warm Sod-forming bunchgrass Sod-forming | | 825,000 | 0.5 | |
| Camper little bluestem | Schizachyrium scoparium 'Camper' | Schizachyrium scoparium 'Camper' Warm Bunch | | 240,000 | 1.0 |
| Prairie sandreed | Calamovilfa longifolia | Warm | Open sod | 274,000 | 1.0 |
| Sand dropseed | Sporobolus cryptandrus | Cool | Bunch | 5,298,000 | 0.25 |
| Vaughn sideoats grama | Bouteloua curtipendula 'Vaughn' Warm Sod | | 191,000 | 2.0 | |
| Arriba western wheatgrass | Agropyron smithii 'Arriba' Cool Sod | | 110,000 | 5.5 | |
| Total | | | | | 10.25 |
| Heavy Clay, Rocky Foothill Seed Mix | | | | | |
| Ephriam crested wheatgrass ^d | Agropyron cristatum 'Ephriam' | Cool | Sod | 175,000 | 1.5 |
| Oahe Intermediate wheatgrass | Agropyron intermedium 'Oahe'CoolSod115 | | 115,000 | 5.5 | |
| Vaughn sideoats grama ^e | Bouteloua curtipendula 'Vaughn'WarmSod1 | | 191,000 | 2.0 | |
| Lincoln smooth brome | Bromus inermis leyss 'Lincoln' Cool Sod | | Sod | 130,000 | 3.0 |
| Arriba western wheatgrass | Agropyron smithii 'Arriba' Cool Sod 110,000 | | 5.5 | | |
| Total | | | | | 17.5 |
| ^a All of the above seeding mixes and rates are based on drill seeding followed by crimped straw mulch. These rates should be | | | | | |

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses (cont.)

All of the above seeding mixes and rates are based on drill seeding followed by crimped straw mulch. These rates should be doubled if seed is broadcast and should be increased by 50 percent if the seeding is done using a Brillion Drill or is applied through hydraulic seeding. Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1. If hydraulic seeding is used, hydraulic mulching should be done as a separate operation.

^b See Table TS/PS-3 for seeding dates.

^c If site is to be irrigated, the transition turf seed rates should be doubled.

^d Crested wheatgrass should not be used on slopes steeper than 6H to 1V.

^e Can substitute 0.5 lbs PLS of blue grama for the 2.0 lbs PLS of Vaughn sideoats grama.

| | Annua (Numbers in species in T | l Grasses table reference Table TS/PS-1) | Perennial Grasses | | |
|--------------------------|--------------------------------------|--|-------------------|------|--|
| Seeding Dates | Warm | Cool | Warm | Cool | |
| January 1–March 15 | | | \checkmark | ✓ | |
| March 16–April 30 | 4 | 1,2,3 | \checkmark | ✓ | |
| May 1–May 15 | 4 | | \checkmark | | |
| May 16–June 30 | 4,5,6,7 | | | | |
| July 1–July 15 | 5,6,7 | | | | |
| July 16–August 31 | | | | | |
| September 1–September 30 | | 8,9,10,11 | | | |
| October 1–December 31 | | | \checkmark | ✓ | |

Table TS/PS-3. Seeding Dates for Annual and Perennial Grasses

Mulch

Cover seeded areas with mulch or an appropriate rolled erosion control product to promote establishment of vegetation. Anchor mulch by crimping, netting or use of a non-toxic tackifier. See the Mulching BMP Fact Sheet for additional guidance.

Maintenance and Removal

Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Reseed and mulch these areas, as needed.

An area that has been permanently seeded should have a good stand of vegetation within one growing season if irrigated and within three growing seasons without irrigation in Colorado. Reseed portions of the site that fail to germinate or remain bare after the first growing season.

Seeded areas may require irrigation, particularly during extended dry periods. Targeted weed control may also be necessary.

Protect seeded areas from construction equipment and vehicle access.

Description

Soil binders include a broad range of treatments that can be applied to exposed soils for temporary stabilization to reduce wind and water erosion. Soil binders may be applied alone or as tackifiers in conjunction with mulching and seeding applications.

Acknowledgement: This BMP Fact Sheet has been adapted from the 2003 California Stormwater Quality Association (CASQA) Stormwater BMP Handbook: Construction (<u>www.cabmphandbooks.com</u>).



Photograph SB-1. Tackifier being applied to provide temporary soil stabilization. Photo courtesy of Douglas County.

Appropriate Uses

Soil binders can be used for short-term, temporary stabilization of soils on both mild and steep slopes. Soil binders are often used in areas where work has temporarily stopped, but is expected to resume before revegetation can become established. Binders are also useful on stockpiled soils or where temporary or permanent seeding has occurred.

Prior to selecting a soil binder, check with the state and local jurisdiction to ensure that the chemicals used in the soil binders are allowed. The water quality impacts of some types of soil binders are relatively unknown and may not be allowed due to concerns about potential environmental impacts. Soil binders must be environmentally benign (non-toxic to plant and animal life), easy to apply, easy to maintain, economical, and should not stain paved or painted surfaces.

Soil binders should not be used in vehicle or pedestrian high traffic areas, due to loss in effectiveness under these conditions.

Site soil type will dictate appropriate soil binders to be used. Be aware that soil binders may not function effectively on silt or clay soils or highly compacted areas. Check manufacturer's recommendations for appropriateness with regard to soil conditions. Some binders may not be suitable for areas with existing vegetation.

Design and Installation

Properties of common soil binders used for erosion control are provided in Table SB-1. Design and installation guidance below are provided for general reference. Follow the manufacturer's instructions for application rates and procedures.

| Soil Binders | | | | |
|--------------------------|----------|--|--|--|
| Functions | | | | |
| Erosion Control | Yes | | | |
| Sediment Control | No | | | |
| Site/Material Management | Moderate | | | |

| | Binder Type | | | |
|---|--|---|--|--|
| Evaluation Criteria | Plant Material Based (short lived) | Plant Material Based (long lived) | Polymeric Emulsion Blends | Cementitious- Based Binders |
| Resistance to Leaching | High | High | Low to Moderate | Moderate |
| Resistance to Abrasion | Moderate | Low | Moderate to High | Moderate to High |
| Longevity | Short to Medium | Medium | Medium to Long | Medium |
| Minimum Curing Time before Rain | 9 to 18 hours | 19 to 24 hours | 0 to 24 hours | 4 to 8 hours |
| Compatibility with Existing Vegetation | Good | Poor | Poor | Poor |
| Mode of Degradation | Biodegradable | Biodegradable | Photodegradable/ Chemically Degradable | Photodegradable/ Chemically Degradable |
| Specialized Application Equipment | Water Truck or Hydraulic Mulcher | Water Truck or Hydraulic Mulcher | Water Truck or Hydraulic Mulcher | Water Truck or Hydraulic Mulcher |
| Liquid/Powder | Powder | Liquid | Liquid/Powder | Powder |
| Surface Crusting | Yes, but dissolves on rewetting | Yes | Yes, but dissolves on rewetting | Yes |
| Clean Up | Water | Water | Water | Water |
| Erosion Control Application Rate | Varies | Varies | Varies | 4,000 to 12,000 lbs/acre Typ. |

| Table SB-1. Properties of Soil Binders for Erosio | n Control (Source: | CASQA 2003) |
|---|--------------------|-------------|
|---|--------------------|-------------|
Factors to consider when selecting a soil binder generally include:

- **Suitability to situation**: Consider where the soil binder will be applied, if it needs a high resistance to leaching or abrasion, and whether it needs to be compatible with existing vegetation. Determine the length of time soil stabilization will be needed, and if the soil binder will be placed in an area where it will degrade rapidly. In general, slope steepness is not a discriminating factor.
- Soil types and surface materials: Fines and moisture content are key properties of surface materials. Consider a soil binder's ability to penetrate, likelihood of leaching, and ability to form a surface crust on the surface materials.
- **Frequency of application**: The frequency of application can be affected by subgrade conditions, surface type, climate, and maintenance schedule. Frequent applications could lead to high costs. Application frequency may be minimized if the soil binder has good penetration, low evaporation, and good longevity. Consider also that frequent application will require frequent equipment clean up.

An overview of major categories of soil binders, corresponding to the types included in Table SB-1 follows.

Plant-Material Based (Short Lived) Binders

• **Guar**: A non-toxic, biodegradable, natural galactomannan-based hydrocolloid treated with dispersant agents for easy field mixing. It should be mixed with water at the rate of 11 to 15 lbs per 1,000 gallons. Recommended minimum application rates are provided in Table SB-2.

| Table SB-2. | Application | Rates for | Guar | Soil | Stabilizer |
|-------------|-------------|------------------|------|------|------------|
|-------------|-------------|------------------|------|------|------------|

| | Slope (H:V) | | | | |
|----------------------------|-------------|-----|-----|-----|-----|
| | Flat | 4:1 | 3:1 | 2:1 | 1:1 |
| Application Rate (lb/acre) | 40 | 45 | 50 | 60 | 70 |

- **Psyllium**: Composed of the finely ground muciloid coating of plantago seeds that is applied as a wet slurry to the surface of the soil. It dries to form a firm but rewettable membrane that binds soil particles together but permits germination and growth of seed. Psyllium requires 12 to 18 hours drying time. Application rates should be from 80 to 200 lbs/acre, with enough water in solution to allow for a uniform slurry flow.
- **Starch**: Non-ionic, cold-water soluble (pre-gelatinized) granular cornstarch. The material is mixed with water and applied at the rate of 150 lb/acre. Approximate drying time is 9 to 12 hours.

Plant-Material Based (Long Lived) Binders

- Pitch and Rosin Emulsion: Generally, a non-ionic pitch and rosin emulsion has a minimum solids content of 48 percent. The rosin should be a minimum of 26 percent of the total solids content. The soil stabilizer should be a non-corrosive, water dilutable emulsion that upon application cures to a water insoluble binding and cementing agent. For soil erosion control applications, the emulsion is diluted and should be applied as follows:
 - For clayey soil: 5 parts water to 1 part emulsion

• For sandy soil: 10 parts water to 1 part emulsion

Application can be by water truck or hydraulic seeder with the emulsion and product mixture applied at the rate specified by the manufacturer.

Polymeric Emulsion Blend Binders

- Acrylic Copolymers and Polymers: Polymeric soil stabilizers should consist of a liquid or solid polymer or copolymer with an acrylic base that contains a minimum of 55 percent solids. The polymeric compound should be handled and mixed in a manner that will not cause foaming or should contain an anti-foaming agent. The polymeric emulsion should not exceed its shelf life or expiration date; manufacturers should provide the expiration date. Polymeric soil stabilizer should be readily miscible in water, non-injurious to seed or animal life, non-flammable, should provide surface soil stabilization for various soil types without inhibiting water infiltration, and should not re-emulsify when cured. The applied compound should air cure within a maximum of 36 to 48 hours. Liquid copolymer should be diluted at a rate of 10 parts water to 1 part polymer and the mixture applied to soil at a rate of 1,175 gallons/acre.
- Liquid Polymers of Methacrylates and Acrylates: This material consists of a tackifier/sealer that is a liquid polymer of methacrylates and acrylates. It is an aqueous 100 percent acrylic emulsion blend of 40 percent solids by volume that is free from styrene, acetate, vinyl, ethoxylated surfactants or silicates. For soil stabilization applications, it is diluted with water in accordance with manufacturer's recommendations, and applied with a hydraulic seeder at the rate of 20 gallons/acre. Drying time is 12 to 18 hours after application.
- **Copolymers of Sodium Acrylates and Acrylamides**: These materials are non-toxic, dry powders that are copolymers of sodium acrylate and acrylamide. They are mixed with water and applied to the soil surface for erosion control at rates that are determined by slope gradient, as summarized in Table SB-3.

| | Slope (H:V) | | | |
|----------------------------|-------------|------------|------------|--|
| | Flat to 5:1 | 5:1 to 3:1 | 2:2 to 1:1 | |
| Application Rate (lb/acre) | 3.0-5.0 | 5.0-10.0 | 10.0-20.0 | |

Table SB-3. Application Rates for Copolymers of Sodium Acrylates and Acrylamides

- **Polyacrylamide and Copolymer of Acrylamide**: Linear copolymer polyacrylamide is packaged as a dry flowable solid. When used as a stand-alone stabilizer, it is diluted at a rate of 11 lb/1,000 gal. of water and applied at the rate of 5.0 lb/acre.
- **Hydrocolloid Polymers**: Hydrocolloid Polymers are various combinations of dry flowable polyacrylamides, copolymers, and hydrocolloid polymers that are mixed with water and applied to the soil surface at rates of 55 to 60 lb/acre. Drying times are 0 to 4 hours.

Cementitious-Based Binders

• **Gypsum**: This formulated gypsum based product readily mixes with water and mulch to form a thin protective crust on the soil surface. It is composed of high purity gypsum that is ground, calcined and processed into calcium sulfate hemihydrate with a minimum purity of 86 percent. It is mixed in a hydraulic seeder and applied at rates 4,000 to 12,000 lb/acre. Drying time is 4 to 8 hours.

Installation

After selecting an appropriate soil binder, the untreated soil surface must be prepared before applying the soil binder. The untreated soil surface must contain sufficient moisture to assist the agent in achieving uniform distribution. In general, the following steps should be followed:

- Follow manufacturer's written recommendations for application rates, pre-wetting of application area, and cleaning of equipment after use.
- Prior to application, roughen embankment and fill areas.
- Consider the drying time for the selected soil binder and apply with sufficient time before anticipated rainfall. Soil binders should not be applied during or immediately before rainfall.
- Avoid over spray onto roads, sidewalks, drainage channels, sound walls, existing vegetation, etc.
- Soil binders should not be applied to frozen soil, areas with standing water, under freezing or rainy conditions, or when the temperature is below 40°F during the curing period.
- More than one treatment is often necessary, although the second treatment may be diluted or have a lower application rate.
- Generally, soil binders require a minimum curing time of 24 hours before they are fully effective. Refer to manufacturer's instructions for specific cure time.
- For liquid agents:
 - Crown or slope ground to avoid ponding.
 - \circ Uniformly pre-wet ground at 0.03 to 0.3 gal/yd² or according to manufacturer's recommendations.
 - Apply solution under pressure. Overlap solution 6 to 12 in.
 - Allow treated area to cure for the time recommended by the manufacturer, typically at least 24 hours.
 - Apply second treatment before first treatment becomes ineffective, using 50 percent application rate.
 - \circ In low humidity, reactivate chemicals by re-wetting with water at 0.1 to 0.2 gal/yd².

Maintenance and Removal

Soil binders tend to break down due to natural weathering. Weathering rates depend on a variety of sitespecific and product characteristics. Consult the manufacturer for recommended reapplication rates and reapply the selected soil binder as needed to maintain effectiveness.

Soil binders can fail after heavy rainfall events and may require reapplication. In particular, soil binders will generally experience spot failures during heavy rainfall events. If runoff penetrates the soil at the top of a slope treated with a soil binder, it is likely that the runoff will undercut the stabilized soil layer and discharge at a point further down slope.

Areas where erosion is evident should be repaired and soil binder or other stabilization reapplied, as needed. Care should be exercised to minimize the damage to protected areas while making repairs.

Most binders biodegrade after exposure to sun, oxidation, heat and biological organisms; therefore, removal of the soil binder is not typically required.

Description

Wind erosion and dust control BMPs help to keep soil particles from entering the air as a result of land disturbing construction activities. These BMPs include a variety of practices generally focused on either graded disturbed areas or construction roadways. For graded areas, practices such as seeding and mulching, use of soil binders, site watering, or other practices that provide prompt surface cover should be used. For construction roadways, road watering and stabilized surfaces should be considered.



Photograph DC-1. Water truck used for dust suppression. Photo courtesy of Douglas County.

Appropriate Uses

Dust control measures should be used on any site where dust poses a problem to air quality. Dust control is important to control for the health of construction workers and surrounding waterbodies.

Design and Installation

The following construction BMPs can be used for dust control:

- An irrigation/sprinkler system can be used to wet the top layer of disturbed soil to help keep dry soil particles from becoming airborne.
- Seeding and mulching can be used to stabilize disturbed surfaces and reduce dust emissions.
- Protecting existing vegetation can help to slow wind velocities across the ground surface, thereby limiting the likelihood of soil particles to become airborne.
- Spray-on soil binders form a bond between soil particles keeping them grounded. Chemical treatments may require additional permitting requirements. Potential impacts to surrounding waterways and habitat must be considered prior to use.
- Placing rock on construction roadways and entrances will help keep dust to a minimum across the construction site.
- Wind fences can be installed on site to reduce wind speeds. Install fences perpendicular to the prevailing wind direction for maximum effectiveness.

Maintenance and Removal

When using an irrigation/sprinkler control system to aid in dust control, be careful not to overwater. Overwatering will cause construction vehicles to track mud off-site.

| Wind Erosion Control/ Dust Control | | |
|---------------------------------------|----------|--|
| Functions | | |
| Erosion Control | Yes | |
| Sediment Control | No | |
| Site/Material Management | Moderate | |

Description

Stockpile management includes measures to minimize erosion and sediment transport from soil stockpiles.

Appropriate Uses

Stockpile management should be used when soils or other erodible materials are stored at the construction site. Special attention should be given to stockpiles in close proximity to natural or manmade storm systems.



Photograph SP-1. A topsoil stockpile that has been partially revegetated and is protected by silt fence perimeter control.

Design and Installation

Locate stockpiles away from all drainage system components including storm sewer inlets. Where practical, choose stockpile locations that that will remain undisturbed for the longest period of time as the phases of construction progress. Place sediment control BMPs around the perimeter of the stockpile, such as sediment control logs, rock socks, silt fence, straw bales and sand bags. See Detail SP-1 for guidance on proper establishment of perimeter controls around a stockpile. For stockpiles in active use, provide a stabilized designated access point on the upgradient side of the stockpile.

Stabilize the stockpile surface with surface roughening, temporary seeding and mulching, erosion control blankets, or soil binders. Soils stockpiled for an extended period (typically for more than 60 days) should be seeded and mulched with a temporary grass cover once the stockpile is placed (typically within 14 days). Use of mulch only or a soil binder is acceptable if the stockpile will be in place for a more limited time period (typically 30-60 days). Timeframes for stabilization of stockpiles noted in this fact sheet are "typical" guidelines. Check permit requirements for specific federal, state, and/or local requirements that may be more prescriptive.

Stockpiles should not be placed in streets or paved areas unless no other practical alternative exists. See the Stabilized Staging Area Fact Sheet for guidance when staging in roadways is unavoidable due to space or right-of-way constraints. For paved areas, rock socks must be used for perimeter control and all inlets with the potential to receive sediment from the stockpile (even from vehicle tracking) must be protected.

Maintenance and Removal

Inspect perimeter controls and inlet protection in accordance with their respective BMP Fact Sheets. Where seeding, mulch and/or soil binders are used, reseeding or reapplication of soil binder may be necessary.

When temporary removal of a perimeter BMP is necessary to access a stockpile, ensure BMPs are reinstalled in accordance with their respective design detail section.

| Stockpile Management | | | |
|--------------------------|-----|--|--|
| Functions | | | |
| Erosion Control | Yes | | |
| Sediment Control | Yes | | |
| Site/Material Management | Yes | | |

When the stockpile is no longer needed, properly dispose of excess materials and revegetate or otherwise stabilize the ground surface where the stockpile was located.



<u>SP-1. STOCKPILE PROTECTION</u>

STOCKPILE PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR: -LOCATION OF STOCKPILES.

-TYPE OF STOCKPILE PROTECTION.

2. INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.

3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30–60 DAYS).

4. FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

STOCKPILE PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

STOCKPILE PROTECTION MAINTENANCE NOTES

4. IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.

5. STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.

(DETAILS ADAPTED FROM PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.



MATERIALS STAGING IN ROADWAYS INSTALLATION NOTES

- 1. SEE PLAN VIEW FOR
 - -LOCATION OF MATERIAL STAGING AREA(S).

-CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.

2. FEATURE MUST BE INSTALLED PRIOR TO EXCAVATION, EARTHWORK OR DELIVERY OF MATERIALS.

3. MATERIALS MUST BE STATIONED ON THE POLY LINER. ANY INCIDENTAL MATERIALS DEPOSITED ON PAVED SECTION OR ALONG CURB LINE MUST BE CLEANED UP PROMPTLY.

4. POLY LINER AND TARP COVER SHOULD BE OF SIGNIFICANT THICKNESS TO PREVENT DAMAGE OR LOSS OF INTEGRITY.

5. SAND BAGS MAY BE SUBSTITUTED TO ANCHOR THE COVER TARP OR PROVIDE BERMING UNDER THE BASE LINER.

6. FEATURE IS NOT INTENDED FOR USE WITH WET MATERIAL THAT WILL BE DRAINING AND/OR SPREADING OUT ON THE POLY LINER OR FOR DEMOLITION MATERIALS.

7. THIS FEATURE CAN BE USED FOR:

-UTILITY REPAIRS.

-WHEN OTHER STAGING LOCATIONS AND OPTIONS ARE LIMITED.

-OTHER LIMITED APPLICATION AND SHORT DURATION STAGING.

MATERIALS STAGING IN ROADWAY MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. INSPECT PVC PIPE ALONG CURB LINE FOR CLOGGING AND DEBRIS. REMOVE OBSTRUCTIONS PROMPTLY.

5. CLEAN MATERIAL FROM PAVED SURFACES BY SWEEPING OR VACUUMING.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM AURORA, COLORADO)

Description

Implement construction site good housekeeping practices to prevent pollution associated with solid, liquid and hazardous construction-related materials and wastes. Stormwater Management Plans (SWMPs) should clearly specify BMPs including these good housekeeping practices:

- Provide for waste management.
- Establish proper building material staging areas.
- Designate paint and concrete washout areas.
- Establish proper equipment/vehicle fueling and maintenance practices.
- Control equipment/vehicle washing and allowable nonstormwater discharges.
- Develop a spill prevention and response plan.

Acknowledgement: This Fact Sheet is based directly on EPA guidance provided in *Developing Your Stormwater Pollution Prevent Plan* (EPA 2007).

Appropriate Uses



Photographs GH-1 and GH-2. Proper materials storage and secondary containment for fuel tanks are important good housekeeping practices. Photos courtesy of CDOT and City of Aurora.

Good housekeeping practices are necessary at all construction sites.

Design and Installation

The following principles and actions should be addressed in SWMPs:

Provide for Waste Management. Implement management procedures and practices to prevent or reduce the exposure and transport of pollutants in stormwater from solid, liquid and sanitary wastes that will be generated at the site. Practices such as trash disposal, recycling, proper material handling, and cleanup measures can reduce the potential for stormwater runoff to pick up construction site wastes and discharge them to surface waters. Implement a comprehensive set of waste-management practices for hazardous or toxic materials, such as paints, solvents, petroleum products, pesticides, wood preservatives, acids, roofing tar, and other materials. Practices should include storage, handling, inventory, and cleanup procedures, in case of spills. Specific practices that should be considered include:

Solid or Construction Waste

• Designate trash and bulk waste-collection areas onsite.

| Good Housekeeping | | | |
|--------------------------|-----|--|--|
| Functions | | | |
| Erosion Control | No | | |
| Sediment Control | No | | |
| Site/Material Management | Yes | | |

- o Recycle materials whenever possible (e.g., paper, wood, concrete, oil).
- o Segregate and provide proper disposal options for hazardous material wastes.
- Clean up litter and debris from the construction site daily.
- Locate waste-collection areas away from streets, gutters, watercourses, and storm drains. Waste-collection areas (dumpsters, and such) are often best located near construction site entrances to minimize traffic on disturbed soils. Consider secondary containment around waste collection areas to minimize the likelihood of contaminated discharges.
- o Empty waste containers before they are full and overflowing.

Sanitary and Septic Waste

- o Provide convenient, well-maintained, and properly located toilet facilities on-site.
- Locate toilet facilities away from storm drain inlets and waterways to prevent accidental spills and contamination of stormwater.
- o Maintain clean restroom facilities and empty portable toilets regularly.
- Where possible, provide secondary containment pans under portable toilets.
- o Provide tie-downs or stake-downs for portable toilets.
- o Educate employees, subcontractors, and suppliers on locations of facilities.
- Treat or dispose of sanitary and septic waste in accordance with state or local regulations. Do not discharge or bury wastewater at the construction site.
- o Inspect facilities for leaks. If found, repair or replace immediately.
- Special care is necessary during maintenance (pump out) to ensure that waste and/or biocide are not spilled on the ground.

Hazardous Materials and Wastes

- Develop and implement employee and subcontractor education, as needed, on hazardous and toxic waste handling, storage, disposal, and cleanup.
- Designate hazardous waste-collection areas on-site.
- Place all hazardous and toxic material wastes in secondary containment.



Photograph GH-3. Locate portable toilet facilities on level surfaces away from waterways and storm drains. Photo courtesy of WWE.

- Hazardous waste containers should be inspected to ensure that all containers are labeled properly and that no leaks are present.
- Establish Proper Building Material Handling and Staging Areas. The SWMP should include comprehensive handling and management procedures for building materials, especially those that are hazardous or toxic. Paints, solvents, pesticides, fuels and oils, other hazardous materials or building materials that have the potential to contaminate stormwater should be stored indoors or under cover whenever possible or in areas with secondary containment. Secondary containment measures prevent a spill from spreading across the site and may include dikes, berms, curbing, or other containment methods. Secondary containment techniques should also ensure the protection of groundwater. Designate staging areas for activities such as fueling vehicles, mixing paints, plaster, mortar, and other potential pollutants. Designated staging areas enable easier monitoring of the use of materials and clean up of spills. Training employees and subcontractors is essential to the success of this pollution prevention principle. Consider the following specific materials handling and staging practices:
 - Train employees and subcontractors in proper handling and storage practices.
 - Clearly designate site areas for staging and storage with signs and on construction drawings. Staging areas should be located in areas central to the construction site. Segment the staging area into sub-areas designated for vehicles, equipment, or stockpiles. Construction entrances and exits should be clearly marked so that delivery vehicles enter/exit through stabilized areas with vehicle tracking controls (See Vehicle Tracking Control Fact Sheet).
 - Provide storage in accordance with Spill Protection, Control and Countermeasures (SPCC) requirements and plans and provide cover and impermeable perimeter control, as necessary, for hazardous materials and contaminated soils that must be stored on site.
 - Ensure that storage containers are regularly inspected for leaks, corrosion, support or foundation failure, or other signs of deterioration and tested for soundness.
 - Reuse and recycle construction materials when possible.
- Designate Concrete Washout Areas. Concrete contractors should be encouraged to use the washout facilities at their own plants or dispatch facilities when feasible; however, concrete washout commonly occurs on construction sites. If it is necessary to provide for concrete washout areas onsite, designate specific washout areas and design facilities to handle anticipated washout water. Washout areas should also be provided for paint and stucco operations. Because washout areas can be a source of pollutants from leaks or spills, care must be taken with regard to their placement and proper use. See the Concrete Washout Area Fact Sheet for detailed guidance.

Both self-constructed and prefabricated washout containers can fill up quickly when concrete, paint, and stucco work are occurring on large portions of the site. Be sure to check for evidence that contractors are using the washout areas and not dumping materials onto the ground or into drainage facilities. If the washout areas are not being used regularly, consider posting additional signage, relocating the facilities to more convenient locations, or providing training to workers and contractors.

When concrete, paint, or stucco is part of the construction process, consider these practices which will help prevent contamination of stormwater. Include the locations of these areas and the maintenance and inspection procedures in the SWMP.

- Do not washout concrete trucks or equipment into storm drains, streets, gutters, uncontained areas, or streams. Only use designated washout areas.
- Establish washout areas and advertise their locations with signs. Ensure that signage remains in good repair.
- Provide adequate containment for the amount of wash water that will be used.
- Inspect washout structures daily to detect leaks or tears and to identify when materials need to be removed.
- Dispose of materials properly. The preferred method is to allow the water to evaporate and to recycle the hardened concrete. Full service companies may provide dewatering services and should dispose of wastewater properly. Concrete wash water can be highly polluted. It should not be discharged to any surface water, storm sewer system, or allowed to infiltrate into the ground in the vicinity of waterbodies. Washwater should not be discharged to a sanitary sewer system without first receiving written permission from the system operator.
- Establish Proper Equipment/Vehicle Fueling and Maintenance Practices. Create a clearly designated on-site fueling and maintenance area that is clean and dry. The on-site fueling area should have a spill kit, and staff should know how to use it. If possible, conduct vehicle fueling and maintenance activities in a covered area. Consider the following practices to help prevent the discharge of pollutants to stormwater from equipment/vehicle fueling and maintenance. Include the locations of designated fueling and maintenance areas and inspection and maintenance procedures in the SWMP.
 - Train employees and subcontractors in proper fueling procedures (stay with vehicles during fueling, proper use of pumps, emergency shutoff valves, etc.).
 - Inspect on-site vehicles and equipment regularly for leaks, equipment damage, and other service problems.
 - Clearly designate vehicle/equipment service areas away from drainage facilities and watercourses to prevent stormwater run-on and runoff.
 - Use drip pans, drip cloths, or absorbent pads when replacing spent fluids.
 - Collect all spent fluids, store in appropriate labeled containers in the proper storage areas, and recycle fluids whenever possible.
- Control Equipment/Vehicle Washing and Allowable Non-Stormwater Discharges. Implement
 practices to prevent contamination of surface and groundwater from equipment and vehicle wash
 water. Representative practices include:
 - Educate employees and subcontractors on proper washing procedures.
 - o Use off-site washing facilities, when available.
 - Clearly mark the washing areas and inform workers that all washing must occur in this area.
 - Contain wash water and treat it using BMPs. Infiltrate washwater when possible, but maintain separation from drainage paths and waterbodies.

- Use high-pressure water spray at vehicle washing facilities without detergents. Water alone can remove most dirt adequately.
- o Do not conduct other activities, such as vehicle repairs, in the wash area.
- Include the location of the washing facilities and the inspection and maintenance procedures in the SWMP.
- **Develop a Spill Prevention and Response Plan.** Spill prevention and response procedures must be identified in the SWMP. Representative procedures include identifying ways to reduce the chance of spills, stop the source of spills, contain and clean up spills, dispose of materials contaminated by spills, and train personnel responsible for spill prevention and response. The plan should also specify material handling procedures and storage requirements and ensure that clear and concise spill cleanup procedures are provided and posted for areas in which spills may potentially occur. When developing a spill prevention plan, include the following:
 - Note the locations of chemical storage areas, storm drains, tributary drainage areas, surface waterbodies on or near the site, and measures to stop spills from leaving the site.
 - Provide proper handling and safety procedures for each type of waste. Keep Material Safety Data Sheets (MSDSs) for chemical used on site with the SWMP.
 - Establish an education program for employees and subcontractors on the potential hazards to humans and the environment from spills and leaks.
 - Specify how to notify appropriate authorities, such as police and fire departments, hospitals, or municipal sewage treatment facilities to request assistance. Emergency procedures and contact numbers should be provided in the SWMP and posted at storage locations.
 - Describe the procedures, equipment and materials for immediate cleanup of spills and proper disposal.
 - Identify personnel responsible for implementing the plan in the event of a spill. Update the spill prevention plan and clean up materials as changes occur to the types of chemicals stored and used at the facility.

Spill Prevention, Control, and Countermeasure (SPCC) Plan

Construction sites may be subject to 40 CFR Part 112 regulations that require the preparation and implementation of a SPCC Plan to prevent oil spills from aboveground and underground storage tanks. The facility is subject to this rule if it is a non-transportation-related facility that:

- Has a total storage capacity greater than 1,320 gallons or a completely buried storage capacity greater than 42,000 gallons.
- Could reasonably be expected to discharge oil in quantities that may be harmful to navigable waters of the United States and adjoining shorelines.

Furthermore, if the facility is subject to 40 CFR Part 112, the SWMP should reference the SPCC Plan. To find out more about SPCC Plans, see EPA's website on SPPC at <u>www.epa.gov/oilspill/spcc.htm</u>.

Reporting Oil Spills

In the event of an oil spill, contact the National Response Center toll free at 1-800-424- 8802 for assistance, or for more details, visit their website: <u>www.nrc.uscg.mil</u>.

Maintenance and Removal

Effective implementation of good housekeeping practices is dependent on clear designation of personnel responsible for supervising and implementing good housekeeping programs, such as site cleanup and disposal of trash and debris, hazardous material management and disposal, vehicle and equipment maintenance, and other practices. Emergency response "drills" may aid in emergency preparedness.

Checklists may be helpful in good housekeeping efforts.

Staging and storage areas require permanent stabilization when the areas are no longer being used for construction-related activities.

Construction-related materials, debris and waste must be removed from the construction site once construction is complete.

Design Details

See the following Fact Sheets for related Design Details:

MM-1 Concrete Washout Area

MM-2 Stockpile Management

SM-4 Vehicle Tracking Control

Design details are not necessary for other good housekeeping practices; however, be sure to designate where specific practices will occur on the appropriate construction drawings.

Description

A silt fence is a woven geotextile fabric attached to wooden posts and trenched into the ground. It is designed as a sediment barrier to intercept sheet flow runoff from disturbed areas.

Appropriate Uses

A silt fence can be used where runoff is conveyed from a disturbed area as sheet flow. Silt fence is not designed to receive concentrated flow or to be used as a filter fabric. Typical uses include:

- Down slope of a disturbed area to accept sheet flow.
- Along the perimeter of a receiving water such as a stream, pond or wetland.



Photograph SF-1. Silt fence creates a sediment barrier, forcing sheet flow runoff to evaporate or infiltrate.

• At the perimeter of a construction site.

Design and Installation

Silt fence should be installed along the contour of slopes so that it intercepts sheet flow. The maximum recommended tributary drainage area per 100 lineal feet of silt fence, installed along the contour, is approximately 0.25 acres with a disturbed slope length of up to 150 feet and a tributary slope gradient no steeper than 3:1. Longer and steeper slopes require additional measures. This recommendation only applies to silt fence installed along the contour. Silt fence installed for other uses, such as perimeter control, should be installed in a way that will not produce concentrated flows. For example, a "J-hook" installation may be appropriate to force runoff to pond and evaporate or infiltrate in multiple areas rather than concentrate and cause erosive conditions parallel to the silt fence.

See Detail SF-1 for proper silt fence installation, which involves proper trenching, staking, securing the fabric to the stakes, and backfilling the silt fence. Properly installed silt fence should not be easily pulled out by hand and there should be no gaps between the ground and the fabric.

Silt fence must meet the minimum allowable strength requirements, depth of installation requirement, and

other specifications in the design details. Improper installation of silt fence is a common reason for silt fence failure; however, when properly installed and used for the appropriate purposes, it can be highly effective.

| Silt Fence | |
|--------------------------|-----|
| Functions | |
| Erosion Control | No |
| Sediment Control | Yes |
| Site/Material Management | No |

Maintenance and Removal

Inspection of silt fence includes observing the material for tears or holes and checking for slumping fence and undercut areas bypassing flows. Repair of silt fence typically involves replacing the damaged section with a new section. Sediment accumulated behind silt fence should be removed, as needed to maintain BMP effectiveness, typically before it reaches a depth of 6 inches.

Silt fence may be removed when the upstream area has reached final stabilization.



Photograph SF-2. When silt fence is not installed along the contour, a "J-hook" installation may be appropriate to ensure that the BMP does not create concentrated flow parallel to the silt fence. Photo courtesy of Tom Gore.



SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2–5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.

3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.

5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.

6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').

7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs have failed, Repair or Replacement should be initiated upon discovery of the failure.

4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".

5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.

6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

Description

A sediment control log is a linear roll made of natural materials such as straw, coconut fiber, or other fibrous material trenched into the ground and held with a wooden stake. Sediment control logs are also often referred to as "straw wattles." They are used as a sediment barrier to intercept sheet flow runoff from disturbed areas.

Appropriate Uses

Sediment control logs can be used in the following applications to trap sediment:

- As perimeter control for stockpiles and the site.
- As part of inlet protection designs.
- As check dams in small drainage ditches. (Sediment control logs are not intended for use in channels with high flow velocities.)
- On disturbed slopes to shorten flow lengths (as an erosion control).



Photographs SCL-1 and SCL-2. Sediment control logs used as 1) a perimeter control around a soil stockpile; and, 2) as a "J-hook" perimeter control at the corner of a construction site.

• As part of multi-layered perimeter control along a receiving water such as a stream, pond or wetland.

Sediment control logs work well in combination with other layers of erosion and sediment controls.

Design and Installation

Sediment control logs should be installed along the contour to avoid concentrating flows. The maximum allowable tributary drainage area per 100 lineal feet of sediment control log, installed along the contour, is approximately 0.25 acres with a disturbed slope length of up to 150 feet and a tributary slope gradient no steeper than 3:1. Longer and steeper slopes require additional measures. This recommendation only applies to sediment control logs installed along the contour. When installed for other uses, such as perimeter control, it should be installed in a way that will not

produce concentrated flows. For example, a "J-hook" installation may be appropriate to force runoff to pond and evaporate or infiltrate in multiple areas rather than concentrate and cause erosive conditions parallel to the BMP.

| Sediment Control Log | | |
|--------------------------|----------|--|
| Functions | | |
| Erosion Control | Moderate | |
| Sediment Control | Yes | |
| Site/Material Management | No | |

Although sediment control logs initially allow runoff to flow through the BMP, they can quickly become a barrier and should be installed is if they are impermeable.

Design details and notes for sediment control logs are provided in Detail SCL-1. Sediment logs must be properly trenched and staked into the ground to prevent undercutting, bypassing and displacement. When installed on slopes, sediment control logs should be installed along the contours (i.e., perpendicular to flow).

Improper installation can lead to poor performance. Be sure that sediment control logs are properly trenched, anchored and tightly jointed.

Maintenance and Removal

Be aware that sediment control logs will eventually degrade. Remove accumulated sediment before the depth is one-half the height of the sediment log and repair damage to the sediment log, typically by replacing the damaged section.

Once the upstream area is stabilized, remove and properly dispose of the logs. Areas disturbed beneath the logs may need to be seeded and mulched. Sediment control logs that are biodegradable may occasionally be left in place (e.g., when logs are used in conjunction with erosion control blankets as permanent slope breaks). However, removal of sediment control logs after final stabilization is typically recommended when used in perimeter control, inlet protection and check dam applications.





SEDIMENT CONTROL LOG INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.

2. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADIENT LAND-DISTURBING ACTIVITIES.

3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.

4. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS OR HIGH VELOCITY DRAINAGE WAYS.

5. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY ½ OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING

6. THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER.

7. FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED.

SEDIMENT CONTROL LOG MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY ½ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.

5. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, JEFFERSON COUNTY, COLORADO, DOUGLAS COUNTY, COLORADO, AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

Vehicle tracking controls provide stabilized construction site access where vehicles exit the site onto paved public roads. An effective vehicle tracking control helps remove sediment (mud or dirt) from vehicles, reducing tracking onto the paved surface.

Appropriate Uses

Implement a stabilized construction entrance or vehicle tracking control where frequent heavy vehicle traffic exits the construction site onto a paved roadway. An effective vehicle tracking control is particularly important during the following conditions:



Photograph VTC-1. A vehicle tracking control pad constructed with properly sized rock reduces off-site sediment tracking.

- Wet weather periods when mud is easily tracked off site.
- During dry weather periods where dust is a concern.
- When poorly drained, clayey soils are present on site.

Although wheel washes are not required in designs of vehicle tracking controls, they may be needed at particularly muddy sites.

Design and Installation

Construct the vehicle tracking control on a level surface. Where feasible, grade the tracking control towards the construction site to reduce off-site runoff. Place signage, as needed, to direct construction vehicles to the designated exit through the vehicle tracking control. There are several different types of stabilized construction entrances including:

VTC-1. Aggregate Vehicle Tracking Control. This is a coarse-aggregate surfaced pad underlain by a geotextile. This is the most common vehicle tracking control, and when properly maintained can be effective at removing sediment from vehicle tires.

VTC-2. Vehicle Tracking Control with Construction Mat or Turf Reinforcement Mat. This type of control may be appropriate for site access at very small construction sites with low traffic volume over vegetated areas. Although this application does not typically remove sediment from vehicles, it helps protect existing vegetation and provides a stabilized entrance.

| Vehicle Tracking Control | | |
|--------------------------|----------|--|
| Functions | | |
| Erosion Control | Moderate | |
| Sediment Control | Yes | |
| Site/Material Management | Yes | |

VTC-3. Stabilized Construction Entrance/Exit with Wheel Wash. This is an aggregate pad, similar to VTC-1, but includes equipment for tire washing. The wheel wash equipment may be as simple as hand-held power washing equipment to more advance proprietary systems. When a wheel wash is provided, it is important to direct wash water to a sediment trap prior to discharge from the site.

Vehicle tracking controls are sometimes installed in combination with a sediment trap to treat runoff.

Maintenance and Removal

Inspect the area for degradation and replace aggregate or material used for a stabilized entrance/exit as needed. If the area becomes clogged and ponds water, remove and dispose of excess sediment or replace material with a fresh layer of aggregate as necessary.

With aggregate vehicle tracking controls, ensure rock and debris from this area do not enter the public right-of-way.

Remove sediment that is tracked onto the public right of way daily or more frequently as needed. Excess sediment in the roadway indicates that the stabilized construction entrance needs maintenance.

Ensure that drainage ditches at the entrance/exit area remain clear.



Photograph VTC-2. A vehicle tracking control pad with wheel wash facility. Photo courtesy of Tom Gore.

A stabilized entrance should be removed only when there is no longer the potential for vehicle tracking to occur. This is typically after the site has been stabilized.

When wheel wash equipment is used, be sure that the wash water is discharged to a sediment trap prior to discharge. Also inspect channels conveying the water from the wash area to the sediment trap and stabilize areas that may be eroding.

When a construction entrance/exit is removed, excess sediment from the aggregate should be removed and disposed of appropriately. The entrance should be promptly stabilized with a permanent surface following removal, typically by paving.



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL





VTC-2. AGGREGATE VEHICLE TRACKING CONTROL WITH WASH RACK



STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

1. SEE PLAN VIEW FOR

-LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).

-TYPE OF CONSTRUCTION ENTRANCE(S)/EXITS(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).

2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.

3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.

4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.

6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.

5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)

APPENDIX D

Reporting Chemical Spills in Colorado

REPORTING ENVIRONMENTAL RELEASES IN COLORADO



Colorado Department of Public Health and Environment

Hazardous Materials and Waste Management Division (303) 692-3300

January 2009

Purpose of this Guidance

This guidance is intended to provide an overview of various reporting requirements for a variety of releases to the environment. Please check all of the possible requirements for reporting. This guidance does not cover all potential release scenarios. This guidance is not intended to modify or replace statutes or regulations, which undergo periodic revisions. In the event of a conflict between this guidance and statutes or regulations, the statutes and regulations govern.

Some reporting requirements are complex and overlapping, and this guidance does not go into details of all situations. If a release situation is not described in this guidance, or if clarification is desired, please obtain an official interpretation from the governing agency enforcing the statute or regulation.

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Contact Information

Release Reporting Numbers

| National Response Center (NRC) | 1 (800) 424-8802 |
|---|------------------|
| 24-hour reporting | |
| Colorado Environmental Release and Incident Reporting Line | 1 (877) 518-5608 |
| 24-hour reporting | |
| Radiation Incident Reporting Line | (303) 877-9757 |
| 24-hour reporting | |
| Colorado State Patrol | (303) 239-4501 |
| 24-hour reporting | |
| US EPA Region 8 Emergency Response Spill Report Line | 1 (800) 227-8914 |
| 24-hour reporting | |
| Division of Oil and Public Safety (Dept. of Labor and Employment) | (303) 318-8547 |
| Fax | (303) 318-8546 |
| Oil and Gas Conservation Commission (Dept. of Natural Resources) | (303) 894-2100 |
| Division of Reclamation, Mining and Safety (Dept. of Natural Resources) | (303) 866-3567 |
| Colorado Public Utilities Commission Gas Pipeline Safety Section | (303) 894-2851 |
| (Dept. of Regulatory Agencies) | |
| Local Emergency Planning Committee (Dept. of Local Affairs) | (720) 852-6603 |
| Business hours only - to obtain a list of LEPC contacts | |

Colorado Department of Public Health and Environment

Mailing Address: Colorado Department of Public Health and Environment 4300 Cherry Creek Drive South Denver, CO 80246-1530

Office Hours: Monday – Friday, except holidays 8:00 am – 5:00 pm

Environmental Divisions

| Air Pollution Control Division | (303) 692-3100 |
|---|----------------------------------|
| Website | http://www.cdphe.state.co.us/ap/ |
| Email | comments.apcd@state.co.us |
| Consumer Protection Division | (303) 692-3620 |
| Website | http://www.cdphe.state.co.us/cp/ |
| Email | comments.cpd@state.co.us |
| Hazardous Materials and Waste Management Division | (303) 692-3300 |
| Website | http://www.cdphe.state.co.us/hm/ |
| Email | comments.hmwmd@state.co.us |
| Water Quality Control Division | (303) 692-3500 |
| Website | http://www.cdphe.state.co.us/wq/ |
| Email | comments.wqcd@state.co.us |
| | |

Colorado Environmental Release Reporting

When a release of a hazardous material or other substance occurs to the environment, there are a number of reporting and notification requirements that must be followed by the company or individual responsible for the release. Environmental releases must be reported to the appropriate authorities so that necessary response actions are taken in a timely fashion to ensure maximum

protection of human health and the environment. However, taking appropriate and timely response actions do not relieve you of your responsibility to report a release. In addition, the responsible party is always liable for any damages that may result from a release, and is responsible for appropriate clean up actions whether or not the release is required to be reported.

Additional reporting requirements may be found in permits, licenses, registrations, contingency and pollution prevention plans, fire codes, and local ordinances.

There is no penalty for over-reporting, but there are for failing to report a release. If you are unsure if a release needs to be reported, the Colorado Department of Public Health and Environment (the Department) recommends that releases be reported immediately even if the quantity of the release has not yet been determined. Your follow-up report will provide details that explain why the release was or was not reportable.

"Release" includes any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, including abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance, pollutant, or contaminant.

"Environment" is generally defined as any surface water, ground water, drinking water supply, land surface, subsurface strata, or ambient air. Releases into containment devices and those completely contained within a building or other structure are not releases into the environment as long as the

Most spills and releases are covered by more than one reporting requirement, and all requirements must be met. hazardous substance does not volatilize into the ambient air or otherwise have the potential to enter the environment (e.g., through the floor or cracks in the floor). Releases of a substance into a storm drain or sewer, or onto a parking lot or roadway, are considered to be releases to the environment.

Release reporting requirements are based on the type of material released and/or the situation under which the release occurred. Additional reporting requirements may be found in permits, licenses, registrations, contingency and pollution prevention plans, fire codes, and local ordinances. Please check all of the possible requirements for reporting. Most spills and releases are covered by more than one reporting requirement, and ALL requirements must be met. Enforcement action may be taken against those who fail to provide required notifications or reports.

A. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

The Comprehensive Environmental Response, Compensation and Liability Act, commonly known as Superfund or CERCLA, provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. This Act also enabled revision of the National Contingency Plan, which provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants.

Under CERCLA, the US EPA was directed to establish reporting quantities for all hazardous substances. The term "hazardous substance" is defined in CERCLA Section 101(14). These are defined by reference to substances that are listed or designated under other environmental statutes. They include:

- all hazardous air pollutants (HAPs) listed under Section 112(b) of the Clean Air Act (CAA). Radio-nuclides are hazardous substances because EPA designated them generically as hazardous air pollutants under Section 112(b) of the Clean Air Act. Even though the source of their listing is the Clean Air Act, releases of radionuclides to all media, not just to air, are covered by CERCLA's reporting requirements.
- toxic pollutants that are subject to pretreatment standards under Section 307(a) of the Clean Water Act (CWA) and toxic pollutants that present an imminent danger to public health when discharged to waters of the United States as designated under Section 311(b)(2)(A) of the Clean Water Act. All Clean Water Act hazardous substances are CERCLA hazardous substances, but only some CERCLA hazardous substances are Clean Water Act hazardous substances.
- wastes that are regulated as listed and/or characteristic hazardous wastes under the Resource Conservation and Recovery Act (RCRA). This includes thousands of hazardous wastes that are not specifically listed but that exhibit one or more of the characteristics of ignitability, reactivity, corrosivity or toxicity. A material is considered to be a release of a CERCLA hazardous substance if the material was a waste prior to release, or if the substance is not cleaned up for reuse and thus must be disposed of as a RCRA hazardous waste after release.
- any element, compound, mixture solution or substance designated under Section 102 of CERCLA that may present substantial danger to public health or welfare or the environment.

Report releases at or above the reportable quantity (RQ) within 24 hours:

- Hazardous air pollutants under Section 112(b) of Clean Air Act
- Toxic pollutants under Section 307(a) or under Section 311(b)(2)(A) of Clean Water Act
- RCRA hazardous wastes
- Elements, compounds or substances under Section 102 of CERCLA
- any imminently hazardous chemical substance or mixture that EPA has taken action against under Section 7 of the Toxic Substances Control Act (TSCA). Any hazardous chemical substance or mixture that EPA has taken action against under this Act would automatically become a hazardous substance. To date, EPA hasn't designated any hazardous substances under the Toxic Substances Control Act.

The person in charge of a facility or vessel must immediately report a release to the National Response Center (NRC) as soon as they have knowledge of a release to the environment of a CERCLA hazardous substance at or above the reportable quantity assigned to that substance within a 24-hour period. If the release is a mixture or solution of hazardous substances, it must be reported if the reportable quantity for any hazardous constituents is met or exceeded. If the responsible party doesn't know the quantity of one or more of the hazardous constituents contained in a mixture or solution, they must report the release if the total amount of the mixture or solution released equals or exceeds the reportable quantity for the hazardous constituent with the lowest reportable quantity.

Reporting is also required if a non-CERCLA substance is released into the environment and rapidly degrades into a CERCLA hazardous substance in an amount that equals or exceeds the reportable quantity for the newly formed CERCLA hazardous substance.

These notification and reporting requirements are included in 40 CFR Part 302. A list of CERCLA hazardous substances is included in Table 302.4 of these regulations.

B. Emergency Planning and Community Right-to-Know Act (EPCRA)

The Superfund Amendments and Reauthorization Act of 1986 reauthorized the Comprehensive Response, Compensation and Liability Act to continue cleanup activities around the country. Several amendments, definitions, clarifications and technical requirements were added to the legislation, including additional enforcement authorities. Title III of the Superfund Amendments also authorized the Emergency Planning and Community Right-to-Know Act (EPCRA), which established the community's right to information about the chemicals that are stored, used at and/or released from local facilities. It also established a framework for developing emergency plans for responding to releases and reporting requirements for facilities.

A list of EPCRA threshold planning quantities (TPQ) is included in 40 CFR Part 355 Appendices A & B. Under this Act, owners or operators of facilities at which a hazardous substance or extremely hazardous substance is produced, used or stored must provide immediate notification to the National Response Center (NRC), the State Emergency Response Commission (SERC) and the affected Local Emergency Planning

Committee (LEPC) when there is a release of a hazardous substance or extremely hazardous substance with the potential to affect off-site persons that equals or exceeds its reportable quantity within a 24-hour period. If the release is an EPCRA extremely hazardous substance, but not a CERCLA hazardous substance, then only the SERC and LEPC need to be notified. Note – there may be more than one SERC and/or LEPC potentially affected by a release. Don't wait until there is a release to contact the SERC and LEPC(s) to ensure that the correct contacts will be made in the event of a spill. For a list of LEPCs, contact the Colorado Department of Local Affairs.

The owner or operator of the facility must report a release as soon as they know about it. In addition to immediate telephone notification, the responsible party must also send a follow-up written report as soon as practicable after the release to both the State Emergency Response Commission (in this case, to the Colorado Department of Public Health and Environment) and the Local Emergency Planning Committee. This report must describe the release, associated response actions taken, and any known or anticipated health risks associated with the release.

Although EPCRA requires notification only for releases that have the potential to affect persons beyond the facility boundary, EPA and the Colorado

A table of CERCLA reportable quantities (RQ) is included in 40 CFR Section 302.4.

Department of Public Health and Environment strongly encourage facilities to report onsite releases if there is ANY potential for the release to migrate offsite. The burden of proof is on the facility to show that any release into the environment of a reportable quantity or more of a hazardous substance or extremely hazardous substance has NO POTENTIAL for offsite migration (e.g., via groundwater, the wind or getting tracked offsite by workers and vehicles).

The State Emergency Response Commission (SERC) in Colorado is called the Colorado Emergency Planning Commission (CEPC). It consists of representatives of the Colorado Department of Public Health and Environment – Hazardous Materials and Waste Management Division, the Colorado Department of Local Affairs – Colorado Division of Emergency Management and the Division of Local Government, the Colorado Department of Public Safety – Fire Safety Division, and the Colorado State Patrol. The Commission also includes representatives of affected industries, local governments, public interest or community groups and the Local Emergency Planning Committee (LEPC) community. The Colorado Department of Public Health and Environment represents the Commission for reporting purposes.

Reportable Quantities Under CERCLA and EPCRA

All reportable quantities are listed in pounds (except radionuclides, which are in curies). Congress established a one pound reportable quantity for all hazardous substances and extremely hazardous substances until EPA could evaluate each substance and adjust the reportable quantity to a level more appropriate for the substance. During this assessment, each hazardous substance was evaluated for six primary criteria: aquatic toxicity, mammalian toxicity, ignitability, reactivity, chronic toxicity, and potential carcinogenicity. Reportable quantities for CERCLA hazardous substances are listed in 40 CFR Section 302.4.

EPCRA extremely hazardous substances that are also hazardous substances under CERCLA have the same reportable quantity that is applicable under CERCLA. If not also listed as a CERCLA hazardous substance, extremely hazardous substances have a reportable quantity equal to the EPCRA threshold planning quantity (TPQ) for that substance. The threshold planning quantity is the quantity designated for each chemical in 40 CFR Part 355 Appendices A and B that triggers notification by facilities to the State Emergency Response Commission that those facilities are subject to emergency planning requirements.

For convenience, reportable quantities for hazardous substances and extremely hazardous substances can also be found in the EPA List of Lists (EPA 550-B-01-003). Bear in mind that because this document is only updated periodically, it may not contain recently added substances.

All concurrent releases of the same substance from a single facility must be combined to determine if a reportable quantity has been met or exceeded. Releases of different substances from a single facility should not be combined for purposes of determining if the releases need to be reported. Rather, each substance should be evaluated separately to determine if one or more reportable quantities have been met or exceeded. For example, spilling a mixture containing half the

EPCRA extremely hazardous substances that are also CERCLA hazardous substances have the same RQ as under CERCLA.

EPCRA extremely hazardous substances that are not listed under CERCLA have an RQ equal to their TPQ under EPCRA. reportable quantity of one hazardous substance and half the reportable quantity of another hazardous substance does not trigger the reporting requirement. Releases from separate facilities should be treated as separate releases and should not be combined to determine if a reportable quantity has been met or exceeded.

Mixtures

Most hazardous substances and extremely hazardous substances are not used or stored in pure form, but are mixtures or solutions. If a mixture of hazardous substances or extremely hazardous substances is released and the concentration of all hazardous substances and extremely hazardous substances in the mixture is known, then you must calculate the amount of each hazardous substance and extremely hazardous substance that has been released. If there is more than one hazardous substance or extremely hazardous substance in a mixture, you must check the reportable quantity for each substance. The release must be reported if the reportable quantity for any

hazardous substance or extremely hazardous substance has been met or exceeded. If the concentrations of the hazardous substances or extremely hazardous substances in the mixture are not known, then the release must be reported when the total amount of the mixture released equals or exceeds the reportable quantity for the constituent with the lowest reportable quantity.

Radionuclides

Releases of radionuclides in a mixture are additive. These releases are subject to reporting:

- if each radionuclide in a released mixture or solution is known, then the ratio between the quantity released and the reportable quantity for the radionuclide must be determined for each radionuclide. If the sum of the ratios for the radionuclides in the mixture or solution released is equal to or greater than one, it must be reported.
- if all of the radionuclides in the mixture are known but the quantity released of one or more of the radionuclides is unknown, it must be reported if the total quantity released is equal to or greater than the lowest reportable quantity of any one radionuclide in the mixture.
- if one or more radionuclides in the mixture is unknown, it must be reported if the total quantity released is equal to or greater than either one curie or the lowest reportable quantity of any of the known radionuclides in the mixture (whichever is lower).

Exceptions and Exclusions

Petroleum Products

Under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), petroleum products are excluded from the definition of hazardous substance. "Petroleum product" includes crude oil, any fraction of crude oil that is not specifically listed as a hazardous substance, natural and synthetic gases, and mixtures of natural and synthetic gases. EPA interprets petroleum

as including those amounts of hazardous substances, like benzene, that are indigenous to crude oil or its fractions or that are normally added during the refining process. *Hazardous substances added to the petroleum or increased in concentration solely as a result of contamination during use are not included in the petroleum exclusion.*

A release of a petroleum product containing a reportable quantity of an EPCRA extremely hazardous substance is reportable.

Unlike the petroleum exclusion under CERCLA, extremely hazardous substances that are naturally occurring in petroleum products or that are normally added during refining are subject to reporting under the Emergency Planning and Community Right-to-Know Act (EPCRA). Therefore, a release of a petroleum product containing a reportable quantity of one or more extremely hazardous substances is reportable to the Colorado Emergency Planning Commission (CERC) and the Local Emergency Planning Committee (LEPC) if a reportable quantity is met or exceeded.

The responsible party is always responsible for appropriate clean up actions whether or not the release is required to be reported. **Note:** releases of oil and petroleum to water are also covered under the Clean Water Act (Section E of this document). Releases of petroleum from regulated storage tanks are covered under the Colorado storage tank regulations (Section H of this document).

Metals

Under normal handling and use, solid forms of most metals present few health hazards. Metal fines and metal dust may cause irritation of the eyes, skin, and respiratory system, and fine particles of certain metals, including antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium, silver, thallium, or zinc, dispersed in the air can be an explosion and/or health hazard. EPA has determined that releases of these metals with particles larger than 100 micrometers would not normally require response action due to the unlikely inhalation of such large particles. However, notification of the release of a reportable quantity of antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium, silver, thallium, or zinc is required if the mean diameter of the particles released is less than 100 micrometers (0.004 inches). An exception to this is a release of a metal classified as a radionuclide, which does not qualify for this exemption even if the particles meet the size criteria.

Naturally Occurring Radionuclides

Notification of the release of naturally occurring radionuclides from large land holdings, like parks or golf courses, is not required. EPA broadened this exemption to include land containing ore reserves even if the undisturbed ores contain elevated natural concentrations of radionuclides, and to land disturbance activities including farming, construction, and disturbance incidental to extraction activities at all mines except uranium, phosphate, tin, zircon, hafnium, vanadium, monazite, and rare earth mines. Land disturbance incidental to extraction activities includes land clearing, overburden removal and stockpiling, and excavating, handling, transporting and storing ores and other raw materials. Land disturbance incidental to extraction also includes replacing materials in mined-out areas as long as those materials have not been processed and don't contain elevated radionuclide concentrations. Notification of the release of naturally occurring radionuclides from sites where coal and coal ash (fly ash, bottom ash, boiler slag) are stored or disposed is also not required.

Federally Permitted Releases

Releases that are regulated under one or more of the following programs are exempt from CERCLA and EPCRA reporting requirements:

- permitted discharges under the National Pollutant Discharge Elimination System (NPDES);
- permitted dredge and fill discharges under Section 404 of the Clean Water Act;
- permitted and interim status hazardous waste units under the Resource Conservation and Recovery Act;
- permitted discharges under the Marine Protection, Research and Sanctuaries Act;
- permitted injection of fluids under the Underground Injection Control (UIC) program in accordance with the Safe Drinking Water Act;
- air emissions subject to permit or control regulations under the Clean Air Act;
- permitted or allowed injection of fluids to develop crude oil or natural gas supplies;
- discharges of contaminants to Publicly Owned Treatment Works (POTW) if in compliance with pretreatment requirements under the Clean Water Act;
- releases of certain nuclear materials if in compliance with a license, permit, regulation or order issued in accordance with the Atomic Energy Act.

Registered Pesticides

The normal application of a pesticide product registered under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) is exempt from CERCLA and EPCRA reporting. This exemption includes the handling and storage of the product by an agricultural producer, but does not include

any spills of the pesticide. Pesticide spills are reportable if the amount spilled meets or exceeds the reportable quantity.

Continuous Releases

A continuous release is a release that occurs without interruption or abatement or that is routine, anticipated, intermittent, and incidental to normal operations or treatment processes. When a release of this type occurs, officials do not have to be notified each time. Instead, the facility can report it as a continuous release to the National Response Center, the Colorado Emergency Planning Commission and the Local Emergency Planning Committee(s) by telephone. This should be followed by a written report submitted to EPA Region 8, the Colorado Department of Public Health and Environment and the Local Emergency Planning Committee within 30 days of the initial telephone call. The written report should provide information about the source, composition, and normal range of the release. Periodic follow-up reports may also be required. Any release that exceeds the normal range (called a "statistically significant increase") must be reported immediately to the National Response Center, the Colorado Department and the Local Emergency Planning Compartment of Public Health and Environment and the Local substance released over any 24-hour period under normal operating conditions during the preceding year. Only releases that are both continuous and stable in quantity and rate can be included in the normal range.

Continuous release of an extremely hazardous substance that is not a CERCLA hazardous substance need only be reported to the Colorado Department of Public Health and Environment and the Local Emergency Planning Committee. A written report should also be sent to these two agencies within 30 days and any statistically significant increases in the release should be reported to both agencies. Periodic follow-up reports may also be required.

C. Resource Conservation and Recovery Act (RCRA)

All Resource Conservation and Recovery Act (RCRA) listed and characteristic hazardous wastes are designated as hazardous substances under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). For more information on listed and characteristic hazardous wastes, please review the Hazardous Waste Identification Guidance Document from the Hazardous Materials and Waste Management Division (http://www.cdphe.state.co.us/hm/hwid.pfd).

The reportable quantity for F- and K-listed hazardous wastes is based on the hazardous waste code. If the composition and concentrations of all included constituents is not known, the reportable quantity would be as listed for the waste code in 40 CFR Section 302.4. If the waste is analyzed and the concentrations of ALL of its hazardous constituents are identified, then reportable quantities of the specific constituents can be used to determine when reporting is required. For example, if a release of an F005 listed hazardous waste occurred and the concentrations of the constituents making up the waste were unknown, the reportable quantity would be 100 pounds. If it were known that the F005 waste was comprised of 50% toluene (reportable quantity 1000 pounds) and 50% methyl ethyl ketone (reportable quantity 5000 pounds), then the release would be reported when 2000 pounds of the mixture were released. [Since the reportable quantity for toluene is less than that for methyl ethyl ketone, the amount of toluene released will determine when the release must be reported. Since the mixture is 50% toluene, it would take 2000 pounds of the mixture to meet the reportable quantity of 1000 pounds for toluene.]

P- and U-listed hazardous wastes are reported based on the reportable quantity for the hazardous substance that the waste is listed for. For example, the reportable quantity for hazardous waste code U122 (formaldehyde) is 100 pounds. For the purposes of release reporting, it doesn't matter if the formaldehyde is used or unused or is the "sole active ingredient" in order to be reportable. (Related note: Colorado's hazardous waste regulations (6 CCR 1007-3) do not include the footnote regarding sole active ingredients. In Colorado, chemicals may have more than one active ingredient and still meet the listing description.)

All RCRA listed and characteristic hazardous wastes are designated as hazardous substances under CERCLA. Unlisted hazardous wastes exhibiting the characteristics of ignitability, corrosivity and/or reactivity have a reportable quantity of 100 pounds unless the concentrations of all the constituents in the waste are known. If the waste is analyzed and the concentrations of ALL its hazardous constituents are

identified, the reportable quantities of the specific constituents should be used to determine when reporting is required. For example, a corrosive-only waste of unknown composition has a reportable quantity of 100 pounds. If the waste is analyzed to determine that it was a 50% solution of hydrochloric acid in water, then the reportable quantity of the solution would be 10,000 pounds. [The reportable quantity for hydrochloric acid is 5000 pounds. Therefore it would take 10,000 pounds of the 50% solution to meet the reportable quantity for hydrochloric acid.]

Unlisted hazardous wastes that exhibit toxicity have reportable quantities specific to the constituent on which the characteristic of toxicity is based. The reportable quantity applies to the waste itself, not just to the toxic contaminant. If an unlisted hazardous waste exhibits toxicity on the basis of more than one contaminant, the reportable quantity for the waste is the lowest of the reportable quantities for those contaminants. For example, if a waste exhibits toxicity characteristics for the heavy metals lead (D008) and selenium (D010), with reportable quantities of 10 and 100 pounds respectively, the reportable quantity would be 10 pounds of the waste, or the lower of the two reportable quantities. If a waste exhibits a toxicity characteristic and one or more other hazardous waste characteristics, the reportable quantity for that waste is the lowest of the applicable reportable quantities.

These notification and reporting requirements are included in 40 CFR Part 302.

Permitted and Interim Status Treatment, Storage and Disposal Facilities and Large Quantity Generators of Hazardous Waste

Large quantity generators of hazardous waste and hazardous waste treatment, storage and disposal facilities (TSDF) are required to have and implement a contingency plan that describes the actions facility personnel must take in response to fires, explosions, or any unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents to air, soil, surface water or groundwater at the facility. Whenever there is an imminent or actual emergency situation, appropriate State and local agencies with designated response roles as described in the contingency plan must be notified immediately. Appropriate local authorities and the National Response Center or government official designated as the regional on-scene coordinator must be notified immediately if the facility's emergency coordinator determines that the facility has had a release, fire, or explosion that could threaten human health or the environment outside the facility. A treatment, storage, and disposal facility's permit generally requires reporting to the Colorado Department of Public Health and Environment – Hazardous Materials and Waste Management Division of any release, fire or explosion, even if the amount of the release is less than an otherwise reportable quantity. The Department and local authorities must be notified when the facility is back in compliance and ready to resume operations. In addition, the facility must send a written report to both the EPA Regional Administrator and the Colorado Department of Public Health and Environment within 15 days of any incident that requires implementation of the facility contingency plan.

In the case of a release of hazardous waste stored in tanks, the facility must notify the Hazardous Materials and Waste Management Division within 24 hours of a release to the environment of more than one pound. A leak or spill of hazardous waste that is less than or equal to one pound from a tank or tank system does not need to be reported if the release is immediately contained and cleaned up. Within 30 days of the release, a written report must be submitted to the Division.

These notification and reporting requirements are included in 6 CCR 1007-3 Sections 264.56 and 265.56 and Sections 264.196(d) and 265.196(d).

D. Radiation Control

The state of Colorado has specific reporting requirements for stolen, lost or missing licensed or registered sources of radiation. Each licensee or registrant must report to the Colorado Department of Public Health and Environment by telephone in the event of lost, stolen or missing licensed or registered radioactive materials, a lost, stolen, or missing radiation machine, releases of radioactive materials, contamination events, and fires or explosions involving radioactive materials. Incidents should be reported to the Radiation Incident Reporting Line. Based on the severity of the event, notification may be required immediately, within 24 hours or within 30 days. A follow-up written

report must also be submitted to the Department within 30 days of initial notification. The licensee must also report any additional substantive information regarding a loss or theft incident within 30 days after learning of such information.

Releases of radionuclides are reportable under CERCLA.

These release and notification requirements are contained in 6 CCR 1007-1 Sections 4.51 - 4.53.

E. Clean Water Act

The Clean Water Act (CWA) requires the person in charge of a facility or vessel to make an immediate report to the National Response Center of discharges of harmful quantities of oil to navigable waters as soon as they have knowledge of the release. In this case, oil means oil of any kind or in any form including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil. Discharges of oil that violate applicable water quality standards and those that cause a film, sheen or discoloration of the surface of the water or adjoining shorelines, or cause a sludge or emulsion to be deposited beneath the surface of the water or on adjoining shorelines must be reported. In effect, this means that any discharge of oil to waters of the United States must be reported to the National Response Center. These release and notification requirements are contained in 40 CFR Part 110.

The Clean Water Act (CWA) also requires the person in charge of a facility or vessel to report to the National Response Center the discharge of a designated hazardous substance from the vessel or facility to waters of the United States in quantities that equal or exceed the reportable quantity as soon as they have knowledge of the release. Under the Act, the US EPA was directed to establish reporting quantities for all hazardous substances listed in Table 116.4 A and B (40 CFR Part 116), which were designated as hazardous substances in accordance with Section 311(b)(2)(A) of the

Clean Water Act. This designation includes any isomers and hydrates as well as any solutions and mixtures containing these substances. Each of these substances is included in the CERCLA list of hazardous substances (40 CFR Part 302 Table 302.4) and is assigned the reportable quantity listed in Table 302.4 for that substance. These release and notification requirements are contained in 40 CFR Parts 116 and 117.

Under the Clean Water Act, anyone that has a National Pollutant Discharge Elimination System (NPDES) permit must report to the National Response Center within 24 hours of becoming aware of any unanticipated bypasses or upsets that cause an exceedance of the effluent limits in their permit and any violation of their maximum daily discharge limits for any pollutant listed in the permit. A written report must be provided within five days. Other instances of noncompliance must be reported when monitoring reports are submitted.

The Clean Water Act also requires all industrial users of Publicly Owned Treatment Works (POTWs) to notify their treatment plant immediately if they have a discharge that could cause problems at the treatment plant.

These notification and reporting requirements are included in 40 CFR Parts 122 and 403.

State Requirements

A spill of any chemical, oil, petroleum product, sewage, etc., which may enter waters of the state of Colorado (which include surface water, ground water, and dry gullies and storm sewers leading to surface water) must be reported immediately to the Colorado Department of Public Health and Environment. Any accidental discharge to the sanitary sewer system must be reported immediately to the local sewer authority and the affected wastewater treatment plant. If a release occurs at a mining operation, the Division of Reclamation, Mining and Safety should also be notified.

For more information regarding State reporting requirements under 25-8-601(2) CRS, please refer to the "Guidance for Reporting Spills under the Colorado Water Quality Control Act and Colorado Discharge Permits" adopted by the Water Quality Control Division. This policy is available at http://www.cdphe.state.co.us/op/wqcc/Resources/Guidance/spillguidance.pdf.

F. Safe Drinking Water Act

The owner or operator of a public water system (community water systems, non-transient noncommunity water systems, and transient non-community water systems) must immediately report any credible threat to the water supply system to the Colorado Environmental Release and Incident Reporting Line and to the local emergency manager. The local emergency manager may be the county sheriff or a member of the fire department. A list of local emergency managers is available from the Colorado Department of Local Affairs.

G. Clean Air Act

Hazardous air pollutants (HAPs) listed in Section 112(b) of the Clean Air Act (CAA) are designated as hazardous substances under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Hazardous air pollutants are known or suspected to cause cancer or other serious health effects or adverse environmental effects. Health effects can include immunological, neurological, reproductive, developmental, and respiratory problems. In some cases, hazardous air

pollutants can be deposited onto soils or other surfaces, where they are taken in by plants and animals and can accumulate in organic tissue or pass up the food chain due to the inability of organisms to process the substance.

The release (or air emission) of a hazardous air pollutant that is allowed and less than any limit specified in a facility's air permit is considered to be a federally permitted release. If the facility releases more than is allowed under its air permit within a 24 hour period, the facility must report the release if the quantity released exceeded the facility's permitted level by a reportable quantity or more. For example, if a facility has an air permit that allows the release of 30 pounds of a hazardous substance and that substance has a reportable quantity of 100 pounds, the facility would have to report all releases of 130 pounds or more of that substance. Releases of less than 130 pounds would not need to be reported under CERCLA or EPCRA because even though the facility exceeded its permit limit, the amount released did not exceed the permitted level by its reportable quantity (in this case, 100 pounds) or more. If the air permit does not allow or does not specify the release of a hazardous air pollutant, then releases in excess of the CERCLA / EPCRA reportable quantity for that substance must be reported. Please be aware that other reporting requirements are triggered, however, based on the facility's air permit. The Clean Air Act (CAA) requires that permits for stationary air sources have language requiring prompt reporting of any emergencies, upsets and deviations from what is allowed in the permit. Releases must be reported to the National Response Center and to the Colorado Department of Public Health and Environment. Contact the Air Pollution Control Division for details on additional air-related requirements that may also apply.

Hazardous air pollutants are included in the CERCLA list of hazardous substances in 40 CFR Part 302 and are assigned the reportable quantity listed in Table 302.4 for each substance.

State Requirements

In the case of excess emissions during an emergency or malfunction, the owner or operator must notify the Colorado Department of Public Health and Environment as soon as possible, but no later than noon of the next working day, and provide a written follow-up report to the Air Pollution Control Division by the end of the facility's next reporting period.

These notification and reporting requirements are included in 5 CCR 1001-2 Section II.E and 5 CCR 1001-5, Regulation 3 Part C, Section VII.C.

H. Underground Storage Tanks (USTs) and Aboveground Storage Tanks (ASTs)

The reportable quantity for petroleum from a regulated storage tank system is 25 gallons.

Owners and operators of regulated storage tank systems must report a release or suspected release of regulated substances to the Division of Oil and Public Safety at the Colorado Department of Labor and Employment within 24

hours by telephone or facsimile. If outside normal working hours or on a weekend or holiday and emergency assistance is needed, the release can be reported to the Colorado Environmental Release and Incident Reporting line at the Colorado Department of Public Health and Environment. Any suspected release or release of unknown quantity is a reportable quantity unless the owner/operator can conclusively show the release is less than the reportable quantity for the released substance. Under this program, the reportable quantity for petroleum releases is 25 gallons or more from regulated aboveground and underground storage tank systems, or any amount that causes a sheen on nearby surface water. This is interpreted to include releases from fuel pumps and fuel delivery trucks while connected to the petroleum storage tank system. Releases of less than 25 gallons from regulated petroleum storage tank systems, or a release of a hazardous substance that is less than the CERCLA reportable quantity, do not need to be reported to the Division of Oil and Public Safety if they are immediately contained and cleaned up. If cleanup cannot be accomplished within 24 hours, the Division of Oil and Public Safety must be notified immediately.

Spills or releases of hazardous substances in excess of the CERCLA reportable quantity from regulated underground storage tanks must also be reported to the National Response Center and the local fire authority immediately. Any release, regardless of quantity, that has or may impact waters of the state (including surface water, groundwater, dry gullies leading to surface water or storm sewers) must also be reported to the Colorado Environmental Release and Incident Reporting line immediately.

These notification and reporting requirements are included in 7 CCR 1101-14 Article 4, 8-20.5-208 CRS and 25-8-601 CRS.

I. Hazardous Materials Transportation

Highway, Aircraft, Rail and Vessel

Federal hazardous materials transportation regulations cover the transportation of hazardous materials by highway, aircraft, rail, and vessel. Transportation includes activities related to transportation like loading, unloading, and temporary storage. "Hazardous material" includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials as defined in 49 CFR Section 171.8, materials designated as hazardous in the Hazardous Materials Table in 49 CFR Section 172.101 and materials that meet the criteria for hazardous classes and division in 49 CFR Part 173.

The person in physical possession of the hazardous material during transportation must notify the National Response Center as soon as practical, but not more than 12 hours after an incident, if as a direct result of a hazardous material:

- a person is killed or is injured and requires hospitalization,
- there is an evacuation of the general public that lasts more than an hour,
- a major transportation artery or facility is shut down for an hour or more,
- the operational flight pattern or routine of an aircraft is altered,
- there is fire, breakage, spillage, or suspected contamination involving a radioactive material,
- there is fire, breakage, spillage, or suspected contamination involving an infectious substance other than a regulated medical waste,
- there is a release of a marine pollutant in a quantity exceeding 119 gallons for liquids or 882 pounds for solids,
- or any situation that, in the judgment of the person in possession of the hazardous material, should be reported even though it doesn't meet the above criteria.

Notice of incidents involving an infectious substance may be given to the Director of the Centers for Disease Control and Prevention (1-800-232-0124) instead of notifying the National Response Center.

The person in possession of the hazardous material at the time of the incident must submit a written report within 30 days of the incident to the US Department of Transportation. In addition, a written report must be submitted if there is an unintentional release of a hazardous material or the discharge of any quantity of hazardous waste even though verbal notification may not be required. If the incident involves air transportation, a copy of the report must also be submitted to the Federal Aviation Administration Security Field Office nearest the location of the incident.

These notification and reporting requirements are included in 49 CFR Sections 171.15 and 171.16.

State Requirements

The State also has specific requirements for reporting incidents involving hazardous materials or nuclear materials as cargo during transportation. The driver of a motor vehicle involved in a spill of hazardous material from a fuel tank that provides fuel for the vehicle and/or equipment on that vehicle must immediately notify the nearest law enforcement agency. The driver of a vehicle transporting nuclear or hazardous materials as cargo that is involved in a spill, or an incident which may result in a potential spill, must immediately notify the nearest law enforcement agency. As soon as possible after the initial notification of the spill or incident to the nearest law enforcement agency, the driver or a company representative must notify the Colorado State Patrol and the 24-hour Colorado Environmental Release and Incident Reporting Line. In addition, the driver of a motor vehicle transporting nuclear materials as cargo must immediately notify the Colorado State Patrol and the 24-hour Colorado Environmental Release and Incident Reporting Line. In addition, the driver of a motor vehicle transporting nuclear materials as cargo must immediately notify the Colorado State Patrol and the 24-hour Colorado Environmental Release and Incident Reporting Line. In addition, the driver of a motor vehicle transporting nuclear materials as cargo must immediately notify the Colorado State Patrol and the 24-hour Colorado Environmental Release and Incident Reporting Line. In addition, the driver of a motor vehicle transporting nuclear materials as cargo must immediately notify the Colorado State Patrol for the vehicle is involved in a crash, whether or not there is damage to the vehicle.

If the incident involves the release of hazardous waste, the transporter must notify the Colorado Department of Public Health and Environment and report the ultimate disposition of the waste to the Department in addition to the notifications above. In the event of a spill of hazardous waste at a transfer

Report releases along a highway to the National Response Center, nearest local law enforcement agency, Colorado State Patrol, and Colorado Environmental Release and Incident Reporting Line.

facility, the transporter must notify the Colorado Department of Public Health and Environment within 24 hours of a spill exceeding 55 gallons or if there is a fire or explosion. A written report must be sent to the Department within 15 days after the incident.

These notification and reporting requirements are included in 8 CCR 1507-25 Parts I and IV and 6 CCR 1007-3 Part 263.

Pipelines

In Colorado, the US Department of Transportation Office of Pipeline Safety inspects, regulates, and enforces interstate gas pipeline safety requirements. They also inspect, regulate, and enforce both intra- and interstate liquid pipeline safety requirements in this state. Through certification by the Office of Pipeline Safety, the Gas Pipeline Safety Division of the Colorado Public Utilities Commission regulates, inspects, and enforces intrastate gas pipeline safety requirements. Pipeline facilities include transmission, distribution, regulated gathering, master metered, liquefied natural gas, and propane gas systems. Be aware that these regulations are primarily for pipeline safety. Be sure to review other environmental release reporting requirements.

Hazardous Liquids and Carbon Dioxide

Federal hazardous materials transportation regulations cover the transportation of hazardous liquids and carbon dioxide by pipeline. In this case, hazardous liquid is limited to petroleum, petroleum products, and anhydrous ammonia in a non-gaseous state. Petroleum includes crude oil, condensate, natural gasoline, natural gas liquids, and liquefied petroleum gas. Petroleum product includes flammable, toxic or corrosive products obtained from distilling and processing of crude oil, unfinished oils, natural gas liquids, blend stocks, and other miscellaneous hydrocarbon compounds.

As early as practicable following discovery of a release of a hazardous liquid or carbon dioxide from a pipeline system, the operator must notify the National Response Center by telephone if:

- a person is killed or is injured and requires hospitalization,
- there is a fire or explosion not intentionally set by the operator,
- there is estimated property damage (including cost of cleanup and recovery, value of lost product, and damage to property) exceeding \$50,000,
- there is pollution of any stream, river, reservoir, or other body of water that violated applicable water quality standards, caused a discoloration of the surface of the water or adjoining shoreline, or deposited a sludge or emulsion beneath the surface of the water or adjoining shoreline, or
- there is any situation that, in the judgment of the operator, should be reported even though it doesn't meet the above criteria.

A written accident report must be submitted to the US Department of Transportation Office of Pipeline Safety as soon as practicable, but not later than 30 days after discovery of a release. A supplemental report must be submitted within 30 days if the operator receives any updates or additions to the information originally reported.

These notification and reporting requirements are included in 49 CFR Part 195.

Natural Gas and Liquefied Natural Gas

Federal hazardous materials transportation regulations also cover the transportation of natural gas by pipeline and activities occurring at a liquefied natural gas (LNG) facility where natural and synthetic gas are liquefied, transferred or stored.

As early as practicable following discovery of a release of gas from a pipeline or of liquefied natural gas or gas from a liquefied natural gas facility, but generally not to exceed two hours after discovery, the operator must notify the National Response Center and the Colorado Public Utilities Commission Gas Pipeline Safety Section by telephone if:

- a person is killed or is injured and requires hospitalization,
- there is estimated property damage (including value of lost product and damage to property) of \$50,000 or more,
- there is an event that results in an emergency shutdown of a liquefied natural gas facility, or
- there is any situation that, in the judgment of the operator, should be reported even though it doesn't meet the above criteria.

As early as practicable, but not later than 30 days after discovery and verbal report of a release, the operator must submit a written report to the US Department of Transportation Office of Pipeline Safety. A supplemental report must be submitted within 30 days if the operator receives relevant updates or additions to the information originally reported.

These notification and reporting requirements are included in 49 CFR Part 191 and 4 CCR 723-4 Sections 4900 - 4914.

State Requirements

If there is a leak on a gas pipeline, a liquefied natural gas system, a master meter system, or a propane system that results in the evacuation of 50 or more people from a normally occupied building or results in the closure of a roadway, the operator must contact the Colorado Public Utilities Commission Gas Pipeline Safety Section by telephone within two hours of discovery.

This notification requirement is contained in 4 CCR 723-4 Section 4911.

J. Oil and Gas Exploration and Production

Federal oil and gas lease surface operations are managed by the US Department of the Interior Bureau of Land Management (BLM) in cooperation with the appropriate Federal surface management agency or non-Federal surface owner. On National Forest System lands, the Forest Service has approval authority for the surface use portion of Federal oil and gas operations and for appeals related to Forest Service decisions and approvals. The BLM considers the Bureau of Indian Affairs to be the surface management agency for all Indian lands unless a Tribe has contracted the Bureau of Indian Affairs realty function for its lands.

"... All spills or leakages of oil, gas, salt water, toxic liquids or waste materials, blowouts, fires, personal injuries, and fatalities shall be reported by the operator to the BLM and the surface management agency in accordance with the requirements of *Notice to Lessees NTL-3A; Reporting of Undesirable Events*, and in accordance with any applicable local requirements.

The BLM requires immediate reporting of all Class I major events, such as spills of more than 100 barrels of fluid/500 MCF of gas released; fires that consume 100 bbl or more oil or 500 MCF gas; life threatening or fatal injury/loss of well control; release of reportable quantities of hazardous substances; spill, venting, or fire in sensitive areas, such as parks, recreation sites, wildlife refuges, lakes, reservoirs, streams, and urban or suburban areas" ... "Volumes discharged during any of the above incidents will be estimated as necessary. Operators must take immediate action to prevent and control spills and the BLM, the surface management agency, and other applicable regulatory authorities must be consulted prior to treating or disposing of wastes and spills. Operators should become familiar with local surface management agency requirements for reporting and managing spills and leaks. ..." (BLM "The Gold Book," Fourth Edition, Revised 2007)

State Requirements

Spills and releases of Exploration and Production (E&P) waste and produced fluids should be controlled and contained immediately upon discovery. Impacts resulting from spills and releases should be investigated and cleaned up as soon as practicable.

The rules and regulations for oil and gas exploration and production have recently been revised. Most of these changes become effective May 1, 2009 on federal land and April 1, 2009 on all other land.

If there is a spill or release of more than 20 barrels of E&P waste, it must be verbally reported to the Colorado Oil and Gas Conservation Commission (COGCC) as soon as practicable, but not more than 24 hours after discovery. If there is a spill or release of any size that impacts or

could impact waters of the state, a residence or an occupied structure, livestock or a public byway, it must be verbally reported to the Colorado Oil and Gas Conservation Commission as soon as practicable, but not more than 24 hours after discovery. Spills or releases of any size that impact or threaten to impact any surface water supply area must be reported to the Colorado Oil and Gas Conservation Commission and to the Colorado Environmental Release and Incident Reporting Line. If the release impacts or threatens to impact a surface water intake, it must be verbally reported to the emergency contact for that facility immediately after discovery. The operator must notify the affected surface owner or their appointed tenant of all reportable spills as soon as practicable, but not more than 24 hours after discovery.

Chemical spills and releases must be reported in accordance with all applicable state and federal laws, including the Emergency Planning and community Right-to-Know Act (EPCRA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Oil Pollution Act, and the Clean Water Act.

Releases of more than 5 barrels of E&P waste, and all other reportable releases, must also be reported on COGCC Form 19 and submitted to the Colorado Oil and Gas Conservation Commission within 10 days after discovery of the release.

These notification requirements are contained in the Colorado Oil and Gas Conservation Commission 900-Series Rules.

K. Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) are managed under the Toxic Substances Control Act. Substances with concentrations greater than or equal to 50 parts per million PCBs are regulated under 40 CFR Part 761, which is implemented by the US Environmental Protection Agency. If a spill of the substance directly contaminates surface water, sewers, drinking water supplies, grazing lands, or vegetable gardens and/or the spill exceeds 10 pounds of PCBs by weight, the responsible party must notify the EPA within 24 hours. In Colorado, contact the Region 8 Emergency Response Spill Report Line. If the spill involves 10 pounds or less of PCBs and does not involve any of these resources, the spill must still be cleaned up, but notification to EPA isn't required. Unless commingled with a hazardous waste, releases of substances containing less than 50 parts per million PCBs are regulated under Colorado's solid waste regulations 6 CCR 1007-2. The solid waste regulations do not have specific release reporting requirements at this time.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) has set the reportable quantity for PCBs at one (1) pound. Any release of oil or other substance containing greater than or equal to one pound of PCBs must be reported to the National Response Center as soon as the release is discovered. In addition, if the release impacts waters of the state of Colorado, the release must be reported as per the Water Quality Control Division's reporting policy (see "Guidance for Reporting Spills under the Colorado Water Quality Control Act and Colorado Discharge Permits", http://www.cdphe.state.co.us/op/wqcc/Resources/Guidance/spillguidance.pdf).

Abbreviations & Definitions

CAA – Clean Air Act
CCR – Code of Colorado Regulations
CDPHE – Colorado Department of Public Health and Environment
CEPC – Colorado Emergency Planning Commission
CERCLA – Comprehensive Environmental Response, Compensation and Liability Act
CFR – Code of Federal Regulations
CRS – Colorado Revised Statues
CWA – Clean Water Act
EPA – United States Environmental Protection Agency
EPCRA – Emergency Planning and Community Right-to-Know Act
LEPC – Local Emergency Planning Committee
NRC – National Response Center
RCRA – Resource Conservation and Recovery Act
SERC – State Emergency Response Commission
SDWA – Safe Drinking Water Act

EPA's List of Lists is a compendium of the lists of chemicals subject to reporting requirements under the Emergency Planning and Community Right-to-Know Act (EPCRA), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and chemicals listed under section 112(r) of the Clean Air Act (CAA). Lists are also provided of Resource Conservation and Recovery Act (RCRA) hazardous wastes and radionuclides reportable under the Comprehensive Environmental Response, Compensation and Liability Act. These lists should be used as reference tools, not as a definitive source of compliance information. Reporting requirements for the Emergency Planning and Community Right-to-Know Act and the Comprehensive Environmental Response, Compensation and Liability Act are published in the Code of Federal Regulations (CFR), 40 CFR Parts 302 and 355 respectively. Compliance information for the Clean Air Act section 112(r) is published in 40 CFR Part 68. The List of Lists is available on the Internet at http://yosemite.epa.gov/oswer/lol.nsf/homepage.

Exploration and production (E&P) wastes are associated with operations to locate or remove oil or gas from the ground or to remove the impurities from oil or gas.

Extremely Hazardous Substances (EHS) are chemicals that present the most serious hazards during release (in terms of toxicity, reactivity, volatility, combustibility, and flammability) and are regulated under the Emergency Planning and Community Right-To-Know Act (EPCRA). The extremely hazardous substances list consists of approximately 360 substances and is included in EPA's List of Lists.

Facility means any building, equipment, structure, installation, containment structure, pipe, other stationary feature, motor vehicle, rolling stock, or aircraft. Facility also includes any site where a hazardous substance is or has been located.

Hazardous Materials are chemicals posing a hazard to human health or the environment when transported (49 USC 5103). They include hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, all materials in the Hazardous Materials Table (49 CFR 172.101), and materials meeting the criteria for hazard classes in part 173 of subchapter C of 49 CFR 172.101.

Hazardous Substances are chemicals posing a hazard to human health or the environment and are regulated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The hazardous substance list is included in EPA's List of Lists.

Reportable Quantity (RQ) is a term that applies to the amount of hazardous substances or extremely hazardous substances released within a 24-hour period. *Note that the 24-hour period is the time frame for measuring the quantity released, not the time frame for reporting a release.*

Threshold Planning Quantity (TPQ) is a term that applies to the amount of an extremely hazardous substance that must be present onsite in concentrations greater than 1% by weight of a compound or mixture at which the facility must meet all emergency planning requirements. If not also listed as a CERCLA hazardous substance, extremely hazardous substances have a reportable quantity equal to the threshold planning quantity for that substance.

"Waters of the State of Colorado" are any and all surface waters and subsurface waters (groundwater) that are contained in or flow in or through the state of Colorado. This includes lakes, rivers, streams, creeks, wetlands, irrigation ditches, storm drains, livestock ponds, borrow ditches, and dry gullies. This does not include waters in sewage systems, waters in treatment works of disposal systems, waters in potable water distribution systems, or water withdrawn for use until use and treatment have been completed.

APPENDIX E

EROSION AND SEDIMENT CONTROL INSPECTION FORM



City of Loveland Erosion Sediment Control Inspection Log (ESCIL)

| Facility Name | | Permittee | | | |
|--|--|--------------------|--|--|----|
| Date of Inspection | | Weather Conditions | | | |
| Permit Certification # | | Disturbed Acreage | | | |
| Phase of Construction | | Inspector Title | | | |
| Inspector Name | | | | | |
| Is the above inspector a qualified stormwater manager? | | | | | NO |
| (permittee is responsible for ensuring that the inspector is a qualified stormwater manager) | | | | | |

INSPECTION FREQUENCY

| Check the box that describes the minimum inspection frequency utilized when conducting each inspection | | | | | |
|---|--------|--|--|--|--|
| At least one inspection every 7 calendar days | | | | | |
| At least one inspection every 14 calendar days, with post-storm event inspections conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosions | | | | | |
| This is this a post-storm event inspection. Event Date: | | | | | |
| Reduced inspection frequency - Include site conditions that warrant reduced inspection frequency | | | | | |
| Post-storm inspections at temporarily idle sites | | | | | |
| Inspections at completed sites/area | | | | | |
| Winter conditions exclusion | | | | | |
| Have there been any deviations from the minimum inspection schedule? | YES NO | | | | |
| If yes, describe below. | | | | | |
| | | | | | |

INSPECTION REQUIREMENTS*

 Visually verify all implemented control measures are in effective operational condition and are working as designed in the specifications

ii. Determine if there are new potential sources of pollutants

iii. Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges

iv. Identify all areas of non-compliance with the permit requirements, and if necessary, implement corrective action *Use the attached **Control Measures Requiring Routine Maintenance** and **Inadequate Control Measures Requiring**

Corrective Action forms to document results of this assessment that trigger either maintenance or corrective actions

AREAS TO BE INSPECTED

Is there evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system or discharging to state waters at the following locations?

| | NO | YES | If "YES" describe discharge or potential for discharge below. Document related maintenance, inadequate control measures and corrective actions Inadequate Control Measures Requiring Corrective Action form |
|---|----|-----|--|
| Construction site perimeter | | | |
| All disturbed areas | | | |
| Designated haul routes | | | |
| Material and waste storage areas exposed to precipitation | | | |
| Locations where stormwater has the potential to discharge offsite | | | |
| Locations where vehicles exit the site | | | |
| Other: | | | |

CONTROL MEASURES REQUIRING ROUTINE MAINTENANCE

Definition: Any control measure that is still operating in accordance with its design and the requirements of the permit, but requires maintenance to prevent a breach of the control measure. These items are not subject to the corrective action requirements as specified in Part I.B.1.c of the permit.

| Are there control measures requiring maintenance? | NO | YES | |
|---|----|-----|-------------------------|
| | | | If "YES" document below |

| Date Observed | Location | Control Measure | Maintenance Required | Date Completed |
|------------------|----------|-----------------|----------------------|-------------------|
| | | | | |
| | | | | |
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INADEQUATE CONTROL MEASURES REQUIRING CORRECTIVE ACTION

Definition: Any control measure that is not designed or implemented in accordance with the requirements of the permit and/or any control measure that is not implemented to operate in accordance with its design. This includes control measures that have not been implemented for pollutant sources. If it is infeasible to install or repair the control measure immediately after discovering the deficiency the reason must be documented and a schedule included to return the control measure to effective operating condition as possible.

| Are there inadequate control measures requiring corrective action? | NO | YES | |
|--|----|-----|-------------------------|
| | | | If "YES" document below |

| Are there additional control measures needed that were not in place at the time of inspection? | NO | YES | |
|--|----|-----|-------------------------|
| | | | If "YES" document below |

| Date Discovered | Location | Description of Inadequate Control Measure | Description of Corrective Action | Was deficiency corrected when discovered? YES/NO if "NO" provide reason and schedule to correct | Date Corrected |
|--------------------|----------|--|----------------------------------|---|-------------------|
| | | | | | |
| | | | | | |
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REPORTING REQUIREMENTS

The permittee shall report the following circumstances orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances, and shall mail to the division a written report containing the information requested within five (5) working days after becoming aware of the following circumstances. The division may waive the written report required if the oral report has been received within 24 hours.

| All Noncompliance Requiring 24-Hour Notification per Part II.L.6 of the Permit |
|--|
| a. Endangerment to Health or the Environment |
| Circumstances leading to any noncompliance which may endanger health or the environment regardless of the cause of the incident (See Part II.L.6.a |
| of the Permit) |
| This category would primarily result from the discharge of pollutants in violation of the permit |
| |
| b. Numeric Effluent Limit Violations |
| Circumstances leading to any unanticipated bypass which exceeds any effluent limitations (See Part II.L.6.b of the Permit) |
| Circumstances leading to any upset which causes an exceedance of any effluent limitation (See Part II.L.6.c of the Permit) |
| • Daily maximum violations (See Part II.1.6.d of the Permit) |
| Numeric effluent limits are very uncommon in certifications under the COR400000 general permit. This category of noncompliance only applies if |
| Numeric erriterit minits are very uncommon in certifications under the convocod general permit. This category of honcomphance only appres in |

numeric effluent limits are included in a permit certification.

| Has there been an incident of noncompliance requiring 24-hour notification? | |
|---|--|
| | |

| NO | YES | |
|----|-----|-------------------------|
| | | If "YES" document below |

| Date and Time of Incident | Location | Description of Noncompliance | Description of Corrective Action | Date and Time of 24 Hour Oral Notification | Date of 5 Day Written Notification * |
|---------------------------------|----------|---------------------------------|----------------------------------|--|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

*Attach copy of 5 day written notification to report. Indicate if written notification was waived, including the name of the division personnel who granted waiver.

After adequate corrective action(s) and maintenance have been taken, or where a report does not identify any incidents requiring corrective action or maintenance, the individual(s) designated as the Qualified Stormwater Manager, shall sign and certify the below statement:

"I verify that, to the best of my knowledge and belief, all corrective action and maintenance items identified during the inspection are complete, and the site is currently in compliance with the permit."

| Name of Qualified Stormwater Manager | Title of Qualified Stormwater Manager |
|---|---------------------------------------|
| Signature of Qualified Stormwater Manager | Date |
| Notes/Comments | |

APPENDIX F

Inactivation and Reassignment Forms

STATE OF COLORADO

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S. Denver, Colorado 80246-1530 Phone (303) 692-2000 TDD Line (303) 691-7700 Located in Glendale, Colorado

http://www.cdphe.state.co.us



Colorado Department of Public Health and Environment

<u>Colorado Water Quality Control Division Notice of Termination</u> <u>Construction Stormwater Inactivation Notice</u>

www.coloradowaterpermits.com

Print or type all information. All items must be filled out completely and correctly. If the form is not complete, it will be returned. All permit terminations dates are effective on the date approved by the Division.

MAIL ORIGINAL FORM WITH INK SIGNATURES TO THE FOLLOWING ADDRESS:

Colorado Dept of Public Health and Environment Water Quality Control Division 4300 Cherry Creek Dr South, WQCD-P-B2 Denver, CO 80246-1530

FAXED OR EMAILED FORMS WILL NOT BE ACCEPTED.

• PART A. IDENTIFICATION OF PERMIT Please write the permit certification number to be terminated

Permit Certification Number (four digits, not "0000"): COR03 __ __ __

• PART B. PERMITTEE INFORMATION

| Company Name | | | |
|-----------------------------------|--------------------------|--------------|----------|
| Mailing Address | | | |
| City | | State | Zip code |
| Legal Contact Name | | Phone number | |
| Title | | Email | |
| PART C. FACI Facility/Project Nam | LITY/PROJECT INFORMATION | | |
| Location (addres | s) | | |
| Cit | ty | County | Zip code |
| Local Contact Nam | ne | Phone number | |
| Tit | le | Email | |
| | | | |

PART D. TERMINATION VALIDATION CRITERIA

One of the criteria (1,2, or 3) below must be met, the appropriate box checked, and the required additional information provided. Part E includes a certification that the criteria indicated has been met.

| \Box | 1: FINALLY STABILIZED OR CONSTRUCTION NOT STARTED - The permitted activities covered under the |
|--------|--|
| | certification listed in Part A meet the requirements for FINAL STABILIZATION in accordance with the permit, the |
| | Stormwater Management Plan, and as described below. This criterion should also be selected if construction was never |
| | started and no land was disturbed, and an explanation of this condition provided in the description below. |

Final stabilization is reached when: all ground surface disturbing activities at the site have been completed including removal of all temporary erosion and sediment control measure, and uniform vegetative cover has been established with an individual plant density of at least 70 percent of predisturbance levels, or equivalent permanent, physical erosion reduction methods have been employed.

REQUIRED - Describe the methods used to meet the final stabilization c described above (include additional pages if

necessary)

2: ALTERNATIVE PERMIT COVERAGE OR FULL REASSIGNMENT - All ongoing construction activities, including all disturbed areas, covered under the permit certification listed in Part A have coverage under a separate CDPS stormwater construction permit, including the permit certification issued when Division's Reassignment Form was used by the permittee to reassign all areas/activities.

REQUIRED – Provide the permit certification number covering the ongoing activities: COR03

3: PERMITTEE IS NO LONGER THE OWNER/OPERATOR of the site and all efforts have been made to transfer the permit to appropriate parties. Please attach copies of registered mail receipt, letters, etc.

One of the three criteria above MUST BE CHECKED and the required information for that criterion STOP! provided, or this form will not be processed and the permit will remain active.

PART E. CERTIFICATION SIGNATURE (Required for all Termination Requests)

I understand that by submitting this notice of inactivation, I am no longer authorized to discharge stormwater associated with construction activity by the general permit. I understand that discharging pollutants in stormwater associated with construction activities to the waters of the State of Colorado, where such discharges are not authorized by a CDPS permit, is unlawful under the Colorado Water Quality Control Act and the Clean Water Act.

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (See 18 U.S.C 1001 and 33 U.S.C. 1319.)

I also certify that I am a duly authorized representative of the permittee named in Part B.

Signature of Legally Responsible Party

Date Signed

Title

Name (printed)

Signatory requirements: This form shall be signed, dated, and certified for accuracy by the permittee in accordance with the following criteria:

1. In the case of a corporation, by a principal executive officer of at least the level of vice-president, or his or her duly authorized representative, if such representative is responsible for the overall operation of the operation from which the discharge described herein originates;

- 2. In the case of a partnership, by a general partner;
- 3. In the case of a sole proprietorship, by the proprietor;
- 4. In the case of a municipal, state, or other public operation, by wither a principal executive officer, ranking elected official, or other duly authorized employee.

AF()F()

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S. Denver, Colorado 80246-1530 Phone (303) 692-2000 TDD Line (303) 691-7700 Located in Glendale, Colorado http://www.cdphe.state.co.us



| For Agency Use Only | | | |
|-----------------------------------|--|--|--|
| Permit Number Assigned | | | |
| COR03 | | | |
| Date Received// Month Day Year | | | |

NOTICE OF REASSIGNMENT OF PERMIT COVERAGE AND GENERAL PERMIT APPLICATION STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES PHOTO COPIES, FAXED COPIES, PDF COPIES OR EMAILS WILL NOT BE ACCEPTED.

Please print or type. Original signatures are required. This application must be considered complete by the Division prior to initiation of permit processing. The Division will notify the applicant if additional information is needed to complete the application. If more space is required to answer any question, please attach additional sheets to the application form. Applications must be mailed or delivered to:

Colorado Department of Public Health and Environment

Water Quality Control Division

4300 Cherry Creek Drive South

WQCD-P-B2

Denver, Colorado 80246-1530

**Part I of the application beginning below is to be filled out by the new permit applicant that will be assuming permitting liability for the reassigned portion of the original applicant's site.

**Part II of the application, starting on page 3 of the form, is to be completed by the current permittee.

Both Parts I (pages 1-4) and II (page 5) must be completed.

EXISTING CERT ** (from Part II)

** NOTE: THIS WILL CREATE A NEW PERMIT FOR PART 1 APPLICANT. THE EXISTING PERMIT WILL NOT BE TERMINATED. THIS IS NOT A TRANSFER FORM.

PART I - To be completed by the New permit applicant:

I hereby accept the reassignment of permit coverage for the area described in this application. I have reviewed the terms and conditions of this permit and the Stormwater Management Plan and accept full responsibility, coverage and liability

REASSIGNMENT WILL BE EFFECTIVE

Applicant is :

MONTH/ DAY/ YEAR

Property Owner Contractor/Operator

A. CONTACT INFORMATION - NOT ALL CONTACT TYPES MAY APPLY * indicates required

*PERMITTEE (If more than one please add additional pages)

***ORGANIZATION FORMAL NAME:**

1) *PERMITTEE the person authorized to sign and certify the permit application. This person receives all permit correspondences and is legally responsible for compliance with the permit.

| Responsible Position (Title): | | |
|---|---|---|
| Currently Held By Person): | | |
| Telephone No: | email address | |
| Organization: | | |
| Mailing Address: | | |
| City:S | itate: Zip: | |
| This form <u>must be signed</u> by the Pe | ermittee to be considered complete | 2. |
| Per Regulation 61 In all cases, it sha | all be signed as follows: | |
| In the case of corporations, by a r | responsible corporate officer. For th | e purposes of this section, the responsible |
| anne ante efficiente normaneth la fa | where even all encounting of the facility | بالجريبة والمحمد والمحم |

- a) corporate officer is responsible for the overall operation of the facility from which the discharge described in the
- application originates. In the case of a partnership, by a general partner. b)
- In the case of a sole proprietorship, by the proprietor. c)
- In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official d)

2) DMR COGNIZANT OFFICIAL (i.e. authorized agent) the person or position authorized to sign and certify reports required by the Division including Discharge Monitoring Reports *DMR's, Annual Reports, Compliance Schedule submittals, and other information requested by the Division. The Division will transmit pre-printed reports (ie. DMR's) to this person. If more than one, please add additional pages. Same As 1) Permittee

| | Responsible Position (Title): | | | |
|----|---|--|---|--|
| | Currently Held By (Person): | | | |
| | Telephone No: | | email address | |
| | Organization: | | | |
| | Mailing Address: | | | |
| | City: | State: | Zip: | |
| | Per Regulation 61 : All reports permittee or by a duly author authorization is made in writin (ii) The authorization specifie facility or activity such as the | s required by per ized representat ng by the permits es either an indiv | mits, and other information reques ive of that person. A person is a dul tee ridual or a position having responsik manager, operator of a well or a w | sted by the Division shall be signed by the y authorized representative only if: (i) The pility for the overall operation of the regulated |
| | responsibility, or an individual authorized representative ma (iii) The written authorizat | l or position of plant y thus be either a ion is submitte | ng overall responsibility for environ a named individual or any individua d to the Division | al occupying a named position); and |
| *S | ITE CONTACT local contact for q Same As 1) Permittee Responsible Position (Title): | uestions relating | g to the facility & discharge authoriz | ed by this permit for the facility. |
| | Currently Held By (Person): | | | |
| | Telephone No: | | email address | |
| | Organization: | | | |
| | Mailing Address: | | | |
| | City: | State: | Zip: | |
| 4) | * BILLING CONTACT if differer Responsible Position (Title): | nt than the perm | ittee | |
| | Currently Held By (Person): | | | |
| | Telephone No: | | email address | |
| | Organization: | | | |
| | Mailing Address: | | | |
| | City: | State: | Zip: | |
| 5) | OTHER (Please describe) | | | |
| | Responsible Position (Title): | | | |
| | Currently Held By (Person): | | | |
| | Telephone No: | | email address | |
| | Organization: | | | |
| | Mailing Address: | | | |
| | City: | State: | Zip: | |

3)

B. Permitted Project/Facility Information

| Project/Facili | ty Name | | |
|---|---|--|--|
| Street Addre | ss or cross streets | | |
| City, | Zip Code | e | County |
| Facility Lati | tude/Longitude— (approximate | center of site to nearest 1 | 5 seconds using one of following formats |
| 001 | A Latitude degrees (to 3 dec | Longitude imal places) | (e.g., 39.703°, 104.933°') degrees (to 3 decimal places) |
| 00 | 1A Latitude°'" degrees minutes secor | Longitude°' nds degrees minute | '" (e.g., 39°46'11"N, 104°53'11"W) s_seconds |
| C. MAP (Attachr | nent) | | |
| Map: Attach a mabe disturbed. Ma | ip that indicates the site loca ps must be no larger than 1 | tion and that CLEARLY 1x17 inches. | shows the boundaries of the area that will |
| D. LEGAL DESC | RIPTION | | |
| Legal descriptio supply Township/ | n: If subdivided, provide the Range/Section or metes and | legal description below, bounds description of s | or indicate that it is not applicable (do not site) |
| Subdivision(s |): | Lot(s): | Block(s): |
| OR □ Not applica | able (site has not been subd | ivided) | |
| E. AREA OF CO | NSTRUCTION SITE | | |
| Total area of proj | ect site (acres): | | _ |
| Area of project sit | e to undergo disturbance (ac | cres): | |
| Total disturbed ar (i.e | ea of Larger Common Plan o ., total, including all phases, | of Development or Sale, filings, lots, and infrastr | , if applicable: ructure not covered by this application) |
| F. NATURE OF | CONSTRUCTION ACTIVITY | | |

Check the appropriate box(s) or provide a brief description that indicates the general nature of the construction activities. (The full description of activities must be included in the Stormwater Management Plan.)

- Single Family Residential Development
- Multi-Family Residential Development
- Commercial Development
- □ Oil and Gas Production and/or Exploration (including pad sites and associated infrastructure)
- Highway/Road Development (not including roadways associated with commercial or residential development)
- □ Other, Describe:

G. ANTICIPATED CONSTRUCTION SCHEDULE

Construction Start Date: _____ Final Stabilization Date: _____

NOTICE OF REASSIGNMENT OF PERMIT COVERAGE AND GENERAL PERMIT APPLICATION STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES

H. RECEIVING WATERS

(If discharge is to a ditch or storm sewer, include the name of the ultimate receiving waters)

Immediate Receiving Water(s):

Ultimate Receiving Water(s):

I. REQUIRED SIGNATURES (Both parts i. and ii. must be signed)

Signature of Applicant: The applicant must be either the owner and/or operator of the construction site. Refer to Part B of the instructions for additional information. The application <u>must be signed</u> by the applicant to be considered complete. <u>In all cases</u>, it shall be signed as follows:

- a) In the case of corporations, by a principal executive officer of at least the level of vice-president or his or her duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge described in the application originates.
- b) In the case of a partnership, by a general partner.
- c) In the case of a sole proprietorship, by the proprietor.
- d) In the case of a municipal, state, or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee if such representative is responsible for the overall operation of the facility from which the discharge described in the form originates.

STOP !: A Stormwater Management Plan must be completed prior to signing the following certifications!

i. Stormwater Management Plan Certification

"I certify under penalty of law that a complete Stormwater Management Plan, as described in Appendix A of this application, has been prepared for my activity. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the Stormwater Management Plan is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for falsely certifying the completion of said SWMP, including the possibility of fine and imprisonment for knowing violations."

XX

Signature of Legally Responsible Person or Authorized Agent (submission must include original signature) Date Signed

Name (printed)

Title

ii. Signature of Permit Legal Contact

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

"I understand that submittal of this application is for coverage under the State of Colorado General Permit for Stormwater Discharges Associated with Construction Activity for the entirety of the construction site/project described and applied for, until such time as the application is amended or the certification is transferred, inactivated, or expired."

XX

Signature of Legally Responsible Person (submission must include original signature)

Date Signed

Name (printed

Title

DO NOT INCLUDE A COPY OF THE STORMWATER MANAGEMENT PLAN

DO NOT INCLUDE PAYMENT - AN INVOICE WILL BE SENT AFTER THE CERTIFICATION IS ISSUED.

NOTICE OF REASSIGNMENT OF PERMIT COVERAGE AND GENERAL PERMIT APPLICATION STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES

PART II - AMENDMENT TO THE CURRENT PERMIT CERTIFICATION TO BE COMPLETED BY CURRENT PERMITTEE

| CERTIFICATION NUMBER C | OR03 | _ THIS PERMIT WILL N | OT BE TERMINATED |
|---------------------------------|------------------------------|----------------------------|---------------------------------|
| II.A. CURRENT PERMIT LEG | AL CONTACT INFORM | ATION C | heck if information has changed |
| Company Name: | | | |
| Legally Responsible Person: | First Name: | | Last Name: |
| Title: | | | |
| Mailing Address: | | | |
| City, State and Zip Code: | | | |
| Phone: | | | |
| Email Address: | | | |
| 2. PERMITTED FACILITY INFO | RMATION | | |
| Name of Plan, Project or Develo | opment: | | |
| Latitude and Longitude (approx | imate center of site to near | est 15 seconds using one c | f following formats): |
| Latitude: | Longitude | : | (e.g., 39°42'11", 104°55'57") |
| degrees /minutes/ s | econds | degrees/ minutes/ secor | nds |
| | | | |
| Latitude: | Longitude: | dogrado (to 2 dogimal pl | (e.g., 39.703°, 104.933') |
| degrees (to 3 decim | ai places) | degrees (to 3 decimal pi | aces) |
| 3. MAP (Attachment) | | | |
| | | | |

Map: Attach a map that indicates the site location and that CLEARLY shows the boundaries of the area that will be retained under this current certification. Maps must be **no larger** than 11x17 inches.

4. NATURE OF CONSTRUCTION ACTIVITY

Check the appropriate box(s) or provide a brief description that indicates the general nature of the construction activities. (The full description of activities must be included in the Stormwater Management Plan.)

| | Single Family Residential Development |
|--|---------------------------------------|
|--|---------------------------------------|

Multi-Family Residential Development

Commercial Development

Other, Describe:

9. REQUIRED SIGNATURES Certification for Reassignment

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in Part II of this application and all attachments in reference to Part II and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that thereare significant penalties for submitting false information, including the possibility of fine or imprisonment.

"As the permittee currently covered by the above-referenced certification, I hereby agree to reassign the permit coverage for the area and activity described in Items I.b. and I.c., and all responsibilities thereof, from the above-referenced permit certification to the new permittee listed in Part I of this form."

Signature of Legally Responsible Person (submission must include original ink signature) Date Signed

Name (printed)



| DT | ES: | |
|----|------------|--|
| | | |

THIS PLAN IS A LIVING DOCUMENT THAT MUST CHANGE AS WORK PROGRESSES. THE CONTRACTOR SHALL UPDATE THESE EROSION CONTROL PLANS AS NEEDED DURING CONSTRUCTION TO REFLECT THE BMPS BEING USED, THE REASON FOR CHANGES, AND ANY DISTURBED AREAS.

= = 2. This plan includes some sedimentation CONTROL BMP'S THAT SHOULD BE USED. HOWEVER, DURING CONSTRUCTION, SOIL BINDERS, GRADING TECHNIQUES, PROJECT PHASING AND OTHER APPLICABLE BMPS SHALL ALSO BE IMPLEMENTED, AS NEEDED, TO MINIMIZE EROSION AND PREVENT OFFSITE SEDIMENTATION. IT IS THE CONTRACTORS DUTY TO DETERMINE APPROPRIATE BMP'S.

- 3. DURING CONSTRUCTION, TEMPORARY EROSION CONTROL MEASURES SHALL BE IMPLEMENTED AS IMPROVEMENTS ARE INSTALLED.
- 4. INLETS SHALL BE COMPLETELY PROTECTED BY INLET PROTECTION WHETHER BY MEANS OF GRATE FILTERS IN COMBINATION WITH GRAVEL FILTERS OR BY OTHER APPROPRIATE MEASURES.
- 5. SILT FENCE SHALL NOT BE INSTALLED FOR THE PURPOSE OF TRAFFIC CONTROL ONLY.
- 6. CONTRACTOR TO MINIMIZE DISTURBED AREA AT ALL TIMES. DO NOT CLEAR AND GRUB AREAS WHICH ARE NOT TO BE IMMEDIATELY WORKED.
- 7. DISTURBED AREAS OUTSIDE OF THE VA CLINIC LOT SHALL RECEIVE NATIVE SEED MIX AND TEMPORARY IRRIGATION IF PERMANENT IRRIGATION IS NOT PROVIDED. NATIVE SEED MIX = PAWNEE PRAIRIE WETLAND MIX OR APPROVED EQUAL. SEE LANDSCAPE PLAN FOR ADDITIONAL INFORMATION.
- DISTURBED AREAS THAT ARE NOT ACTIVE FOR 14 DAYS REQUIRES TEMPORARY STABILIZATION AND TEMPORARY SEEDING.

— SII T

(VTC)

CWA

RP)

SSA

(SF)

 \nearrow

LEGEND

- VEHICLE TRACKING CONTROL PAD
- RIP RAP PAD
- STABILIZED STAGING AREA
- SILT FENCE
- LIMITS OF DISTURBANCE
- FLOW DIRECTION





JULY 23, 2021

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NOTES:

- THIS PLAN IS A LIVING DOCUMENT THAT MUST CHANGE AS WORK PROGRESSES. THE CONTRACTOR SHALL UPDATE THESE EROSION CONTROL PLANS AS NEEDED DURING CONSTRUCTION TO REFLECT THE BMPS BEING USED, THE REASON FOR CHANGES, AND ANY DISTURBED AREAS.
- = 2. This plan includes some sedimentation CONTROL BMP'S THAT SHOULD BE USED. HOWEVER, DURING CONSTRUCTION, SOIL BINDERS, GRADING TECHNIQUES, PROJECT PHASING AND OTHER APPLICABLE BMPS SHALL ALSO BE IMPLEMENTED, AS NEEDED, TO MINIMIZE EROSION AND PREVENT OFFSITE SEDIMENTATION. IT IS THE CONTRACTORS DUTY TO DETERMINE APPROPRIATE BMP'S.
 - 3. DURING CONSTRUCTION, TEMPORARY EROSION CONTROL MEASURES SHALL BE IMPLEMENTED AS IMPROVEMENTS ARE INSTALLED.
 - 4. INLETS SHALL BE COMPLETELY PROTECTED BY INLET PROTECTION WHETHER BY MEANS OF GRATE FILTERS IN COMBINATION WITH GRAVEL FILTERS OR BY OTHER APPROPRIATE MEASURES.
 - 5. SILT FENCE SHALL NOT BE INSTALLED FOR THE PURPOSE OF TRAFFIC CONTROL ONLY.
 - 6. CONTRACTOR TO MINIMIZE DISTURBED AREA AT ALL TIMES. DO NOT CLEAR AND GRUB AREAS WHICH ARE NOT TO BE IMMEDIATELY WORKED.
 - 7. DISTURBED AREAS OUTSIDE OF THE VA CLINIC LOT SHALL RECEIVE NATIVE SEED MIX AND TEMPORARY IRRIGATION IF PERMANENT IRRIGATION IS NOT PROVIDED. NATIVE SEED MIX = PAWNEE PRAIRIE WETLAND MIX OR APPROVED EQUAL. SEE LANDSCAPE PLAN FOR ADDITIONAL INFORMATION.
 - DISTURBED AREAS THAT ARE NOT ACTIVE FOR 14 DAYS REQUIRES TEMPORARY STABILIZATION AND TEMPORARY SEEDING.

(DIP-2)

 \nearrow

LEGEND

| CURB INLET BLOCK AND GRAVEL FILTER | RCIP-1 | |
|------------------------------------|--------|--|
| WATTLE DIKE | WD | |
| VEHICLE TRACKING CONTROL PAD | VTC | |
| CONCRETE WASHOUT AREA | CWA | |
| RIP RAP PAD | RP | |
| STABILIZED STAGING AREA | (SSA) | |

STABILIZED STAGING AREA

SILT FENCE

LIMITS OF DISTURBANCE

DROP INLET PROTECTION

FLOW DIRECTION



| | | And the second s | 000 | DESIG | CHEC | DRAW | | REVISIONS |
|---|---|--|-----|-------|-----------|--------|--------|-------------|
| | EAST LOVELAND INDUSTRIAL 26TH SUBDIVISION | PENN | | NED | KED | Ω N | Y DATE | DESCRIPTION |
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| | | LI | ON | ٩Z | - G | | | |
| | | CON OR TR | C | | | | | |
| | EROSION CONTROL PLAN - PHASE 2 | | NC | | | | | |
| | | ALLER OF | TR | | | | | |
| _ | | | С | | _ | | | |

TST, INC. CONSULTING ENGINEERS 748 Whalers Way Suite 200 Fort Collins Colorado 80525 Phone: 970.226.0557

1244.0001.00 SCALE 1" = 50'

JOB NO.

JULY 23, 2021

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<u>NOTES:</u>

THIS PLAN IS A LIVING DOCUMENT THAT MUST 1. CHANGE AS WORK PROGRESSES. THE CONTRACTOR SHALL UPDATE THESE EROSION CONTROL PLANS AS NEEDED DURING CONSTRUCTION TO REFLECT THE BMPS BEING USED, THE REASON FOR CHANGES, AND ANY DISTURBED AREAS.

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- 2. THIS PLAN INCLUDES SOME SEDIMENTATION CONTROL BMP'S THAT SHOULD BE USED. HOWEVER, DURING CONSTRUCTION, SOIL BINDERS, GRADING TECHNIQUES, PROJECT PHASING AND OTHER APPLICABLE BMPS SHALL ALSO BE IMPLEMENTED, AS NEEDED, TO MINIMIZE EROSION AND PREVENT OFFSITE SEDIMENTATION. IT IS THE CONTRACTORS DUTY TO DETERMINE APPROPRIATE BMP'S.
- 3. DURING CONSTRUCTION, TEMPORARY EROSION CONTROL MEASURES SHALL BE IMPLEMENTED AS IMPROVEMENTS ARE INSTALLED.
- 4. INLETS SHALL BE COMPLETELY PROTECTED BY INLET PROTECTION WHETHER BY MEANS OF GRATE FILTERS IN COMBINATION WITH GRAVEL FILTERS OR BY OTHER APPROPRIATE MEASURES.
- 5. SILT FENCE SHALL NOT BE INSTALLED FOR THE PURPOSE OF TRAFFIC CONTROL ONLY.
- 6. CONTRACTOR TO MINIMIZE DISTURBED AREA AT ALL TIMES. DO NOT CLEAR AND GRUB AREAS WHICH ARE NOT TO BE IMMEDIATELY WORKED.
- DISTURBED AREAS OUTSIDE OF THE VA CLINIC LOT 7. SHALL RECEIVE NATIVE SEED MIX AND TEMPORARY IRRIGATION IF PERMANENT IRRIGATION IS NOT PROVIDED. NATIVE SEED MIX = PAWNEE PRAIRIEWETLAND MIX OR APPROVED EQUAL. SEE LANDSCAPE PLAN FOR ADDITIONAL INFORMATION.
- DISTURBED AREAS THAT ARE NOT ACTIVE FOR 14 DAYS REQUIRES TEMPORARY STABILIZATION AND TEMPORARY SEEDING.

LEGEND

8.

| CURB INLET BLOCK AND GRAVEL FILTER | CIP-1 |
|------------------------------------|---------|
| WATTLE DIKE | |
| VEHICLE TRACKING CONTROL PAD | VTC VTC |
| CONCRETE WASHOUT AREA | CWA |
| RIP RAP PAD | RP |
| STABILIZED STAGING AREA | SSA SSA |
| SEEDING AND MULCHING | |
| SILT FENCE | SF |
| LIMITS OF DISTURBANCE | |
| DROP INLET PROTECTION | DIP-2 |
| WATTLE DIKE AROUND VERTICAL | WD |

scale





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1244.0001.00 SCALE 1" = 50'

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JULY 23, 2021

JOB NO




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