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Cottonwood/Wilberg Revised Reclamation Plan

Steve Christensen <stevechristensen@utah.gov> Tue, Sep 13, 2016 at 4:53 PM
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Good afternoon Dennis,

As we discussed, I've attached a document with outstanding concerns/issues that OSMRE and DOGM have identified relative to your most recent informal amendment to the Cottonwood/Wilberg reclamation plan.

At this point, I'd recommend that prior to submitting an amendment for formal review, we have a quick conference call and discuss the issues in the attached document.

Feel free to give me a call if you have any questions.

Regards,
Steve

–
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OSM_DOGM Comments_Concerns Prior to Formal Submital.pdf
249K

Cottonwood/Wilberg: Revised Reclamation Plan

I. Context/Background

a. 1985 court case established regulatory frame-work that sediment ponds aren't necessarily BTCA for controlling sediment.

b. The standard/findings that DOGM must make for the proposed reclamation plan revision at the Cottonwood/Wilberg Mine Site are:

   i. The mine/reclamation plan has been designed to prevent additional suspended solids from leaving the permit area.

   ii. The mine/reclamation plan has been designed to prevent material damage to the hydrologic balance.

II. OSM comments/concerns prior to formal submittal:

1. The primary concern is the storm flow from the adjacent undisturbed areas (i.e. flows that would not report to the 6-7 rock-lined channels that would be established on the reclaimed side slopes of the mine-site). OSM is concerned about this flow reporting directly to the newly constructed pocks. The current model submitted for review does not take into account the undisturbed flow that would report to the pocks below the cliff faces. Provided two suggestions:
   a. Update model with "worse-case" scenario (i.e. model the largest undisturbed water-shed area that does not report to one of the rock-lined channels) or
   b. Design/construct some type of rock-lined channel/diversion around the pocked area at the toe of the cliffs so that the undisturbed drainage wouldn't report to the pocks.
2. 2nd concern is the rip rap sizing. It's important that the rip rap installed in the newly established channel be diverse enough in size so as to insure proper locking of the rip rap (i.e. an assortment of large, medium and small sizes of rip rap).

III. DOGM comments/concerns to be addressed prior to formal submittal

a. Appendix D 'Precipitation data and other calculations'

i. The NOAA Atlas 14 document highlights a 100 yr 24 hr event, however in subsequent calculations a 100 yr 6 hr event is used as the worst case scenario. This must be made consistent.

ii. Analysis: p. 5 'Runoff from Undisturbed Area above Disturbed'. Pock volume calculations assume runoff volumes from upgradient undisturbed hillslopes are distributed equally among pocks at the disturbance interface. This is not a reasonable assumption because contributing hillslope lengths vary due to the peaked shaped of contributing areas.
Finding: The amendment must provide calculations addressing the worst case scenario of runoff volumes from undisturbed hillslopes. Calculations must show large pocks are able to control runoff volumes from the longest hillslope lengths, which appear to be upwards of 900' in area IBA-4.

iii. Analysis: Hillslope areas and channel networks were calculated using a, '30 meter DEM and the TOPAZ model to build a channel network' for Grimes Wash (WEPP Watershed Online GIS; http://forest.moscowfsl.wsu.edu/fswepp/). Contributing undisturbed hillslope areas are determined to be:

1. IBA-1 = 5.1 ac
2. IBA-2 = 2.7 ac
3. IBA-3 = 7.6 ac
4. IBA-4 = 17.6 ac
5. IBA-5 = 4.7 ac

The amendment appears to underestimate the contributing undisturbed hillslope areas by half an acre to as much as seven acres for hillslopes IBA-1 through IBA-4.
Finding: The amendment must detail the method(s) used for determining the areas of undisturbed hillslope and sub-catchments. The method(s) must clear up these discrepancies found in contributing areas.

b. Appendix E 'RUSLE – Comparison of Sediment Control Management Practices'

i. Analysis: Sediment erosion was modeled for undisturbed hillslopes contributing to the reclaimed area using WEPP Watershed Online GIS (http://forest.moscowfsl.wsu.edu/fswepp/). LS-3 –

c. Appendix F 'Hydrologic Calculations'

i. Analysis: The rip rap design in Figures 2 and 3 is inadequate. Rip rap within reclaimed channels must be twice the depth of the D_{50}. This reduces channel flow shear stresses on the underlying filter bed preventing failure of the filter bed and subsequent channel failure(s).

Findings: The depth of rip rap in Figures 2 and 3 must be increased to be twice the depth of the D_{50} placed in the channel.

ii. Analysis: The sections of reclaimed channel most prone to knickpoint failure will be at the confluence of the left and right forks along the main channel and the confluence of subcatchment channels with the main channel. It will be critical to reduce shear stress on the channel bed and banks above, at, and below these junctions. Has the Permittee considered incorporating large woody debris into the reclaimed channels to help prevent failures? Incorporation of LWD similar to the channel reclamation designs at the Deer Creek mine may help increase reclamation success.

iii. Table 2 needs a more detailed narrative. It appears the table is divided by rain event size, but this should be made clear. 'Filter gradation check' needs a narrative describing the process.

d. 'Plate 4A'

i. Silt fences are the only acceptable form of treating runoff during reclamation. Designs of a properly installed silt fence with a cleanout schedule must be provided.

IV. As discussed during the field visit in July, OSMRE strongly encourages PacifiCorp to install remote ISCO samplers to begin capturing sedimentation values for the site.