



*Colorado Operations  
950 17<sup>th</sup> Street, Suite 2200  
Denver, CO 80202-2805  
(720) 279-5500*

# **ATTACHMENT J (1)**

# **BURCKLE CUTTINGS STAGING AREA MANAGEMENT PLAN**

## **Colorado Operations**

**November 2013**

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### ATTACHMENT A

Cuttings Management Decision Matrix

### REFERENCES

Survey Site Layout Map  
Stormwater Management Plan  
Ursa Waste Management Plan

## **1.0 INTRODUCTION**

The Ursa Operating Company, LLC (Ursa), Burckle Cuttings Staging Area Management Plan (Plan) outlines the steps taken to properly manage cuttings generated during the production of natural gas from various well pads throughout the Piceance Basin.

This document outlines the following steps necessary to get drill cuttings to satisfy Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 standards and request COGCC approval to transport, properly amend, and beneficially reuse drill cuttings. The Cuttings Management Decision Matrix found in Attachment A, illustrates how drill cutting are managed from creation to final disposition.

This Plan is designed for cuttings management only. No other oil field wastes of any kind will be transported, stored, or managed at this site.

## **2.0 CUTTINGS RELOCATION REQUEST – SUNDRY NOTICE FORM 4**

Approval from the COGCC must be obtained via Sundry Notice Form 4 (Form 4) from EACH well pad or location that cuttings are generated prior to transporting to the Burckle Cuttings Staging Area.

To obtain approval, the information below must be obtained and submitted to the COGCC on an electronic Form 4 for director approval.

- Location of Cuttings Generation (well pad where cuttings were generated from)
- Volume of Cuttings
- Intended Use
- Raw Cuttings Analytical Results (off the shaker)

Typical turnaround times to obtain COGCC approval for cuttings relocation to the Burckle Cuttings Staging Area is approximately 7 days. An expedited approval can be requested, but may not always be granted. Appropriate planning and scheduling should be accounted for when requesting COGCC approval to relocate drill cuttings.

## **3.0 SITE LAYOUT**

The Burckle Cuttings Staging Area is located south of the access road to the Burckle A well pad. Specifically, NWSE, of Section 16, Township 6S, Range 92W as indicated on the site location map found in Section 10. Cuttings will be segregated according to the location of origin and placed in designated cells. As cuttings are approved and transported to the site, a sign containing the location of origin (pad name) will be placed identifying the appropriate cell for offloading and staging.

Cuttings will not be co-mingled upon arrival until approval from the COGCC for beneficial reuse has been approved and the cuttings are placed within a separate staging area.

### **3.1 CUTTINGS STAGING CELLS**

Cells will be created within the prepared boundary area and labeled for cuttings storage from each location of origin. A sign will be placed at the back, or alongside of the cell outlining the correct staging area for cuttings staging.

Cells will contain at a minimum of a two (2) foot berm separating each of the cells and containing all of the cuttings off loaded. The berms will prevent any comingling of cuttings, as well as contain run-on and run-off of stormwater during precipitation events.

Cuttings may be placed on the Burckle Cuttings Staging Area for three purposes, 1) Stage cuttings that meet COGCC Table 910-1 until beneficial reuse is approved, 2) Staging cuttings that do not meet COGCC Table 910-1 for additional amending in attempts to obtain constituents outlined in Table 910-1, 3) Staging cuttings while disposal profiling documents and analytical analysis is completed.

### **3.2 AMENDING CELL**

A designated cell, separate all other staging cells will be established for the amending of cuttings that exceed COGCC Table 910-1 standards.

A minimum of a two (2) foot berm well be installed around the amendment area to prevent any comingling of wastes as well as prevent stormwater run on/off.

The amending cell is not designed to stage cuttings or stockpile cuttings for extended periods of time. The amending cell is for the sole purpose of amending cuttings with clean native soil or a form of absorbent (saw dust, Stable EZ) to satisfy COGCC Table 910-1 standards. Once cuttings satisfy COGCC Table 910-1 standards and approval has been provided by the COGCC for beneficial reuse, the cuttings will be moved from the amending cell to the successfully amended staging area.

### **3.4 SUCCESSFUL AMENDED STAGING AREA**

Once cuttings are successfully amended and analytical analysis indicates that the cuttings satisfy COGCC Table 910-1, the cuttings will then be stockpiled in the “Successfully Amended Staging Area.” Once cuttings are placed within the Successfully Amended Staging Area, a Form 4 will be submitted to the COGCC requesting the desired beneficial reuse.

Cuttings that are placed within the successfully amended staging area require approval from the COGCC via Form 4 before beneficial reuse can occur. Cuttings are NOT to be moved off the Burckle Cuttings Staging Area to ANY location unless approval has been granted by the COGCC and Ursa management.

### **3.5 LANDFILL DISPOSAL**

If amending of cuttings is unsuccessful, cost prohibited, or timeframes for amending are unmanageable, then disposal to an approved accredited landfill can occur with proper profiling and landfill approval.

To obtain approval for landfill disposal, a waste characterization profile must be completed and approved by the receiving facility. Depending on the desired disposal facility, analytical sampling may be necessary and can take anywhere from 5 to 30 business day for analysis to be completed by the lab.

Cuttings for disposal are not to be hauled off until approval from Ursa management has been received, regardless if the receiving facility has approved the disposal.

Every load must be accompanied by a non-hazardous waste manifest and copies of disposal manifests must be provided to the Ursa environmental team. Driver tickets will not satisfy landfill manifesting requirements.

### **3.6 STORMWATER MANAGEMENT**

For stormwater compliance requirements, please refer to the Burckle Cuttings Staging Area – Stormwater Management Plan.

## **4.0 CUTTINGS AMENDMENT**

Cuttings amendment involves taking the pre-solidified cuttings and amending them with clean material to obtain concentrations outlined in the COGCC Table 910-1 standards.

### **4.1 AMENDMENT OPTIONS**

- Amending – amending involves incorporating a clean material such as saw dust, Stable Ez, clean native soil, or another approved material into the cuttings at a dilution ratio necessary to obtain COGCC Table 910-1 standards for beneficial reuse.
  - It should be noted that certain materials, although derived from a “clean” source and are considered uncontaminated, contain high levels of organic carbon material and can increase analytical concentrations (i.e pine shavings) above COGCC Table 910-1 standards.
  - Before a new material is used for amending cuttings, baseline analysis should be completed to determine baseline concentrations.

## **5.0 CUTTINGS TRACKING**

Form 4 condition of approvals (COA’s) require tracking of the incoming and outgoing wastes. The COA’s are a list of conditions in which the COGCC will approve the relocation and management of the drill cuttings to the Burckle Cuttings Staging Area.

## **5.1 TRANSPORTED WASTE TRACKING**

Each load of cuttings must be accompanied by a trucking ticket and contain the information listed below;

- Date and Time
- Location of cuttings origin (well pad)
- Volume
- Trucking Company and Truck #

This information will be cross referenced with a sign in/out sheet located at the entrance, and will be used to track the volumes of waste brought to the site and matched with a truck ticket to satisfy COA conditions.

## **5.2 AMENDED OR DISPOSED CUTTINGS TRACKING**

Cuttings that are approved for beneficial reuse by the COGCC or approved for landfill disposal must also contain documentation outlined below;

- Beneficial Reuse – Trucking tickets must be accompanied for any load hauled to another site for beneficial reuse. Trucking tickets must match the spreadsheet as an outgoing waste stream and include the same information outlined under section 5.1.
- Disposal – Cuttings hauled away for disposal must contain the approval letter from the landfill stating the waste has been approved as well as a non-hazardous waste manifest signed by the certification designator. Copies must be obtained from the landfill for record keeping purposes.

## **6.0 SAMPLING PROCEDURES AND ANALYSIS**

Sampling of drill cuttings must meet criteria as outlined in COGCC 900 series rules and regulations as well as EPA methods and criteria.

### **6.1 SAMPLING PROCEDURES**

Three (3) samples will be collected from raw drill cuttings off the shaker unit on the drilling rig from various depths and intervals from each geological formation below ground surface (bgs). Sampling personnel will work with drilling supervisors to determine the depths of each well and collect samples when drilling is at the correct interval.

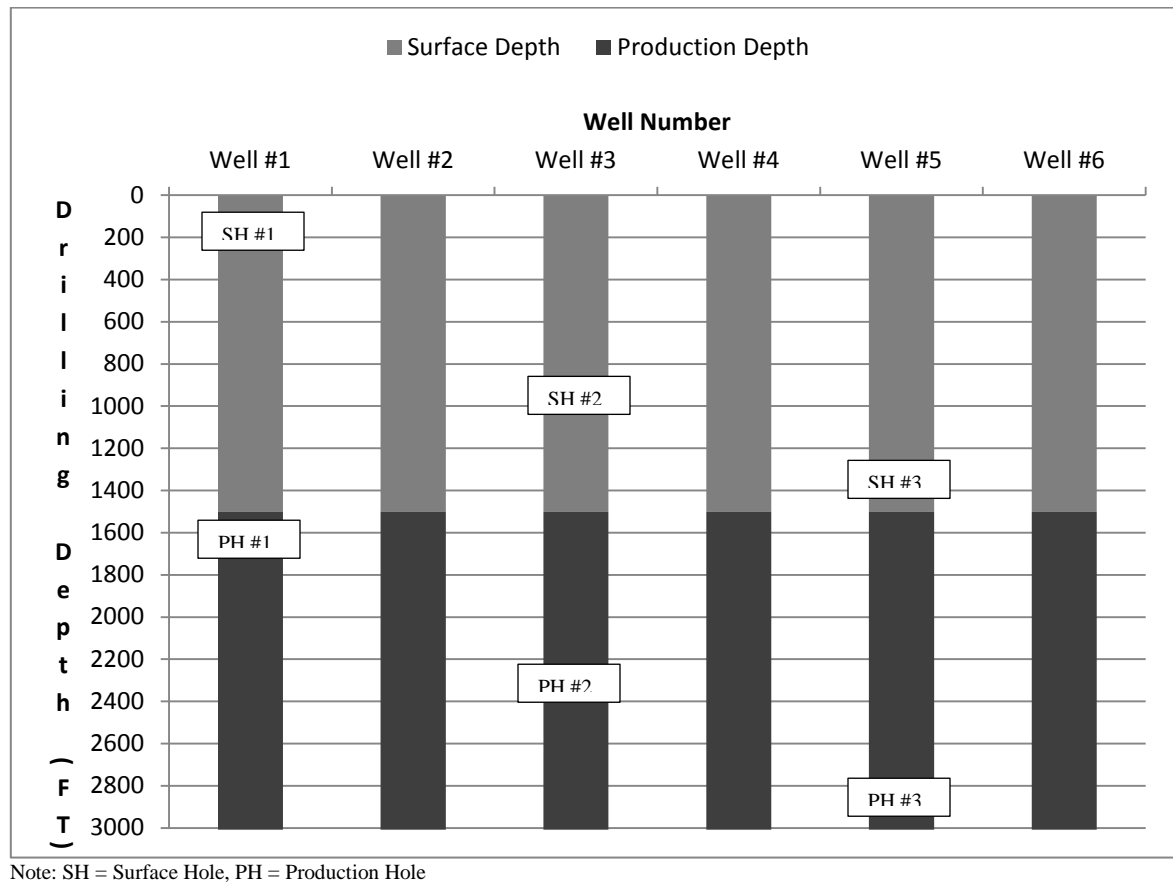
Example: If it is proposed to complete 6 wells on a pad to a total depth of 3,000ft, with surface drilling stopping at 1,500ft. Cuttings samples will be collected from the following intervals and wells

Ursa Operating Company LLC  
Burckle Cuttings Staging Area Management Plan

Surface Composite Sample #1 – Well #1 sampled between 300-400ft bgs  
Surface Composite Sample #2 – Well #3 sampled between 900-1000ft bgs  
Surface Composite Sample #3 – Well #5 sampled between 1400-1500ft bgs

Sampling of the production zone cuttings will occur in the same layout and intervals as outlined above to obtain a true representative sample.

Below is a diagram to outline the depth of the wells and the location at which the samples from each geological formation (surface hole, production hole) will be collected. Each geological formation will have a separate composite sample collected.



Each sample will be properly preserved until all three samples are collected. Holding times will not exceed the standards set by the lab, which is typically 14 days. Once all three samples are collected from the correct interval, the cuttings will be composited to make one true representative of the surface cuttings prior to solidification amending.

The composite sample will represent all cuttings generated for the wells drilled within the corresponding geological formation and is not to exceed 1,500 cubic yards. If it is determined that the total volume of raw cuttings will exceed 1,500 cubic yards, an additional COGCC Table 910-1 sample will be collected for volumes greater than 1,500 cubic yards.

Samples will be collected prior to any solidification, amending, or introduction of absorption materials and composited together to make some sample. Collecting samples prior to solidification or introduction of absorption agents will prevent the interference of organic carbon.

Samples must be collected and placed within the proper sampling containers and stored on either ice or within a refrigeration unit to preserve the sample to 4°C. Samples will be submitted to a NELAP accredited lab for constituents outlined in COGCC Table 910-1.

Once samples have been collected and submitted for analysis, solidification may occur and cuttings may be stockpiled onsite or staged on the Burckle Cuttings Staging Area with an approved Form 4, while analytical analysis are being completed.

## **6.2 SAMPLING ANALYSIS**

Samples will be submitted to the lab for constituents outlined in COGCC Table 910-1. Once analytical results are completed, the following steps may be followed.

- Satisfy COGCC Table 910-1  
If analytical results indicate that the drill cuttings satisfy COGCC Table 910-1 standards, then no additional sampling will be necessary. The raw cuttings analytical data will be submitted to the COGCC via Sundry Form 4 and beneficial reuse will be requested.
- Exceed COGCC Table 910-1  
If analytical results indicate that the drill cuttings exceed COGCC Table 910-1, then the cuttings will need to be profiled for disposal, or a Form 4 drafted and submitted to the COGCC requesting to take the cuttings to the Burckle Cuttings Staging Area for additional amending.

## **7.0 BENEFICIAL REUSE**

Beneficial is defined as: using the treated drill cuttings beneficially on an Ursa owned location or provided to property landowner for beneficial reuse. Below are the requirements for each scenario:

- Ursa Owner Property – Approval from the COGCC must be obtained via Form 4 to beneficially reuse cuttings on an Ursa owned location. Details must include the analytical results showing the cuttings (raw or amended) meet COGCC Table 910-1. A detailed description of where the cuttings reuse is being requested and the method of application (fill material, land application, and backfill excavations). Cuttings are not allowed to be transported or placed on any Ursa location until approval has been given by the COGCC and Ursa management.



- Landowner Reuse – To provide cuttings to the landowner for which the wells were drilled, approval must be provided by the COGCC via Form 4 as well as a written statement from the landowner stating they agree to take ownership of the cuttings and outline the beneficial reuse desired. As this is an Ursa generated waste, detailed documentation must be provided to ensure that the cuttings are being used appropriately and will not disrupt stormwater or surface water flow, as well as any local or federal guidelines.

## **8.0 TRAINING AND INSPECTIONS**

Personnel working on-site, arriving on site, and assisting in the cuttings management on the Burckle Cuttings Staging Area, or the well pad the cuttings are being generated must be properly trained in the information outlined above to ensure that all cuttings transferred to and from the site are properly managed and documented.

### **8.1 SITE SPECIFIC TRAINING FOR AUTHORIZED PERSONNEL**

Companies assisting with the cuttings management must ensure their employees are properly trained and knowledgeable in the site specific layout and staging system. It is critical that drivers ensure they are keeping accurate truck tickets and ensuring the information they provide on the sign in sheets cross reference the truck tickets.

### **8.2 WEEKLY INSPECTIONS**

Ursa management personnel may perform weekly site inspections to ensure that the information listed above is being implemented and followed throughout the site. If it is determined that the steps listed in the Plan are not followed, then additional course of action will be decided upon by Ursa management personnel.

## **9.0 ENVIRONMENTAL CONCERNS**

Environmental concerns such as contamination to groundwater and the potential to threaten surface water were conducted through a sensitive area determination (SAD). On-site observations as well as topographical reviews were all tools used to evaluate the environmental concerns.

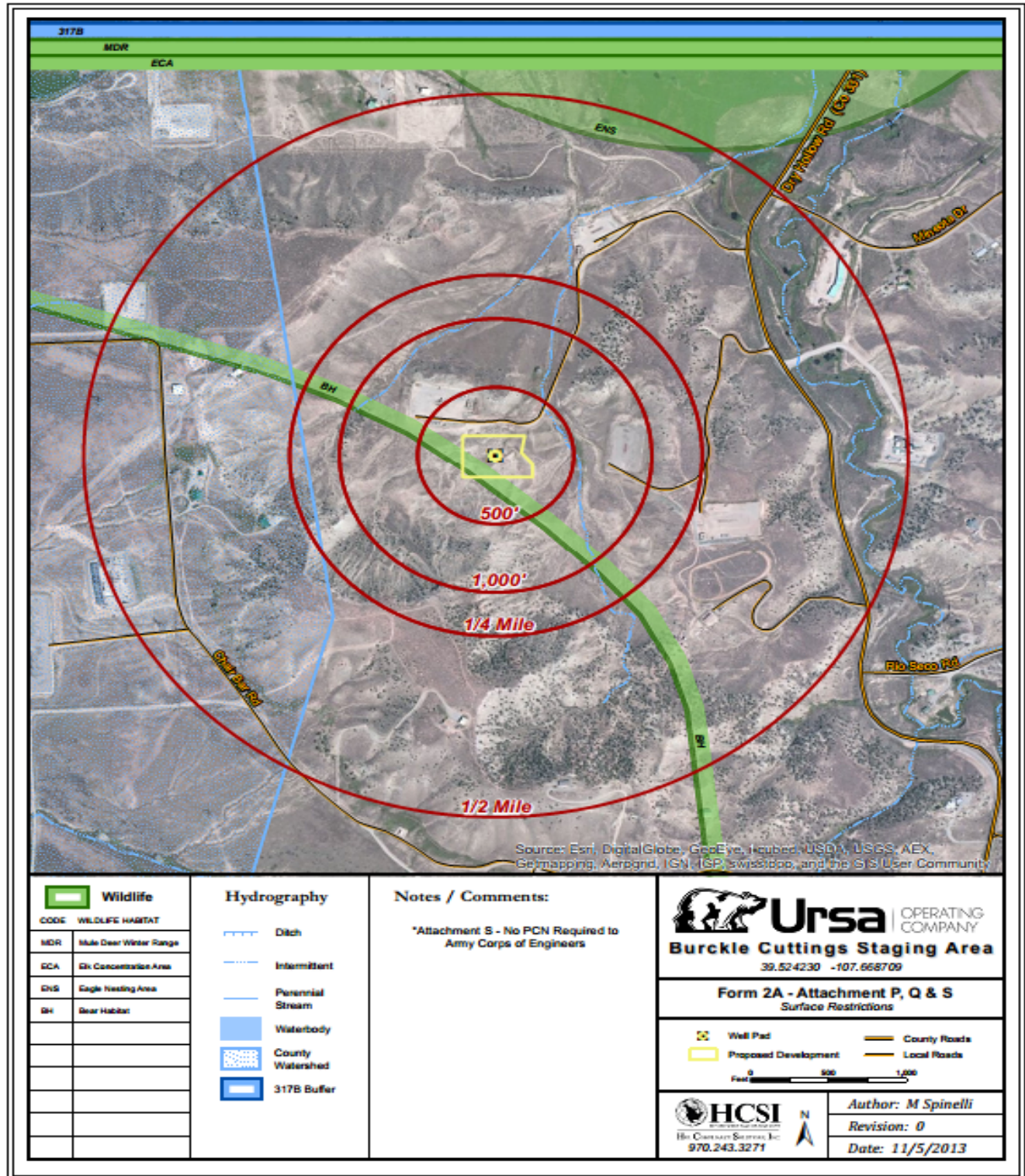
### **9.1 GEOLOGICAL**

Based on the SAD completed on October 23, 2013, it was determined that this location is not designated as a sensitive area. Geological formations consist of low permeability shale, siltstone, and sandstone, which present a very low potential for vertical migration of contamination. Groundwater was encountered at a nearby well at approximately 180ft below ground surface, placing the groundwater within the Wasatch Formation.

Based on the information collected during the site visit and desktop review, the greatest potential for impacts is to the non-USGS identified ephemeral drainage feature located adjacent to the northern side of the proposed facility. However, based on observations during the site visit, it was determined that the unnamed ephemeral drainage has no hydraulic connection to any live flowing surface water. If a release were to impact the drainage it would either infiltrate into the channel bottom soils or flow to the north approximately 1,614 feet where it is diverted to the east. At that point, the drainage feature becomes non-existent as it empties out into a heavily vegetated relatively flat lying field. Therefore, the potential to impact any live flowing surface water would be deemed to be very low.

Best Management Practices (BMP's) outlined in Attachment M of the Form 2A illustrates the constructed measures to prevent surface water impacts from stormwater run on and run off. BMP's such as catchment basins to the north, and diversion ditches to direct stormwater flow from the adjacent hillsides around the facility will prevent contamination and migration off the facility. Frequent inspections of the BMP's will ensure all materials transported to the site will stay within the boundary lines as outlined in the Facility Layout Map in the following section.

## 10.0 SITE LAYOUT MAP



ATTACHMENT A

Cuttings Management Decision Matrix

