Attachment 2.04.9-6
NRCS Prime Farmland Evaluation Letters

NRCS Designation of Prime Farmland on NH2.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
Jim Boyd, Resource Conservationist
P. O. Box 29
Norwood, CO 81423

jim.boyd@co.usda.gov
970-327-4245-OFFICE
970-327-4247-FAX

August 4, 2009

Dan Mathews
Division of Reclamation, Mining and Safety
101 S. 3rd Street, Suite 301
Grand Junction, CO 81501

Dear Dan:

This letter is to further clarify our prime farmland soils designations for the New Horizon #2 Mine.

The NRCS definition of prime farmland is as follows:

"Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slopes range mainly from 0 to 6 percent."

The Morgan fields that NRCS designated as prime farmland meet the soil criteria in the definition, and have a history of irrigation, as evident from aerial photography. All prime farmlands are subject to water availability, and we suppose that the historic irrigation on the Morgan property was "adequate and dependable" to produce a crop economically.

The NRCS believes that all areas of prime farmland soils on the mine property should be reclaimed using the special soil handling procedures we have worked on together for the past 2 years. If, during reclamation, there are portions of these prime farmland soils where adequate irrigation water is not available to grow a crop, then technically they lose their prime farmland status. In this situation, it is unrealistic for these areas to be held to a cropland production goal. Alternatively, the reclaimed vegetative community could be a mixture of drought tolerant grasses and forbs, and designated as dryland pasture. If, at a latter date, adequate irrigation water becomes available for these lands they would again be considered prime farmland, particularly since the soils have been reclaimed accordingly.

Sincerely,

Jim Boyd

Jim Boyd, NRCS Resource Conservationist

Original Soil Conservation Service Prime Farmland Determination 1992

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
P. O. Box #488
Norwood, CO 81423
(303) 327-4245

October 14, 1992

C.A. Boudreau
Greystone
5990 Greenwood Plaza Blvd., Suite 104
Englewood, CO 80111

Andy:

Enclosed is a San Miguel Area Soil Survey map of the New Horizon Mine and surrounding area. I have also enclosed narrative descriptions of the five soil map units that occur within the mine boundary.

There is no prime farmland within the boundary of the proposed mine. One of the mapping units, Barx fine sandy loam, has the potential to be prime if it is irrigated with an adequate and dependable supply of water. Based on my October 13, 1992 visit to the site and experience with available irrigation water supplies in this area, the Barx unit is not prime.

Please let me know if you have questions or if I can be of further assistance.

Sincerely,

Dean

Dean R. Stindt
District Conservationist

Monday, June 28, 2010 (5).max

Attachment 2.05.4(2)(e)-9-4

David Dearstyne Prime Farmland Definition Letter 2008

United States Department of Agriculture

NRCS
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Montrose, CO 81401

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Feb. 11, 2008

At the request of Jim Boyd, District Conservationist out of Norwood Colorado, I would like to address the following topics; 1) Definition of Prime Farmland. 2) Levels of Soil Survey 3) Similar Soils. These topics are related to a project that would involve reclamation of possible Prime Farmland after a mining operation.

1) The attached document defines Prime Farmland and gives the criteria for designation. In the report "Order One Soil Survey" for New Horizon Mine, March 1998 by Intermountain Resource Inventory Inc, James Irvine author, there is a statement on page 14 that was quoted from the document "Colorado Important Farmland Inventory" that I would like to address. In the Colorado Important Farmland Inventory document, it states that prime farmland designation in Colorado would not be given to any soil with a pH of over 7.4(see page 3 item 4 of this document). This statement, in the same document, does not agree with the statement on page 2 item 3 for the national requirements for prime farmland. If the criteria of pH 7.4 were applied, then it would eliminate over 90 percent of the soils currently designated prime farmland on the west slope of Colorado. According to the statement from the National Soil Survey Handbook developed for Soil Survey and the Natural Resource Conservation Service, the designation of Prime Farmland is a tool developed by NRCS (NSSH 657.1) for the purpose of "the nation needs to know the extent and location of the best land for producing food, feed, fiber..." If one examines the soil survey that contains the soils information for the area in question, map unit Barx fine sandy loam, 1 to 3 percent slopes is designated as prime farmland in the accompanying table (see attached).

In order to discover in depth the apparent discrepancy in the document "Colorado Important Farmland Inventory", I contacted the MO6 regional Soil Survey Office in Lakewood Colorado who has oversight of this soil survey. I was informed in my conversation with the staff located there of two things concerning this statement and document. First, the statement on page 3, item 4 was in error and should read 8.4. Secondly, the document in question (Colorado Important Farmland Inventory was put together sometime around 1980 and is now rendered obsolete. That any and all determinations for Prime Farmland would tie directly back solely to the national criteria.

2) Levels of Soil Survey were developed to best meet the needs for soils information of the present and foreseeable future needs for resource management. Soil surveys in Colorado have, to my knowledge, been conducted using two levels of soil survey (level 2 and level 3). Levels of soil survey are determined by use and can be found in the Soil Survey Manual (Agricultural Handbook 18 (USDA)) on pages 47-56. In this book it lists the 2nd order of Soil Survey for "agricultural" and the 3rd order for "range". It also states on pages 55-56 that there may be two orders of soil survey mapping within a survey area. On page 48 it states that 1st order survey is for "very intensive (i.e. experimental plots, individual building sites)". Keep this statement in mind as we discuss similar soils. Based upon Soil Survey Manuel directives and information that the area under consideration was in agriculture at the time, it is probably safe to conclude that the Barx soil in the area was mapped at an order 2 intensity of examination.

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3) Similar soils are by definition two or more kinds of soils that can be separated using the tools (soil taxonomy) of soil survey, that for all intensive purposes would have no significant impact of use and management for current or foreseeable future uses. If one examines the map unit 14, Barx fine sandy loam, 1 to 3 percent slopes from the San Miguel Soil Survey (see attached), it states "Barx and similar soils 85 percent". Now if you examine the two official soil series descriptions for Barx and Darvey – the soil described in the Intermountain report (see attached documents), these soils have really only one difference. One soil has a horizon that has evidence of translocated clay (Bt) in the form clay illuviation and an increase in clay of at least 3 to 6 percent from the overlying horizons (Barx) compared to a soil (Darvey) that does not exhibit this clay increase. However, both of these soils have the same amount of clay for classification purposes (fine-loamy) and the same amount of calcium carbonate (calcic). In other words, these soils would be considered "similar soils" for the purpose of agriculture (present use). There are no significant use or management differences for these two soils.

Another thing to point out is the fact that there isn't any particle-size analyses data on any of the soil samples listed in the report from Intermountain. This would tend to indicate that texture was probably estimated in the field by the "ribbon method". From over 20 years experience as a soil scientist hand texturing tens of thousands of samples, and comparing some of these clay estimates to laboratory run samples, an experienced soil scientist familiar with the area, can hope for at best with hand texturing, a clay estimate accuracy within 3 to 5 percent actual clay content about 85% of the time. This accuracy is the margin of error between calling a horizon a Bt – argillic and a Bw – cambic.

And last, if Intermountain conducted an order one soil survey as indicated, these two soils (Barx and Darvey) would, if distinguishable in the field, be separated for the intensity (order one) of the survey conducted. These two soils still (even separated) have no significant difference for agricultural purposes.

The only reason that Darvey was not included in the Prime Farmland list for the San Miguel Soil Survey is that the Darvey soil was not identified and mapped within the survey area. If Darvey had been identified and mapped under the same slope, and not used for urban uses, it also would have been identified as Prime Farmland (once again a similar soil to Barx).

David A. Dearstyne
Soil Scientist-Project Leader
USDA-NRCS

United States Department of Agriculture

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June 27, 2008

Division of Reclamation, Mining and Safety
Department of Natural Resources
101 South 3rd Street, Suite 301
Grand Junction, CO 81501

Re: New Horizon Mine, Permit No. C-1891-008
TR-57 – Prime Farmland Designation

Dear Concerned Parties:

According to the United States Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS) definition of Prime Farmland, the 3.52 acres of Begay soil (map unit symbol 98A) on the Western Fuels-Colorado property in the far northwest corner of the permit area is officially considered Prime Farmland.

On the other hand, the small areas of Darvey-Barx (98E) and Begay (98A) soils on the Lloyd and Benson properties north of BB Road and west of 2700 Road are not considered prime farmlands for the following reason: historically, these areas were not managed as cropland and lacked sufficient water for proper irrigation.

If you have any questions regarding this determination or need further assistance please contact me.

Sincerely,

Jim Boyd

Jim Boyd, NRCS Resource Conservationist

CC. Greg Lewicki and Associates
Western Fuels-Colorado