GCC Energy

"Safety as a Value"

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GCC Energy, LLC
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July 12, 2017

State of Colorado
Division of Reclamation, Mining & Safety
1313 Sherman St., Room 215
Denver, CO 80203

Attn: Rob Zuber, Environmental Protection Specialist II

Re: GCC Energy, LLC
King II Mine
CDRMS Permit # C-81-035
Permit Renewal 07 (RN-07)
Preliminary Adequacy Review #1 Response

Dear Ms. Reilley:

This submittal is in response to your letter of May 15, 2017, "King Coal Mine, PAR for RN-07".

The Division's adequacy items are reprinted as received. GCC Energy responses are shown below each adequacy item in bold type. A replacement page schedule is attached for your convenience.

King I Issues

Adequacy Item #1
KI Section 2.03.4
Please resubmit the list of officers with the latest information. This will insure that the information held by the Division matches that held by GCC.

GCCE July 12, 2017:

King I Section 2.03.4 pages 1 thru 3 are attached with the latest list of officers. For those persons not yet assigned AVS Numbers, please advise us when numbers have been assigned so we can update said pages prior to final approval.

Adequacy Item #2
King I Section 2.04.7
Add the relatively new pond on the Huntington Irrigation Ditch and make sure all significant surface water bodies are mentioned in this section. Also, discuss in this section the potential impacts of subsidence on this water body.

GCCE July 12, 2017:

King I Section 2.04.7 pages 7 & 8 have been modified to include a discussion of the Huntington Pond, Huntington Ditch, etc.

Adequacy Item #3
King I Section 2.04.10
Please confirm that the threatened and endangered plant species is current.

GCCE July 12, 2017:
Please find attached as replacement King II Appendix 8(3) an updated report provided by the Colorado Natural Heritage Program (CNHP). The updated report was requested using the legal description of the current CDRMS permit boundary.

Adequacy Item #4
King I Section 2.05.3
Page 2, Paragraph 1 (and other relevant locations): Replace "total disturbed acreage" with "area approved for disturbance" or "actual disturbed acreage" depending on context.

GCCE July 12, 2017:
Disturbed area text has been updated as requested.

Adequacy Item #5
King I Section 2.05.3
Page 2, Paragraph 4 and other locations: Clarify "back-filled gully."

GCCE July 12, 2017:
"Back-filled gully" text has been clarified as requested.

Adequacy Item #6
King I Section 2.05.3
Page 2, Paragraph 6: Clarify the location of the "storage area." Update the existing refuse pile volume and date, and the dates for anticipated refuse production. If appropriate, update the anticipated production rate.

GCCE July 12, 2017:
Storage areas, refuse pile volumes, dates, etc. have been clarified and updated as requested.

Adequacy Item #7
King I Section 2.05.3
Page 2: The Mine Waste Rock Disposal section should discuss the fact that most waste material originates from the area within the OSM permit. This discussion should be written in the context of Rule 4.10.1 (and any other pertinent rules); MR-41, including sampling results if available; and other relevant documents.

GCCE July 12, 2017:
The Mine Waste Rock Disposal section now addresses the OSMRE permit origin of refuse pile material. The MR-41 sampling program is also discussed here.

Adequacy Item #8
King I Section 2.05.3
Page 2, last paragraph: Remove the TR-20 reference. Change the text to something general like "will be addressed in a revision to the permit."

GCCE July 12, 2017:
TR-20 references have been removed as requested.

Adequacy Item #9
King I Section 2.05.3
Page 3, paragraph 6: Be sure Map King I-007 is consistent with the text. If appropriate, remove the reference to the map from the text.

GCCE July 12, 2017:
Text has been modified to be consistent with Map King I-007.

Adequacy Item #10
King I Section 2.05.3
Page 4, paragraph 2: "Permit Area" should be replaced with "Disturbed Area Boundary".

GCCE July 12, 2017:
"Permit Area" text, and actual signage at the King I and King II sites, have been replaced with "Disturbed Area Boundary".

Adequacy Item #11
King I Section 2.05.3
Page 4, paragraph 3: Please clarify the use of the words "topsoil" and "plant growth medium".

GCCE July 12, 2017:
"Topsoil" and "plant growth medium" references have been clarified.

Adequacy Item #12
King I Section 2.05.3
Page 4, paragraph 4: In the context of a topsoil borrow area, please remove the reference to Map King I-007 or update the map to show this feature.

GCCE July 12, 2017:
Page 4, paragraph 4 text has been revised to be consistent with Map King I-007.

Adequacy Item #13
King I Section 2.05.4
The 37,000 gallon water tank has been moved to King II. Please revise text on pages 1 and 2.

GCCE July 12, 2017:
Text has been modified to reflect the move of the 37,000 gallon tank from King I to King II.

Adequacy Item #14
King I Section 2.05.4
Surface Facilities Remaining section: Temporary storage containers and the status of septic tanks should be mentioned in the text. Likewise, any features that are shown on Map King I-007 should be discussed in the text, or, if appropriate, removed from the map. Please update the text to state that the Bathhouse is actually on GCC Energy property. Remove reference to structures that are not within the Permit Area (for example, the "old scale and storage building adjacent to Burnwell #2," which is actually on Jack Wiltse's property and not within the permit area).

GCCE July 12, 2017:
Text has been revised as requested.

Adequacy Item #15
King I Section 2.05.4
Page 3, paragraph 2: Please update this paragraph to reflect current conditions, for example GCC Energy no longer leases water from Mr. Wiltse. Please confirm that the water well off the permit area is actually shown on the map (I cannot see it on current version of map).

GCCE July 12, 2017:
Text has been updated, and Map King I-007 has been modified to reflect the Wiltse Well.

Adequacy Item #16
King I Section 2.05.4
Page 4, Grading and Backfilling: Please update TR-20 references. Please elaborate on the reconstruction of the drainage channels. Will they closely mimic the pre-mining configuration? Will they be armored or grass-lined? Will temporary erosion protection be used (e.g., erosion mats)?

GCCE July 12, 2017:
TR-20 references have been removed and drainage channel configuration has been addressed.

Adequacy Item #17
King I Section 2.05.4
Waste Pile Reclamation section: Please update the reference to section 2.05.3; the name of the section (Waste Pile Design) does not match the name in 2.05.3 (Mine Waste Rock Disposal), and it does not include a detailed description. (The details are in the appendix.)

GCCE July 12, 2017:
References to 2.05.3 have been updated as requested.

Adequacy Item #18
King I Section 2.05.4
Waste Pile Reclamation section: Perhaps a clarification is needed in the text. The second paragraph of this section states that reconfiguration of the waste pile matches the TR-08 design. However, per Map King I-007 the topography of the existing face of the Refuse Pile (the portion near the haul road, which is covered in vegetation) is several dozen feet lower than the topography of this area in Map King I-014.

GCCE July 12, 2017:
Text concerning waste pile configuration and the Refuse Pile has been clarified.

Adequacy Item #19
King I Section 2.05.4
Page 8: Replace CDMG with CDRMS.

GCCE July 12, 2017:
CDMG has been replaced with CDRMS.

Adequacy Item #20
King I Section 2.05.6:
Add to the discussion on subsidence monitoring plan related to surface water bodies and pipelines.

GCCE July 12, 2017:
Surface water bodies and pipelines have been added to the subsidence monitoring plan discussion.

Adequacy Item #21
Map King I-007 shows a waste and plant growth medium storage area between the bath house and ponds. Update this label as appropriate. Perhaps the word "former" should be added to the label. Please explain the label "West Waste Bank (Proposed)" given that TR-20 has not been approved. Also, it would be helpful if this map (and others) indicated the source of the topography lines (e.g., aerial survey in 2015). Update the map to show the topsoil borrow area.

GCCE July 12, 2017:
Map King I-007 has been modified as requested.

Adequacy Item #22
Please explain the reason for the term "Preliminary" on Map King I-015.

GCCE July 12, 2017:
Map King I-015 was created on Mylar material years before digital mapping became the industry standard. Through the various moves from offices and mine-sites over the years, the original Mylars have been lost or misplaced. The remaining copy still contains the word "preliminary", although the map content appears to be accurate as it relates to the original written report.

King II Issues

Adequacy Item #23
KII Section 2.03.4
Please resubmit the list of officers with the latest information. This will insure that the information held by the Division matches that held by GCC.

GCCE July 12, 2017:
King II Section 2.03.4 pages 1 thru 3 are attached with the latest list of officers. For those persons not yet assigned AVS Numbers, please advise us when numbers have been assigned so we can update said pages prior to final approval.

Adequacy Item #24
KII Section 2.03.4
Why is Ute Mountain Tribe listed as a surface owner within the Permit Area? Looks to be a mistake. Maybe it should only be in the list of owners of land contiguous to the permit area.

GCCE July 12, 2017:
The reference to the Ute Mountain Ute Tribe as a surface owner within the Permit Area was listed in error. Text has been modified to correct this oversight.

Adequacy Item #25
KII Section 2.03.4
2.03.4(7) Title says surface only, but coal leases appear to be in list. Please explain or revise.

GCCE July 12, 2017:
Title has been modified to reflect actual ownership status.

Adequacy Item #26
KII Section 2.03.4
Huntington Ranches and BLM should be in the list of contiguous owners, not just the list of owners in the permit area.

GCCE July 12, 2017:
Huntington Ranches and BLM have been added to the list of contiguous owners as noted.

Adequacy Item #27
KII Section 2.03.4
2.03.4(9) Should Dunn/Ute/Stephens area in Section 31 (T35N, R11W) be included in this description?

GCCE July 12, 2017:
The Dunn/Ute/Stephens lease in Section 31, T35N, R11W was permitted with OSMRE as permit #CO-0101A. This permit underwent Phase III bond release, approved February 6, 2004, so it has not been included in section 2.03.4(9).

Adequacy Item #28
KII Section 2.03.6
Based on TR-24 correspondence, it appears that the value 640 acres should be 694.2 acres.

GCCE July 12, 2017:
Colorado Lease CO-3388 encompasses an actual acreage of 694.2 acres. Text has been modified to reflect this data.

Adequacy Item #29
KII Section 2.03.8
Please check to see if table needs to be updated. It appears that an acre needs to be added to the approved disturbance (from TR-26).

GCCE July 12, 2017:
The table on King I and King II 2.03.8 pages 1 has been modified to reflect the approved disturbance from TR-26.

Adequacy Item #30
KII Section 2.03.9
In the address, change Mined Land Reclamation Division to “Coal Regulatory Program.”

GCCE July 12, 2017:
Text has been revised as noted.

Adequacy Item #31

KII Section 2.03.10

Regarding the addresses, the "Colorado Department of Health" is now the "Colorado Department of Public Health and Environment," and the Water Quality Control Division address is 4300 Cherry Creek Drive South, WQCD-B2, Denver, CO 80246. GCC should also update any other outdated addresses.

GCCE July 12, 2017:

Mailing addresses in King I and King II section 2.03.10 PAPs have been updated as requested.

Adequacy Item #32

KII Section 2.04.4

The first two paragraphs of this section state "No cultural or historic resources eligible for listing … were identified in the survey." Should this statement be added to the third paragraph as well?

GCCE July 12, 2017:

2.04.4 paragraph 3 has been revised to include reference to the findings of Stratified Environmental and Archaeological Services in regard to the TR-26 monitoring well sites.

Adequacy Item #33

KII Section 2.04.7

The discussion on surface drainage channels should be expanded to note that the original channels were filled to make way for the facilities. Language such as "have not flowed during the past year" and "appear not to have run in recent times" is somewhat confusing (when was that written?), and the text should be revised.

GCCE July 12, 2017:

Language concerning the original drainage channels at the King II site has been added to the "Surface Water Information" section of 2.04.7.

Adequacy Item #34

King II Section 2.04.10

Please confirm that the threatened and endangered plant species is current.

GCCE July 12, 2017:

Please find attached as replacement King II Appendix 8(3) an updated report provided by the Colorado Natural Heritage Program (CNHP). The updated report was requested using the legal description of the current CDRMS permit boundary.

Adequacy Item #35

KII Section 2.04.11

A section was added for TR-22. This should be done for TR-26 as well.

GCCE July 12, 2017:

A section has been added to 2.04.11 discussing natural resources surveys for the TR-26 monitoring well sites.

Adequacy Item #36
KII Section 2.05.2
Page 1: Dates should be changed. Production numbers should be changed, as appropriate. What is projection of production?

GCCE July 12, 2017:
Dates, production numbers and projections have been updated to reflect conditions of La Plata County Special Land Use Permit PL2012-0089.

Adequacy Item #37
KII Section 2.05.3
Page 1 (and other relevant pages): Text should be changed where it is antiquated (e.g., "King II will be an underground coal mine", "An access road … is planned").

GCCE July 12, 2017:
Pages have been updated to remove antiquated references.

Adequacy Item #38
KII Section 2.05.3
Page 2 – Per Tom Bird, water is no longer trucked to the site, and the seam dips from 3% to 6%. Please revise the text.

GCCE July 12, 2017:
Updated information concerning water hauling and seam dip has been added to 2.05.3 page 2.

Adequacy Item #39
KII Section 2.05.3
Page 3 – Is "OPERATION PLAN - PERMIT AREA" an extraneous heading? Should this title be at the beginning of Section 2.05.3? The heading "ANTICIPATED PRODUCTION" is repeated.

GCCE July 12, 2017:
Headings and page breaks have been corrected as noted.

Adequacy Item #40
KII Section 2.05.3
Page 5 – There appears to be an error: "settleable" spelled "settable".

GCCE July 12, 2017:
The correct spelling of settleable had been included in the text.

Adequacy Item #41
KII Section 2.05.3
Page 5 - Where is data for discharge from roads? Text says it is sampled. If not, change text and explain. If so, please explain how data is used and if it will be provided to DRMS and/or CDPHE.

GCCE July 12, 2017:
A discussion on stormwater discharge from roads has been added to section 2.05.3 page 5.

Adequacy Item #42
KII Section 2.05.3
Page 6 – Please elaborate on the following statement: "Water is not normally impounded except immediately following storm events or snowmelt." Is this because of evaporation and infiltration? Is there a backup plan to remove water, if necessary, to insure that pond capacity is sufficient?

GCCE July 12, 2017:

2.05.6 page 6 text has been revised to include a discussion of sedimentation pond conditions and practices.

Adequacy Item #43
KII Section 2.05.3
Page 6 – The current text references Map King II-007 and other maps. Please reference Maps King II-007A thru 007C, as appropriate.

GCCE July 12, 2017:

Maps King II-007A thru 007C are now referenced in the text of King II Section 2.05.3, page 6.

Adequacy Item #44
KII Section 2.05.3
Page 6a – The last sentence of the third paragraph is confusing. Perhaps the semi-colon should be a colon, a comma should be placed before "due to", and an "and" should be added before "an overall lack". In the fourth paragraph, perhaps "exploration" should be "exploration and monitoring".

GCCE July 12, 2017:

Grammar and punctuation of section 2.05.3 page 6a has been corrected. Also, section 2.05.3 has been completely renumbered; previous page 6a is now page 7.

Adequacy Item #45
KII Section 2.05.3
Rule 2.05.3 requires a discussion of both coal mine waste and non-coal processing waste. Page 7a should include a discussion of coal mine waste and how it is transported to the Refuse Pile, or, at the very least, contain a reference to another part of the PAP where this is discussed in detail. The discussion on page 8, including the Coal Fines section, does not appear to be a complete discussion of coal mine waste.

GCCE July 12, 2017:

An updated discussion of Mine Waste Rock Disposal has been added to what is now section 2.05.3 page 9.

Adequacy Item #46
KII Section 2.05.3
Page 9 – The date in the footer needs to be updated.

GCCE July 12, 2017:

Page numbering for all of section 2.05.3 has been updated and all pages are included with this submittal.

Adequacy Item #47
KII Section 2.05.4
Please re-submit entire section to insure that DRMS has the latest version.

GCCE July 12, 2017:

Page numbering for all of section 2.05.4 has been updated and all pages are included with this submittal.

Adequacy Item #48
KII Section 2.05.4
Please insure that repeated text (page 6, for example) is removed.

GCCE July 12, 2017:

Page break errors have been corrected where identified in section 2.05.4 and throughout the PAP.

Adequacy Item #49
KII Section 2.05.4
Page 4 – It appears that the footer date is incorrect in GCC's copy of this page (per email correspondence). Please confirm if date should be November 2009 or March 2010.

GCCE July 12, 2017:

Footer dates in all of section 2.05.4 have been updated to the current date, and the entire section has been resubmitted.

Adequacy Item #50
KII Section 2.05.4
Page 9 - Please add more detail regarding the reconstruction of streams. Will they closely mimic the pre-mining configuration? Will they be armored or grass-lined? Will temporary erosion protection be used (e.g., erosion mats)?

GCCE July 12, 2017:

More detail has been added to section 2.05.4, page 9 "Backfilling and Grading" concerning stream reconstruction.

Adequacy Item #51
KII Section 2.05.4
Although not out of compliance, the discussion of the reclamation success standards for total vegetative cover and total herbaceous production found on pages 15 and 16, is written in vague language. It has been the Division's experience that clear concise definitions of the reclamation success standards in the PAP reduces misinterpretation and disagreement at bond release. The Division suggests rewording similar to the language for cover and production on page 23 of the Division's RN-06 findings document.

GCCE July 12, 2017:

Success criteria standards have been included as requested on section 2.05.4 page 16.

Adequacy Item #52
KII Section 2.05.4
Please include the size of the King II reference area for revegetation in the PAP text. (This information was also requested in the last midterm review.)

GCCE July 12, 2017:

The size of the vegetation reference area has been added to 2.05.4 page 15, and Map King II-006 has been updated to more clearly depict the vegetation reference area.

Adequacy Item #53
KII Section 2.05.6
Page 5 – In the second paragraph the text appears to state that there is a connection between the fact that mining is above the aquifer and the low probability of subsidence. Please explain this connection, or re-write the paragraph and discuss the basis for thinking that subsidence, and hydrologic impacts of subsidence, are unlikely.

GCCE July 12, 2017:

Section 2.05.6 page 2, paragraph 2 has been modified to remove the suggestion that the potentiometric surface of Hay Gulch would somehow affect the possibility that subsidence could occur in the area. The Probably Hydrologic Consequences report being prepared using new data obtained from the monitoring wells installed as part of TR-26 will address connections between subsidence and possible effects on area hydrology.

Adequacy Item #54
KII Section 2.05.6
Page 5 – DRMS believes that the statement that no surface drainages from the project area connect to Hay Gulch (third paragraph) is not correct. It appears that runoff from the haul road drains to Hay Gulch (at least indirectly), and this should be discussed in this section, in terms of surface water controls that are used, how SAEs are managed, and the potential impact (or lack thereof) on the water quality and quantity of Hay Gulch. Also, there is the potential for runoff from the entire site to drain to Hay Gulch if a storm (or series of storms) were to exceed the capacity of the King II sediment pond. At the very least, this section should have a short discussion and a reference to other sections of the PAP where surface water management is discussed in detail.

GCCE July 12, 2017:

A discussion of haul road runoff, SAE management and effects on Hay Gulch has been added as requested.

Adequacy Item #55
KII Section 2.05.6
Page 6 (and other relevant pages): Text should be changed where it is antiquated (e.g., "TR-26 proposes" – this was approved and some or all of the wells have been completed or will be soon).

GCCE July 12, 2017:

Antiquated language has been replaced where applicable.

Adequacy Item #56
KII Section 2.05.6
Pages 9 and 10 – It appears that the parameter "Flow" is missing from the tables (a possible discrepancy with page 7). Please explain or revise.

GCCE July 12, 2017:

The parameter "Flow Rate" has been added to the tables on section 2.05.6 pages 9 and 10.

Adequacy Item #57
KII Section 2.05.6
Page 11 – There appears to be three discrepancies between the list of surface water parameters and the Discharge Monitoring Report (DMR) for the first quarter of 2017:

- The list has "Total iron," but the DMR has "Total recoverable iron." These are somewhat different.
- Conductivity is listed in the PAP text but is not in the DMR.
- Oil and grease is on the DMR, but this parameter is not in the list.

Please explain these apparent discrepancies or revise the PAP text accordingly.

GCCE July 12, 2017:

The parameter list on 2.05.6 page 11 has been edited to be consistent with the required NPDES sampling parameters.

Adequacy Item #58
KII Section 2.05.6
Page 11 – The structures list appears to include structures at King I and King II. Given that, it would be appropriate to add the Huntington pond as well as the pipeline. Also, power lines and any other private or public infrastructure should be listed here.

GCCE July 12, 2017:

The Huntington Pond, Huntington Pipeline and other relevant structures have been added to what is now section 2.05.6 page 12.

Adequacy Item #59
KII Section 2.05.6
Page 12 – The first paragraph contains a statement that there is no irrigated pasture land within the King permit area. Is there no irrigation of the portion of Hay Gulch that is within the permit area?

GCCE July 12, 2017:

The statement regarding no irrigated pasture was in error and has been removed from the PAP.

Adequacy Item #60
KII Section 2.06.8
The text states that mine site runoff that is intercepted by the Hay Gulch irrigation ditch does not reach Hay Gulch. Is that correct? Does the water in the ditch get applied to the Hay Gulch pasture land?

GCCE July 12, 2017:

Runoff from the mine site can eventually reach Hay Gulch via the Hay Gulch Irrigation Ditch. Section 2.06.8 has been updated to reflect such.

Adequacy Item #61

The King II Ditch Capacity table in Appendix 11 has some values that do not match the as-built details (Map King II-007B). For example, the depth of the lower portion of CWD-1A is 2.1 feet in the table but 3.0 feet in the details on the map. Please explain or revise.

GCCE July 12, 2017:

The Ditch Capacities table from Appendix 11 has been revised to match the surveyed measurements of Map King II-007B and is included herein.

Adequacy Item #62

King II Appendix 12(1) is listed in the table of contents as a Reclamation Bond Estimate (presumably the same as a reclamation cost estimate) prepared by GCC. However, in the DRMS version of the PAP (both electronic and paper), Appendix 12 does not contain an RCE by GCC. Please help DRMS resolve this discrepancy. Also, should Appendix 12 contain letters from landowners with requests that structures not be demolished? If so, GCC needs to update the table of contents and other portions of the PAP, as appropriate.

GCCE July 12, 2017:

It appears that King II Appendix 12(1) was never actually part of the PAP, but was originally submitted as a guide to assist with the Division's reclamation bond estimate process. All references to Appendix 12(1) have been removed from the PAP and the Table of Contents has been modified.

Adequacy Item #63

On Map King II-001, the hatching implies that the area in the northwest corner (in Section 26 of T35N, R12W) is part of both the DRMS permit and part of the OSM permit. Please explain or revise.

GCCE July 12, 2017:

The hatching on Map King II-001 has been modified to clarify the division between the DRMS and OSMRE permits.

Adequacy Item #64

On Map King II-002, it is unclear where the line between Wiltse property and GCC property is located. Please clarify since it is not clear on this map if some of the Wiltse property is within the permit area or if he is only an adjacent property owner.

GCCE July 12, 2017:

The line between the Wiltse and GCC properties on Maps King I and King II-002 has been clarified.

Adequacy Item #65

Map King II-005, Mine Plan Map, should be updated to reflect current conditions. For example, projected panel development should not include year 2016.

GCCE July 12, 2017:

Map King II-005 has been updated to reflect current conditions.

Adequacy Item #66

The Map King II-010 series - Please verify that the pre-mining stream had a very small channel (depth of approximately a foot) at the low end of the site, below the sediment pond, but it was much deeper (approximately six feet) further up the valley. The cross-sections imply this, and also indicate that the post-mining topography will mimic this.

GCCE July 12, 2017:

A pre-disturbance aerial survey performed on November 24, 2005 confirms that the pre-mining topography for the entire site had been greatly modified by historical agricultural processes, and the stream channel at the low end of the site was, in fact, extremely shallow before it joined the historic deeper channel which connects with the Hay Gulch Irrigation Ditch. It is expected that post-mining topography will attempt a somewhat more defined channel to more closely reflect what probably existed prior to mankind's influence on the site.

Please find attached a page replacement schedule which details the various replacement and newly added text pages, appendices, and maps which are attached to this submittal.

Please contact Tom Bird at 970.385.4528 x 6503 with questions or comments.

Sincerely,
Tom Bird

Manager of Coal Services
GCC Energy, LLC

GCC Energy, LLC, Permit Renwal RN-07, Replacement Page Schedule

7/12/17	Replace:	With:	New:	Remove:
King I Text Pages	King I Cover Page MR-43, 11/14/2016	King I 0 Cover Page, RN-07, 07/11/2017		
	King I 2.03.4 page 1, 11/14/2016	King I 2.03.4 page 1, 07/11/2017		
	King I 2.03.4 page 2, 11/29/2016	King I 2.03.4 page 2, 07/11/2017		
	King I 2.03.4 page 3, 11/10/2016	King I 2.03.4 page 3, 07/11/2017		
	King I 2.03.4 page 4, 11/30/2015	King I 2.03.4 page 4, 07/11/2017		
	King I 2.03.8 page 1, 08/25/2016	King I 2.03.8 page 1, 07/11/2017		
	King I 2.03.10 page 1, 07/14/2015	King I 2.03.10 page 1, 07/11/2017		
	King I 2.05.3 page 2, 08/01/2012	King I 2.05.3 page 2, 07/11/2017		
	King I 2.05.3 page 3, 08/01/2012	King I 2.05.3 page 3, 07/11/2017		
	King I 2.05.3 page 4, 08/01/2012	King I 2.05.3 page 4, 07/11/2017		
	King I 2.05.4 page 1, 08/01/2012	King I 2.05.4 page 1, 07/11/2017		
	King I 2.05.4 page 2, 08/01/2012	King I 2.05.4 page 2, 07/11/2017		
	King I 2.05.4 page 3, 08/01/2012	King I 2.05.4 page 3, 07/11/2017		
	King I 2.05.4 page 4, 08/01/2012	King I 2.05.4 page 4, 07/11/2017		
	King I 2.05.4 page 8, 02/2007	King I 2.05.4 page 8, 07/11/2017		
	King I 2.05.6 page 1, 02/2007	King I 2.05.6 page 1, 07/11/2017		
	King I 2.05.6 page 2, 02/2007	King I 2.05.6 page 2, 07/11/2017		
	King I 2.05.6 page 3, 02/2007	King I 2.05.6 page 3, 07/11/2017		
	King I 2.05.6 page 4, 02/2007	King I 2.05.6 page 4, 07/11/2017		
	King I 2.05.6 page 5, 02/2007	King I 2.05.6 page 5, 07/11/2017		
	King I 2.05.6 page 9,10/13/2016	King I 2.05.6 page 9, 07/11/2017		
	King I 2.05.6 page 10, 10/13/2016	King I 2.05.6 page 10, 07/11/2017		
King I Appendicies				
King I Maps	King I-002 Surface Ownership 08/23/16	King I-002 Surface Ownership 07/11/17		
	King I-007 Op. Plan and Surface Feat. 08/23/16	King I-007 Op. Plan and Surface Feat. 07/11/17		
King II Text Pages	King II Cover Page MR-43, 11/14/2016	King II 0 Cover Page, RN-07, 07/11/17		
	King II 0 page ii ToC, 10/18/16	King II 0 page ii ToC, 07/11/17		
	King II 0 page iii ToC, 10/13/16	King II 0 page iii ToC, 07/11/17		
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	King II 2.03.4 page 3, 11/10/2016	King II 2.03.4 page 3, 07/11/2017		
	King II 2.03.4 page 4, 11/30/2015	King II 2.03.4 page 4, 07/11/2017		
	King II 2.03.8 page 1, 08/22/2016	King II 2.03.8 page 1, 07/11/2017		
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	King II 2.05.3 page 1, 11/2009	King II 2.05.3 page 1, 07/11/2017		
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				King II 2.05.3 page 6a, 10/18/2016
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	King II 2.05.4 page 3, 11/2009		King II 2.05.4 page 3, 07/11/2017				
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	Appendix 11 Culvert-Ditch Capacity Table 04/25/16		Appendix 11 Culvert-Ditch Capacity Table 07/11/17				
King II Maps	King II-001 Permit and Adjacent Areas 08/23/2016		King II-001 Permit and Adjacent Areas 07/11/2017				
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GCC ENERGY, LLC
KING I MINE
PERMIT DOCUMENT
CDRMS MINING PERMIT C-1981-035

Permit Renewal RN-07

July 11, 2017

GCC Energy, LLC
King I Mine
4424 County Road 120
Hesperus, Co. 81326

2.03.4 - IDENTIFICATION OF INTERESTS

GCC Energy, LLC is a corporation, incorporated under the laws of the State of Colorado. GCC Energy, LLC is the operator and permittee of the King I Mine (Formerly MSHA ID# 05-00266) and the King II Mine (MSHA ID# 05-04864), located in La Plata County, Colorado. The King I Mine ceased production and its portals were permanently sealed in January of 2009. GCC Energy, LLC is the entity responsible for payment of abandoned mine land reclamation fees. GCC Energy, LLC is a wholly owned subsidiary of GCC of America, Inc., P.O. Box 636, Wilmington, DE 19899.

GCC Energy, LLC
11783 Highway 337
Tijeras, New Mexico 87059
AVS Entity #247004

Phone: (970) 385-4528 Fax: (970) 385-4638
Federal Employer ID: No. 20-2812006

Formed: Colorado October 22, 2007

Resident Agent CO: Chris Dorenkamp
6473 County Road 120
Hesperus, Colorado 81326
Phone: (970) 385-4528
Fax: (970) 385-4638

Officers of GCC Energy, LLC

Name	Title	Effective Date	AVS #
Ron Henley	**President**	**March 1, 2016**	**255179**
Gina Marie Nance	**Vice President of Environmental & Energy Affairs**	**March 1, 2016**	**259480**
Cesar Conde	**Secretary**	**March 1, 2016**	**252622**
Luis Carlos Chavez	**Assistant Secretary**	**March 1, 2016**	**259481**
Jeff Benson	**Assistant Secretary**	**July 25, 2011**	**252623**
Luis Carlos Arias Laso	**Treasurer**	**May 23, 2017**	**157896**
Jamie Raul Medina Barraza	**Assistant Treasurer**	**May 23, 2017**	

GCC of America, Inc. was incorporated in the state of Delaware on June 16, 1994 and is qualified to do business in Delaware and New Mexico. GCC of America, Inc. (AVS #: 157897) is the sole shareholder and 100% owner of GCC Energy, LLC.

GCC of America, Inc. does not own or control any other surface coal mining operations in the United States. GCC of America, Inc. has not previously owned or controlled any other surface coal mining operations in the United States within the past five years.

GCC of America, Inc. is a wholly owned subsidiary of Grupo Cementos de Chihuahua, S.A. de C.V.

GCC of America, Inc.
P.O. Box 100
11783 Highway 337
Tijeras, New Mexico 87059
Phone: (505) 281-3311
AVS #:157897

Officers of GCC of America, Inc.

Name	Title	Effective Date	AVS #
Ron Henley	**President**	**March 1, 2016**	**255179**
Steve Ambrose	**VP, Sales & Logistics**	**March 20, 2014**	**255176**
Verne Stuessy	**VP, Operations**	**March 1, 2016**	**250273**
Andres Osuna	**VP, Planning & Administration**	**March 20, 2014**	**157894**
Gina Marie Nance	**VP, Environmental & Energy Affairs**	**March 1, 2016**	**259480**
Doug Roark	**VP, Ready Mix & Aggregates**	**March 20, 2014**	**255177**
Edward Hernandez	**VP, Human Resources**	**March 20, 2014**	**255178**
Sergio Saenz	**VP, Legal Affairs**	**March 1, 2016**	**157893**
Cesar Conde	**Secretary**	**March 1, 2016**	**252622**
Luis Carlos Chavez	**Assistant Secretary**	**March 1, 2016**	**259481**
Carlos Lopez	**Controller**	**March 1, 2016**	**255180**
Luis Carlos Arias Laso	**Treasurer**	**May 23, 2017**	**157896**
Jamie Raul Medina Barraza	**Assistant Treasurer**	**May 23, 2017**	

Grupo Cementos de Chihuahua, S.A. de C.V. is the sole shareholder and 100% owner of GCC of America, Inc.

Grupo Cementos de Chihuahua, S.A. de C.V.
P.O. Box 100
11783 Highway 337
Tijeras, New Mexico 87059
Phone: (505) 281-3311
AVS #: 157898

Officers of Cementos de Chihuahua, S.A. de C.V.

Name	Title	Effective Date	AVS #
Enrique Escalante	**Chief Executive Officer**	**March 1, 2016**	**157891**
Luis Carlos Arias Laso	**Chief Financial Officer**	**May 23, 2017**	**157896**
Sergio Saenz	**General Counsel**	**April 3, 2012**	**157893**

2.03.4 (6) – Surface & Coal Ownership within the Permit Area

Huntington Ranches, LLC, 7080 C.R. 120, Hesperus, CO 81326 (Surface & Coal)
Crawford Ranches, 2161 C.R. 121, Hesperus, CO 81326 (Surface)
Crawford, Marc A, Ronald H & Norris H, 2161 C.R. 121, Hesperus, CO 81326 (Surface)
Crawford, Norris H & Ronald H, 2161 C.R. 121, Hesperus, CO 81326 (Surface)
Bureau of Land Management, 2850 Youngfield St., Lakewood, CO 80215-7093 (Surface & Coal)
Colorado State Board of Land Commissioners, 1313 Sherman St., Room 620, Denver, CO 80203 (Surface & Coal)
GCC Energy, LLC, 6473 C.R. 120, Hesperus, CO, 81326 (Surface)
Compton, Patricia Ann Rev. Trust, 1129 C.R. 123, Hesperus, CO 81326 (Surface)
Compton, Thomas Lee Rev. Trust, 1129 C.R. 123, Hesperus, CO 81326 (Surface)
Wiltse, Jack B., 2416 East 20th, Apt. J5, Farmington, NM 87401 (Surface)
Four Daughters Coal: P.O. Box 114, Caspar, CA 95420 (Coal)
Richard Tipotsch, et al: Deceased, no known address (Coal lease relinquished)
Blast & Cast, Inc.: P.O. Box 543, Silverton, CO 81433 (Surface)
Patterson, Bonnie Eileen, 2161 C.R. 121, Hesperus, CO 81326 (Surface)
Craig, Farmer, Compton Coal Lease:
Tom Compton - 1129 C.R. 123, Hesperus, CO 81326
Mary Ann Craig – P.O. Box 1047, Durango, CO 81302
Farmer Oil & Gas - 17235 N. 75th Ave., Suite C160, Glendale, AZ 85308
Kambe Coal Lease: Tom Kambe, Jr. - 899 Marina Dr., Napa, CA 94559

2.03.4 (7) – Surface Ownership Contiguous to the Permit Area

Huntington Ranches, LLC, 7080 C.R. 120, Hesperus, CO 81326 (Surface & Coal)
Bureau of Land Management, 2850 Youngfield St., Lakewood, CO 80215-7093 (Surface & Coal)
Compton, Patricia Ann Rev. Trust, 1129 C.R. 123, Hesperus, CO 81326 (Surface)
Compton, Thomas Lee Rev. Trust, 1129 C.R. 123, Hesperus, CO 81326 (Surface)
Crawford, Norris H & Ronald H, 2161 C.R. 121, Hesperus, CO 81326 (Surface)
Crawford, Mike, 2161 C.R. 121, Hesperus, CO 81326 (Surface)
Crescent Cross, Ltd. LLLP, 11951 C.R. 120, Hesperus, CO 81326 (Surface)
Wiedemann, Theodore J. & Nancy M., 5960 East Territory Ave., Tucson, AZ 85750 (Surface)
Ute Mountain Tribe, P.O. Box 248, Towaoc, CO 81334 (Surface)
Wiltse, Jack B., 2416 East 20th, Apt. J5, Farmington, NM 87401 (Surface)
Elaine J. Frazier, 2637 Dallas St. NE, Apt. #2, Albuquerque, NM 87110 (Surface)
GCC Energy, LLC, 6473 C.R. 120, Hesperus, CO, 81326 (Surface)
Colorado State Board of Land Commissioners, 1313 Sherman St., Room 620, Denver, CO 80203 (Surface & Coal)
Blast & Cast, Inc.: P.O. Box 543, Silverton, CO 81433 (Surface)
Patterson, Bonnie Eileen, 2161 C.R. 121, Hesperus, CO 81326 (Surface)
Craig, Farmer, Compton Coal Lease:
Tom Compton - 1129 C.R. 123, Hesperus, CO 81326
Mary Ann Craig – P.O. Box 1047, Durango, CO 81302
Farmer Oil & Gas - 17235 N. 75th Ave., Suite C160, Glendale, AZ 85308
Kambe Coal Lease: Tom Kambe, Jr. - 899 Marina Dr., Napa, CA 94559

2.03.8 - PERMIT TERM INFORMATION

The anticipated start of each phase of mining activities is discussed in Section 2.05.2 and 2.05.3 Operations Plan.

The term of the permit shall be for five (5) years from issuance, renewable under the terms of Rule 2.08.5.

The current extent of areas affected by this permit, the anticipated number of acres to be affected during the 5 year term of this permit, and the anticipated number of acres to be affected during the total life of the permit is listed in the following table:

Location	Approved Areas	5 Year Additional	Life of Operation Additional
King I Surface Facilities (Disturbed Area)	23.60 Acres	+ 0 Acres	+ 0 Acres
King II Surface Facilities (Disturbed Area)	22.89 Acres	+ 0 Acres	+ 0 Acres
TR-22 Drill Holes Disturbed Area	2.1 Acres	+ 0 Acres	+ 0 Acres
TR-26 Monitoring Wells Disturbed Area	1.0 Acres	+ 0 Acres	+ 0 Acres
Total Disturbed Area	**49.59 Acres**	+ 0 Acres	+ 0 Acres
King I Affected Area	1392.9 Acres	+ 0 Acres	+ 0 Acres
King II Affected Area	260.7 Acres	+ 0 Acres	+ 0 Acres
TR-22 Drill Holes Affected Area	1.1 Acres	+ 0 Acres	+ 0 Acres
Total Affected Area	**1654.7 Acres**		
Total Permit Area (prior to TR-24)	2615.8 Acres	+ 0 Acres	+ 0 Acres
Total Permit Area (including TR-24 angle-of-draw adjustments)	**2705.4 Acres**	+ 0 Acres	+ 0 Acres

In January, 2009, the King I mine was permanently sealed. The final mine map revealed areas where the potential affected areas lie outside of the permit boundary (due to potential angle-of-draw) as shown at the time. To reflect that change, the permit boundary has been revised with the submittal of TR-24 to show an increased permit area of 89.60 acres. No actual disturbance due to subsidence has ever been noted outside of the previous extents of the permit boundary. The following table provides percentages of surface and mineral ownership with respect to the expanded 89.60 acre permit area.

	Surface Ownership	Mineral Ownership
Federal	0 %	63.76% (57.13 Acres)
State	0 %	0 %
Private	100 % (89.60 acres)	36.24% (32.47 Acres)

2.03.10 - IDENTIFICATION OF OTHER LICENSES AND PERMITS

Attached are the following licenses and permits (See Appendix 2 for copies)

(1) Zoning Compliance
Class II Special Land Use Permit/Road Improvement Agreement
Permit Number: PL2012-0089
La Plata County, Colorado
Planning Department
211 Rock Point Drive, Durango, Co. 81301
Date Issued: July 8, 2016

(2) Emission Permit
Colorado Department of Health Public Health & Environment
Air Pollution Control Division
APCD-SS-B1
4300 Cherry Creek Drive South, Denver, Co. 80246-1530
Permit Number:
09LP0202F - King I, II Facilities
Date Issued: 09/03/13, APEN's Expire: 01/13/2018

(3) Wastewater Discharge Permit
Colorado Department of Public Health & Environment
Water Quality Control Division
4300 Cherry Creek Drive South, WQCD-B2
Denver, Co. 80246
Permit Number: CO-G-850001
Date Issued: June 18, 2008
Expires: June 30, 2013
Administrative Extension: Issued 7/1/2013

(4) Monitoring Well Permit
Office of the State Engineer
Colorado Division of Water Resources
818 Centennial Building,
1313 Sherman St.
Denver, Co. 80203
Permit Number: 260656: Issued: 12/01/2004
Permits 303350 thru 303362: Issued 10/26/2016

shown on Map King I-004. This well was monitored from 2000 to 2007, with no significant changes to the water quality of the well. In 2009, this well was removed from the ground water sampling program based on the lack of downstream effects to the well and the termination of mining at the King I Mine. Down-gradient bedrock monitoring of ground water will resume at least two years prior to submittal of a bond release application. Adequacy of the resumed monitoring for satisfying the requirement to monitor bedrock ground water will require DRMS approval of a Technical Revision.

For a more detailed discussion of water monitoring please see Section 2.05.6.

All wells shown in Sections 28, 29, and 32, T35N R11W and Section 36, T35N R12W lie within the Hay Gulch drainage, topographically below the coal seam outcrop. There will be no Hydrologic effects on these wells or points of diversion.

There will be no impacts downstream of Pine Gulch due to subsidence related depletion of flow. Subsidence could be caused by pillar extraction during retreat, but pillars were not extracted. GCC Energy, LLC has submitted a mining plan showing elongated pillars supporting all entries under the Pine Gulch drainage system. These pillars will not be extracted on final retreat, thereby providing perpetual stability for the Pine Gulch drainage and preventing potential damage to the hydrologic balance outside the permit area. Map King I-012 shows the drainage basin of Pine Gulch above those points proposed to be crossed by mine development is included. The total area of this drainage is approximately 365.5 acres.

Huntington Irrigation Ditch, Pipeline & Pond

Map King I-004 shows the Huntington Irrigation Ditch, the Huntington Irrigation Pipeline and the Huntington Pond. All three features are owned by Huntington Ranches and are located on Huntington Ranch property. All three features overlay worked-out areas of the King I mine in various locations.

The Huntington Ditch was constructed during latter part of the 19th century and typically flows year-round. One section of the ditch overlying an area of King I underground workings was lined during the late 1980s to address potential subsidence cracks that had been noticed in the vicinity. The lined section remains in good condition, and no evidence of subsidence in the area remains.

The Huntington Pipeline has been in place for several decades and has been fed at its eastern end by a small pond located in line with the Huntington Ditch. During the summer of 2016, the pond was enlarged significantly. The enlarged pond has been lined in its entirety using heavy duty industrial pond liner.

The Huntington Ditch and the Huntington Pipeline are inspected quarterly for any subsidence related cracks. No new cracks have been recorded since the mid-1990s, and no signs of subsidence remain.

Quarterly inspections of the Huntington Ditch, Pipeline and Pond will continue until CDRMS approves their cessation.

MOUNTAIN MEADOW

Mountain Meadow describes the alluvial valley floor which is crossed by the haul road which connects County Road 120 with the King I Mine surface facilities area. This haul road will not be reclaimed upon completion of mining.

The valley bottom along Hay Gulch is composed of Mountain Meadow grasses. These valley bottoms are used primarily for cattle pasture with some of the larger areas being cut for hay.

The Mountain Meadow vegetation type tends to occur on soils of Mapping Unit 13-(Big Blue clay loam, 0 to 6 percent slopes). The soils of this mapping unit are deep, poorly drained, and fine textured. The soil's surface layers are dark grayish brown clay loam to silty clay to approximately 13 inches in depth. The subsoil is gray silty clay about 90 inches thick. These soils occur on nearly level to gently sloping low terraces and valley bottoms.

The Soil Conservation Service in the Mountain Meadow range site description indicates this site has an approximate ground cover of 70 percent. The percentage composition by weight of the principal native species may total as much as:

Tufted hairgrass	50
Nebraska sedge	25
Slender wheatgrass	20
Bluejoint reedgrass	5

The total annual production in pounds per acre (air-dry) is:

Favorable year's	4200 pounds per acre (air-dry)
Unfavorable year's	2500 pounds per acre (air-dry)
Median year	3150 pounds per acre (air-dry)

(See Appendix 6(2) for Soil Conservation Service supporting data)

Threatened and Endangered Plant Species

The Colorado Natural Heritage Program (CNHP) at Colorado State University was contacted to undertake a search of their database of natural heritage elements ("occurrences of significant natural communities and rare, threatened or endangered plants and animals") for the area within and 1.5 miles outside the permit area. The results of that search identified only the wolverine (presumed extirpated in Colorado since 1979) and the Townsend's big-eared bat (a species of concern for the BLM and Forest Service). No candidate or federally listed plant species were identified within or adjacent to the permit area. The CNHP report can be found in King II Appendix 8.

OPERATION PLAN - PERMIT AREA

MINE BENCH

The surface disturbed area includes the mine bench, refuse pile and the access road to the mine bench. Total area at the King I mine site approved for disturbance is 23.60 acres. All surface facilities for the support and processing of coal were constructed on the mine bench. No surface mining operations exist on the mine bench; all coal extraction activities were confined to the underground King I Mine.

Map King I-007 shows the permit area which includes the mine bench. Facilities constructed on the bench included office building, bath house, shop, scale house, office trailer, tipple area with coal storage bins, coal stocking (storage) areas, a main fan, 10,000 & 37,000 gallon water storage tanks, a rock dust silo, and a sub-station.

With the exception of the tipple and the main fan construction site, the remaining facilities were erected upon the natural (original) contours of 3:1 slopes. A 1.5:1 sloped highwall was cut to provide a bench for the main fan and the tipple area. The tipple set at the outcrop of the coal seam being mined. A third highwall exists directly south on the mine property with a slope of 1.5:1. The bench created by the earth work here was the site for the shop structure erected in 1981 and removed in 2011.

The highwalls and the eastern drainage containing the Refuse Pile and Plant Growth Medium Storage Area are shown on Map King I-007 and are included within the boundaries of the surface area, approved for disturbance of 23.60 acres.

Diversion channels (See Map King I-007) will divert the up-slope runoff around the disturbed areas. The reclamation plan calls for utilizing the plant growth medium stored in the eastern drainage and re-vegetating these areas upon abandonment of the mine.

MINE WASTE ROCK DISPOSAL

During normal underground mining operations, shale and sandstone break away from the roof and floor of the coal seam. This material was initially removed from the King I mine, and is currently removed from the King II mine and placed in the existing Refuse Pile. Most of the material removed from the King II mine currently originates from the area within OSMRE permit CO-0106A. All mine refuse is being constructed into a Refuse Pile. As of June 2017, approximately 176,000 yd^3 exist. Anticipated refuse production from 2017 through 2022 is approximately 5,000 cubic yards per year. The waste bank is currently designed to accommodate up to 1,000,000 yd^3. Details of design and construction are given in Appendix 10(1) and are entitled Waste Bank Design Summary Report, November 1993, revised December 1997, by Don R. May, P.E. The location of the mine Refuse Pile is shown on Map King I-007 and Mine Waste Pile Design, Plan Layout and Detail Sheet. Standard Proctor tests and nuclear density tests will be performed annually as detailed in Don May's aforementioned report to ensure that the waste pile continues to meet the designed compaction requirements. Should different types of strata be encountered during mining, these tests will be repeated to ensure that no significant changes in compaction are allowed.

MR-41, "Refuse Pile Sampling Plan", was approved September 22, 2016. This revision consisted of sampling several holes bored into the Refuse Pile, as well as several locations underground in and around the active workings of the King II mine. The report produced using the data obtained from this sampling has been submitted to the Division as MR-45, and is included in Appendix 4(8).

HAUL ROAD CERTIFICATION

The haul road which provides access to the surface facilities of the mine has been certified by Don May, P.E. This certification is included in Appendix 10(2).

STEEP CUT SLOPE CERTIFICATION

The steep cut slope located just south of the shop area has been certified by Don May, P.E. This certification is included in Appendix 10(3).

DESIGNED STRUCTURES

All designed hydraulic and waste pile structures located within the permit area have been designed by Don May, P.E., and are included in Appendix 10 and Appendix 11.

SURFACE OPERATIONS - COAL FINES

Conveyor belt transported coal arrived at the surface for crushing, screening, storage, and truck loading. The processing of coal was part of the operation of the surface areas of the King I Mine. Four products were prepared for customer use. They were lump coal (6 inches plus), stoker coal (1 x 1/4 inch), nut coal (3 x 1 inch), and mine run coal (2 inch minus).

In the processing of these coals, fines were created (1/4 inch minus), by crushing and screening. These fines were mixed with mine run coal and sold. Coal fines were not stored on the surface in large amounts before being mixed with the mine run and sold. Of the processed product, about 10% to 15% of the coal is fines.

Mine run, stoker, and lump coal was stored in stockpile areas. Mine run storage may have amounted to 20,000 tons. Storage hoppers or bins on the surface whose individual capacities did not exceed 50 tons, did not permit enclosed stockpiling of all the coal produced. Open stockpiling was necessary, but large stockpiles were undesirable because of the potential of spontaneous combustion of the coal. Care was taken to keep the coal from being scattered. This was not only advantageous from the standpoint of controlling erosion of the pile but also contamination with spoil materials.

FUTURE CONSTRUCTION

No additional cut and fill work will be required for the King I Mine.

SURFACE DRAINAGE AND RECLAMATION

Reclamation of the permit area is covered in Section 2.05.4. The entire disturbed area was required for coal operations - all space was utilized. Plans for abandonment of the mine are discussed in Section 2.05.4.

Surface drainage patterns through the permit area and the up-slope areas are shown on Map King I-007. Details of the diversion channels and piping systems are discussed in Section 2.05.6 and Appendix 11.

Approximately .36 acres of the disturbed area lies below the sediment ponds. Runoff from this area tends to collect and drain along the access road bypassing the sediment ponds. Alternate sediment control measures are being used in this area. These measures consist of the use of rock check dams, rock filters and gravel surface. This area is too small and too flat to run a SEDCAD demonstration. Therefore, GCC Energy, LLC commits to sampling any discharge from this area for Total Settable Solids. This runoff flows into the Hay Gulch meadow. Small Area Exemption #1 has been approved by the Division regarding this area.

SIGNS AND MARKERS

The identification sign designating the mine and required MLRD permit information is located on a chain link fence across the access roadway. This is the only entrance to the mine and is visually apparent to all traffic entering the mine area.

The disturbed portion of the mine permit area is designated, at the perimeter, by signs labeled "Disturbed Area Boundary".

Plant Growth Medium

Plant growth medium is covered in detail in section 2.05.4 (Reclamation Plan).

Since the King I Mine is a pre-law site that began operations in the 1940s, no topsoil was salvaged. However, plant growth medium storage areas have been designated and are shown on Map King I-007.

SEDIMENTATION PONDS EMBANKMENTS

Faces of pond embankments will be stabilized with vegetation. Water is not normally impounded except immediately following storm events or snowmelt. There is no mechanism in place to suddenly draw down the water level.

2.05.4 - RECLAMATION PLAN

ABANDONMENT OF THE MINE: REMOVAL OF SURFACE FACILITIES

The following mine facilities and structures have been removed or demolished:

- Mine portal facilities, shown on Map King I-007, have been torn down. The foundations, steel, and other non-woody material were pushed against the highwalls and covered by at least 4 feet of fill and plant growth medium as detailed elsewhere in this section. Woody material and miscellaneous trash and debris were disposed of by Waste Management, Inc.

- The ***Tipple Building*** was only a "snow shed", of pole barn construction, essentially a tin-covered wooden roof held up by several steel posts. This 60' x 65' structure has no walls and is 1 foot thick.

- The ***Tipple Shed*** measures 16' x 44' x 8', and was a wooden post and beam construction.

- The ***Main Conveyor Portal Shed*** was very similar in construction to the ***Tipple Shed***. This shed measures about 12' x 20' x 8'.

- The ***Tipple Bin*** measured about 15' x 25' 50' and was entirely constructed of steel beams and bolted plate.

- The ***Mine Fan*** was a prefabricated coal mine ventilation fan assembly made up of three main parts. The fan was basically a 6' diameter skid mounted cylinder about 16' long which unbolts from the fan housing. The fan housing was a 5' diameter metal culvert which extends for several feet underground to connect the fan to the mine workings. Adjacent to the fan housing was the escape airlock unit which was a steel box with two sets of airlock doors. This steel box measured about 6' x 8' x 8'.

- The ***Main Conveyor*** was elevated about 7' high and extended about 40 feet from the mine portal, discharging into the ***Tipple Bins*** area. The structure measured about 5' wide by 4' high.

- The ***Stacker Conveyor*** extended about 300' from the ***Tipple Bins*** area to ***Stacker Tower #1***, supported about midway by ***Stacker Tower #2***.

- ***Stacker Tower #1*** was a 50' tall conveyor support tower of steel beam construction. It measures 16' x 16' at the base and tapers to 10' x 10' at the top, with a total volume of 8900 ft^3.

- ***Stacker Tower #2*** was a 25' tall conveyor support tower of steel beam construction. It measures 8.5' x 16' at the base and tapers to 8.5' x 5.5' at the top, with a total volume of 2284 ft^3.

- Two ***500 Gallon Diesel Tanks*** shown on Map King I-007 were the property of the fuel distributor and were removed at no charge.

- One ***Bulk Rock Dust Silo*** was a vertical cylindrical tank, dimensions 12' diameter, 40 tall. The silo was mounted to a concrete pad, 20' long, 20' wide, 2' thick.

- The ***Warehouse Building*** was a double-wide industrial office/utility trailer.

- The ***Scalehouse*** was a cinder block facility measuring 40' x 42' x 10'.

- The ***HR Office Trailer*** was a temporary leased office trailer measuring 12' x 44' x 8'.

- The ***Upper Pump House*** was a frame building measuring 12' x 20' x 10'.

- The ***Substation*** main transformer has been removed. Remaining fencing and concrete will be removed. The remaining power poles act to guy the end of the La Plata Electric power line and will be left in place.

- The ***Shop Building*** was destroyed by fire during demolition activities.

SURFACE FACILITIES REMAINING

- The Bathhouse (a steel sided building measuring 40' x 60' x 18') which lies on GCC Energy property.
- The access road will be left intact at the request of Huntington Ranches. Mr. Huntington has made such a request by letter to the Colorado M.L.R.D. and National King Coal, LLC (See Appendix 12(1)). The steep cut slope area behind the shop building will remain as is to allow for replacement of the destroyed shop building by the surface landowner. This highwall was constructed during the summer of 1976. Don May, P.E., has certified the stability of this area (See Appendix 10(3)).
- The remainder of the surface buildings including the sales office, small pump houses and storage building adjacent to Burnwell #2 Tipple, etc., will be left intact as per request of Huntington Ranches (See Appendix 12(1)) and will be used to accommodate the stated post mining land use.
- One temporary storage container remains on site. This container will be sold and moved prior to final reclamation.
- Septic tanks and leach fields will remain in place as they are connected to the Sales Office and Bath House. These septic systems will be removed at such time as the Sales Office or Bath House are removed.

Salvageable items (conveyors, motors, mining supplies and equipment) were sold and removed from the property or scrapped. Any non-woody, non-toxic material not sold and removed was pushed against the highwalls and covered by at least 4 feet of fill and plant growth medium as detailed elsewhere in this section. All necessary county and state approvals will be obtained prior to burying any demolition debris on the site. Woody material has been disposed of by Waste Management, Inc. The access road to the site will not be reclaimed but retained by

the owners of the site for transporting livestock to and from the area. The surface land owner has so requested by letter noted above in Appendix 12(1).

Upon removal of the Bathhouse and Sales Office, the water wells will be transferred to the landowners, as applicable. The water well shown on Map King I-007, located in the meadow of Hay Gulch off the permit area is the property of Mr. Wiltse.

The water impoundments (sediment ponds) are not intended as permanent constructions on the mine site, but will remain intact until the site has been successfully reclaimed.

The diversion channels and buried culvert pipe will be maintained during the reclamation program until Phase II Bond release has been achieved,

Upon successful Phase II Bond release, permanent drainages will be installed and the ponds reclaimed.

Unneeded power and telephone line poles and equipment have been removed. The well pumps will require power. The surface owner has requested by letter, noted above, that power remains.

The Upper Facilities Area (Coal Stockpile to Bath house) will be ripped and the coaly waste will be transported to the refuse pile.

SEALING MINE OPENINGS AND DRILL HOLES

In accordance with the requirements of our mine plan, 211.41 (c) 30 CFR, the portals (mine openings or entrances into the King I Mine) were back-filled with ¾" road base and sealed with concrete plugs. Coal stockpile residue on the permit area will be scraped from the surface as described earlier and transferred to the refuse pile. This will limit acid-forming or toxic materials in the final plant growth medium dispersion and re-vegetation. These four portals were each approximately 10 feet wide by 8 feet high. After back-filling to a depth of 25 feet from the portal, the mouths of the portals were caved to completely seal them.

Coal exploration drill hole N-16 and a vent hole in the mine plan area have already been capped with concrete plugs and meet reclamation requirements. A dry well hole next to the water tank has been filled. The active well on the permit area (See Map King I-007) will remain open and in active use for future use by owners of the property. This well is enclosed in a housing and collared. See Map King I-005 for location(s) of any vent/air shafts or holes.

GRADING AND BACKFILLING

The mine was in some form of continual operation from the mid 1940's to January, 2009. Therefore, with the exception of the newly constructed coal refuse pile, the entire site falls under the Previously Disturbed category. No topsoil was salvaged prior to SMCRA; therefore, not all areas to be reclaimed will receive topsoil. Attempts for 6" of growth medium will be placed on the Upper Facilities Area and the refuse pile. The pond area (Area 1) and the Lower Facilities area (Area 2 on Map King I-010) are not scheduled to receive any plant growth medium except that which may lie in and around the areas.

Analysis of stored waste, as tested by C. T. & E. is included in Appendix 12(3) (Samples #4, #5 & #6).

Rock lined stilling basins will be constructed at three locations depicted on the final contour map (King I-011). The basins will be installed along with the final drainage channels after a successful Phase II Bond release. Final drainage channels steeper than 5% will be rock lined, others will be grass-lined. Temporary erosion protection (such as erosion mats) will be used until vegetation is established in grass-lined channels.

Volume for reclamation costs estimates are based on surface area delineations as well as grid surfaces calculated from existing and final contour maps using computer software programs. (See reclamation cost estimates for more details)

WASTE PILE RECLAMATION

Refer to section 2.05.3 (Mine Waste Rock Disposal) for a description of the coal mine waste (refuse) storage area. Technical Revision TR-08 addresses reconstruction of the waste pile. Designs for this reconstruction have been provided by Don May, P.E. and are located in Appendix 10(1).

Initial reconfiguration of the waste pile is somewhat smaller than as designed in TR-08. The rip-rap rock ditches, Reaches 1 & 10, were constructed to utilize, to the extent possible, equipment that was available at the time of construction. Although unlikely, it is possible that in the future the refuse pile may be enlarged to the "Refuse Pile TR-08 Final Configuration Outline" as show no Map King I-007. Fill material was used to cover the face of the pile in its current configuration to the required depth. This fill material was salvaged during reconstruction of the existing waste pile and is composed of about 50% rock and 50% earth. After compaction of this fill material, plant growth medium was spread as required by this section and the area was re-vegetated. This brought the existing face of the pile to comply with final reclamation status parameters.

Future waste pile reclamation will entail stockpiling plant growth medium and fill material which will be salvaged while extending the waste pile as it grows. As the waste pile slowly increases in size, all available fill material and plant growth medium will be removed and stockpiled at the east boundary of each 5 year design phase. As the face of the pile rises, material from this stockpile will be drawn upon and used to reclaim the face of the waste pile as outlined above. Should additional fill material be required at final reclamation, suitable material from the designated borrow area will be used.

- Total Live Vegetation Cover equal to or greater than thirty (30) percent.
- Total Herbaceous Production (annual) equal to or greater than 300 pounds per acre (dry weight).
- Species Composition comprising three (3) cool season perennial graminoids and one (1) perennial forb, with no qualifying single species accounting for more than forty (40) or less than one (1) percent relative cover.
- There will be no woody plant density revegetation success criterion in accordance with the post-mining land use and landowner wishes.

Sampling Methodology

Any CDRMS approved sampling methodology may be employed to determine the levels of cover, production, and composition on the revegetated areas. If a methodology is proposed that has not been previously employed or accepted by CDRMS, such methodology will be submitted for approval prior to employment.
Determination of revegetation success in achieving the total vegetation cover and total herbaceous production success criteria will be based on quantitative statistical means. The Student's t test is a robust statistical test to evaluate the equivalency of two sample means or a sample mean with a specified standard (Zar, 1974). This test will be employed to test the null hypothesis that the sample mean for revegetated parcel parameter is equal to or greater than 90 percent of the cover or production success criterion. Standard statistical probability ranges will be employed in the determination of whether the revegetated area mean is significantly less than the criterion. When the revegetated area mean is not statistically significantly less than the applicable criterion at a 90 percent confidence level employing a 10 percent alpha error probability level, the revegetation will have been demonstrated successful.

2.05.6 – MITIGATION OF THE IMPACTS OF MINING OPERATIONS

AIR POLLUTION CONTROL PLAN

An Air Pollution Control Permit has been listed in section 2.03.10 and is included as Appendix 2(2).

FISH AND WILDLIFE PLAN

Fish and Wildlife information is located in section 2.04.11 and also in Appendix 6. A raptor protection plan is on file with the Colorado Division of Reclamation, Mining & Safety. Section 2.05.4 details plants species to be included for replanting during reclamation procedures.

PROTECTION OF HYDROLOGICAL BALANCE

Information required by 2.05.6(3) concerning protection of hydrological balance is addressed in a report by Don May, P.E., which is included in Appendix 11. See also Map King I-007 and Map King I-004.

PERMANENT CHANNEL DESIGN

In addition to the above mentioned report by Don May, P.E., a seed mix has been determined which will provide a suitable cover for the designed channel bottoms and sides. Composition and seeding rates of the seed mix are presented in Table 1. The desirable qualities of this vegetation include characteristics of high water tolerance, ability to withstand periodic inundation, sod-forming ability and deep-rooting characteristics. Soils were evaluated, and, during the period of vegetation establishment, should be able to resist erosion unless an event larger than the 10 year, 24 hour peak flow occurs. Any reseeding and channel maintenance necessary during the period of vegetation establishment is recognized. The low cost and low maintenance benefits of the grassed waterway should result in a functional and desirable permanent channel configuration. The runoff calculations used in determining peak flow for the channel design are provided in Appendix 11 by Don R. May, P.E.

GCC Energy, LLC will monitor the structure during the vegetation phase and evaluate the need for any additional stabilization to ensure compliance with all applicable regulations.

Table 1. Seed Mix for Grassed Waterway

Species	#LB/PLS*/AC	#Seeds/Ft²
Western Wheatgrass	4.0	11.6
Streambank Wheatgrass	2.0	7.4
Basin Wildrye	3.0	7.8
Reed Canarygrass	0.5	5.8
Cicer Milkvetch	1.0	3.3
Total	**10.5**	**35.9**

INVENTORY OF STRUCTURES AND RENEWABLE RESOURCE LANDS

Following is a list of structures and renewable resource lands:

Two irrigation ditch structures exist within the permit area. The structures, known as the Huntington Irrigation Ditch, the Huntington Pond, the Huntington Pipeline and the Crawford Irrigation Ditch, act as surface, overland conveyances of water used for downstream irrigation, and overlay worked out portions of the mine. These ditches supply water to several small ponds, shown on Map King I-005. Portions of these ditches are comprised of buried pressurized PVC pipe which supply water to sprinkler irrigation systems. The Huntington Pond is an enlargement of a previously existing pond and supplies water to the Huntington Pipeline. The PVC pipe on the Crawford property runs generally parallel to the Crawford Irrigation Ditch. A two inch water line runs parallel to this PVC pipe and turns adjacent to Marc Crawford's home as shown on Map King I-005. This line supplies water to Marc's house. A two inch water line also is buried between the John Crawford home and the pond located just to the north. This line supplies water to John's house.

Two home sites exist within the permit area. The homes of Marc Crawford and John Crawford are shown on Map King I-005. The Marc Crawford home is a modern home of log construction with a full concrete basement. The house is heated with propane and a tank is located on the west side. A power line is buried in a straight line between John's house and Marc's house. This home is only a few years old. A large block of un-mined coal will be left in place directly beneath to ensure no subsidence occurs in this area. Pillars will not be removed within 300 feet of Marc Crawford's home. A "Pre-Blast Survey" was performed on the Marc Crawford residence on July 22, 2000 by Harry L. Siebert, consultant. The results of this survey are included as a report and can be found in Appendix 12(4). The John Crawford home is an older frame house constructed on a stacked rock foundation. No mining is planned within 300 feet of John Crawford's home.

Approximately 6 miles of barbed wire fence overlie the permitted area of the mine. These fences are for cattle control purposes and do not necessarily follow property lines. They are not shown on the maps included with this application.

A two-track dirt road crosses the permitted area for about 2 miles diagonally from north-east to south-west across the Huntington property. Another two-track road crosses the Crawford property. An improved gravel road runs between Marc Crawford's house and John Crawford's house and is used as the primary access to Marc's house. Marc's telephone line is buried next to this road. These roads are shown on Map King I-005.

On and around the surface facility area of the mine are several buildings and structures. These include: shop, bathhouse, scale house, tipples, upper and lower pump houses, warehouse, sales office, electrical substation, power poles and lines, buried waterlines and power lines, septic system, wells, drainage ditches, settling ponds, buried culverts, vehicle storage barns, old bathhouse, old scale house, old Burnwell tipples #1 & #2, and various haul roads. These buildings and structures are shown on Map King I-007.

Aside from the above mentioned structures, there are no structures or renewable resources in the permitted or adjacent lands. There are no aquifers, recharge areas for aquifers, silviculture or irrigated pasture land. The locations of the Huntington Irrigation Ditch, the Crawford Irrigation Ditch and an "old ranch building" are shown on Map King I-005.

WORST POSSIBLE CONSEQUENCES OF SUBSIDENCE

The Huntington Pond, Ditch and Pipeline, as well as the Crawford irrigation ditches are the main water conveyance structures on permitted lands which could suffer damage due to the effects of subsidence. In the event that a surface subsidence crack were to intersect the ditch, it is possible that some of the ditch water would enter the crack and work its way into the mine workings.

In the event that a surface subsidence crack were to intersect either irrigation ditch, that portion of the ditch which is (or is about to be) damaged can quickly be repaired using flexible plastic culvert to allow normal water flow. If subsidence damage occurs, GCC Energy, LLC has the necessary personnel and equipment to effect repairs. Surface owners have and will allow entry to complete such repairs (See Appendix 2(4)).

Due to the ability of GCC Energy, LLC to quickly and effectively repair any subsidence related damage to the Huntington or Crawford structures, it has been determined that no material damage or diminution of reasonable foreseeable use could result in the event of mine subsidence within the permit and adjacent areas.

The Marc Crawford residence could suffer damage due to the effects of subsidence. No mining is planned within 100 feet of Marc's house. A large block of un-mined coal will remain beneath this house to provide additional long-term support for this area. Using a conservative angle of draw of 35 degrees, it was determined that pillars will not be removed within 300 feet of the footprint of Marc Crawford's home. No mining is planned within 300 feet of John Crawford's home.

The residence of Marc Crawford obtains its drinking water from a pond which lies approximately 1800' northeast of his house. A buried 2" pipeline runs parallel to the buried 10 inch PVC irrigation pipeline for most of its length. It then splits off to connect to the house about 150' northwest of the house. This pond and pipelines are shown on Map King I-005. Repairs to these pipelines could quickly be effected with a rented backhoe and either GCC personnel or a local contractor. The 10" irrigation pipeline is only used for irrigation in the warmer months. Should this pipeline be damaged, a temporary overland pipeline could be utilized until repairs were complete. If the 2 inch line was damaged, a portable cistern could be placed and domestic water trucked in until repairs were complete. If the pond were damaged, it would probably need to be re-lined with a custom built liner. This would require the services of a local contractor with a track hoe or other heavy equipment. Interim water would need to be provided using a temporary tank. Water would be hauled by truck to the site. In the event that the underground power line, underground phone line, or the line connecting the propane tank to the house was damaged due to the effects of subsidence, service would be interrupted briefly until repairs were complete. Temporary overland telephone and propane lines and a power generator could be installed by the utilities involved. GCC Energy would be responsible for these kinds of repairs.

The residence of John Crawford obtains its drinking water from a pond which lies approximately 800 feet north of the John Crawford house. A buried 2" pipeline connects the house to the pond. This pond and pipeline are shown on Map King I-005. Repairs to this pipeline could quickly be effected with a rented backhoe and either NKC personnel or a local contractor. If the 2 inch line was damaged, a portable cistern could be placed and domestic water trucked in until repairs were complete. If the pond was damaged, it would probably need to be re-lined with a

custom built liner. This would require the services of a local contractor with a track hoe or other heavy equipment. Interim water would need to be provided using a temporary tank. Water would be hauled by truck to the site. The power line and telephone line to John's house would not be affected by this permit application

In the event that subsidence cracks damage any barbed wire fence within the permit area (a fencepost could be dislodged or strands of barbed wire could stretch and break or sag), GCC Energy, LLC would be happy to fix said fences without charge to the landowner or will reimburse the landowner for any repairs necessary.

Damage to the two-track dirt roads could occur if a subsidence crack were to intercept the road. Any cracks of this nature could be easily filled with loose dirt or gravel at GCC Energy's expense; however, due to the present condition of the road, cracks of this nature would be virtually unnoticeable.

The buildings and structures on and around the surface facility area of the mine will not be damaged by subsidence because there are no minable coal seams beneath this area.

SUBSIDENCE MONITORING PROGRAM

The Huntington Irrigation Ditch, Pond and Pipeline, and the adjacent surface area have been inspected on a quarterly basis since 1981 by a qualified person for evidence of subsidence caused by underground mining. The Huntington Pond, as expanded in 2016, will be added to that list. Results of these inspections are reported to the Colorado Division of Reclamation, Mining & Safety. Quarterly visual inspections of the Huntington Ditch to date have not indicated evidence of damage, nor have they indicated that water is lost to the mine via surface fracturing. Quarterly inspections of the Crawford Irrigation Ditch commenced once mining and pillaring operations had been conducted in that area.

Field observations indicate that surface subsidence features are present above abandoned portions of the mine. These features are in the form of cracks which are typically 4" to 6" wide and may be several hundred feet long. These cracks tend to parallel pillared out mining sections. GCC Energy, LLC will continue to monitor these cracks on a quarterly basis. Should visual inspection determine that a subsidence crack is approaching a possible intercept with the ditch, the location of the crack and its relation to the ditch will be mapped and monitored closely. Survey monitoring stations are for mapping purposes only. Should it appear eminent that the ditch and a subsidence crack will intersect; the effected portion of the ditch will be lined with flexible plastic conduit or other means equally effective to ensure the continuous and unrestricted flow of water.

At least one month prior to retreat mining near the Marc Crawford house, subsidence monitoring monuments were placed and surveyed near the house by a registered surveyor in such a way that subsidence can be detected from a survey monument outside the affected area of mining, should it occur. These monuments were surveyed quarterly for two quarters following the time that pillars were extracted from the area. These monuments were then be monitored annually for two years to assure that no subsidence had occurred. The monuments remains in place in the event that future questions arise concerning subsidence. Location of these monuments and the structures they are to monitor are shown on Map King I-013.

In the event that any of the aforementioned ponds, ditches, pipelines or utilities were damaged between regular GCC Energy inspections, the landowner will probably become aware immediately. They will, in turn, notify GCC Energy immediately.

GCC Energy, LLC has submitted a mining plan which should prevent damage to the hydrologic balance outside the permit area and prevent subsidence in Pine Gulch. The mining plan shows elongated pillars supporting all passages under Pine Gulch drainage system. These pillars were not extracted on final retreat, thereby providing perpetual stability to the Pine Gulch drainage.

Table 2:
GCC Energy Surface Water Baseline Water Quality Parameter Suite (GCC SW1)

Parameter	Units	Method
Alkalinity, as CaCO3	mg/L	2320 B
Aluminum (Al)	mg/L	EPA200.8
Arsenic (As)	mg/L	EPA200.8
Bicarbonate, as CaCO3	mg/L	2320 B
Cadmium (Cd)	mg/L	EPA200.8
Calcium (Ca+2)	mg/L	EPA200.7
Carbonate, as CaCO3	mg/L	2320 B
Chloride (Cl-)	mg/L	EPA300.0
Copper (Cu)	mg/L	EPA200.8
Depth to Water (field, wells only)	feet	Field
Dissolved Oxygen (DO) (field)	mg/L	Field
Flow Rate	gpm	Field
Fluoride (F)	mg/L	EPA300.0
Hardness, as CaCO3	mg/L	Varies
Hydroxide, as CaCO3	mg/L	2320 B
Iron (Fe)	mg/L	EPA200.7
Lead (Pb)	mg/L	EPA200.8
Magnesium (Mg+2)	mg/L	EPA200.7
Manganese (Mn)	mg/L	EPA200.8
Mercury (Hg) Total by CVAA	mg/L	EPA245.1
Molybdenum (Mo)	mg/L	EPA200.8
Oil & Grease	mg/L	EPA1664 A
Oxygen Reduction Potential (ORP) (field)	mV	Field
pH (field)	SU	Field
pH (lab)	SU	EPA150.1
Potassium (K)	mg/L	EPA200.7
Selenium (Se)	mg/L	EPA200.8
Silica (SiO2)	mg/L	Varies
Sodium (Na+)	mg/L	EPA200.7
Sodium Adsorption Ratio (SAR)	mg/L	Calculation
Specific Conductivity (field)	mS/cm	Field
Sulfate (SO4)	mg/L	EPA300.0
Temperature (field)	°C	Field
Total Dissolved Solids (TDS)	mg/L	EPA160.1
Total Nitrogen as Nitrate-Nitrite	mg/L	EPA300.0
Total Organic Carbon (TOC)	mg/L	5310 B
Total Suspended Solids (TSS)	mg/L	EPA160.2
Uranium (U)	mg/L	EPA200.8
Zinc (Zn)	mg/L	EPA200.8

One time only to establish absence, SW and Alluvial GW only in 2016Q4

Ammonia (NH3)	mg/L	EPA350.1
Phosphate (PO4 as P)	mg/L	EPA365.3

Notes:
mg/L = milligrams per liter
SU = standard
unitsmS/cm millisiemens per centimeter
mV = millivolt

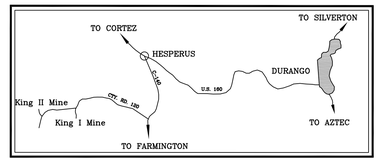
Table 3:
GCC Energy Spring & Seep Baseline Water Quality Parameter Suite (GCC S&S1)

Parameter	Units	Method
Alkalinity, as CaCO3	mg/L	2320 B
Aluminum (Al)	mg/L	EPA200.8
Arsenic (As)	mg/L	EPA200.8
Bicarbonate, as CaCO3	mg/L	2320 B
Cadmium (Cd)	mg/L	EPA200.8
Calcium (Ca+2)	mg/L	EPA200.7
Carbonate, as CaCO3	mg/L	2320 B
Chloride (Cl-)	mg/L	EPA300.0
Copper (Cu)	mg/L	EPA200.8
Depth to Water (field, wells only)	feet	Field
Flow Rate	gpm	Field
Fluoride (F)	mg/L	EPA300.0
Hardness, as CaCO3	mg/L	Varies
Hydroxide, as CaCO3	mg/L	2320 B
Iron (Fe)	mg/L	EPA200.7
Lead (Pb)	mg/L	EPA200.8
Magnesium (Mg+2)	mg/L	EPA200.7
Manganese (Mn)	mg/L	EPA200.8
Mercury (Hg) Total by CVAA	mg/L	EPA245.1
Molybdenum (Mo)	mg/L	EPA200.8
Oxygen Reduction Potential (ORP) (field)	mV	Field
pH (field)	SU	Field
pH (lab)	SU	EPA150.1
Potassium (K)	mg/L	EPA200.7
Selenium (Se)	mg/L	EPA200.8
Silica (SiO2)	mg/L	Varies
Sodium (Na+)	mg/L	EPA200.7
Sodium Adsorption Ratio (SAR)	mg/L	Calculation
Specific Conductivity (field)	mS/cm	Field
Sulfate (SO4)	mg/L	EPA300.0
Temperature (field)	°C	Field
Total Dissolved Solids (TDS)	mg/L	EPA160.1
Total Nitrogen as Nitrate-Nitrite	mg/L	EPA300.0
Total Organic Carbon (TOC)	mg/L	5310 B
Uranium (U)	mg/L	EPA200.8
Zinc (Zn)	mg/L	EPA200.8

One time only to establish absence, SW and Alluvial GW only in 2016Q4

Ammonia (NH3)	mg/L	EPA350.1
Phosphate (PO4 as P)	mg/L	EPA365.3

Notes:
mg/L = milligrams per liter
SU = standard units
mS/cm millisiemens per centimeter
mV = millivolt



LEGEND

PERMIT BOUNDARY
AFFECTED AREA BOUNDARY
SURFACE OWNERSHIP

Note: Surface ownership names and addresses within and contiguous to the permit area can be found in Sections 2.03.4(6) and 2.03.4(7) of the Permit Application Package.

REVISIONS

DATE	DESCRIPTION
04/30/15	TR-24/MT-07 Mid-Term Review Updates
07/14/15	TR-24/MT-07 Adequacy Review #1 Updates
08/23/16	TR-24/MT-07 Adequacy Review #2 Updates
07/11/17	RN-07 Preliminary Adequacy Review #1 Updates

I, _____, a professional engineer, certify that the information on this map is correct to the best of my knowledge and belief.

0' 1000' 2000' 3000'

Scale: 1" = 1000'

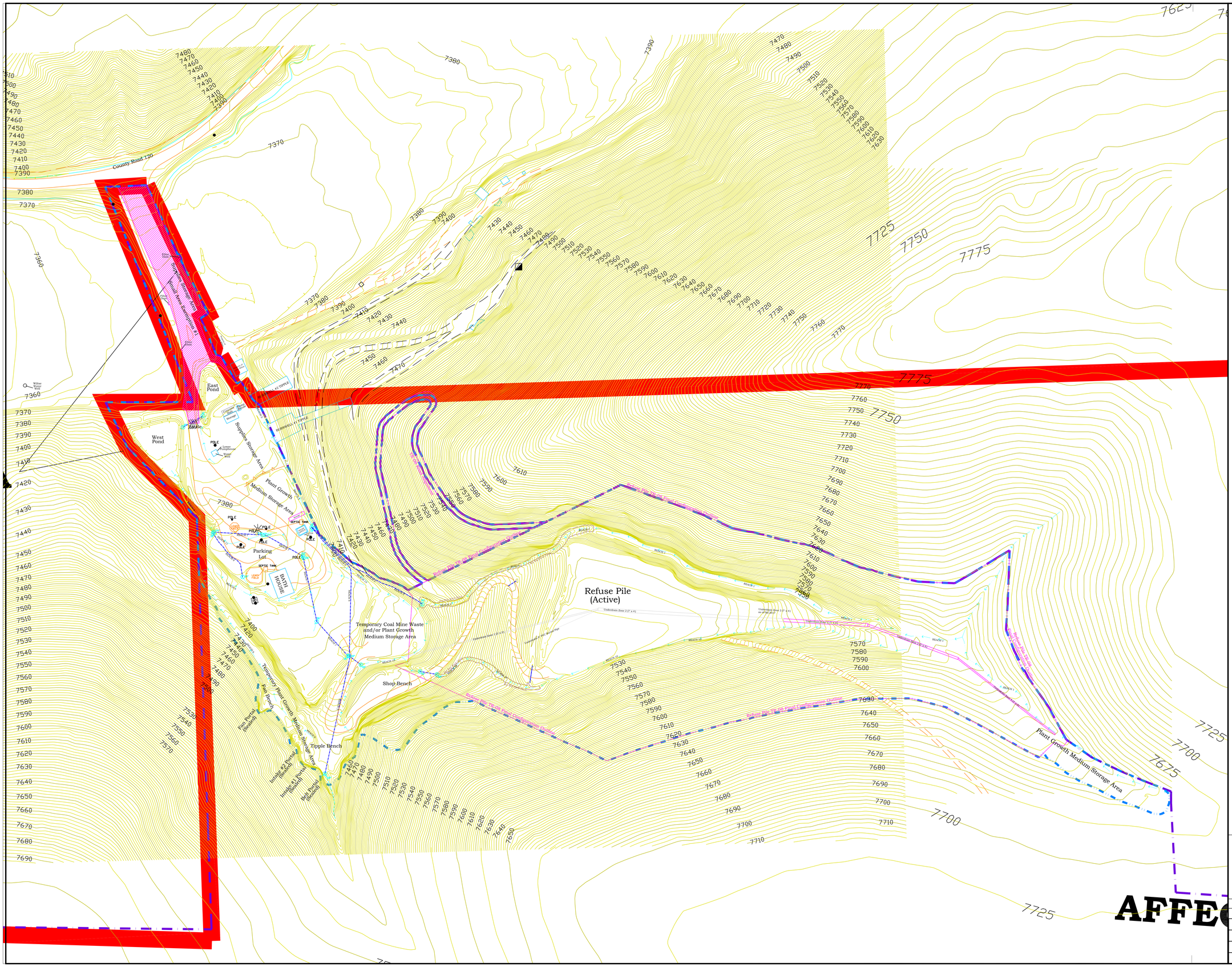
GCC Energy

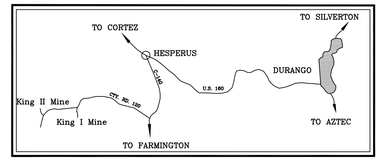
GCC Energy, LLC
6473 County Road 120
Hesperus, CO 81326
Colorado Mining Permit C-1981-035

King I Mine
4424 C.R. 120
Map King I-002

Surface Ownership

Scale: 1" = 1000'	Designed By: Tom Bird
Date: 07/11/17	Drawn By: Tom Bird
File Path:	Environmental\King I\Permit Maps
File Name:	King I-002 Surface Ownership
Plot Date:	07/11/17
Plot Time:	9:55 am





LEGEND

- PERMIT BOUNDARY
- AFFECTED AREA BOUNDARY
- AREAL EXTENT OF SURFACE DISTURBANCE
- BURIED WATER CULVERT
- OPEN DRAINAGE DITCH
- BURIED LEACH LINE
- DIRT ROAD

④ Old Main Substation Pad

NOTE:
Reach 1 (Clear Water Ditch) located along the north edge of the Refuse Pile, will be moved in stages as necessary (to provide additional refuse storage capacity) until it reaches the "Refuse Pile TR-08 Final Configuration Outline". At no time will clear water contact the refuse pile.

Contour Source: Aerial Survey November, 2015
Contour Interval = 5 feet
Detail Areas = 2 Foot

REVISIONS	
DATE	DESCRIPTION
6/1/98	Install 12" culvert west of parking lot
6/1/98	Install 18" culvert under stacker belt road
6/1/98	Install 8" sch. 80 pipe connecting both ponds
6/18/98	Reconfigure gob pile
8/28/98	Add 500 gallon diesel tank
11/13/98	Addition of new screen plant
5/3/99	Install new leach field west of bathhouse
8/17/99	Install picking belt, remove airjig
4/10/01	Remove 3 green bins, add coal area.
4/10/01	Remove lower tipple bins, conveyor
8/13/02	Add Small Area Exemption, re-label buildings
6/13/03	Move 2 - 500 Gallon Diesel Tanks, Remove Waste Oil Tank
8/22/06	Add 37,000 gallon water storage tank, rock dust silo
4/19/07	Add 12' x 44' HR Office Trailer
1/23/13	Post Demolition Layout
10/01/14	TR-20 Preliminary Adequacy Review Comments
04/30/15	TR-24/MT-07 Mid-Term Review Updates
07/14/15	TR-24/MT-07 Adequacy Review #1 Updates
08/23/16	TR-24/MT-07 Adequacy Review #2 Updates
07/11/17	RN-07 Preliminary Adequacy Review Updates

I, _____, a professional engineer, certify that the information on this map is correct to the best of my knowledge and belief.

0' 90' 180' 270'

Scale: 1" = 90'

GCC Energy

GCC Energy, LLC
6473 County Road 120
Hesperus, CO 81326
Colorado Mining Permit C-1981-035

King I Mine
4424 C.R. 120

Map King I-007
Operation Plan & Surface Features

Scale: 1" = 90'	Designed By: Tom Bird
Date: 07/11/17	Drawn By: Tom Bird
File Path:	Environmental\King I\Permit Maps
File Name:	King I-007 Operation Plan & Surf
Plot Date:	07/11/17
Plot Time:	9:55 am

GCC ENERGY, LLC
KING II MINE
PERMIT DOCUMENT
CDRMS PERMIT # C-1981-035

Permit Renewal RN-07
July 11, 2017

GCC Energy, LLC
King II Mine
6473 County Road 120
Hesperus, CO 81326

TABLE OF CONTENTS
APPENDICES

2.03.4 - IDENTIFICATION OF INTERESTS

GCC Energy, LLC is a corporation, incorporated under the laws of the State of Colorado. GCC Energy, LLC is the operator and permittee of the King I Mine (Formerly MSHA ID# 05-00266) and the King II Mine (MSHA ID# 05-04864), located in La Plata County, Colorado. The King I Mine ceased production and its portals were permanently sealed in January of 2009. GCC Energy, LLC is the entity responsible for payment of abandoned mine land reclamation fees. GCC Energy, LLC is a wholly owned subsidiary of GCC of America, Inc., P.O. Box 636, Wilmington, DE 19899.

GCC Energy, LLC
11783 Highway 337
Tijeras, New Mexico 87059
AVS Entity #247004

Phone: (970) 385-4528 Fax: (970) 385-4638
Employer ID #20-2812006

Formed: Colorado October 22, 2007

Resident Agent CO: Chris Dorenkamp
6473 County Road 120
Hesperus, Colorado 81326
Phone: (970) 385-4528
Fax: (970) 385-4638

Officers of GCC Energy, LLC

Name	Title	Effective Date	AVS #
Ron Henley	**President**	**March 1, 2016**	**255179**
Gina Marie Nance	**Vice President of Environmental & Energy Affairs**	**March 1, 2016**	**259480**
Cesar Conde	**Secretary**	**March 1, 2016**	**252622**
Luis Carlos Chavez	**Assistant Secretary**	**March 1, 2016**	**259481**
Jeff Benson	**Assistant Secretary**	**July 25, 2011**	**252623**
Luis Carlos Arias Laso	**Treasurer**	**May 23, 2017**	**157896**
Jamie Raul Medina Barraza	**Assistant Treasurer**	**May 23, 2017**	

GCC of America, Inc. was incorporated in the state of Delaware on June 16, 1994 and is qualified to do business in Delaware and New Mexico. GCC of America, Inc. (AVS #: 157897) is the sole shareholder and 100% owner of GCC Energy, LLC.

GCC of America, Inc. does not own or control any other surface coal mining operations in the United States. GCC of America, Inc. has not previously owned or controlled any other surface coal mining operations in the United States within the past five years.

GCC of America, Inc. is a wholly owned subsidiary of Grupo Cementos de Chihuahua, S.A. de C.V.

GCC of America, Inc.
P.O. Box 100
11783 Highway 337
Tijeras, New Mexico 87059
Phone: (505) 281-3311
AVS #:157897

Officers of GCC of America, Inc.

Name	Title	Effective Date	AVS #
Ron Henley	**President**	**March 1, 2016**	**255179**
Steve Ambrose	**VP, Sales & Logistics**	**March 20, 2014**	**255176**
Verne Stuessy	**VP, Operations**	**March 1, 2016**	**250273**
Andres Osuna	**VP, Planning & Administration**	**March 20, 2014**	**157894**
Gina Marie Nance	**VP, Environmental & Energy Affairs**	**March 1, 2016**	**259480**
Doug Roark	**VP, Ready Mix & Aggregates**	**March 20, 2014**	**255177**
Edward Hernandez	**VP, Human Resources**	**March 20, 2014**	**255178**
Sergio Saenz	**VP, Legal Affairs**	**March 1, 2016**	**157893**
Cesar Conde	**Secretary**	**March 1, 2016**	**252622**
Luis Carlos Chavez	**Assistant Secretary**	**March 1, 2016**	**259481**
Carlos Lopez	**Controller**	**March 1, 2016**	**255180**
Luis Carlos Arias Laso	**Treasurer**	**May 23, 2017**	**157896**
Jamie Raul Medina Barraza	**Assistant Treasurer**	**May 23, 2017**	

Grupo Cementos de Chihuahua, S.A. de C.V. is the sole shareholder and 100% owner of GCC of America, Inc.

Grupo Cementos de Chihuahua, S.A. de C.V.
P.O. Box 100
11783 Highway 337
Tijeras, New Mexico 87059
Phone: (505) 281-3311
AVS #: 157898

Officers of Cementos de Chihuahua, S.A. de C.V.

Name	Title	Effective Date	AVS #
Enrique Escalante	**Chief Executive Officer**	**March 1, 2016**	**157891**
Luis Carlos Arias Laso	**Chief Financial Officer**	**May 23, 2017**	**157896**
Sergio Saenz	**General Counsel**	**April 3, 2012**	**157893**

2.03.4 (6) – Surface & Coal Ownership within the Permit Area

Huntington Ranches, LLC, 7080 C.R. 120, Hesperus, CO 81326 (Surface & Coal)
Crawford Ranches, 2161 C.R. 121, Hesperus, CO 81326 (Surface)
Crawford, Marc A, Ronald H & Norris H, 2161 C.R. 121, Hesperus, CO 81326 (Surface)
Crawford, Norris H & Ronald H, 2161 C.R. 121, Hesperus, CO 81326 (Surface)
Bureau of Land Management, 2850 Youngfield St., Lakewood, CO 80215-7093 (Surface & Coal)
Colorado State Board of Land Commissioners, 1313 Sherman St., Room 620, Denver, CO 80203 (Surface & Coal)
GCC Energy, LLC, 6473 C.R. 120, Hesperus, CO, 81326 (Surface)
Compton, Patricia Ann Rev. Trust, 1129 C.R. 123, Hesperus, CO 81326 (Surface)
Compton, Thomas Lee Rev. Trust, 1129 C.R. 123, Hesperus, CO 81326 (Surface)
Wiltse, Jack B., 2416 East 20th, Apt. J5, Farmington, NM 87401 (Surface)
Four Daughters Coal: P.O. Box 114, Caspar, CA 95420 (Coal)
Richard Tipotsch, et al: Deceased, no known address (Coal lease relinquished)
Blast & Cast, Inc.: P.O. Box 543, Silverton, CO 81433 (Surface)
Patterson, Bonnie Eileen, 2161 C.R. 121, Hesperus, CO 81326 (Surface)
Craig, Farmer, Compton Coal Lease:
Tom Compton - 1129 C.R. 123, Hesperus, CO 81326
Mary Ann Craig – P.O. Box 1047, Durango, CO 81302
Farmer Oil & Gas - 17235 N. 75th Ave., Suite C160, Glendale, AZ 85308
Kambe Coal Lease: Tom Kambe, Jr. - 899 Marina Dr., Napa, CA 94559

2.03.4 (7) – Surface Ownership Contiguous to the Permit Area

Huntington Ranches, LLC, 7080 C.R. 120, Hesperus, CO 81326 (Surface & Coal)
Bureau of Land Management, 2850 Youngfield St., Lakewood, CO 80215-7093 (Surface & Coal)
Compton, Patricia Ann Rev. Trust, 1129 C.R. 123, Hesperus, CO 81326 (Surface)
Compton, Thomas Lee Rev. Trust, 1129 C.R. 123, Hesperus, CO 81326 (Surface)
Crawford, Norris H & Ronald H, 2161 C.R. 121, Hesperus, CO 81326 (Surface)
Crawford, Mike, 2161 C.R. 121, Hesperus, CO 81326 (Surface)
Crescent Cross, Ltd. LLLP, 11951 C.R. 120, Hesperus, CO 81326 (Surface)
Wiedemann, Theodore J. & Nancy M., 5960 East Territory Ave., Tucson, AZ 85750 (Surface)
Ute Mountain Tribe, P.O. Box 248, Towaoc, CO 81334 (Surface)
Wiltse, Jack B., 2416 East 20th, Apt. J5, Farmington, NM 87401 (Surface)
Elaine J. Frazier, 2637 Dallas St. NE, Apt. #2, Albuquerque, NM 87110 (Surface)
GCC Energy, LLC, 6473 C.R. 120, Hesperus, CO, 81326 (Surface)
Colorado State Board of Land Commissioners, 1313 Sherman St., Room 620, Denver, CO 80203 (Surface & Coal)
Blast & Cast, Inc.: P.O. Box 543, Silverton, CO 81433 (Surface)
Patterson, Bonnie Eileen, 2161 C.R. 121, Hesperus, CO 81326 (Surface)
Craig, Farmer, Compton Coal Lease:
Tom Compton - 1129 C.R. 123, Hesperus, CO 81326
Mary Ann Craig – P.O. Box 1047, Durango, CO 81302
Farmer Oil & Gas - 17235 N. 75th Ave., Suite C160, Glendale, AZ 85308
Kambe Coal Lease: Tom Kambe, Jr. - 899 Marina Dr., Napa, CA 94559

2.03.8 - PERMIT TERM INFORMATION

The anticipated start of each phase of mining activities is discussed in Section 2.05.2 and 2.05.3 Operations Plan.

The term of the permit shall be for five (5) years from issuance, renewable under the terms of Rule 2.08.5.

The current extent of areas affected by this permit, the anticipated number of acres to be affected during the 5 year term of this permit, and the anticipated number of acres to be affected during the total life of the permit is listed in the following table:

Location	Approved Areas	5 Year Additional	Life of Operation Additional
King I Surface Facilities (Disturbed Area)	23.60 Acres	+ 0 Acres	+ 0 Acres
King II Surface Facilities (Disturbed Area)	22.89 Acres	+ 0 Acres	+ 0 Acres
TR-22 Drill Holes Disturbed Area	2.1 Acres	+ 0 Acres	+ 0 Acres
TR-26 Monitoring Wells Disturbed Area	1.0 Acres	+ 0 Acres	+ 0 Acres
Total Disturbed Area	**49.59 Acres**	+ 0 Acres	+ 0 Acres
King I Affected Area	1392.9 Acres	+ 0 Acres	+ 0 Acres
King II Affected Area	260.7 Acres	+ 0 Acres	+ 0 Acres
TR-22 Drill Holes Affected Area	1.1 Acres	+ 0 Acres	+ 0 Acres
Total Affected Area	**1654.7 Acres**		
Total Permit Area (prior to TR-24)	2615.8 Acres	+ 0 Acres	+ 0 Acres
Total Permit Area (including TR-24 angle-of-draw adjustments)	**2705.4 Acres**	+ 0 Acres	+ 0 Acres

In January, 2009, the King I mine was permanently sealed. The final mine map revealed areas where the potential affected areas lie outside of the permit boundary (due to potential angle-of-draw) as shown at the time. To reflect that change, the permit boundary has been revised with the submittal of TR-24 to show an increased permit area of 89.60 acres. No actual disturbance due to subsidence has ever been noted outside of the previous extents of the permit boundary. The following table provides percentages of surface and mineral ownership with respect to the expanded 89.60 acre permit area.

	Surface Ownership	Mineral Ownership
Federal	0 %	63.76% (57.13 Acres)
State	0 %	0 %
Private	100 % (89.60 Acres)	36.24% (32.47 Acres)

2.03.10 - IDENTIFICATION OF OTHER LICENSES AND PERMITS

Attached are the following licenses and permits (See Appendix 2 for copies)

(1) Zoning Compliance
Class II Special Land Use Permit/Road Improvement Agreement
Permit Number: PL2012-0089
La Plata County, Colorado
Planning Department
211 Rock Point Drive, Durango, Co. 81301
Date Issued: July 8, 2016

(2) Air Emission Permit
Colorado Department of Public Health & Environment
Air Pollution Control Division
APCD-SS-B1
4300 Cherry Creek Drive South, Denver, Co. 80246-1530
Permit Number:
09LP0202F - King I, II Facilities
Date Issued: 09/03/13, APEN's Expire: 01/13/2018

(3) Wastewater Discharge Permit
Colorado Department of Public Health & Environment
Water Quality Control Division
4300 Cherry Creek Drive South, WQCD-B2
Denver, Co. 80246
Permit Number: CO-G-850001
Date Issued: June 18, 2008
Expires: June 30, 2013
Administrative Extension: Issued 7/1/2013

(4) Landowner Letters
Consent to Mine beneath/Surface Right of Access; Crawford Ranches, January 31, 2010

Consent to Mine beneath/Surface Right of Access; Huntington Ranches, January 30, 2010

(5) Monitoring Well Permits
Office of the State Engineer
Colorado Division of Water Resources
818 Centennial Building,
1313 Sherman St.
Denver, Co. 80203
Permit Number: 260656: Issued: 12/01/2004
Permits 303350 thru 303362: Issued 10/26/2016

2.04.4 - CULTURAL AND HISTORIC RESOURCE INFORMATION

Complete Archaeological Service Associates of Cortez, Colorado has prepared a cultural resource inventory documenting the results of a pedestrian survey of those areas that may be affected by surface disturbance within the permit area (see Appendix 3(2)). No cultural or historic resources eligible for listing on the National Register of Historic Places or significant archeological sites that may be affected by surface disturbance (including subsidence) were identified in the survey.

SWCA Environmental Consultants of Durango, Colorado performed a cultural resource survey of the 9 core drill sites addressed in Technical Revision TR-22 (see Appendix 3(3). No cultural or historic resources eligible for listing on the National Register of Historic Places or significant archeological sites that may be affected by surface disturbance were identified in the survey.

Stratified Environmental and Archaeological Services (SEAS) of Durango, Colorado has performed a cultural resource survey of the 5 monitoring well drill sites addressed in Technical Revision TR-26 (see Appendix 3(4). One newly recorded prehistoric site (5LP 11050) was found. The MW-4 monitoring well site was relocated over 50 feet from the prehistoric site boundary.

Cliff House Sandstone

The Cliff House Formation is the upper member of the Mesa Verde Group in the Hesperus area and is of marine origin. It generally consists of irregular to lenticular ledges of hard, fine to medium-grained calcareous sandstone enclosed in softer argillaceous fine sandstone, mudstone, and silty shale.

Like the Point Lookout sandstone, the Cliff House sandstone is reported to decrease in grain size in an eastward direction. Ten to fifteen miles east of the project area, the formation is composed of soft dark-gray mudstone and fine sandy silt-shale with an occasional very thin lentil of fine sandstone in the lower part.

The Cliff House sandstone has an average thickness of 350 feet throughout most of the project area. It shows a slight eastward thinning, probably due to the decrease in coarse clastics and the increase in compactable fine sediments.

Lewis Shale

The Lewis Shale conformably overlies the Cliff House sandstone and consists of dark gray to black homogeneous clay shale with scattered concretions of dense argillaceous limestone and with a few thin seams of bentonite in the upper part. The formation is reported to be about 1,825 feet thick with the basal contact being very sharp with black flaky clay-shale resting on gray mudstone or sandy shale of the Cliff House sandstone.

STRUCTURE

The geologic structure of the Hesperus area is characterized by gentle southward dips ranging from seven to two degrees away from the structurally high La Plata Mountains to the north. It is probable that a small amount of faulting is present in the vicinity of the town of Hesperus. A fault with a displacement of 33 feet has been reported in the Monarch mine about one mile northeast of Hesperus. While results of exploration drilling conducted in the area have not revealed significant faulting, it is probable that faulting is present given the relationship between the structure and stratigraphic deposition.

Threatened and Endangered Plant Species

The Colorado Natural Heritage Program (CNHP) at Colorado State University was contacted to undertake a search of their database of natural heritage elements ("occurrences of significant natural communities and rare, threatened or endangered plants and animals") for the area within and 1.5 miles outside the permit area. The results of that search identified only the wolverine (presumed extirpated in Colorado since 1979) and the Townsend's big-eared bat (a species of concern for the BLM and Forest Service). No candidate or federally listed plant species were identified within or adjacent to the permit area. The CNHP report can be found in Appendix 8.

TR-22 Drill Site Locations

Technical Revision TR-22 to this permit document consisted of drilling exploration core drill holes on State of Colorado Lease CO-3388. This exploration drilling program involved completion of up to 9 boreholes, all within the C-1981-035 permit area. The boreholes further defined coal reserves for future mine planning. All of the proposed boreholes were drilled utilizing already disturbed portions of the access roads.

SWCA Environmental Consultants of Durango, Colorado performed a natural resource survey of the proposed drill sites and issued a report dated April 11, 2014 (see Appendix 8(5).

TR-26 Monitoring Well Locations

Technical Revision TR-26 to this permit document will consisted of drilling monitoring wells on land owned by State of Colorado Lease CO-3388, Bureau of Land Management, Travis & Theresa Oliger, Clay Rathjen, and Jack Wiltse. This drilling program involved completion of 4 bedrock monitoring well clusters of 3 wells each (MW-1 thru MW-4) and one alluvial monitoring well in Hay Gulch, upgradient from the King I mine site (MW-HGA-4).

Ecosphere Environmental Services of Durango, Colorado has been completed a natural resource survey of the proposed drill sites and has issued a report included as Appendix 8(6).

TR-26 Monitoring Well Locations

Technical Revision TR-26 to this permit document consisted of drilling monitoring wells on lands owned by State of Colorado Lease CO-3388, Bureau of Land Management, Travis & Theresa Oliger, Clay Rathjen, and Jack Wiltse. This drilling program involved completion of 4 bedrock monitoring well clusters of 3 wells each (MW-1 thru MW-4) and one alluvial monitoring well in Hay Gulch, upgradient from the King I mine site (MW-HGA-4).

Ecosphere Environmental Services of Durango, Colorado has completed a natural resource survey of the proposed drill sites (Memorandum: October 25, 2016, "Hydrologic Monitoring Well Sites Natural Resource Surveys") included as King II Appendix 8(6).

See Section 2.05.6 for a detailed discussion on water monitoring.

2.05.2 - OPERATION PLAN – ESTIMATED AREA FOR LIFE OF MINE OPERATIONS

PRODUCTION METHODS AND EQUIPMENT

The King II Mine is an underground coal mining operation employing room and pillar design and techniques for extraction of the coal resource from the upper Menefee seam.

The engineering and design of the mine require that coal reserves be divided into sections or panels convenient for extraction and in alignment with the mains to facilitate access and extraction. Rooms (larger open areas from which coal is extracted) are developed. Coal pillars are left at the periphery of the rooms to support the main roof. The size, location, and number of rooms and pillars are determined by the physical characteristics (thickness, load bearing capability, presence of non-coal inclusions) of the coal in a given location of the mine. With the completion of a given panel or section (when all minable coal has been extracted), the remaining pillars are mined as the operation retreats from the panel. In this way, the recovery of the coal is maximized. Site work began at the King II mine April, 2007. The first coal was extracted July 25, 2007. Proven coal reserves at present are approximately 5 million tons. Annual production during 2016 was 628,952.60 tons. Total shipping from the mine is governed by La Plata County Special Land Use Permit PL2012-0089 and associated Road Improvement Agreement (RIW) (see Appendix 2(1). The annual projected maximum production of coal as per said permit is approximately 1,070,000 tons (depending on average loaded tons per truck) upon completion of Phase 5 or the RIW, based on approximately 28.5 average loaded tons per truck, 120 trucks per day, 6 days per week. Various other agency permits limit production to 1.3 million tons. Total life of mine at maximum projected production is estimated to be 5 years (August, 2022).

The coal is mined using one or two continuous mining units (sections). These sections consist of one or two continuous miners, 2-4 shuttle cars, one or two dual boom roof drills (bolter machines), a feeder/breaker belt feeder, and a 12,470-950/480 volt power center. After coal is cut from the face by the continuous miner, it is loaded into the shuttle cars for transporting to the conveyor belt and removal from the mine.

OPERATION DESCRIPTION

The King II Mine, being an underground operation, affected the majority of surface lands during the construction of surface facilities. The lands affected by the construction of mine surface facilities and mine access is specifically described in Sections 2.04.3 (Site Description and Land Use), 2.04.9 (Soils), 2.04.10 (Vegetation) and 2.04.11 (Fish and Wildlife Resources) of this document.

All areas of potential and actual surface disturbance for the King II Mine have been incorporated into the permit document. GCC Energy does not anticipate obtaining a new, separate five-year permit for any areas other than those depicted or described in the King II permit at this time, nor are changes in operations or facilities anticipated at this time.

2.05.3 - OPERATION PLAN, PRODUCTION METHODS AND EQUIPMENT

METHOD OF COAL EXTRACTION

The King II Mine is an underground coal mine. A maximum stripping ratio of 1:50 make coal extraction operations amenable to underground methods only. The method used is common to most U.S. underground coal mines and is called coal extraction by room and pillar mining. A series of mine openings are developed from the surface to the coal resources of the mine property. At the King II Mine, the upper Menefee coal seam outcrops along Cochran Canyon. The portals (mine openings) are constructed at the seam outcrop. The openings or entries are advanced in the coal following the seam. No shafts (vertical openings) or inclines through overburden material are necessary.

The coal reserves are divided up into sections or panels convenient for extraction. First, rooms are developed leaving coal pillars to support the main roof. Later, after a panel has been developed, the pillars are extracted on retreat from the panel. In this way, the recovery of the coal is maximized. Since pillaring operations began at the King I Mine during the late summer months of 1979, the extraction ratio of coal removed from the panels to coal left behind is approximately 5:1. This is an excellent extraction ratio.

MINE WORKINGS

Map King II-005 shows proposed mine workings within the Permit Area boundaries. Superimposed above the workings, the surface topography has been drawn in for correlation purposes between the surface and the underground workings.

MINING EQUIPMENT

The coal is mined using one or two continuous mining units (sections). These sections consist of one or two continuous miners, 2-4 shuttle cars, one or two dual boom roof drills (bolter machines), a feeder/breaker belt feeder, and a 12,470-950/480 volt power center. After coal is ripped from the face, it is loaded into the shuttle cars for transporting to the conveyor belt for removal from the mine. All the above equipment is electrical. Haulage vehicles for moving men and supplies into the mine are diesel or battery powered.

Electric power for the mine is supplied by a surface sub-station. Voltage entering the mine is 12,470VAC which is stepped down by the

power centers in the mine to 950/480VAC for the electrical equipment. Water used for dust suppression and motor cooling in the mine is supplied via a 4-6 inch diameter HDPE or aluminum pipe. Water is piped to the site via the Huntington Pond and Huntington Pipeline as per Division of Water Resources Decree 07CW100 (see Appendix 2(6). Ground water is generally absent and therefore spore water pressure does not contribute to instability of the roof, floor or pillars. In general, working conditions in the mine are good.

STRUCTURAL CONSIDERATIONS OF THE MINE LAYOUT

King II workings are confined to the upper Menefee (A) coal seam of the Menefee formation (Mesa Verde Group). The seam varies from about six to ten feet in thickness. The equipment used in the mine and the mining method itself is tailored to this seam's structural contours. The seam dips at a 3-6% grade to the Southwest. The strike of the seam is about S70°E. For specific details of the local geology see Section 2.04.6.

For practical purposes the upper Menefee seam may be considered flat or tabular with no rolling of seam. Consequently, the layout of the mine workings is not dependent upon the steepness of the seam as it is upon the boundary lines of the coal leases. The panels or mining sections are laid out as shown on Map King II-005 to maximize the recovery of the leased coal. Most of the underground openings or entries are driven along some given angle to the true dip to take advantage of the property boundaries. This angle cannot be correlated to the cleat of the coal. The tight cleat allows the mine workings to be oriented without rib spalling problems arising. In addition, the lack of ground water seepage allows the workings to be laid out without regard to drainage slopes.

The main structural consideration of the mine layout is the width of the panels (number of multiple entries) and the width of the entries. A panel width of 250 to 400 feet with five to seven entries has proved satisfactory for development and pillar extraction. This width allows for room development upon retreat from the panel during pillar extraction. Stresses due to overburden thickness are minimal compared to deeper operating coal mines. Maximum over-burden cover does not exceed 350 feet at any point, and the stress field seems to act in a vertical direction. No ground forces other than vertical have been observed by inspection during mining operations. The shallow overburden cover would accommodate an increase in the panel width or the number of multiple entries without undue stress problems. No major faults or slip planes cross the mine workings allowing for an even greater degree of optional orientation of the workings. The widths of the openings are limited to twenty feet by MSHA for control of the immediate roof (the thickness of the roof to the top of the resin bolting horizon).

ANTICIPATED PRODUCTION

It is anticipated that production may reach 1,300,000 tons per year. However, total shipping from the mine is currently governed by La Plata County Special Land Use Permit PL2012-0089 and associated Road Improvement Agreement (RIW). See discussion at 2.05.2 page 1.

OPERATION PLAN, MINE FACILITIES

SUPPORT FACILITIES

The surface facilities and structures at the King II Mine are depicted on Map King II-007 (Operation Plan and Surface Facilities). The descriptions and tables in Section 2.05.4 identify each. In general, the mine facilities include the mine bench and portals, offices, maintenance, and shop facilities, infrastructure for supplying power and ventilation to the mine, substation, fuel tanks, water and septic systems, haul and access roads, sediment control systems, stockpiles for topsoil and coal products, and coal sorting and load-out structures. Detailed designs for all structures with design and certification requirements are located in Appendices 10 and 11.

MINE BENCH

The surface disturbed area includes the surface facilities area, the mine bench and the access road to the mine bench. Total disturbed acreage is estimated to be 22.36 acres. All surface facilities for the support and processing of coal are constructed as shown on Map King II-007 (Operations Plan and Surface Features Map). No surface mining operations exist on the project area; all coal extraction activities are to be confined to the underground King II Mine.
Map King II-007 shows the operations area which includes the mine bench.

A stable sloped highwall is cut to provide a bench for the portal areas. The highwall is at the outcrop of the coal seam being mined. Material excavated to construct the portal face-up was used to level the mine bench and fill the two surface water drainage channels after the installation of the Undisturbed Drainage Ditches. The highwalls and the back-filled surface water drainage channels are shown on Map King II-007 and are included within the boundaries of the surface disturbed area of 22.36 acres.

Spoil material from the earth worked areas will remain in the general facilities area in the west drainage area for use as fill. Diversion channels (See Maps King II-007 A, B, & C) divert the up-slope runoff around the disturbed areas. The reclamation plan calls for utilizing the soil stored in the Bermed Topsoil Storage areas for re-vegetating these areas upon abandonment of the mine.

EXISTING STRUCTURES

There were no existing structures prior to construction at the King II Mine as defined by Rule 2.05.3(3)(b).

ROADS

One combination haul/access road was constructed to access the mine facilities and coal load-out. The road originates at La Plata County Road 120 and proceeds north to a location south of the mine bench where the road splits, forming 2 loops through the mine facilities. Specific designs and the engineer's certification for this road are included in Appendix 10 and Maps King II-007 D thru G.

An access road to the water tanks originates at the office building and ends at the water tanks. Specific designs and the engineer's certification for this road are included in Appendix 10.

An access road to the conveyor/return portal area originates at the office building and end at the conveyor/return air portal area. Specific designs and the engineer's certification for this road will be included in Appendix 10.

CONVEYORS

The conveyor system constructed at the King II Mine is depicted on Map King II-007 and described in Section 2.05.4 (Removal of Surface Facilities).

SURFACE DRAINAGE AND RECLAMATION

Reclamation of the permit area is covered in Section 2.05.4. The entire disturbed area is required for coal operations - all space is utilized. Plans for abandonment of the mine are discussed in Section 2.05.4. Surface drainage patterns through the permit area and the up-slope areas are shown on Maps King II-007 A thru G . Details of the diversion channels and piping systems are discussed in Section 2.05.6 and Appendix 11.

Maps King II-007 A thru G show the runoff flows in the mine plan area and the permit area. Sediment pond design, drainage plans and designed hydraulic structures located within the project area are certified by a professional engineer. These certifications are included in Appendices 10 & 11.

The undisturbed area drainage ditches and culverts allow the up-slope undisturbed runoff to bypass the disturbed area, return to the native drainage channel, and ultimately flow into the Hay Gulch Ditch. There should be no effect on water quality in the Hay Gulch Ditch attributable to the King II Mine.

Water contained in the sediment pond will not be discharged into the Hay Gulch Ditch, but allowed to evaporate. The only water to be discharged from the ponds will be from precipitation events approaching or exceeding the ten year, twenty-four hour storm event. The ponds are described in Section 2.05.6 and are designed to manage the precipitation events as required by regulation and in accordance with the requirements of GCC Energy's N.P.D.E.S permit No. CO-G-850001.

PONDS, IMPOUNDMENTS, AND DIVERSIONS

DRAINAGE PLAN

The drainage plan for the King II Mine consists of diversion of uncontaminated water originating upstream of the mine yard, through the yard to the discharge point at the south end of site. Runoff generated on the yard itself will be collected and routed through the sedimentation pond.

Refer to 2.05.6 (Hydrologic Balance) Appendix 10 & 11 and Maps King II-007 A thru G for a detailed description of Mine Surface Drainage and Sediment Pond design and descriptions.

The sediment control system for the King II Mine is comprised of undisturbed area drainage ditches and one sediment pond. Designs for sediment control system structures are included in Appendix 11.

Small Area Exemption #1 is approximately 1.3 acres of the disturbed area which lies below the sediment pond, consisting of the haul road between County Road 120 and the north end of the Sediment Pond. Runoff from this area will tend to collect and drain along the haul road bypassing the sediment pond. Alternate sediment control measures are used in this area. These measures consist of the use of rock check dams, rock filters and gravel surface. This area is too small and too flat to run a SEDCAD demonstration. This runoff flows into the area on either side of the haul road.

UNDISTURBED AREA DRAINAGE DITCHES

Two undisturbed area drainage ditches convey undisturbed surface flow around the disturbed area of the mine surface facilities and return the flow to the native surface drainage channel below the mine bench. The ditches encircle the mine disturbance. One ditch conveys surface flow along the west side of the mine facilities to the native channel, while the corresponding ditch drains east and south above the mine portal and down the east side of the mine bench and surface facilities to the native channel. These open earthen channels are sized to contain the precipitation events as required by regulation. The channels are stabilized with a combination of vegetation and riprap (where necessary).

SEDIMENT POND

One sediment pond is utilized for the King II Mine. The sediment pond is located at the southeast corner of the mine bench and sized to contain the precipitation events as required by regulation. Surface runoff reaches the sediment pond through a combination of sheet flow, berms, culverts and "V" ditches. Detailed plans, certifications and maps can be found in Appendix 11 and Maps King II-007, King II-007 A-D & King II-007F-G. The pond contains a primary spillway at elevation 7233' and an emergency spillway at elevation 7234'. The spillways are both vertical 24" CMP risers with oil skimmers constructed as shown on Map King II-007F, Detail 1. The spillways are always open. The minimum magnitudes of storm events that will cause the spillways to discharge, subtracting a 60% sediment clean-out level of 1.5 acre feet, are as follows:

Primary Spillway: 4.36 acre feet – 1.5 acre feet = 2.86 acre feet

Emergency Spillway: 5.22 acre feet – 1.5 acre feet = 3.72 acre feet

Faces of pond embankments are stabilized with vegetation. Due to evaporation and infiltration, water is not normally impounded except immediately following storm events or snowmelt. While there is no mechanism in place to suddenly draw down the water level, standing water can be pumped as necessary to the native channel at the south end of the site.

TOPSOIL

Sufficient suitable topsoil resources exist in the Umbarg soil map unit to provide topsoil replacement depths of six inches. This replacement depth will require stockpiling and ultimate replacement of 20,570 cubic yards of topsoil from the A and B horizons of the Umbarg series. Topsoil was salvaged and stockpiled using truck/shovel or scraper methods. Topsoil was salvaged and stockpiled during construction in piles constructed adjacent to the sediment pond and north of Coal Stack Tube #2. The topsoil pile is stabilized using the seed mix proposed for final reclamation. To further minimize the potential for accidental contamination, a berm was constructed around the perimeter of the toe of the topsoil piles. The berms are of sufficient size (18" to 24" high, 4' to 6' wide) to prevent machinery from intruding on the topsoil stockpile.

Stockpile locations can be found on Map King II-007. Epp & Associates surveyors performed topsoil stockpile volume calculations in March, 2015 using pre-disturbance and as-built aerial surveys. Topsoil Stockpile #1 (south) contains 3,479 cubic yards and Topsoil Stockpile #2 (north) contains 27,191 cubic yards for a total of 30,670 cubic yards on site. The current disturbed area is 22.89 acres. To cover 22.89 acres with 6" of topsoil would require 18,465 cubic yards.

TOPSOIL, EXPLORATION CORE DRILLING

Topsoil will be salvaged and will be replaced at all areas of new disturbance caused by exploration core drilling that may damage existing topsoil, such as "cuttings pits", used to collect drill cuttings. Existing topsoil will be removed from these areas and stockpiled in a nearby area where it can be accessed without causing damage to the stockpile location. The topsoil stockpile will be "bermed", tarped, or otherwise protected to help prevent loss of topsoil due to rain and wind events. Once the cuttings pits have been re-filled with sub-soil material, the topsoil will be returned to its original location, spread evenly, and re-seeded as detailed in Section 2.05.4 of this document.

Topsoil for exploration core drilling and/or monitoring well drilling and reclamation will be salvaged from the following soil map units; Big Blue Clay Loam, Pulpit Loam, Umbarg Loam, and Witt Loam. Topsoil for mine reclamation will be salvaged from the following soil map units where suitable material for reclamation (greater than 6" is recoverable through normal means) is present; Zau Stony Loam. Due to limitations for use in reclamation, and an overall lack of suitable material, topsoil for reclamation will not be salvaged for reclamation from the following soil map units: Archuleta-Sanchez Stony Complex, Lazear Stony Loam, and Lazear Rock Outcrop Complex,.

A further discussion of topsoil salvage, protection, stabilization, and monitoring at exploration drill pads is contained in Sections 2.04.6 and 2.04.9.

OVERBURDEN

Approximately 20,500 cubic yards of material was removed from the portal area and used to construct the mine bench and base for all mine surface facilities. Additional overburden was excavated in the construction of the sediment pond. No overburden will be stockpiled as would occur in surface coal mining operations. There will be no overburden disposal sites at the King II mine.

Surface blasting is addressed in Section 2.05.3(6) of this application.

Water Balance

A water balance study has been prepared by CDS Environmental Services LLC and is included in this submission as Appendix 4(11). All water entering the mine is purchased at considerable cost; water is not left to "pond". All water is used in the mine for the sole purpose of controlling respirable dust as per MSHA regulations. Water is sprayed on the coal as it is being cut with continuous miners. This coal is shipped to the surface immediately via conveyor belts. MSHA regulations forbid storage of cut coal inside the mine. Water is sprayed on the conveyor belts to suppress dust. This water evaporates continuously and is sprayed continuously to keep the belts damp. Water is sprayed on the roadways to control dust that would be stirred up by mining machinery. Due to the large quantity of arid Southwest Colorado air that is forced into the mine to ventilate the working areas, as per MSHA regulations, water applied to the roadways evaporates quickly and must be re-applied frequently

NON-COAL PROCESSING WASTE

Salvageable steel, concrete and other construction materials will be removed from the mine site to a salvage yard or regulated landfill, if not needed for portal backfill. Materials will be stored while awaiting removal as shown on Map King II-007.

All debris, acid-forming and toxic-forming materials constituting a fire hazard are disposed of by a local waste removal company such as Waste Management. Grease, lubricants, paints, flammable liquids, etc. are stored in the Fuel Storage Building (see Map King II-007) with proper containment and collected on a regular basis by a certified hazardous material collection company such as Safety Kleen.

At no time shall any noncoal mine waste be deposited in a refuse pile or impounding structure, nor shall any excavation for noncoal mine waste disposal be located within 8 feet of any coal outcrop or coal storage area.

MINE WASTE ROCK DISPOSAL

During normal underground mining operations, shale and sandstone break away from the roof and floor of the coal seam. This material was initially removed from the King I mine, and is currently removed from the King II mine and placed in the existing Refuse Pile at the King I mine site (see King I PAP section 2.05.3). Most of the material removed from the King II mine currently originates from the area within OSMRE permit CO-0106A. All mine refuse is being constructed into a Refuse Pile. As of June 2017, approximately 176,000 yd^3 exist. Anticipated refuse production from 2017 through 2022 is approximately 5,000 cubic yards per year. The waste bank is currently designed to accommodate up to 1,000,000 yd^3. Details of design and construction are given in Appendix 10(1) and are entitled Waste Bank Design Summary Report, November 1993, revised December 1997, by Don R. May, P.E. The location of the mine Refuse Pile is shown on Map King I-007 and Mine Waste Pile Design, Plan Layout and Detail Sheet. Standard Proctor tests and nuclear density tests will be performed annually as detailed in Don May's aforementioned report to ensure that the waste pile continues to meet the designed compaction requirements. Should different types of strata be encountered during mining, these tests will be repeated to ensure that no significant changes in compaction are allowed.
MR-41, "Refuse Pile Sampling Plan", was approved September 22, 2016. This revision consisted of sampling several holes bored into the Refuse Pile, as well as several locations underground in and around the active workings of the King II mine. The report produced using the data obtained from this sampling has been submitted to the Division as MR-45, and is included in King I Appendix 4(8)
.

COAL FINES

Conveyor belt transported coal arrives at the surface for crushing, screening, storage, and truck loading. The processing of coal is part of the operation of the surface areas of the King II Mine. Four products are prepared for customer use. They are lump coal (6 inches plus), stoker coal (1 x 1/4 inch), nut coal (3 x 1 inch), and mine run coal (2 inch minus).

In the processing of these coals, fines are created (1/4 inch minus), by crushing and screening. These fines are mixed with mine run coal and sold. Coal fines are not stored on the surface in large amounts before being mixed with the mine run and sold. Of the processed product, about 10% to 15% of the coal is fines.

Mine run, stoker, and lump ("domestic") coal is stored in stockpile areas shown on Map King II-007. Mine run storage may amount to 40,000 tons. Open stockpiling is necessary, but large stockpiles are undesirable because of the potential of spontaneous combustion of the coal. Care is taken to keep the coal from being scattered. This is not only advantageous from the standpoint of controlling erosion of the pile but also contamination with spoil materials.

RETURN OF COAL MINE WASTE TO ABANDONED WORKINGS

No coal mine waste will be returned to underground workings at the King II Mine.

SHAFTS: VENTILATION, AIR & ESCAPE

Currently, the construction of ventilation, air, escape or other shafts is not anticipated.

SLIDES AND OTHER DAMAGE

At any time a slide occurs which may have a potential adverse effect on public property, health, safety, or the environment, GCC Energy shall notify the Division by the fastest available means and comply with any remedial measures required by the Division.

2.05.3(6) SURFACE BLASTING PLAN

During preliminary excavations at the King II portal area, a hard sandstone stratum was uncovered that may require surface blasting to break and loosen in order to facilitate excavation of the portal bench. The surface blasting plan is designed to address this stratum at the portal bench and any other areas at the King II Mine facilities area.

GCC Energy anticipates retention of a licensed Colorado blaster to undertake surface blasting activities and will not store explosives on site (except during the times the blaster is present and preparing the shot).

Types and Approximate Amounts of Explosives to be Used

Only one type of blasting operation is anticipated, the shooting of hard sandstone that cannot be broken or removed by other feasible means.

The type of explosives to be used are anticipated to include ANFO, dynamite, and detonation cord. The amount of explosive to be used is anticipated to be more than five pounds per blast and less than 2000 pounds per blast.

Surface Blasting Records

A surface blasting record form will be completed and retained at the mine office for at least three years after each surface blast at the mine. The form is included as pages 12 and 13 of this Section 2.05.3.

Blast Warning and Site Access Control

A blast warning will be employed prior to and after surface blasting at the mine. The pre-blast warning will consist of an audible oscillating siren one-minute long at one minute intervals for the three minutes prior to the blast. The post-blast all clear signal will consist of five short air blasts of the siren ten seconds apart, repeated three times.

Site access control will consist of personnel clearing the blast area of all non-blast related personnel and barricading the blast area with heavy equipment at all access points (roads and trails into to blast area). The barricades will be maintained for fifteen minutes prior to the blast and until the last all-clear signal has sounded.

Blast Monitoring, Pre-Blast Surveys

As there are no dwellings, public buildings, schools, church, or community or institutional buildings within one half mile of any blasting

area, nor is the blasting area within 500 feet of an active or abandoned underground mine, no monitoring is proposed. As blasting will not be conducted within one-half mile of any dwellings or structures, no pre-blast surveys are anticipated to be conducted.

To ensure compliance with restrictions on peak particle velocity, any blasting at the mine will comply with the limitations on maximum weight of explosives contained in Rule 4.08.4(10)(c)ii).

Blasting Schedule

GCC Energy will publish a blasting schedule between 10 and 20 days prior to initiating the surface blasting program in the ***Durango Herald***, the newspaper of general circulation in the area of the mine.

The blasting schedule will:

- identify the location of blasting
- time periods during which blasting will occur
- measures to control access to the blasting area
- the pre-blast warning and all-clear audible signals
- the unavoidable hazardous conditions which would require blasting outside the approved blasting schedule

If changes to the blasting schedule are necessary, the blasting schedule notice will be republished.

Unavoidable Hazardous Conditions

Blasting will occur during times indicated in the blasting schedule unless dangerous atmospheric or site conditions, as determined by the blaster-in-charge, require detonation to avoid accidental detonation. If so directed by an authorized law enforcement or regulatory agent, blasting may occur outside the times specified in the blasting schedule.

Air Blast Limitations

Air blast will not exceed the limitations described in Rule 4.08.4(6)(a).

On-Site Explosive Storage and Handling Facilities

There will be no on-site explosive storage and handling facilities. The licensed blaster will provide storage.

GCC ENERGY, LLC
SURFACE BLASTING REPORT

MINE _____
PERMIT # _____
COUNTY _____
STATE _____

DATE _____
TIME OF BLAST _____

LOCATION _____

BLASTER-IN-CHARGE _____ LICENSE # _____

SIGNATURE _____

DISTANCE TO NEAREST STRUCTURE (IN FEET) _____

STRUCTURE TYPE _____ DIRECTION FROM BLAST _____

WEATHER CONDITIONS (AT TIME OF BLAST) _____

TEMPERATURE _____ WIND DIRECTION/SPEED _____

COMMENTS _____

MATERIAL TYPE BLASTED: _____

TOTAL # HOLES SHOT _____ BURDEN (IN FEET) _____ SPACING (IN FEET)

DEPTH OF HOLES (IN FEET) _____ DIAMETER OF HOLES(IN INCHES)

TYPE(S) OF EXPLOSIVES USED: _____

TOTAL WEIGHT OF EXPLOSIVES USED PER HOLE (IN POUNDS) _____ STEMMING TYPE/LENGTH _____

MAXIMUM POUNDS DETONATED IN ANY 8 millisecond PERIOD _____ DECKING USED?

MAXIMUM HOLES DETONATED IN ANY 8 millisecond PERIOD: _____

METHOD OF DETONATION NONEL ELECTRIC CAP OTHER EXPLAIN _____

TYPE OF CIRCUIT USED SERIES PARALLEL NONEL OTHER

STEMMING TYPE USED _____ DEPTH _____ PROTECTIVE COVER USED ? YES

TYPE OF DELAY DETONATOR USED _____ MINIMUM DELAY PERIODS(millisecond)

DISTANCE FROM NEAREST HOLE TO SEISMIC METER _____

LOCATION OF SEISMIC METER _____ READING FOR THIS BLAST

NAME OF PERSONNEL RESPONSIBLE FOR SEISMIC METER _____

GCC ENERGY, LLC
SURFACE BLASTING REPORT
SHOT INFORMATION/DIAGRAM

MINE _____	LOCATION _____	DELAYS USED _____
DATE _____	DRILL _____	
TIME _____	PATTERN _____	LEAD IN USED _____
DRILLER _____	# OF HOLES _____	
SHOOTER _____	HOLE DIAM. _____	SHIFT _____
HELPER _____		

SHOT DIAGRAM

2.05.4 - RECLAMATION PLAN

RECLAMATION TIMETABLE

After completion of mining the following sequence of reclamation events will occur. These actions are estimated to take the specified amount of time but GCC Energy, LLC does not commit to any specified timeframe. Certain activities may be accelerated or delayed dependent on season and whether they can be carried on contemporaneously with other activities.

ACTIVITY	ESTIMATED TIMEFRAME
Mine Portal Sealing	**One month**
Demolition and Removal of Structures	**Four months**
Backfilling and Grading	**Six months**
Re-Establishment of Surface Drainages	**Two months**
Re-Topsoiling	**Two months**
Revegetation	**One Month**
Removal of Sediment Control Structures, Re-Topsoiling, and Revegetation	**Two months (two years later)**
Revegetation Monitoring	**Biennially**

RECLAMATION COSTS

The most recent cost estimate are be contained in Appendix 12.

REMOVAL OF SURFACE FACILITIES

All mine surface facilities, shown on the Operations Plan and Surface Features Map (King II-007), will be disassembled or removed from the mine site. The foundations, steel, and other non-woody material that cannot be sold for salvage will be pushed against the high-wall and covered by at least four (4) feet of non-toxic non-combustible fill and topsoil. Woody material will be removed from the mine site or burned.

All necessary county and state approvals will be obtained prior to burying any demolition debris on the site.

The following surface facilities and structures will be disassembled, removed, or otherwise reclaimed as described below. The designations following the surface facility name correspond to the legend on Map King II-007.

A) 100,000 Gallon Water Storage Tank: This steel tank will be removed from the site during reclamation. Concrete bases will be broken and buried in place or used for portal backfill.

B) 37,000 Gallon Water Storage Tank: This steel tank will be removed from the site during reclamation. Concrete bases will be broken and buried in place or used for portal backfill.

C) Pump House: Portable steel building used to house the various pumps and plumbing. This building as well as piping will be removed and sold as scrap.

D) Shop Equipment Wash Pad: This concrete pad is used in conjunction with an oil skimmer and storage tank to store equipment wash water. To be pumped by a 3rd party vendor.

E) Shop Building: 50'W x 60'L x 16'H steel building used for repair of various mine machinery and fabrication.

F, I) Mine Ventilation Fan: The main mine fan will be a 7' diameter fan as part of a steel structure consisting of air doors for escape purposes, explosion doors which protect the fan in the event of a mine explosion, and a culvert system which connects the fan to the underground workings.

G) Retaining Wall Adjacent to Main Fan: This wall is poured reinforced concrete and is used to protect workers and equipment from material which may fall from the high-wall cut above the fan portal.

H) Total Portal Reclaim Volume: Map King II-010D shows a volumetric calculation of fill quantities required to backfill all portals and the access road to the belt/return portal area.

J) Travelway Portal Structure: This concrete and steel structure will be broken and used for portal backfill.

K, VV) Motor Control Centers #1 & #2: These are portable steel buildings which will be removed from the site.

L) Rock Dust Storage Silo: 11' diameter x 40' tall steel silo for up to 150 tons of rock dust storage that will be removed from the site or cut up and sold as scrap.

M1, M2) Concrete Block Retaining Walls #1 & #2: These are pre-cast concrete block retaining walls used to adjust grade near the office and shop area. They will be broken and buried in place or used for portal backfill.

N) Executive Offices/ Parts Warehouse/ Bath House Building: 60'W x 150'L x 34'H steel building to contain all administrative offices, miner's changing and shower facilities, and a spare parts/supplies warehouse.

O) Covered Storage: This 20W' x 80L' x19'H open steel building will be of pole barn style construction, with steel post uprights and stringers, covered on the roof and three sides by corrugated steel.

P) Main Septic System Tank: This structure is a concrete tank that will be broken up and left in place during reclamation. All pipes to the tank will be removed and disposed of during reclamation.

Q) Parking Area: A 120'x175' graveled area adjacent to the Office Building. The gravel will be excavated and used for backfill at the portal area.

R) Fuel Storage Area: This 25W' x 45L' x20'H steel 3 sided structure will house one 2000 gallon diesel fuel tank with containments for fueling and an contained area for storage of lubricants for underground and surface diesel powered machines.

S) Main Septic System Drain Field: This structure is comprised of an underground gravel field that will be left in place during reclamation. All pipes to the drain field will be removed and disposed of during reclamation.

T) Belt Portal Structure: This concrete and steel structure will be broken and used for portal backfill.

U) Return Portal Structure: This concrete and steel structure will be broken and used for portal backfill.

V) Belt Portal Pump House: Concrete building used to house various pumps and plumbing. This building as well as piping will broken and used for portal backfill.

W) Temporary Waste Rock Storage Area: This area is to be used for temporary storage of underground mine waste rock waiting to be transported the refuse pile at the King I mine.

X) Bermed Topsoil Storage #2: Stored topsoil from this open pile will be re-spread on the disturbed areas after backfilling and grading. The bulk of salvage soil material from the site is very similar in composition and will be used for backfilling and topsoil as needed. The footprint of the topsoil storage area will be reseeded during re-vegetation.

Y, Y1) Electrical Substation: Electrical transformers and infrastructure, including transmission lines, poles, switchgear, concrete slabs and control room) will be removed. The gravel base for the 60 x 80 foot

substation area will be excavated and used for backfill at the portal area.

Z) Substation Ground Field: This area is laced with large, bare copper wire for grounding the main electrical substation. This wire will be pulled from the ground and sold as scrap.

AA) Main Dumpster Pad: The roll-away dumpster sits on this pad. The dumpster is provided by a local waste disposal service.

BB0 thru BB6) Slope Conveyor: This 42" conveyor delivers coal from inside the mine to the Coal Stack Tube #1 & Head House, 20,000 Ton Coal Storage Pile #1. Part of this conveyor utilizes a covered "box truss" design.

CC) Magnet Dumpster Pad #1: A small dumpster sits on this pad to receive the material which is picked up by the belt magnet. The dumpster is provided by a local waste disposal service.

DD, DD1) Coal Stack Tube #1 & Head House, 20,000 Ton Coal Storage Pile #1: Coal will be removed from the site prior to reclamation. Any remaining coal or coal fines will be excavated and buried under four (4) or more feet of non-toxic non-combustible backfill (including topsoil).

EE) Magnet Dumpster Pad #2: A small dumpster sits on this pad to receive the material which is picked up by the belt magnet. The dumpster is provided by a local waste disposal service.

FF thru FF4) Raw Coal Conveyor: 36" conveyor which draws coal from the bottom of the raw coal storage stockpile and delivers it to a coal crusher.

GG) Crushing/Screening Structure: This steel structure processes raw coal. Coal is crushed to a 2" x 0" product for sale to commercial customers and sorted to additional sizes for domestic customers.

HH, JJ) Lump & Stoker Conveyors #1 & #2: These 24" radial stacker conveyors are used to stockpile the domestic coal products once they have been screened. These are portable conveyors which will be removed from the site.

II, KK) Domestic Coal Piles #1 & #2: Raw coal from underground will be delivered to the Coal Crusher/Screening structure. Larger pieces of coal for domestic use will be separated and stored here using Stacker Conveyors #1 & #2. This coal will be delivered by truck to an off-site domestic coal sales yard. Provisions will also be made at this area to divert waste rock and lower quality coal for shipment to a refuse pile or for re-blending into the commercial coal product.

LL) Crushed Coal Storage Conveyor: Crushed coal is moved from the Coal Crusher/Screening Structure to the Coal Stack Tube & Head House, 20,000 Ton Coal Storage Pile #2 via a 36" conveyor.

MM, MM1) Coal Stack Tube #2 & Head House, 20,000 Ton Coal Storage Pile #2: Coal will be removed from the site prior to reclamation. Any remaining coal or coal fines will be excavated and buried under four (4) or more feet of non-toxic non-combustible backfill (including topsoil).

NN) Cross-belt Coal Sampler: This small steel structure sits on a concrete pad. A motorized arm collects coal samples from the conveyor belt and deposits them in buckets for analysis.

OO thru OO5) Truck Loadout Conveyor: 36" conveyor which draws coal from the bottom of the crushed coal storage stockpile and delivers it to the Truck Loadout bins.

PP) Truck Loadout Structure & Bins: The truck loadout facility will be an automated batch-weigh structure. Coal trucks will arrive under a chute at the bottom of the loadout and a pre-measured amount of coal will be deposited in the trailer.

QQ) Truck Scales: These are portable scales that will be removed from the site during reclamation.

RR) Coal Sales Building: This 17W' x 21L' x10'H structure is a conventional stick-built building.

SS, TT) Coal Sales Building Septic Tank and Drain Field: The drain field is comprised of an underground gravel field that will be left in place during reclamation. All pipes to the drain field will be removed and disposed of during reclamation. The tank is a concrete tank that will be broken up and left in place during reclamation. All pipes to the tank will be removed and disposed of during reclamation.

UU) Coal Sales Building Parking Area: This level area used for temporary storage. Gravel from this area will be buried in place and re-topsoiled or excavated and used for portal backfill.

WW) Bermed Topsoil Storage #1: Stored topsoil from this open pile will be re-spread on the disturbed areas after backfilling and grading. The footprint of the topsoil storage area will be reseeded during re-vegetation.

XX) Concrete Truck Wash-Out: This small bermed area is to collect material that is washed from trucks which deliver concrete to the site.

YY) Sediment Pond and Diversion Ditches: The sediment pond is not intended as permanent feature of the mine site, but will remain intact until the site has been successfully reclaimed.

ZZ) Cattle Guard: The cattle guard will either be removed or cut up for scrap or offered to the surface grazing lease holder of the area.

AAA) Portable Offices and Storage Containers: Until the Executive Offices/Parts Warehouse/Bath House Building is completed, several portable offices and storage containers will be utilized. These units are leased from a 3rd party supplier.

BBB) Waterline to Connect to Huntington Ranch Waterline: The waterline will be buried a minimum of 4 feet deep to avoid freezing. The waterline will be left in place during the reclamation phases to supply water to the site for plant germination and dust control. Upon final reclamation, the valve feeding the pipe will be closed. There are no plans to remove the buried portions of the pipe for reclamation purposes. The surface of the field, once the original trench has been back-filled, will be re-seeded using the approved seed mix.

CCC) Equipment Storage Area: A small area just north of the shop used to store machinery or supplies.

Map Symbol	Structure Description	Structure					Slab				Foundation/Footers				Comments
		Volume	Length	Width	Height	Diameter	Length	Width	Thick	Qty	Length	Width	Thick	Qty	
A	Water Storage Tank, 100,000 Gallon	14771			24	28	Circular pad = 613 ft2 x .75								Steel Structure
B	Water Storage Tank, 37,000 Gallon	5007			35	13.5	32	14	6						Steel Structure
C	Main Pump House	1774	14	10	12.67										Metal Building
D	Shop Equipment Wash Pad	0					50	25	0.75		150	2	1		Concrete Pad
E	Shop Building	48000	60	50	16		60	50	0.75		220	2	1		Metal Building
F	Mine Fan	7508	28.6	25	10.5		8	6	4						Steel Structure
G	Retaining Wall Adjacent to Main Fan	480	60	1	8						60	7	1		Concrete Wall
H	Total Portal Reclaim Fill Volume	20,500yd3													See Map King II-010D
I	Fan Portal Structure	4800	30	20	8		30	20	1		100	0.75	4		Metal Building
J	Travelway Portal Structure	4800	30	20	8						60	14	1		Metal/Concrete Building, No Floor
K	Portal Motor Control Center (Portal MCC)	1800	14	10	12.67		14	10	0.5		48	2	0.75		Metal Building
L	Rock Dust Storage Silo	3799			40	11	12	12	1		2	2	2		Steel Structure
M1	Concrete Retaining Wall #1	900	150	2	3										Concrete Block Wall
M2	Concrete Retaining Wall #2	560	70	2	4										Concrete Block Wall
N	Executive Offices/Parts Warehouse/Bath House Building	306000	150	60	34		150	60	0.5		420	1	4		Metal Building
O	Covered Storage Building (Open, Three Sided)	29600	80	20	18.5		80	26	0.5		260	1	4		Metal Building, Includes Internal Footings
P	Main Septic System Tank	600	10	10	6										4000 Gallon Tank
Q	Main Parking Area	0	80	120											Graveled Area
R	Fuel Storage Building	22500	45	25	20		45	27	0.75		140	1	4		Includes 4' apron on west half
S	Main Septic System Drain Field	0	80	50											Leach Field
T	Belt Portal Structure	3000	15	20	10						30	1	2		Metal/Concrete Building, No Floor
U	Return Portal Structure	3000	15	20	10						30	1	2		Metal/Concrete Building, No Floor
V	Belt Portal Pump House	2800	20	14	10		20	14	0.75		68	2	1		Concrete building (walls & ceiling 1' w/rebar)
W	Waste Rock Storage Area (Waste Rock Trucked to King I)	0	20	20											Temporary Gob Storage
X	Bermed Topsoil Storage #2	19,000yd3													Topsoil and Subsoil are Equal at this site
Y	Electrical Substation, Building	2660	19	14	10		19	14	0.5						Metal Building, Concrete Pad, Thickened Edge
Y1	Electrical Substation, Slabs						35	35	0.5						Various Slabs, Thickened Edge
Z	Electrical Substation Ground Field (Buried Copper Wire)	5000	50	50	2										
AA	Main Dumpster Pad	0					20	8	0.5						Concrete Pad, Thickened Edge
BB0	Slope Conveyor (Box Truss Section)	15360	240	8	8										Belt Conveyor, 42"
BB1	Slope Conveyor: Bent 1	7	3	0.75	3		8.5	3.25	1	1	1.5	1.5	4	2	Steel Structure
BB2	Slope Conveyor: Bent 2	105	5	7	3		10	5	1	1	1.5	1.5	4	2	Steel Structure
BB3	Slope Conveyor: Bent 3	21	5	0.75	5.5		10	5	1	1	1.5	1.5	4	2	Steel Structure
BB4	Slope Conveyor: Bent 4	26	5	0.75	7		15	7	1.2	1	1.5	1.5	4	2	Steel Structure
BB5	Slope Conveyor: Bent 5	5550	18.5	5	60		10	10	1.5	2	2	3	4	2	Steel Structure
BB6	Slope Conveyor (Non-Box Truss Section)	1760	110	4	4										Belt Conveyor, 42"
CC	Magnet Dumpster Pad #1	0					8	8	0.5						Concrete Pad, Thickened Edge

Map Symbol	Structure Description	Structure					Slab				Foundation/Footers				Comments
		Volume	Length	Width	Height	Diam.	Length	Width	Thick	Qty	Length	Width	Thick	Qty	
DD	Coal Stack Tube #1, 20,000 Ton Coal Storage Pile	7461			66	12									Steel Structure
DD1	Coal Stack Tube #1 Head House	4350	14.5	12	25										Steel Structure
EE	Magnet Dumpster Pad #2	0					8	8	0.5						Concrete Pad, Thickened Edge
FF	Raw Coal Conveyor	2832	177	4	4										Belt Conveyor, 36"
FF1	Raw Coal Conveyor: Bent 1	9	5	0.75	2.5		7	3	1	1	1.5	1.5	4	2	Steel Structure
FF2	Raw Coal Conveyor: Bent 2	69	8	0.75	11.5		4	4	1	2	1.5	1.5	4	2	Steel Structure
FF3	Raw Coal Conveyor: Bent 3	250	10	1	25		5.5	5.5	1	2	1.5	1.5	4	2	Steel Structure
FF4	Raw Coal Conveyor: Bent 4	360	12	1	30		4	4	1	2	1.5	1.5	4	2	Steel Structure
GG	Crushing/Screening Structure	37100	28	25	53		40	30	0.5						Thickened Edge
GG1	Crushing/Screening Structure Pile Caps	0					6.5	3.5	4	6	1.5	1.5	4	6	Concrete Pads
HH	Lump Conveyor	900	100	3	3										Portable 24" Radial Stacker Belt
II	Lump Coal Storage Area	0			30	60									
JJ	Stoker Conveyor	900	100	3	3										Portable 24" Radial Stacker Belt
KK	Stoker Coal Storage Area	0			30	60									
LL	Crushed Coal Storage Conveyor	10240	320	4	8		7.75	6	1	1	5.75	4	4	1	Belt Conveyor, 36"
LL1	Crushed Coal Storage Conveyor: Bent 1	8	5	0.75	2		7	3	1	1	1.5	1.5	4	2	Steel Structure
LL2	Crushed Coal Storage Conveyor: Bent 2	21	5	0.75	5.5		7	3	1	1	1.5	1.5	4	2	Steel Structure
LL3	Crushed Coal Storage Conveyor: Bent 3	38	5	0.75	10		14	7	1.2	1	1.5	1.5	4	2	Steel Structure
LL4	Crushed Coal Storage Conveyor: Bent 4	3060	17	5	36		8	8	1.5	2	1.5	2.5	4	2	Steel Structure
MM	Coal Stack Tube #2, 20,000 Ton Coal Storage Pile	7461			66	12									Steel Structure
MM1	Coal Stack Tube #2 Head House	4350	14.5	12	25										Steel Structure
NN	Cross-Belt Coal Sampler	0					20	20	6						Concrete Pad, Thickened Edge
OO	Truck Loadout Conveyor	8320	260	4	8										Belt Conveyor, 36"
OO1	Truck Loadout Conveyor: Bent 1	4	5	0.75	1		7	3	1	1	1.5	1.5	4	2	Steel Structure
OO2	Truck Loadout Conveyor: Bent 2	17	5	0.75	4.5		4	4	1	2	1.5	1.5	4	2	Steel Structure
OO3	Truck Loadout Conveyor: Bent 3	43	5	0.75	11.5		4	4	1	2	1.5	1.5	4	2	Steel Structure
OO4	Truck Loadout Conveyor: Bent 4	3864	12	14	23		8	8	1.2	2	1.5	2.5	4	2	Steel Structure
OO5	Truck Loadout Conveyor: Bent 5	3864	12	14	23		5	5	1.2	2	1.5	2.5	4	2	Steel Structure
PP	Truck Loadout Structure & Bins	13500	30	15	30		6.5	3.5	4	6	2	2	4	12	Pile Caps
QQ	Truck Scale	4800	120	20	2		150	16	1						Thickened Edge
RR	Coal Sales Building	2400	20	12	10		20	12	0.5						Thickened Edge
SS	Coal Sales Building Septic System Drain Field	0	50	30											Leach Field
TT	Coal Sales Building Septic System Tank	300	6	10	5										Concrete Tank
UU	Coal Sales Building Parking Area	0													Graveled Area
VV	Main Motor Control Center (Main MCC)	3501	21	16.67	10		21	20	0.5		84	1.5	2		Block Building, Slab Thickened Edge
WW	Bermed Topsoil Storage #1	5000yd3													High quality soil only from lower site
XX	Concrete Truck Wash-Out	0	12	12											Bermed area to wash out trucks
YY	Sediment Pond	0													See Maps King II-007 D,E,F,G
ZZ	Cattle Guard	96	8	24	0.5										Steel Structure
AAA	Portable Office or Storage Container														Leased from port. building vendor
BBB	Waterline to Connect to Huntington Ranch Waterline														6 Inch Pipe Buried >4 Feet Deep
CCC	Non-Coal Equipment Storage Area														Equipment Storage Area
*	All dimensions shown in feet, volumes in cubic feet. All concrete is reinforced with rebar.														

BACKFILLING AND GRADING

Backfilling and grading will be undertaken to achieve the post-mining topographic configuration shown on Maps King II-010 A, B & C.

Historic pre-mining stream channels had been backfilled and otherwise disturbed in various areas, apparently for agricultural purposes. Post-reclamation stream channels will mimic, to the extent practicable, channels up-gradient (northeast) of the disturbed surface facilities. These channels are typically low gradient and grass lined, with occasional natural rock segments. Temporary erosion protection, such as erosion mats, will be utilized during reclamation until grass channels can be established.

RETOPSOILING

Topsoil will be replaced to a finished depth of six (6) inches (as described in Section 2.05.3) over all disturbed areas to be reclaimed. Topsoil replacement operations will be completed after backfill and grading operations. To ensure good contact between replaced topsoil and re-graded material, the surface of re-graded areas will be left in a roughened condition. Topsoil will be replaced using methods to minimize compaction after placement. In areas where compaction occurs, ripping or tilling of the replaced topsoil will take place.

REVEGETATION

Re-vegetation Measures

Re-vegetation measures have been developed to meet the goals of providing native, self-sustaining vegetation communities of similar nature and composition as those present in the pre-mining landscape and to provide equivalent or better carrying capacity and utility post-mining.

Timing

With the significance and dominance of cool season graminoid species in the rabbitbrush/big sage mixed shrub-land community, emphasis should be placed on ensuring germination and survival of these species in the re-vegetation seed mixes. Precipitation during the growing season (April-September) decreases from April through June, increases in July and August, and then decreases slowly through the end of the growing season.

Given this precipitation distribution, two seeding windows are proposed. A spring seeding window would take advantage of increased mid-late summer precipitation, encouraging summer growth and allowing plants to add sufficient biomass prior to winter. A second autumn seeding window allows seeding into relatively moist ground, but prevents significant seedling growth prior to freezing, allowing seeds to remain dormant over the winter with adequate moisture for early germination in the spring. Two optimal windows for re-vegetation seeding are proposed dependent on the observations described above; a spring window from March 15 to June 15 and a fall window from August 15 to November 15. Vegetation seeding will occur during the first planting window after completion of work within the re-graded and topsoiled area.

Seed Mix

The seed mix for the re-vegetation of the King II Mine was developed based on the stated post-reclamation land uses of rangeland and fish and wildlife habitat, and the goal of reestablishing vegetation communities characteristic of the pre-disturbance landscape and complementary to those vegetation communities currently existing outside the areas of disturbance.

A seed mix for the mine site requires species adapted to predominantly loamy soils. The plant species must be adapted to xeric and potentially droughty moisture conditions, given the predominantly south and southwest exposures of the area to be reclaimed. The majority of the species selected were cool season, complementing the adjacent native vegetation. The species selected were robust, and either tall or bushy to provide wildlife cover and forage. A mix of warm and cool season species was developed to provide wildlife with cover and forage throughout the growing season. Graminoids, forbs, and shrubs to be seeded provide a mix of plant morphologies and structures.

Application Methods

Drill seeding will be employed in all areas where slopes are 3:1 or less and equipment access is not a problem. In the remaining cases, broadcast seeding will be employed.

The drill should be regulated to place seed between 0.25 and 0.5 inches in depth from the ground surface. The seeding rate identified in each seed mix table is the rate of application to be used when drill seeding. Drill rows should be positioned so as to be perpendicular to the predominant wind direction and along the contour. In areas where marginal seeding conditions exist (rocky, windswept, shallow soil), two passes of the drill seeder are appropriate, the applications being perpendicular to each other and 45° offset from the predominant wind direction. Broadcast seeding will be employed in areas where drill seeding cannot be employed due to limitations in area or slope. Where broadcast seeding is employed a centrifugal, fan, airblast, or hydroseeder should be used to distribute the seed. Whenever broadcast methods are employed it is critical to ensure that the seed is subsequently covered through raking, harrowing, disking, cultipacking, or mulching. Seeding rates for broadcast seeding are twice those employed for drill seeding.

Mulching

Mulch will be employed to minimize loss of seed due to wind and water, and to provide additional moisture retention. Any of the following mulch methods may be employed depending on time of anticipated reseeding, mulch availability, and site specific factors such as slope and aspect.

REVEGETATION SEED MIX: RANGELAND AREAS

COMMON NAME	SPECIES NAME	CHARACTER	VARIETY	SEEDS/LB	SEEDS/ SQFT	SEED RATE lbs (pls)/ac
Graminoids						
Western Wheatgrass	***Agropyron smithii***	**perennial, native cool-season, sod**	**Arriba**	120,000	6	2.18
Slender Wheatgrass	***Agropyron trachycaulum***	**perennial, native cool-season, bunchgrass**	**San Luis**	140,000	4	1.24
Sideoats Grama	***Bouteloua curtipendula***	**perennial, native, warm-season, bunchgrass**	**Butte**	175,000	4	1.00
Blue Grama	***Bouteloua gracilis***	**perennial, native, warm-season, sod**	**Lovington**	725,000	10	0.60
Mountain Brome	***Bromus marginatus***	**perennial, native cool-season, bunchgrass**	**Bromar**	75,000	3	1.74
Indian Ricegrass	***Oryzopsis hymenoides***	**perennial, native, cool-season, bunchgrass**	**Paloma**	150,000	5	1.45
Forbs						
Copper Globemallow	***Sphaeralcea coccinea***	**perennial, native, warm-season**	**ARS 2936**	500,000	5	0.44
Small Burnet	***Sanguisorba minor***	**perennial, introduced, cool-season**		45,000	3	2.90
Totals					40	11.56

note: rates proposed are for drill seeding, broadcast rate 2x

ADDITIONAL SPECIES FOR PINYON-JUNIPER AREAS

COMMON NAME	SPECIES NAME	CHARACTER	VARIETY	SEEDS/LB	SEEDS/ SQFT	SEED RATE lbs (pls)/ac
Shrubs						
Winterfat	***Ceratoides lanata***	**perennial, native**	**Hatch**	112,000	5	1.94
Mountain Mahogany	***Cercocarpus montanus***	**perennial, native**	**Montane**	45,000	5	4.84
Bitterbrush	***Purshia tridnetata***	**perennial, native**	**Maybell**	15,000	3	8.71
Skunkbush Sumac	***Rhus trilobata***	**perennial, native**	**Bighorn**	20,000	2	4.36
Totals					15	19.85

note: rates proposed are for drill seeding, broadcast rate 2x

Hay/Straw Mulch

Hay and/or straw mulch will be employed in areas where wind or water erosion is of significant concern. Such areas may include channel bottoms and hillside slopes. Any hay or straw employed must be certified as native and weed and pest free in accordance with U.S. Department of Agriculture regulations. Hay or straw mulch will be applied at a rate of two (2) tons per acre and crimped or disked into the surface of the soil. Application should be perpendicular to the predominant wind direction and/or the direction of surface water flow.

Hydromulch and Tackifier

Hydromulch and tackifier will be used to anchor seed and any amendments to the soil surface on revegetation areas where the slope is greater than 2.5:1 (horizontal: vertical). Hydromulches to be used would be inert wood and plant fiber products (cellulose), and acceptable tackifiers would be comprised of plant gums or organic co-polymers. Hydromulch and tackifiers should be applied with a hydromulcher at a manufacturers recommended rate of 2500 pounds of hydromulch and tackifier per acre. Hydromulch and tackifier should be applied after seeding, and any application of other soil amendments.

Stubble Mulch

As an alternative to hay or straw mulch in the same applications, stubble mulch (nurse or cover crop) may be employed. This mulch should only be employed in areas accessible to mowing, should that be necessary to control mulch growth or spread. Suitable mulches to be employed would include sterile crosses of agricultural wheat and native wheatgrasses (such as the product Regreen®), sorghum, barley, or other agricultural crop grass. The local Natural Resource Conservation Service office, Agricultural Extension office, or other crop management agency will be contacted to determine stubble mulch strip width, direction, and seeding rate for specific stubble mulch planting.

Irrigation

Irrigation is not employed at the King II Mine.

Revegetation Management

To ensure timely development of the vegetation on the revegetated areas, and to ensure successful revegetation, management of the revegetated areas is necessary. Management measures include control of weeds and pests, reseeding areas as necessary and controlling access to revegetated areas by humans and wildlife.

Management of the revegetation parcels will be undertaken in the period between revegetation and final bond release. Management measures will be designed and implemented to ensure the success of revegetation measures. Management measures may include thinning vegetation through fire, mechanical or other means, reseeding or replanting vegetation, weed and pest control, relocating or eliminating undesirable wildlife species, and controlling access and human activities.

Weed and Pest Management

As an integral part of the revegetation plan, noxious weeds and plant pests will be managed within the revegetated areas. Weed species to be controlled are identified as those plant species identified by current state statute or regulation as noxious. The species are not listed here as the list of noxious species changes regularly. Plant pests are defined as those biological species that significantly predate the desirable vegetation of the project site.

The presence of noxious weeds and plant pests will be monitored annually during the summer. Management measures will be undertaken where a single or combination of noxious weed species or plant pests comprises or shows a deleterious effect to more than ten (10) percent of the live vegetation. Further, where noxious weed species or plant pests constitute more than 25 percent relative vegetation cover in an area of 500 square feet or such area shows depredation or plant impacts of the same magnitude, such area will be identified as a patch, and subject to management measures, irrespective of the percentage of overall noxious weed cover in the mitigation area.

Noxious weeds or plant pests may be controlled by any combination of cultural, mechanical, biological or chemical measures. Weed control measures will be developed specifically for the noxious weed species encountered and in conjunction with the local weed control district and/or the Colorado State Department of Agriculture.

Where noxious weed control measures cause disturbance to the remaining vegetation, seeding or planting of desirable replacement vegetation will occur during the first normal planting or seeding season after weed control measures have been implemented.

Revegetation Monitoring

The success of planted and seeded vegetation will be monitored biennially after initial planting and seeding. Monitoring will consist of qualitative and quantitative vegetation sampling techniques that measure the vegetation cover, species diversity and the survival of plant species within the revegetated areas.

Revegetation Sampling Methods

Revegetation sampling methods employed to measure the success of revegetation at the King II Mine will comply with those specified by the regulatory authority at the time of revegetation monitoring and bond release. Currently CDRMS Rule 4.15.11 specifies methods for use in vegetation sampling. Any of those specified methods may be employed at the King II Mine for vegetation sampling.

Revegetation Success Criteria

In consultation with the Colorado Division of Reclamation, Mining and Safety (Division) in 2005, the big sage mixed shrubland community was delineated and quantitatively sampled. The Division agreed that a segment of that vegetation community (located outside the surface facilities disturbed area) would be utilized as a reference area for revegetation success determinations. Since the reference area was a subset of the vegetation community quantitatively sampled, there was no need for a separate statistical evaluation. The location of the reference area is portrayed on the Soils, Vegetation & Land Use Map, King II-006. The reference area, consisting of approximately 3 acres, is signed to prohibit unauthorized access, however it is not fenced, providing access to wildlife.

The reference area will serve to provide revegetation success criteria for total vegetation cover and total herbaceous production. These parameters will be sampled during the same season and in the same manner as the revegetated area to establish the success criteria for total vegetation cover and total herbaceous production at the time of revegetation sampling for monitoring or bond release.

Success Criteria: Total Vegetation

Vegetation cover of the reclaimed area will be successful when total live vegetation cover is equal to or greater than 90 percent of the total herbaceous vegetation cover of the approved reference area with 90 percent statistical confidence (utilizing a one-tailed statistical test).

Success Criteria: Total Herbaceous Production

Herbaceous production (defined as current year above-ground biomass of herbaceous vegetation) of the reclaimed area will be successful when total herbaceous production is equal to or greater than 90 percent of the total herbaceous production of the approved reference area percent with 90 percent statistical confidence (utilizing a one-tailed statistical test).

Success Criterion: Species Diversity

Species diversity success criteria for revegetated parcels are based on the species numbers, richness and relative abundance in native vegetation communities. Baseline vegetation cover data for the rabbitbrush/big sage mixed shrubland community were employed to determine the dominant plant species of the community, as well as their lifeforms and seasonality. Dominance was determined through selection of species that contributed relative cover of three (3) percent or more relative cover in the baseline sampling. Six species contributed this amount of relative cover; one introduced annual cool season grass, two native cool season grasses, one introduced cool season grass, and two shrubs.

Discounting the desirability of re-establishing an annual introduced grass, and in order to reflect more typical species diversity in the revegetated area, a total of six perennial plant species should be reestablished. Of these species, three should be graminoid, one a forb, and two shrubs in life form. All of the qualifying species should be cool season, deciduous, or evergreen. A minimum of four species should be native. Both bunchgrasses and sod-forming grasses should be represented, though no specific number of each is necessary. No single species should contribute more than 40 percent mean relative cover or less than two percent mean relative cover for graminoids or one percent relative cover for the forb in the revegetated area. Species diversity will have been successfully achieved when the above specifications are met.

Success Criterion: Woody Plant Density

Current woody plant density within the rabbitbrush/big sage mixed shrubland is 2977 individuals/acre. Observation of the community indicates that the current density (particularly of rubber rabbitbrush) is overly high for the post-mining use of rangeland. Neither rubber rabbitbrush nor big sage is particularly desirable for livestock. For this reason, woody plants are not proposed for re-establishment within any area identified as within the rabbitbrush/big sage mixed shrubland vegetation community of the mine site. Woody plants are proposed to be re-established within all areas disturbed and subsequently reclaimed and revegetated within the area identified pre-mine as the pinyon-juniper vegetation community. Within the overall disturbance of 22.36 acres, approximately three (3) acres of pinyon-juniper woodland is proposed for disturbance. When revegetating within the area identified as the pinyon-juniper woodland community pre-mine, additional shrub species will be added to the reclamation seed mix as depicted on the seed mix table to facilitate achieving the designated post-mining land use of wildlife habitat.

In the area identified pre-mine as pinyon-juniper woodland, a woody plant density standard of 200 stems/acre is proposed. Achievement of woody plant density will have occurred, in the area identified pre-mine as pinyon-juniper woodland, when the sampled density is statistically equal to 200 stems/acre. This standard achieves an average woody density of one stem per 218 square feet (or one stem on fifteen foot centers).

Soil Testing Plan

Fertilization immediately after topsoil replacement or coincident with initial revegetation has been shown to promote weed and annual growth on reclaimed areas. For this reason, evaluation of major plant nutrient (N, P, K) concentrations will be undertaken during the second or third growing season after initial seeding. At that time, soil testing will be undertaken to evaluate the concentrations of the major and minor plant nutrients. If sampling reveals a deficiency, fertilizer will be applied at a rate based on recommendations of the NRCS or soil conservation agent. Application can be through aerial means or dry application between the rows of seedlings.

DEBRIS DISPOSAL

Non-coal non-toxic debris and trash will be used as backfill in the portals. Salvageable steel, concrete and other construction materials will be removed from the mine site to a salvage yard or regulated landfill, if not needed for portal backfill. Any remaining liquid waste will be removed to the appropriate regulated disposal facility.

Coal stockpiles will be sold. Any coal residue will be collected with a front-end loader, motor grader, or bulldozer. The residue would be shale and sandstone rock mixed with small amounts of coal. This residue would be ideal for the use of backfilling the portals.

All debris, acid-forming and toxic-forming materials constituting a fire hazard are disposed of by a local waste removal company such as Waste Management or Baker Sanitation. Grease, lubricants, paints, flammable liquids, etc. are collected on a regular basis by a certified hazardous material collection company such as Safety Kleen.

SEALING MINE OPENINGS

In accordance with the requirements of our mine plan, 211.41 (c) 30 CFR, the portals (mine openings or entrances into the King I Mine) will be backfilled and sealed against inflows of surface water and access by animals or people. Coal stockpile residue on the permit area will be scraped from the surface and used for backfill inside the portals. This will limit the presence of any potential acid-forming or toxic materials in backfilled and re-graded area and minimize potential contamination of topsoil and revegetation. The four portals are each approximately 10 feet wide by 8 feet high. To fill them to a depth of 25 feet will require about 296 cubic yards of material plus a small amount to account for sloughing at the inby end. Total portal backfill will require approximately 400 cubic yards of material. After back-filling to a depth of 25 feet from the portal, the mouth of the portals will be caved to completely seal them. The area will then be backfilled, graded and smoothed over to closely approximate the original contour of the hill into which the portals have been opened.

SEALING EXPLORATION DRILL HOLES

Any coal exploration drill holes, vent holes, and groundwater monitoring wells (not transferred to the landowner) in the permit area will be backfilled, sealed at water bearing zones, and capped with concrete plugs to meet reclamation requirements.

GCC proposed to drill up to 9 exploration holes (TR-22), numbered CO-15-14 thru CO-15-22 (hole CO-15-22 was not drilled) as shown on Appendix 4 (4) page 1, within the existing permit area. Holes were rotary-drilled, nominally 5 to 6 inches in diameter, to predetermined core points. The total depth of each borehole was about 320 feet. This predetermined core zone was cored by PQ wireline methods. Drilling was with air, air with water injection or water. Cuttings pits were necessary at all locations drilled by conventional methods (see drawing at Appendix 4(4). Locations of holes and existing access roads are shown on the attached topography and drill hole locations map.

All 8 boreholes drilled utilized the already disturbed area of the existing roadway minimizing the foot print. Cutting pits were constructed to capture the cuttings for replacement into the completed borehole prior to plugging the hole. Cuttings pits were necessary at all locations drilled by conventional methods (see drawing at Appendix 4(4). Cuttings pits were excavated by a back-hoe and are approximately 6 feet wide by approximately 10 feet long. The pits were unlined and construction was the same for all drilling methods used. Drill holes were sealed by filling with cement or other suitable water sealing material to within 3 feet of the ground surface. The plug was be covered with like material as in road base or topsoil depending which is present. Tracks were be raked or brushed to remove obvious signs of activity.

The 9 drill sites will be reseeded (unless disturbance is confined to areas previously disturbed such as preexisting roads, drill pads, etc.) once topsoil has been replaced to pre-disturbance depth using the seed mixes for Rangeland and, if applicable, Pinyon-Juniper as listed in Section 2.05.4, page 12 of this document. Broadcast seeding will be employed due to the very limited size of the disturbed areas. Whenever broadcast methods are employed it is critical to ensure that the seed is subsequently covered through raking, harrowing, or mulching. Seeding rates for broadcast seeding are twice those employed for drill seeding. In addition, applicable sections of the part of this document entitled "REVEGETATION" beginning in Section 2.05.4, page 9 will be adhered to.

SEALING MONITORING WELLS, TR-26

GCC drilled 4 monitoring well "clusters" of 3 wells each, numbered MW-1 thru MW-4 as shown in King II Appendix 4 (9), Baseline Monitoring Well Specifications, and one alluvial monitoring well in Hay Gulch, upgradient from the King I mine site (MW-HGA-4) as shown in King II Appendix 4 (13). MW-1, MW-3, MW-4 and MW-HGA-4 are outside of the existing permit area. MW-2 is within the existing permit area. Each cluster consists of one hole drilled in the Menefee formation to just above the "A" coal seam, one is drilled into the A coal seam, and the remaining hole is drilled to below the A seam to a depth just above the "B" coal seam. Alluvial Well MW-HGA-4 is a single well drilled into the Hay Gulch Alluvium.

See King II Appendix 4(9), Bedrock Cluster Monitoring Well Specifications, for schematics and construction details of the bedrock cluster wells and Appendix 4(13) for schematics and construction details of the Alluvial Monitoring Well. Drilling was with air, air with water injection or water. Cuttings pits were necessary at all locations drilled by conventional methods (see drawing at Appendix 4(4)). Cuttings pits were excavated by a back-hoe and were approximately 6 feet wide by approximately 10 feet long. The pits were unlined and construction was the same for all drilling methods used. Locations of proposed holes and existing access roads are shown on the attached topography and drill hole locations map

A small cutting pit was constructed to capture the cuttings. During final reclamation, all drill holes will be sealed by filling with cement to an elevation above the coal seam encounter, then replacing cuttings or other suitable media in the hole and placing a suitable plug 10 feet below the ground surface for support of a cement plug to within 3 feet of the ground surface. The plug will be covered with like material as in road base or topsoil depending which is present. Tracks will be raked or brushed to remove obvious signs of activity.

Where topsoil has been salvaged and stockpiled, the topsoil will be re-spread evenly over the drill pad area where topsoil was located prior to drilling. The topsoil will be mulched (as necessary) and reseeded as described.

Given the small size and temporary nature of the drill pads, GCC requested that these areas be granted SAE (small area exemption) status with regard to sediment control. To ensure minimal impact from water erosion, each drill pad will have straw wattle erosion "logs" installed along the downgradient side or sides of the drill pad. The straw wattles will filter any surface water runoff from the temporary drill pad during operations and will be left in place until reclamation of the drill pad is complete and vegetation has become established.

The monitoring well sites will be re-seeded as described in Section 2.04.10.

COMPLIANCE WITH THE CLEAN AIR ACT AND CLEAN WATER ACT

GCC Energy, LLC has obtained permits for air emissions and point source discharges from the Colorado Department of Public Health and Environment, delegated agency for enforcement of the Clean Air act and Clean Water Act. There are no waters of the United States requiring a permit from the U.S. Army Corps of Engineers. There are no federally listed or candidate species that require a take permit, habitat conservation plan, or mitigation plan from the U.S. Fish and Wildlife Service.

TR-26 has been approved by the Division to further address ground water monitoring, springs & seeps and additional surface monitoring of the Hay Gulch Ditch. Data obtained will be used to update the Probable Hydrologic Consequences and the Cumulative Hydrologic Impact Assessment of Hay Gulch and surrounding areas.

No significant hydrologic consequences of mining are anticipated. All coal to be removed from the mine lies above the potentiometric surface of Hay Gulch, the only known aquifer in the area. Therefore, there should be no diminution of water quality or quantity to Hay Gulch from the mine workings due to subsidence related to mining.

Surface drainages from the project area from the main haul road, Small Area Exemption #1 (SME#1), report to a native channel and eventually to the Hay Gulch Ditch. Nearly all of the runoff from SME#1 reports to a filter check dam, located adjacent to the cattle guard. This filter check dam is cleaned out regularly as needed.

Surface drainages north of the Sedimentation Pond from disturbed areas of the surface facilities report to the Sedimentation Pond for evaporation and infiltration. In the event a major storm, or series of storms, exceeds the capacity of the Sedimentation Pond, discharge would report to a native channel, and eventually the Hay Gulch Ditch. This discharge point is permitted with the National Pollutant Discharge Elimination System (NPDES) through Colorado Department of Health and Environment (CDPHE) discharge permit COG850001 as discharge number 003. See “Surface Water Monitoring” later in this section for Monitoring procedures and parameters.

No water is known to occur in any rock unit above or immediately below the coal seams being mined based on the mining at the National King Mine within or immediately adjacent to the permit boundaries. Again, there is little likelihood of significant impact to quantity or quality of groundwater resources resulting from the King II Mine. Should subsidence related features appear above the mine, water would recharge into the localized groundwater system and not continue off-site, given the dissected nature of the project site topography.

The design of the portal facilities and the dip of the strata facilitate drainage of any encountered water in the workings toward the surface. While not anticipated, should water be encountered in amounts that reach the surface, monitoring and control measures will be employed.

WATER MONITORING

Groundwater monitoring has been conducted since 2004 at three baseline alluvial wells, "Wiltse Well Monitoring Station", "Up-Gradient Monitoring Station", and "Down-Gradient Monitoring Station". Surface water monitoring has been conducted at "Hay Gulch Ditch, Downgradient Monitoring Station". Existing monitoring stations will continue to be sampled on a quarterly basis.

TR-26 added an additional Hay Gulch Ditch monitoring station up-gradient from the King I mine, "Hay Gulch Ditch, Up-gradient Monitoring Station" at the confluence of Hay Gulch and Roberts Canyon. Four bedrock monitoring well "clusters" (3 wells each in the Cliffhouse Formation, "A" coal seam into the interburden between the "A" & "B" coal seams) were also added (MW-01 thru MW-04). One additional alluvial monitoring station was added up-gradient from the King I mine site "King I Up-gradient Monitoring Station" (MW-HGA-4). All water monitoring locations are shown on Maps King II-006A and King II-012. All sampling locations will continue to be sampled until the requirement is waived by the Division of Reclamation, Mining & Safety.

Monitoring parameters are split into a groundwater group (GW), a surface water group (SW), and a springs & seeps group (S&S). A nearly consistent analytical suite of parameters across groundwater, surface water and spring and seep monitoring locations is used in order to best inter-relate surface water and alluvial and bedrock groundwater. However, there are a few exceptions:

- Total Suspended Solids (TSS), Oil and Grease and dissolved oxygen is only for surface water samples, but specifically exclusive of spring and seep samples. This is consistent with the CDRMS Guidelines.

- Sodium Adsorption Ratio analysis only for surface water samples. This is consistent with CDRMS Guidelines.

- Ammonia analysis as one-time only via field kit, sampling at all locations only to establish absence, conducted in the fall season (2016Q4).

- Phosphate analysis as one-time only, sampling at all locations only to establish absence, conducted in the fall season (2016Q4).

The proposed baseline water quality monitoring parameters have been divided into three appropriate suites to be distinguished by the analytical laboratory and field sampling personnel and presented as Tables 1-3.

Table 2:
GCC Energy Surface Water Baseline Water Quality Parameter Suite (GCC SW1)

Parameter	Units	Method
Alkalinity, as CaCO3	mg/L	2320 B
Aluminum (Al)	mg/L	EPA200.8
Arsenic (As)	mg/L	EPA200.8
Bicarbonate, as CaCO3	mg/L	2320 B
Cadmium (Cd)	mg/L	EPA200.8
Calcium (Ca+2)	mg/L	EPA200.7
Carbonate, as CaCO3	mg/L	2320 B
Chloride (Cl-)	mg/L	EPA300.0
Copper (Cu)	mg/L	EPA200.8
Depth to Water (field, wells only)	feet	Field
Dissolved Oxygen (DO) (field)	mg/L	Field
Flow Rate	gpm	Field
Fluoride (F)	mg/L	EPA300.0
Hardness, as CaCO3	mg/L	Varies
Hydroxide, as CaCO3	mg/L	2320 B
Iron (Fe)	mg/L	EPA200.7
Lead (Pb)	mg/L	EPA200.8
Magnesium (Mg+2)	mg/L	EPA200.7
Manganese (Mn)	mg/L	EPA200.8
Mercury (Hg) Total by CVAA	mg/L	EPA245.1
Molybdenum (Mo)	mg/L	EPA200.8
Oil & Grease	mg/L	EPA1664 A
Oxygen Reduction Potential (ORP) (field)	mV	Field
pH (field)	SU	Field
pH (lab)	SU	EPA150.1
Potassium (K)	mg/L	EPA200.7
Selenium (Se)	mg/L	EPA200.8
Silica (SiO2)	mg/L	Varies
Sodium (Na+)	mg/L	EPA200.7
Sodium Adsorption Ratio (SAR)	mg/L	Calculation
Specific Conductivity (field)	mS/cm	Field
Sulfate (SO4)	mg/L	EPA300.0
Temperature (field)	°C	Field
Total Dissolved Solids (TDS)	mg/L	EPA160.1
Total Nitrogen as Nitrate-Nitrite	mg/L	EPA300.0
Total Organic Carbon (TOC)	mg/L	5310 B
Total Suspended Solids (TSS)	mg/L	EPA160.2
Uranium (U)	mg/L	EPA200.8
Zinc (Zn)	mg/L	EPA200.8

One time only to establish absence, SW and Alluvial GW only in 2016Q4

Ammonia (NH3)	mg/L	EPA350.1
Phosphate (PO4 as P)	mg/L	EPA365.3

Notes:
mg/L = milligrams per liter
SU = standard
unitsmS/cm millisiemens per centimeter
mV = millivolt

Table 3:
GCC Energy Spring & Seep Baseline Water Quality Parameter Suite (GCC S&S1)

Parameter	Units	Method
Alkalinity, as CaCO3	mg/L	2320 B
Aluminum (Al)	mg/L	EPA200.8
Arsenic (As)	mg/L	EPA200.8
Bicarbonate, as CaCO3	mg/L	2320 B
Cadmium (Cd)	mg/L	EPA200.8
Calcium (Ca+2)	mg/L	EPA200.7
Carbonate, as CaCO3	mg/L	2320 B
Chloride (Cl-)	mg/L	EPA300.0
Copper (Cu)	mg/L	EPA200.8
Depth to Water (field, wells only)	feet	Field
Flow Rate	gpm	Field
Fluoride (F)	mg/L	EPA300.0
Hardness, as CaCO3	mg/L	Varies
Hydroxide, as CaCO3	mg/L	2320 B
Iron (Fe)	mg/L	EPA200.7
Lead (Pb)	mg/L	EPA200.8
Magnesium (Mg+2)	mg/L	EPA200.7
Manganese (Mn)	mg/L	EPA200.8
Mercury (Hg) Total by CVAA	mg/L	EPA245.1
Molybdenum (Mo)	mg/L	EPA200.8
Oxygen Reduction Potential (ORP) (field)	mV	Field
pH (field)	SU	Field
pH (lab)	SU	EPA150.1
Potassium (K)	mg/L	EPA200.7
Selenium (Se)	mg/L	EPA200.8
Silica (SiO2)	mg/L	Varies
Sodium (Na+)	mg/L	EPA200.7
Sodium Adsorption Ratio (SAR)	mg/L	Calculation
Specific Conductivity (field)	mS/cm	Field
Sulfate (SO4)	mg/L	EPA300.0
Temperature (field)	°C	Field
Total Dissolved Solids (TDS)	mg/L	EPA160.1
Total Nitrogen as Nitrate-Nitrite	mg/L	EPA300.0
Total Organic Carbon (TOC)	mg/L	5310 B
Uranium (U)	mg/L	EPA200.8
Zinc (Zn)	mg/L	EPA200.8

One time only to establish absence, SW and Alluvial GW only in 2016Q4

Ammonia (NH3)	mg/L	EPA350.1
Phosphate (PO4 as P)	mg/L	EPA365.3

Notes:
mg/L = milligrams per liter
SU = standard units
mS/cm millisiemens per centimeter
mV = millivolt

An Annual Hydrology Report compiling and interpreting the hydrologic data will be prepared based on a water year of October 1 through September 30 each year, and will be submitted to the Division of Reclamation, Mining & Safety by December 31 of that year.

SURFACE WATER MONITORING

In the event of any discharge from any NPDES Discharge Point, the following parameters will be sampled:

a) Ph (SU)
b) Solids, total suspended (mg/L)
c) Solids, settleable (mg/L
d) Iron, total recoverable (mg/L)
e) Oil and grease (mg/L)
f) Flow, in conduit or thru treatment plant (MGD)
g) Solids, total dissolved (mg/L)
h) Oil and grease visual

PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES

There are no publicly owned parks or places listed on the National Register of Historic Places that may be adversely affected by the operation. The small Hay Gulch cemetery at the southwest corner of the surface facilities north of County Road 120 will not be impacted by development of surface facilities or potential subsidence (as no underground mining will occur below the site).

SURFACE MINING NEAR UNDERGROUND MINING

There are no surface mining activities existing or proposed within 500 feet of any underground mine.

SUBSIDENCE SURVEY, MONITORING, CONTROL PLAN

INVENTORY OF STRUCTURES AND RENEWABLE RESOURCE LANDS

The following is a list of structures and renewable resource lands within the permit area.

Hay Gulch irrigation ditch

Huntington Lateral of the Hay Gulch irrigation ditch

County Road 120

Two track road extending north of the project area in Cochran Canyon.

Two track road following the ridge lines north, east and west of the project area.

Barbed wire fences

Hay Gulch cemetery

Huntington Pond

Huntington Pipeline

Crawford Ditch

Crawford Pond

Crawford buried pipeline

Irrigated pastures on lands owned by Huntington Ranches, Crawford Ranches, and the Colorado State Board of Land Commissioners

Overhead powerlines owned by La Plata Electric Association

Aside from the above mentioned structures, there are no structures or renewable resources in the permitted or potentially affected adjacent lands. There are no aquifers, recharge areas for aquifers or silviculture.

WORST POSSIBLE CONSEQUENCES OF SUBSIDENCE

The two track road following the ridge line west of the project area is the main structure on permitted or adjacent lands which could suffer damage due to the effects of subsidence. In the event that a surface subsidence crack were to intersect the road, it is possible that some repair of the road would be required to allow its continued use. This road is used primarily by the surface grazing lease holders of the State of Colorado land for access to cattle rangelands in the north part of Section 36. Where subsidence cracks have intersected two track roads above the existing King I Mine, repairs were made by shoveling less than a pickup truck load of "road base" into the crack.

In the event that subsidence cracks damage any barbed wire fence within the permit area (a fencepost could be dislodged or strands of barbed wire could stretch and break or sag), GCC Energy, LLC will repair said fences without charge to the surface grazing lease holder, or will reimburse the lease holder for any repairs necessary.

The buildings and structures on and around the surface facility area of the mine will not be damaged by subsidence because there are no minable coal seams beneath this area.

SUBSIDENCE MONITORING PROGRAM

If mining occurs beneath, and pillars are removed, the operator will inspect a fence for subsidence damage no later that in the spring after the fence is undermined. The results of the inspection will be submitted to the Division within 60 days after the inspection.

If mining occurs beneath, and pillars are removed, the operator will inspect the two track road following the ridge line west of the project area (see Map King II-005) for subsidence damage no later that in the spring after the road is undermined. The results of the inspection will be submitted to the Division within 60 days after the inspection.

2.06.8 - ALLUVIAL VALLEY FLOORS

Hay Gulch has been determined to be an alluvial floor by geologist Fred M. Johnson, the Colorado Geological Survey, and the Colorado Division of Reclamation, Mining & Safety in findings related to the permitting of the King I Mine.

The operations of the King II Mine do not propose to affect the Hay Gulch alluvial valley floor. The only mining related features in the AVF are monitoring wells. At the end of mining, and with the approval of the Division of Reclamation, Mining & Safety, the wells will be reclaimed in accordance with the requirements of Rule 4.07 or transferred to another party.

Measures have been taken, as described previously, to protect the alluvial valley floor from adverse effects of mining. Currently, surface water reaches Hay Gulch Ditch via a native channel from the project area. Water from the Hay Gulch Ditch is used downstream to irrigate pasture land. Mining operations will continue to ensure water from up-slope areas are diverted around all disturbed areas to the Hay Gulch drainage or contained within the disturbed areas. Water monitoring will insure that protection of the alluvial valley floor is maintained.

There will be no auger mining employed at the King II Mine (Rule 2.06.9).

There will be no coal processing plants or support facilities not located within the permit area (Rule 2.06.10).

There will be no *in situ* processing employed at the King II Mine (Rule 2.06.11).

There will be no removal of coal from coal refuse piles at the King II Mine (Rule 2.06.12).

Form No.
GWS-25

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

AUTH

WELL PERMIT NUMBER 303350 - - -
DIV. 7 WD 33 DES. BASIN MD

APPLICANT

GCC ENERGY, LLC
6473 CR 120
HESPERUS, CO 81326-

(970) 385-4528

APPROVED WELL LOCATION
LA PLATA COUNTY
NE 1/4 SW 1/4 Section 29
Township 35 N Range 11 W New Mex P.M.

DISTANCES FROM SECTION LINES
Ft. from Section Line
Ft. from Section Line

UTM COORDINATES (Meters,Zone:13,NAD83)
Easting: Northing:

PERMIT TO CONSTRUCT A WELL

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT

CONDITIONS OF APPROVAL

1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
3) Approved pursuant to CRS 37-92-602(3)(b)(I) for uses as described in CRS 37-92-602(1)(f). Use of this well is limited to monitoring water levels and/or water quality sampling. This well is known as well MW-5-HGA.
4) This well must be equipped with a locking cap or seal to prevent well contamination or possible hazards as an open well. The well must be kept capped and locked at all times except during sampling or measuring.
5) Records of water level measurements and water quality analyses shall be maintained by the well owner and submitted to the Division of Water Resources upon request.
6) Upon conclusion of the monitoring program the well owner shall plug this well in accordance with Rule 16 of the Water Well Construction Rules. A Well Abandonment Report must be completed and submitted to the Division of Water Resources within 60 days of plugging.
7) The owner shall mark the well in a conspicuous place with the well permit number and name of aquifer as appropriate, and shall take necessary means and precautions to preserve these markings.
8) This well must be constructed by or under the supervision of a licensed well driller or other authorized individual according to the Water Well Construction Rules. If non-standard construction is anticipated, a variance request must be submitted in accordance with Rule 18 and approved prior to well construction.
9) A Well Construction and Test Report (Form GWS-31), including lithologic log must be submitted by the individual authorized to construct the well. For non-standard construction, the report must include an as-built drawing showing details such as depth, casing, perforated zones, and a description of the grouting type and interval.
10) Pursuant to Rule 6.2.3 of the Water Well Construction Rules, the well construction contractor shall submit the as-built well location on work reports required by Rule 17.1 within 60 days of completion of the well. The measured location must be accurate to 200 feet of the actual location. The location information must include a GPS location (UTM coordinates) pursuant to the Division of Water Resources' guidelines.

NOTE: Issuance of this permit does not guarantee that this well can be converted to a production well under a future permit. Additionally, pursuant to Rule 14.2 of the Water Well Construction Rules (2 CCR 402-2), monitoring holes constructed pursuant to a monitoring hole notice shall not be converted to a production well. (Upon obtaining a permit from the State Engineer, a monitoring hole may be converted to a monitoring well, recovery well for remediation of the aquifer, or a dewatering system for dewatering the aquifer.)

APPROVED
JST

Dick Wolfe by
State Engineer

Jeff S. Tikas
By

Receipt No. 9703920 DATE ISSUED 10-26-2016 EXPIRATION DATE 10-26-2018

Form No.
GWS-25

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

AUTH

WELL PERMIT NUMBER 303351 - - -
DIV. 7 WD 33 DES. BASIN MD

APPLICANT

GCC ENERGY, LLC
6473 CR 120
HESPERUS, CO 81326-

(970) 385-4528

APPROVED WELL LOCATION
LA PLATA COUNTY
SE 1/4 NW 1/4 Section 17
Township 35 N Range 11 W New Mex P.M.

DISTANCES FROM SECTION LINES
Ft. from Section Line
Ft. from Section Line

UTM COORDINATES (Meters,Zone:13,NAD83)
Easting: Northing:

PERMIT TO CONSTRUCT A WELL

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT

CONDITIONS OF APPROVAL

1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
3) Approved pursuant to CRS 37-92-602(3)(b)(I) for uses as described in CRS 37-92-602(1)(f). Use of this well is limited to monitoring water levels and/or water quality sampling. This well is known as well MW-1-A.
4) This well must be equipped with a locking cap or seal to prevent well contamination or possible hazards as an open well. The well must be kept capped and locked at all times except during sampling or measuring.
5) Records of water level measurements and water quality analyses shall be maintained by the well owner and submitted to the Division of Water Resources upon request.
6) Upon conclusion of the monitoring program the well owner shall plug this well in accordance with Rule 16 of the Water Well Construction Rules. A Well Abandonment Report must be completed and submitted to the Division of Water Resources within 60 days of plugging.
7) The owner shall mark the well in a conspicuous place with the well permit number and name of aquifer as appropriate, and shall take necessary means and precautions to preserve these markings.
8) This well must be constructed by or under the supervision of a licensed well driller or other authorized individual according to the Water Well Construction Rules. If non-standard construction is anticipated, a variance request must be submitted in accordance with Rule 18 and approved prior to well construction.
9) A Well Construction and Test Report (Form GWS-31), including lithologic log must be submitted by the individual authorized to construct the well. For non-standard construction, the report must include an as-built drawing showing details such as depth, casing, perforated zones, and a description of the grouting type and interval.
10) Pursuant to Rule 6.2.3 of the Water Well Construction Rules, the well construction contractor shall submit the as-built well location on work reports required by Rule 17.1 within 60 days of completion of the well. The measured location must be accurate to 200 feet of the actual location. The location information must include a GPS location (UTM coordinates) pursuant to the Division of Water Resources' guidelines.

NOTE: Issuance of this permit does not guarantee that this well can be converted to a production well under a future permit. Additionally, pursuant to Rule 14.2 of the Water Well Construction Rules (2 CCR 402-2), monitoring holes constructed pursuant to a monitoring hole notice shall not be converted to a production well. (Upon obtaining a permit from the State Engineer, a monitoring hole may be converted to a monitoring well, recovery well for remediation of the aquifer, or a dewatering system for dewatering the aquifer.)

APPROVED
JST

Dick Wolfe by
State Engineer

Jeff S. Tikas
By

Receipt No. 9703921A DATE ISSUED 10-26-2016 EXPIRATION DATE 10-26-2018

Form No.
GWS-25

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

AUTH

WELL PERMIT NUMBER 303352 - - -
DIV. 7 WD 33 DES. BASIN MD

APPLICANT

GCC ENERGY, LLC
6473 CR 120
HESPERUS, CO 81326-

(970) 385-4528

APPROVED WELL LOCATION
LA PLATA COUNTY
SE 1/4 NW 1/4 Section 17
Township 35 N Range 11 W New Mex P.M.

DISTANCES FROM SECTION LINES
Ft. from Section Line
Ft. from Section Line

UTM COORDINATES (Meters,Zone:13,NAD83)
Easting: Northing:

PERMIT TO CONSTRUCT A WELL

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT

CONDITIONS OF APPROVAL

1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
3) Approved pursuant to CRS 37-92-602(3)(b)(I) for uses as described in CRS 37-92-602(1)(f). Use of this well is limited to monitoring water levels and/or water quality sampling. This well is known as well MW-1-C
4) This well must be equipped with a locking cap or seal to prevent well contamination or possible hazards as an open well. The well must be kept capped and locked at all times except during sampling or measuring.
5) Records of water level measurements and water quality analyses shall be maintained by the well owner and submitted to the Division of Water Resources upon request.
6) Upon conclusion of the monitoring program the well owner shall plug this well in accordance with Rule 16 of the Water Well Construction Rules. A Well Abandonment Report must be completed and submitted to the Division of Water Resources within 60 days of plugging.
7) The owner shall mark the well in a conspicuous place with the well permit number and name of aquifer as appropriate, and shall take necessary means and precautions to preserve these markings.
8) This well must be constructed by or under the supervision of a licensed well driller or other authorized individual according to the Water Well Construction Rules. If non-standard construction is anticipated, a variance request must be submitted in accordance with Rule 18 and approved prior to well construction.
9) A Well Construction and Test Report (Form GWS-31), including lithologic log must be submitted by the individual authorized to construct the well. For non-standard construction, the report must include an as-built drawing showing details such as depth, casing, perforated zones, and a description of the grouting type and interval.
10) Pursuant to Rule 6.2.3 of the Water Well Construction Rules, the well construction contractor shall submit the as-built well location on work reports required by Rule 17.1 within 60 days of completion of the well. The measured location must be accurate to 200 feet of the actual location. The location information must include a GPS location (UTM coordinates) pursuant to the Division of Water Resources' guidelines.

NOTE: Issuance of this permit does not guarantee that this well can be converted to a production well under a future permit. Additionally, pursuant to Rule 14.2 of the Water Well Construction Rules (2 CCR 402-2), monitoring holes constructed pursuant to a monitoring hole notice shall not be converted to a production well. (Upon obtaining a permit from the State Engineer, a monitoring hole may be converted to a monitoring well, recovery well for remediation of the aquifer, or a dewatering system for dewatering the aquifer.)

APPROVED
JST

Dick Wolfe by
State Engineer

Jeff S. Tikas
By

Receipt No. 9703921B DATE ISSUED 10-26-2016 EXPIRATION DATE 10-26-2018

Form No.
GWS-25

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

AUTH

WELL PERMIT NUMBER 303353 - - -
DIV. 7 WD 33 DES. BASIN MD

APPLICANT

GCC ENERGY, LLC
6473 CR 120
HESPERUS, CO 81326-

(970) 385-4528

APPROVED WELL LOCATION
LA PLATA COUNTY
SE 1/4 NW 1/4 Section 17
Township 35 N Range 11 W New Mex P.M.

DISTANCES FROM SECTION LINES
Ft. from Section Line
Ft. from Section Line

UTM COORDINATES (Meters,Zone:13,NAD83)
Easting: Northing:

PERMIT TO CONSTRUCT A WELL

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT

CONDITIONS OF APPROVAL

1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
3) Approved pursuant to CRS 37-92-602(3)(b)(I) for uses as described in CRS 37-92-602(1)(f). Use of this well is limited to monitoring water levels and/or water quality sampling. This well is known as well MW-1-MI.
4) This well must be equipped with a locking cap or seal to prevent well contamination or possible hazards as an open well. The well must be kept capped and locked at all times except during sampling or measuring.
5) Records of water level measurements and water quality analyses shall be maintained by the well owner and submitted to the Division of Water Resources upon request.
6) Upon conclusion of the monitoring program the well owner shall plug this well in accordance with Rule 16 of the Water Well Construction Rules. A Well Abandonment Report must be completed and submitted to the Division of Water Resources within 60 days of plugging.
7) The owner shall mark the well in a conspicuous place with the well permit number and name of aquifer as appropriate, and shall take necessary means and precautions to preserve these markings.
8) This well must be constructed by or under the supervision of a licensed well driller or other authorized individual according to the Water Well Construction Rules. If non-standard construction is anticipated, a variance request must be submitted in accordance with Rule 18 and approved prior to well construction.
9) A Well Construction and Test Report (Form GWS-31), including lithologic log must be submitted by the individual authorized to construct the well. For non-standard construction, the report must include an as-built drawing showing details such as depth, casing, perforated zones, and a description of the grouting type and interval.
10) Pursuant to Rule 6.2.3 of the Water Well Construction Rules, the well construction contractor shall submit the as-built well location on work reports required by Rule 17.1 within 60 days of completion of the well. The measured location must be accurate to 200 feet of the actual location. The location information must include a GPS location (UTM coordinates) pursuant to the Division of Water Resources' guidelines.

NOTE: Issuance of this permit does not guarantee that this well can be converted to a production well under a future permit. Additionally, pursuant to Rule 14.2 of the Water Well Construction Rules (2 CCR 402-2), monitoring holes constructed pursuant to a monitoring hole notice shall not be converted to a production well. (Upon obtaining a permit from the State Engineer, a monitoring hole may be converted to a monitoring well, recovery well for remediation of the aquifer, or a dewatering system for dewatering the aquifer.)

APPROVED
JST

Dick Wolfe by
State Engineer

Jeff S. Fitzus
By

Receipt No. 9703921C DATE ISSUED 10-26-2016 EXPIRATION DATE 10-26-2018

Form No.
GWS-25

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

AUTH

WELL PERMIT NUMBER 303354 -_____-____
DIV. 7 WD 33 DES. BASIN MD

APPLICANT

GCC ENERGY, LLC
6473 CR 120
HESPERUS, CO 81326-

(970) 385-4528

APPROVED WELL LOCATION
LA PLATA COUNTY
NW 1/4 NE 1/4 Section 36
Township 35 N Range 12 W New Mex P.M.

DISTANCES FROM SECTION LINES
Ft. from Section Line
Ft. from Section Line

UTM COORDINATES (Meters,Zone:13,NAD83)
Easting: Northing:

PERMIT TO CONSTRUCT A WELL

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT

CONDITIONS OF APPROVAL

1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
3) Approved pursuant to CRS 37-92-602(3)(b)(I) for uses as described in CRS 37-92-602(1)(f). Use of this well is limited to monitoring water levels and/or water quality sampling. This well is known as well MW-2-A.
4) This well must be equipped with a locking cap or seal to prevent well contamination or possible hazards as an open well. The well must be kept capped and locked at all times except during sampling or measuring.
5) Records of water level measurements and water quality analyses shall be maintained by the well owner and submitted to the Division of Water Resources upon request.
6) Upon conclusion of the monitoring program the well owner shall plug this well in accordance with Rule 16 of the Water Well Construction Rules. A Well Abandonment Report must be completed and submitted to the Division of Water Resources within 60 days of plugging.
7) The owner shall mark the well in a conspicuous place with the well permit number and name of aquifer as appropriate, and shall take necessary means and precautions to preserve these markings.
8) This well must be constructed by or under the supervision of a licensed well driller or other authorized individual according to the Water Well Construction Rules. If non-standard construction is anticipated, a variance request must be submitted in accordance with Rule 18 and approved prior to well construction.
9) A Well Construction and Test Report (Form GWS-31), including lithologic log must be submitted by the individual authorized to construct the well. For non-standard construction, the report must include an as-built drawing showing details such as depth, casing, perforated zones, and a description of the grouting type and interval.
10) Pursuant to Rule 6.2.3 of the Water Well Construction Rules, the well construction contractor shall submit the as-built well location on work reports required by Rule 17.1 within 60 days of completion of the well. The measured location must be accurate to 200 feet of the actual location. The location information must include a GPS location (UTM coordinates) pursuant to the Division of Water Resources' guidelines.

NOTE: Issuance of this permit does not guarantee that this well can be converted to a production well under a future permit. Additionally, pursuant to Rule 14.2 of the Water Well Construction Rules (2 CCR 402-2), monitoring holes constructed pursuant to a monitoring hole notice shall not be converted to a production well. (Upon obtaining a permit from the State Engineer, a monitoring hole may be converted to a monitoring well, recovery well for remediation of the aquifer, or a dewatering system for dewatering the aquifer.)

APPROVED
JST

Dick Wolfe by
State Engineer

Jeff S. Titus
By

Receipt No. 9703921D DATE ISSUED 10-26-2016 EXPIRATION DATE 10-26-2018

Form No.
GWS-25

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

AUTH

WELL PERMIT NUMBER 303355 - - -
DIV. 7 WD 33 DES. BASIN MD

APPLICANT

GCC ENERGY, LLC
6473 CR 120
HESPERUS, CO 81326-

(970) 385-4528

APPROVED WELL LOCATION
LA PLATA COUNTY
NW 1/4 NE 1/4 Section 36
Township 35 N Range 12 W New Mex P.M.

DISTANCES FROM SECTION LINES
Ft. from Section Line
Ft. from Section Line

UTM COORDINATES (Meters,Zone:13,NAD83)
Easting: Northing:

PERMIT TO CONSTRUCT A WELL

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT

CONDITIONS OF APPROVAL

1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
3) Approved pursuant to CRS 37-92-602(3)(b)(I) for uses as described in CRS 37-92-602(1)(f). Use of this well is limited to monitoring water levels and/or water quality sampling. This well is known as well MW-2-C.
4) This well must be equipped with a locking cap or seal to prevent well contamination or possible hazards as an open well. The well must be kept capped and locked at all times except during sampling or measuring.
5) Records of water level measurements and water quality analyses shall be maintained by the well owner and submitted to the Division of Water Resources upon request.
6) Upon conclusion of the monitoring program the well owner shall plug this well in accordance with Rule 16 of the Water Well Construction Rules. A Well Abandonment Report must be completed and submitted to the Division of Water Resources within 60 days of plugging.
7) The owner shall mark the well in a conspicuous place with the well permit number and name of aquifer as appropriate, and shall take necessary means and precautions to preserve these markings.
8) This well must be constructed by or under the supervision of a licensed well driller or other authorized individual according to the Water Well Construction Rules. If non-standard construction is anticipated, a variance request must be submitted in accordance with Rule 18 and approved prior to well construction.
9) A Well Construction and Test Report (Form GWS-31), including lithologic log must be submitted by the individual authorized to construct the well. For non-standard construction, the report must include an as-built drawing showing details such as depth, casing, perforated zones, and a description of the grouting type and interval.
10) Pursuant to Rule 6.2.3 of the Water Well Construction Rules, the well construction contractor shall submit the as-built well location on work reports required by Rule 17.1 within 60 days of completion of the well. The measured location must be accurate to 200 feet of the actual location. The location information must include a GPS location (UTM coordinates) pursuant to the Division of Water Resources' guidelines.

NOTE: Issuance of this permit does not guarantee that this well can be converted to a production well under a future permit. Additionally, pursuant to Rule 14.2 of the Water Well Construction Rules (2 CCR 402-2), monitoring holes constructed pursuant to a monitoring hole notice shall not be converted to a production well. (Upon obtaining a permit from the State Engineer, a monitoring hole may be converted to a monitoring well, recovery well for remediation of the aquifer, or a dewatering system for dewatering the aquifer.)

APPROVED
JST

Dick Wolfe by
State Engineer

Jeff S. Titus
By

Receipt No. 9703921E DATE ISSUED 10-26-2016 EXPIRATION DATE 10-26-2018

Form No.
GWS-25

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

AUTH

WELL PERMIT NUMBER 303356 - - -
DIV. 7 WD 33 DES. BASIN MD

APPLICANT

GCC ENERGY, LLC
6473 CR 120
HESPERUS, CO 81326-

(970) 385-4528

APPROVED WELL LOCATION
LA PLATA COUNTY
NW 1/4 NE 1/4 Section 36
Township 35 N Range 12 W New Mex P.M.

DISTANCES FROM SECTION LINES
Ft. from Section Line
Ft. from Section Line

UTM COORDINATES (Meters,Zone:13,NAD83)
Easting: Northing:

PERMIT TO CONSTRUCT A WELL

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT

CONDITIONS OF APPROVAL

1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
3) Approved pursuant to CRS 37-92-602(3)(b)(I) for uses as described in CRS 37-92-602(1)(f). Use of this well is limited to monitoring water levels and/or water quality sampling. This well is known as well MW-2-MI.
4) This well must be equipped with a locking cap or seal to prevent well contamination or possible hazards as an open well. The well must be kept capped and locked at all times except during sampling or measuring.
5) Records of water level measurements and water quality analyses shall be maintained by the well owner and submitted to the Division of Water Resources upon request.
6) Upon conclusion of the monitoring program the well owner shall plug this well in accordance with Rule 16 of the Water Well Construction Rules. A Well Abandonment Report must be completed and submitted to the Division of Water Resources within 60 days of plugging.
7) The owner shall mark the well in a conspicuous place with the well permit number and name of aquifer as appropriate, and shall take necessary means and precautions to preserve these markings.
8) This well must be constructed by or under the supervision of a licensed well driller or other authorized individual according to the Water Well Construction Rules. If non-standard construction is anticipated, a variance request must be submitted in accordance with Rule 18 and approved prior to well construction.
9) A Well Construction and Test Report (Form GWS-31), including lithologic log must be submitted by the individual authorized to construct the well. For non-standard construction, the report must include an as-built drawing showing details such as depth, casing, perforated zones, and a description of the grouting type and interval.
10) Pursuant to Rule 6.2.3 of the Water Well Construction Rules, the well construction contractor shall submit the as-built well location on work reports required by Rule 17.1 within 60 days of completion of the well. The measured location must be accurate to 200 feet of the actual location. The location information must include a GPS location (UTM coordinates) pursuant to the Division of Water Resources' guidelines.

NOTE: Issuance of this permit does not guarantee that this well can be converted to a production well under a future permit. Additionally, pursuant to Rule 14.2 of the Water Well Construction Rules (2 CCR 402-2), monitoring holes constructed pursuant to a monitoring hole notice shall not be converted to a production well. (Upon obtaining a permit from the State Engineer, a monitoring hole may be converted to a monitoring well, recovery well for remediation of the aquifer, or a dewatering system for dewatering the aquifer.)

APPROVED
JST

Dick Wolfe by
State Engineer

Jeff S. Tivis
By

Receipt No. 9703921F DATE ISSUED 10-26-2016 EXPIRATION DATE 10-26-2018

Form No.
GWS-25

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

AUTH

WELL PERMIT NUMBER 303357 - - -
DIV. 7 WD 33 DES. BASIN MD

APPLICANT

GCC ENERGY, LLC
6473 CR 120
HESPERUS, CO 81326-

(970) 385-4528

APPROVED WELL LOCATION
LA PLATA COUNTY
NE 1/4 SE 1/4 Section 3
Township 34 N Range 12 W New Mex P.M.

DISTANCES FROM SECTION LINES
Ft. from Section Line
Ft. from Section Line

UTM COORDINATES (Meters,Zone:13,NAD83)
Easting: Northing:

PERMIT TO CONSTRUCT A WELL

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT

CONDITIONS OF APPROVAL

1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
3) Approved pursuant to CRS 37-92-602(3)(b)(I) for uses as described in CRS 37-92-602(1)(f). Use of this well is limited to monitoring water levels and/or water quality sampling. This well is known as well MW-3-A.
4) This well must be equipped with a locking cap or seal to prevent well contamination or possible hazards as an open well. The well must be kept capped and locked at all times except during sampling or measuring.
5) Records of water level measurements and water quality analyses shall be maintained by the well owner and submitted to the Division of Water Resources upon request.
6) Upon conclusion of the monitoring program the well owner shall plug this well in accordance with Rule 16 of the Water Well Construction Rules. A Well Abandonment Report must be completed and submitted to the Division of Water Resources within 60 days of plugging.
7) The owner shall mark the well in a conspicuous place with the well permit number and name of aquifer as appropriate, and shall take necessary means and precautions to preserve these markings.
8) This well must be constructed by or under the supervision of a licensed well driller or other authorized individual according to the Water Well Construction Rules. If non-standard construction is anticipated, a variance request must be submitted in accordance with Rule 18 and approved prior to well construction.
9) A Well Construction and Test Report (Form GWS-31), including lithologic log must be submitted by the individual authorized to construct the well. For non-standard construction, the report must include an as-built drawing showing details such as depth, casing, perforated zones, and a description of the grouting type and interval.
10) Pursuant to Rule 6.2.3 of the Water Well Construction Rules, the well construction contractor shall submit the as-built well location on work reports required by Rule 17.1 within 60 days of completion of the well. The measured location must be accurate to 200 feet of the actual location. The location information must include a GPS location (UTM coordinates) pursuant to the Division of Water Resources' guidelines.

NOTE: Issuance of this permit does not guarantee that this well can be converted to a production well under a future permit. Additionally, pursuant to Rule 14.2 of the Water Well Construction Rules (2 CCR 402-2), monitoring holes constructed pursuant to a monitoring hole notice shall not be converted to a production well. (Upon obtaining a permit from the State Engineer, a monitoring hole may be converted to a monitoring well, recovery well for remediation of the aquifer, or a dewatering system for dewatering the aquifer.)

APPROVED
JST

Dick Wolfe by
State Engineer

Jeff S. Tivis
By

Receipt No. 9703921G DATE ISSUED 10-26-2016 EXPIRATION DATE 10-26-2018

Form No.
GWS-25

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

AUTH

WELL PERMIT NUMBER 303358 - - -
DIV. 7 WD 33 DES. BASIN MD

APPLICANT

GCC ENERGY, LLC
6473 CR 120
HESPERUS, CO 81326-

(970) 385-4528

APPROVED WELL LOCATION
LA PLATA COUNTY
NE 1/4 SE 1/4 Section 3
Township 34 N Range 12 W New Mex P.M.

DISTANCES FROM SECTION LINES
Ft. from Section Line
Ft. from Section Line

UTM COORDINATES (Meters,Zone:13,NAD83)
Easting: Northing:

PERMIT TO CONSTRUCT A WELL

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT

CONDITIONS OF APPROVAL

1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
3) Approved pursuant to CRS 37-92-602(3)(b)(I) for uses as described in CRS 37-92-602(1)(f). Use of this well is limited to monitoring water levels and/or water quality sampling. This well is known as well MW-3-C.
4) This well must be equipped with a locking cap or seal to prevent well contamination or possible hazards as an open well. The well must be kept capped and locked at all times except during sampling or measuring.
5) Records of water level measurements and water quality analyses shall be maintained by the well owner and submitted to the Division of Water Resources upon request.
6) Upon conclusion of the monitoring program the well owner shall plug this well in accordance with Rule 16 of the Water Well Construction Rules. A Well Abandonment Report must be completed and submitted to the Division of Water Resources within 60 days of plugging.
7) The owner shall mark the well in a conspicuous place with the well permit number and name of aquifer as appropriate, and shall take necessary means and precautions to preserve these markings.
8) This well must be constructed by or under the supervision of a licensed well driller or other authorized individual according to the Water Well Construction Rules. If non-standard construction is anticipated, a variance request must be submitted in accordance with Rule 18 and approved prior to well construction.
9) A Well Construction and Test Report (Form GWS-31), including lithologic log must be submitted by the individual authorized to construct the well. For non-standard construction, the report must include an as-built drawing showing details such as depth, casing, perforated zones, and a description of the grouting type and interval.
10) Pursuant to Rule 6.2.3 of the Water Well Construction Rules, the well construction contractor shall submit the as-built well location on work reports required by Rule 17.1 within 60 days of completion of the well. The measured location must be accurate to 200 feet of the actual location. The location information must include a GPS location (UTM coordinates) pursuant to the Division of Water Resources' guidelines.

NOTE: Issuance of this permit does not guarantee that this well can be converted to a production well under a future permit. Additionally, pursuant to Rule 14.2 of the Water Well Construction Rules (2 CCR 402-2), monitoring holes constructed pursuant to a monitoring hole notice shall not be converted to a production well. (Upon obtaining a permit from the State Engineer, a monitoring hole may be converted to a monitoring well, recovery well for remediation of the aquifer, or a dewatering system for dewatering the aquifer.)

APPROVED
JST

Dick Wolfe by
State Engineer

Jeff S. Tituss
By

Receipt No. 9703921H DATE ISSUED 10-26-2016 EXPIRATION DATE 10-26-2018

Form No.
GWS-25

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

AUTH

WELL PERMIT NUMBER 303359 - - -
DIV. 7 WD 33 DES. BASIN MD

APPLICANT

GCC ENERGY, LLC
6473 CR 120
HESPERUS, CO 81326-

(970) 385-4528

APPROVED WELL LOCATION
LA PLATA COUNTY
NE 1/4 SE 1/4 Section 3
Township 34 N Range 12 W New Mex P.M.

DISTANCES FROM SECTION LINES
Ft. from Section Line
Ft. from Section Line

UTM COORDINATES (Meters,Zone:13,NAD83)
Easting: Northing:

PERMIT TO CONSTRUCT A WELL

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT

CONDITIONS OF APPROVAL

1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
3) Approved pursuant to CRS 37-92-602(3)(b)(I) for uses as described in CRS 37-92-602(1)(f). Use of this well is limited to monitoring water levels and/or water quality sampling. This well is known as well MW-3-MI.
4) This well must be equipped with a locking cap or seal to prevent well contamination or possible hazards as an open well. The well must be kept capped and locked at all times except during sampling or measuring.
5) Records of water level measurements and water quality analyses shall be maintained by the well owner and submitted to the Division of Water Resources upon request.
6) Upon conclusion of the monitoring program the well owner shall plug this well in accordance with Rule 16 of the Water Well Construction Rules. A Well Abandonment Report must be completed and submitted to the Division of Water Resources within 60 days of plugging.
7) The owner shall mark the well in a conspicuous place with the well permit number and name of aquifer as appropriate, and shall take necessary means and precautions to preserve these markings.
8) This well must be constructed by or under the supervision of a licensed well driller or other authorized individual according to the Water Well Construction Rules. If non-standard construction is anticipated, a variance request must be submitted in accordance with Rule 18 and approved prior to well construction.
9) A Well Construction and Test Report (Form GWS-31), including lithologic log must be submitted by the individual authorized to construct the well. For non-standard construction, the report must include an as-built drawing showing details such as depth, casing, perforated zones, and a description of the grouting type and interval.
10) Pursuant to Rule 6.2.3 of the Water Well Construction Rules, the well construction contractor shall submit the as-built well location on work reports required by Rule 17.1 within 60 days of completion of the well. The measured location must be accurate to 200 feet of the actual location. The location information must include a GPS location (UTM coordinates) pursuant to the Division of Water Resources' guidelines.

NOTE: Issuance of this permit does not guarantee that this well can be converted to a production well under a future permit. Additionally, pursuant to Rule 14.2 of the Water Well Construction Rules (2 CCR 402-2), monitoring holes constructed pursuant to a monitoring hole notice shall not be converted to a production well. (Upon obtaining a permit from the State Engineer, a monitoring hole may be converted to a monitoring well, recovery well for remediation of the aquifer, or a dewatering system for dewatering the aquifer.)

APPROVED
JST

Dick Wolfe by
State Engineer

Jeff S. Tivis
By

Receipt No. 9703921I DATE ISSUED 10-26-2016 EXPIRATION DATE 10-26-2018

Form No.
GWS-25

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

AUTH

WELL PERMIT NUMBER 303360 -_____-____
DIV. 7 WD 33 DES. BASIN MD

APPLICANT

GCC ENERGY, LLC
6473 CR 120
HESPERUS, CO 81326-

(970) 385-4528

APPROVED WELL LOCATION
LA PLATA COUNTY
SE 1/4 SE 1/4 Section 34
Township 35 N Range 12 W New Mex P.M.

DISTANCES FROM SECTION LINES
Ft. from Section Line
Ft. from Section Line

UTM COORDINATES (Meters,Zone:13,NAD83)
Easting: Northing:

PERMIT TO CONSTRUCT A WELL

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT

CONDITIONS OF APPROVAL

1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
3) Approved pursuant to CRS 37-92-602(3)(b)(I) for uses as described in CRS 37-92-602(1)(f). Use of this well is limited to monitoring water levels and/or water quality sampling. This well is known as well MW-4-A.
4) This well must be equipped with a locking cap or seal to prevent well contamination or possible hazards as an open well. The well must be kept capped and locked at all times except during sampling or measuring.
5) Records of water level measurements and water quality analyses shall be maintained by the well owner and submitted to the Division of Water Resources upon request.
6) Upon conclusion of the monitoring program the well owner shall plug this well in accordance with Rule 16 of the Water Well Construction Rules. A Well Abandonment Report must be completed and submitted to the Division of Water Resources within 60 days of plugging.
7) The owner shall mark the well in a conspicuous place with the well permit number and name of aquifer as appropriate, and shall take necessary means and precautions to preserve these markings.
8) This well must be constructed by or under the supervision of a licensed well driller or other authorized individual according to the Water Well Construction Rules. If non-standard construction is anticipated, a variance request must be submitted in accordance with Rule 18 and approved prior to well construction.
9) A Well Construction and Test Report (Form GWS-31), including lithologic log must be submitted by the individual authorized to construct the well. For non-standard construction, the report must include an as-built drawing showing details such as depth, casing, perforated zones, and a description of the grouting type and interval.
10) Pursuant to Rule 6.2.3 of the Water Well Construction Rules, the well construction contractor shall submit the as-built well location on work reports required by Rule 17.1 within 60 days of completion of the well. The measured location must be accurate to 200 feet of the actual location. The location information must include a GPS location (UTM coordinates) pursuant to the Division of Water Resources' guidelines.

NOTE: Issuance of this permit does not guarantee that this well can be converted to a production well under a future permit. Additionally, pursuant to Rule 14.2 of the Water Well Construction Rules (2 CCR 402-2), monitoring holes constructed pursuant to a monitoring hole notice shall not be converted to a production well. (Upon obtaining a permit from the State Engineer, a monitoring hole may be converted to a monitoring well, recovery well for remediation of the aquifer, or a dewatering system for dewatering the aquifer.)

APPROVED
JST

Dick Wolfe by
State Engineer

Jeff S. Tivis
By

Receipt No. 9703921J DATE ISSUED 10-26-2016 EXPIRATION DATE 10-26-2018

Form No.
GWS-25

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

AUTH

WELL PERMIT NUMBER 303361 - - -
DIV. 7 WD 33 DES. BASIN MD

APPLICANT

GCC ENERGY, LLC
6473 CR 120
HESPERUS, CO 81326-

(970) 385-4528

APPROVED WELL LOCATION
LA PLATA COUNTY
SE 1/4 SE 1/4 Section 34
Township 35 N Range 12 W New Mex P.M.

DISTANCES FROM SECTION LINES
Ft. from Section Line
Ft. from Section Line

UTM COORDINATES (Meters,Zone:13,NAD83)
Easting: Northing:

PERMIT TO CONSTRUCT A WELL

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT

CONDITIONS OF APPROVAL

1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
3) Approved pursuant to CRS 37-92-602(3)(b)(I) for uses as described in CRS 37-92-602(1)(f). Use of this well is limited to monitoring water levels and/or water quality sampling. This well is known as well MW-4-C.
4) This well must be equipped with a locking cap or seal to prevent well contamination or possible hazards as an open well. The well must be kept capped and locked at all times except during sampling or measuring.
5) Records of water level measurements and water quality analyses shall be maintained by the well owner and submitted to the Division of Water Resources upon request.
6) Upon conclusion of the monitoring program the well owner shall plug this well in accordance with Rule 16 of the Water Well Construction Rules. A Well Abandonment Report must be completed and submitted to the Division of Water Resources within 60 days of plugging.
7) The owner shall mark the well in a conspicuous place with the well permit number and name of aquifer as appropriate, and shall take necessary means and precautions to preserve these markings.
8) This well must be constructed by or under the supervision of a licensed well driller or other authorized individual according to the Water Well Construction Rules. If non-standard construction is anticipated, a variance request must be submitted in accordance with Rule 18 and approved prior to well construction.
9) A Well Construction and Test Report (Form GWS-31), including lithologic log must be submitted by the individual authorized to construct the well. For non-standard construction, the report must include an as-built drawing showing details such as depth, casing, perforated zones, and a description of the grouting type and interval.
10) Pursuant to Rule 6.2.3 of the Water Well Construction Rules, the well construction contractor shall submit the as-built well location on work reports required by Rule 17.1 within 60 days of completion of the well. The measured location must be accurate to 200 feet of the actual location. The location information must include a GPS location (UTM coordinates) pursuant to the Division of Water Resources' guidelines.

NOTE: Issuance of this permit does not guarantee that this well can be converted to a production well under a future permit. Additionally, pursuant to Rule 14.2 of the Water Well Construction Rules (2 CCR 402-2), monitoring holes constructed pursuant to a monitoring hole notice shall not be converted to a production well. (Upon obtaining a permit from the State Engineer, a monitoring hole may be converted to a monitoring well, recovery well for remediation of the aquifer, or a dewatering system for dewatering the aquifer.)

APPROVED
JST

Dick Wolfe by
State Engineer

Jeff S. Tivis
By

Receipt No. 9703921K DATE ISSUED 10-26-2016 EXPIRATION DATE 10-26-2018

Form No.
GWS-25

OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203
(303) 866-3581

AUTH

WELL PERMIT NUMBER 303362 - - -
DIV. 7 WD 33 DES. BASIN MD

APPLICANT

GCC ENERGY, LLC
6473 CR 120
HESPERUS, CO 81326-

(970) 385-4528

APPROVED WELL LOCATION
LA PLATA COUNTY
SE 1/4 SE 1/4 Section 34
Township 35 N Range 12 W New Mex P.M.

DISTANCES FROM SECTION LINES
Ft. from Section Line
Ft. from Section Line

UTM COORDINATES (Meters,Zone:13,NAD83)
Easting: Northing:

PERMIT TO CONSTRUCT A WELL

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT

CONDITIONS OF APPROVAL

1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
3) Approved pursuant to CRS 37-92-602(3)(b)(I) for uses as described in CRS 37-92-602(1)(f). Use of this well is limited to monitoring water levels and/or water quality sampling. This well is known as well MW-4-MI.
4) This well must be equipped with a locking cap or seal to prevent well contamination or possible hazards as an open well. The well must be kept capped and locked at all times except during sampling or measuring.
5) Records of water level measurements and water quality analyses shall be maintained by the well owner and submitted to the Division of Water Resources upon request.
6) Upon conclusion of the monitoring program the well owner shall plug this well in accordance with Rule 16 of the Water Well Construction Rules. A Well Abandonment Report must be completed and submitted to the Division of Water Resources within 60 days of plugging.
7) The owner shall mark the well in a conspicuous place with the well permit number and name of aquifer as appropriate, and shall take necessary means and precautions to preserve these markings.
8) This well must be constructed by or under the supervision of a licensed well driller or other authorized individual according to the Water Well Construction Rules. If non-standard construction is anticipated, a variance request must be submitted in accordance with Rule 18 and approved prior to well construction.
9) A Well Construction and Test Report (Form GWS-31), including lithologic log must be submitted by the individual authorized to construct the well. For non-standard construction, the report must include an as-built drawing showing details such as depth, casing, perforated zones, and a description of the grouting type and interval.
10) Pursuant to Rule 6.2.3 of the Water Well Construction Rules, the well construction contractor shall submit the as-built well location on work reports required by Rule 17.1 within 60 days of completion of the well. The measured location must be accurate to 200 feet of the actual location. The location information must include a GPS location (UTM coordinates) pursuant to the Division of Water Resources' guidelines.

NOTE: Issuance of this permit does not guarantee that this well can be converted to a production well under a future permit. Additionally, pursuant to Rule 14.2 of the Water Well Construction Rules (2 CCR 402-2), monitoring holes constructed pursuant to a monitoring hole notice shall not be converted to a production well. (Upon obtaining a permit from the State Engineer, a monitoring hole may be converted to a monitoring well, recovery well for remediation of the aquifer, or a dewatering system for dewatering the aquifer.)

APPROVED
JST

Dick Wolfe by Jeff S. Titus

State Engineer By

Receipt No. 9703921L DATE ISSUED 10-26-2016 EXPIRATION DATE 10-26-2018

WARNER COLLEGE OF
Natural Resources
Colorado State University

Colorado Natural Heritage Program
1475 Campus Delivery
Colorado State University
Fort Collins, CO 80523-1475

PHONE: (970) 491-6891
FAX: (970) 491-3349
www.cnhp.colostate.edu

June 15, 2017

Edith Savage
Savage and Savage, Inc.
4610 Haystack Drive
Windsor, CO 80550

Dear Edith:

The Colorado Natural Heritage Program (CNHP) is in receipt of your request for information regarding the GCC Energy, LLC Area of Interest located in La Plata County, Colorado. In response, I have searched our Biodiversity Tracking and Conservation System (BIOTICS) for natural heritage elements (occurrences of significant natural communities and rare, threatened or endangered plants and animals) documented from the vicinity of the area specified in your request, specifically within a two-mile radius of the legal description for the parcel that Savage and Savage provided in order to outline this request.

The enclosed report describes natural heritage resources known from this area and gives location (by Township, Range, and Section), precision information, and the date of last observation of the element at that location. This report includes elements known to occur within the specified project site, as well as elements known from similar landscapes near the site. Please note that "precision" reflects the resolution of original data. For example, an herbarium record from "4 miles east of Colorado Springs" provides much less spatial information than a topographic map showing the exact location of the occurrence. "Precision" codes of Seconds, Minutes, and General are defined in the footer of the enclosed report.

The report also outlines the status of known elements. We have included status according to Natural Heritage Program methodology and legal status under state and federal statutes. Natural Heritage ranks are standardized across the Heritage Program network, and are assigned for global and state levels of rarity. They range from "1" for critically imperiled or extremely rare elements, to "5" for those that are demonstrably secure.

You may notice that some occurrences do not have sections listed. Those species have been designated as "sensitive" due to their rarity and threats by human activity. Peregrine falcons, for example, are susceptible to human breeders removing falcon eggs from their nests. For these species, CNHP does not normally provide location information beyond township and range. Please contact us should you require more detailed information for sensitive occurrences.

There are two CNHP designated Potential Conservation Areas (PCAs) in the general project vicinity and no Network of Conservation Areas (NCAs) (see enclosed shapefile and report). In order to successfully protect populations or occurrences, it is necessary to delineate conservation areas. These

conservation areas focus on capturing the ecological processes that are necessary to support the continued existence of a particular element of natural heritage significance. Conservation areas may include a single occurrence of a rare element or a suite of rare elements or significant features.

The goal of the process is to identify a land area that can provide the habitat and ecological processes upon which a particular element or suite of elements depends for their continued existence. The best available knowledge of each species' life history is used in conjunction with information about topographic, geomorphic, and hydrologic features, vegetative cover, as well as current and potential land uses. The proposed boundary does not automatically exclude all activity. It is hypothesized that some activities will cause degradation to the element or the process on which they depend, while others will not. Consideration of specific activities or land use changes proposed within or adjacent to the preliminary conservation planning boundary should be carefully considered and evaluated for their consequences to the element on which the conservation unit is based.

The Colorado Division of Wildlife has legal authority over wildlife in the state. CDOW would therefore be responsible for the evaluation of and final decisions regarding any potential effects a proposed project may have on wildlife. If you would like more specific information regarding these or other vertebrate species in the vicinity of the area of interest, please contact the Colorado Division of Wildlife.

The information contained herein represents the results of a search of Colorado Natural Heritage Program's (CNHP) Biodiversity Tracking and Conservation System (BIOTICS), and can be used as notice to anticipate possible impacts or identify areas of interest. Care should be taken in interpreting these data. **Sensitive elements are currently known from within the vicinity of area of interest, and as always other undocumented elements may exist (see enclosed species report). We also searched our observations database for watch-listed species without full tracking status and found no additional records.** Please note that the absence of data for a particular area, species, or habitat does not necessarily mean that these natural heritage resources do not occur on or adjacent to the project site, rather that our files do not currently contain information to document their presence. CNHP information should not replace field studies necessary for more localized planning efforts, especially if impacts to wildlife habitat are possible.

Although every attempt is made to provide the most current and precise information possible, please be aware that some of our sources provide a higher level of accuracy than others, and some interpretation may be required. CNHP's data system is constantly updated and revised. Please contact CNHP for an update or assistance with interpretation of this natural heritage information.

Sincerely,

Michael Menefee
Environmental Review Coordinator

Locations and Status of Rare and/or Imperiled Species and Natural Communities known from or likely to occur within a two-mile raidus of the GCC Energy, LLC area of interest in La Plata County, Colorado

Report generated: 12 July 2017

EO_ID	major group	scientific name	common name	Prec	last obs	Town/ Range	Sec	TRS Note	grank	srank	eo-rank	ESA	fed stat	st stat
12,638	Birds	*Melanerpes lewis*	Lewis's Woodpecker	S	2003-07-29	035N011W	35		G4	S4	E	-	USFS	
5,467	Mammals	*Gulo gulo*	Wolverine	G	1979-04-99	035N012W			G4	S1	H	-		SE
3,038	Natural Communities	*Populus angustifolia / Betula occidentalis Woodland*	Montane Riparian Forest	S	2003-07-09	034N011W	02		G3	S3	D	-		
						034N011W	03							
						034N011W	05							
						034N011W	07							
						034N011W	08							
						034N011W	10							
						034N011W	18							
						035N011W	26							
						035N011W	35							
11,691	Mammals	*Cynomys gunnisoni*	Gunnison's Prairie Dog	S	2003-05-20	034N012W	10		G5	S5	E	PS: C	BLM USFS	
16,244	Amphibians	*Lithobates pipiens*	Northern Leopard Frog	M	2001-08-23	034N011W	02		G5	S3	E	-	BLM USFS	SC
						034N011W	03							
						035N011W	35							
13,390	Birds	*Melanerpes lewis*	Lewis's Woodpecker	S	2003-06-04	035N011W	14		G4	S4	E	-	USFS	
10,761	Mammals	*Corynorhinus townsendii pallescens*	Townsend's Big-eared Bat Subsp	S	1992-08-03	035N011W	32		G3G4T 3T4	S2	E	-	BLM USFS	SC
3,436	Mammals	*Corynorhinus townsendii pallescens*	Townsend's Big-eared Bat Subsp	S	1993-08-22	035N011W	29		G3G4T 3T4	S2	E	-	BLM USFS	SC

precision codes: S = "seconds", location known within 100m; M = "minutes", location known within 1 mile; G = "general", location known within 5 miles

Level 2 Potential Conservation Area (PCA) Report

Name Middle La Plata River **Site Code** S.USCOHP*24630

IDENTIFIERS

Site ID 2075 **Site Class** PCA

Site Alias None

Network of Conservation Areas (NCA)

NCA Site ID	NCA Site Code	NCA Site Name
-		No Data

Site Relations Shares small portion of boundary with Red Mesa (S.USCOHP*24930).

LOCATORS

Nation United States **Latitude** 371409N

State Colorado **Longitude** 1080224W

Quad Code	Quad Name
37108-B1	Kline
37108-C1	Hesperus

County

La Plata (CO)

Watershed Code	Watershed Name
14080105	Middle San Juan

SITE DESCRIPTION

Minimum Elevation	7,200.00	**Feet**	2,194.56	**Meters**
Maximum Elevation	8,110.00	**Feet**	2,471.93	**Meters**

Site Description

The Middle La Plata River site is located south of the Town of Hesperus. The headwaters of the La Plata River are within the Cumberland Basin in the La Plata Mountains. The La Plata River flows through a moderately steep canyon that follows USFS Road 571/County Road 124 and then State Highway 140. The first large ditch on the La Plata River is just south of Mayday. Several other ditches are located along its course including the Big Stick Ditch and Hay Gulch Ditch. Due to the intensive irrigation demand, the La Plata River is an intermittent stream after Hesperus, and is completely dry by mid-summer. Several other anthropogenic forces threaten the viability of the La Plata River, e.g. residential development, gravel pits and improper grazing. Additionally, the southwestern portion of Colorado has experienced a severe drought over the past years and this cumulative lack of precipitation has exacerbated the problem of keeping a constant flow in the La Plata River. The element of concern, *Populus angustifolia*/*Betula occidentalis* plant community, is indicative of high groundwater levels or presence of springs. The fact that this plant community is still present, albeit degraded, does indicate a high groundwater table. Cottonwood regeneration and saplings were also observed during the field visit. The sparse (approximately 15% cover) tree canopy is dominated by narrowleaf cottonwood (*Populus angustifolia*) with lanceleaf cottonwood (*Populus acuminata*). The shrub layer, approximately 50% cover, consists of river birch (*Betula occidentalis*), alder (*Alnus incana*), river hawthorn (*Crataegus rivularis*), Rocky Mountain juniper (*Juniperus scopulorum*), and Russian olive (*Elaeagnus angustifolia*). The forb layer is very sparse dominated by non-natives: mullein (*Verbascum thapsus*), houndstongue (*Cynoglossum officinale*), butter and eggs (*Linaria vulgaris*), Dalmatian toadflax (*Linaria dalmatica*), spotted knapweed (*Acosta maculosa*), and musk thistle (*Carduus nutans*). The graminoid layer is also sparse and dominated by hay grasses e.g., timothy (*Phleum pratense*), Kentucky blue grass (*Poa pratensis*), and orchard grass (*Dactylis glomerata*). The uplands are dominated Gambel's oak (*Quercus gambelii*) and big sagebrush (*Artemisia tridentata*) with cheatgrass (*Bromus tectorum*).

Key Environmental Factors

No Data

Climate Description

No Data

Land Use History

No Data

Cultural Features

No Data

Level 2 Potential Conservation Area (PCA) Report

Name Middle La Plata River **Site Code** S.USCOHP*24630

SITE DESIGN

Site Map Y - Yes **Mapped Date** 12/10/2003

Designer Culver, D.R.

Boundary Justification

The boundaries incorporate an area that will allow for the natural hydrological processes from surrounding drainages. The boundaries encompass the occurrence with a 500 - 1,000 foot buffer that follows the stream channel from the Town of Hesperus to south of Breen. Highway 140 is used as a boundary as well as a natural topographic feature. It should be noted that the hydrological processes necessary to the element are not fully contained by the site boundaries.

Primary Area 1,207.45 **Acres** 488.64 **Hectares**

SITE SIGNIFICANCE

Biodiversity Significance Rank B5: General Biodiversity Interest

Biodiversity Significance Comments

This site drawn for a degraded (D-ranked) example of a globally vulnerable (G3/S2) narrowleaf cottonwood/river birch plant community (*Populus angustifolia*/*Betula occidentalis*). The narrowleaf cottonwood/river birch plant association is documented from Colorado, Idaho, Nevada, Utah, and Wyoming. This riparian woodland is uncommon and occurs locally throughout much of its range (Carsey et al. 2003). Although this association appears globally stable, the condition of high quality occurrences is extremely threatened because of easy access to this relatively low elevation community.

Other Values Rank No Data

Other Values Comments

No Data

LAND MANAGMENT ISSUES

Land Use Comments

No Data

Natural Hazard Comments

No Data

Exotics Comments

No Data

Offsite

No Data

Information Needs

No Data

ASSOCIATED ELEMENTS OF BIODIVERSITY

Element State ID	State Scientific Name	State Common Name	Global Rank	State Rank	Driving Site Rank
24884	*Populus angustifolia / Betula occidentalis* Woodland	Montane Riparian Forest	G3	S3	Y

REFERENCES

Reference ID	Full Citation
159854	Carsey, K., G. Kittel, K. Decker, D. Cooper, and D. Culver. 2003. Field guide to the wetland and riparian plant associations of Colorado. Prepared for the Colorado Department of Natural Resources, Denver, CO by the Colorado Natural Heritage Program, Fort Collins, CO.
184533	March, M. and D. Culver. 2003. Colorado Natural Heritage Program Field Survey for La Plata County Wetlands.

ADDITIONAL TOPICS

Additional Topics

No Data

VERSION

Version Date 12/10/2003

Version Author Culver, D.R.

Level 2 Potential Conservation Area (PCA) Report

Name Middle La Plata River **Site Code** S.USCOHP*24630

Level 2 Potential Conservation Area (PCA) Report

Name Red Mesa **Site Code** S.USCOHP*24930

IDENTIFIERS

Site ID 2135 **Site Class** PCA

Site Alias None

Network of Conservation Areas (NCA)

NCA Site ID	NCA Site Code	NCA Site Name
-		No Data

Site Relations Shares small portion of northern boundary with Middle La Plata River (S.USCOHP*24630).

LOCATORS

Nation United States **Latitude** 370940N

State Colorado **Longitude** 1080708W

Quad Code	Quad Name
37108-A2	Redmesa
37108-B1	Kline
37108-A1	Pinkerton Mesa
37108-B2	Mormon Reservoir

County

La Plata (CO)

Watershed Code	Watershed Name
14080105	Middle San Juan

SITE DESCRIPTION

Minimum Elevation - **Feet** - **Meters**

Maximum Elevation - **Feet** - **Meters**

Site Description

The site is located on open, primarily agricultural land within the pinyon-juniper zone. Most of the area has been mapped as dryland agricultural. It also includes some natural openings in pinyon-juniper woodland. There are many roads and oil wells in the area. The site comprises one large central area that contains three prairie dog towns and five satellite areas with one town each.

Key Environmental Factors

No Data

Climate Description

No Data

Land Use History

No Data

Cultural Features

No Data

SITE DESIGN

Site Map Y - Yes **Mapped Date** 02/10/2004

Designer Lyon, M.J.

Boundary Justification

The site comprises one large central area that contains three prairie dog towns and five satellite areas with one town each. This represents areas that are occupied by prairie dogs and adjacent open level areas that may be colonized in the future.

Primary Area 11,091.52 **Acres** 4,488.60 **Hectares**

SITE SIGNIFICANCE

Biodiversity Significance Rank B5: General Biodiversity Interest

Biodiversity Significance Comments

The site supports four unranked (E) sub-populations of Gunnison's prairie dog, a species that is globally secure (G5/S5), but of concern because of recent declines. This is one of ten populations documented in 2003. It is included to represent the species in the western part of the county on non-irrigated agricultural land.

Level 2 Potential Conservation Area (PCA) Report

Name Red Mesa **Site Code** S.USCOHP*24930

Other Values Rank No Data

Other Values Comments

No Data

LAND MANAGMENT ISSUES

Land Use Comments

No Data

Natural Hazard Comments

No Data

Exotics Comments

No Data

Offsite

No Data

Information Needs

No Data

ASSOCIATED ELEMENTS OF BIODIVERSITY

Element State ID	State Scientific Name	State Common Name	Global Rank	State Rank	Driving Site Rank
21389	*Cynomys gunnisoni*	Gunnison's Prairie Dog	G5	S5	Y
21389	*Cynomys gunnisoni*	Gunnison's Prairie Dog	G5	S5	Y
21389	*Cynomys gunnisoni*	Gunnison's Prairie Dog	G5	S5	Y
21389	*Cynomys gunnisoni*	Gunnison's Prairie Dog	G5	S5	Y
21389	*Cynomys gunnisoni*	Gunnison's Prairie Dog	G5	S5	Y

REFERENCES

Reference ID	Full Citation
184581	Lyon, P. 2003. Colorado Natural Heritage Program La Plata County Biological Assessment.

ADDITIONAL TOPICS

Additional Topics

No Data

VERSION

Version Date 02/10/2004

Version Author Lyon, M.J.

CNHP Report Request Area 2017 06

Township	Range	Section	Meridian
34N	11W	5	N.M.P.M.
34N	11W	6	N.M.P.M.
34N	11W	7	N.M.P.M.
34N	11W	8	N.M.P.M.
35N	11W	28	N.M.P.M.
35N	11W	29	N.M.P.M.
35N	11W	31	N.M.P.M.
35N	11W	32	N.M.P.M.
35N	12W	35	N.M.P.M.
35N	12W	36	N.M.P.M.

Ditch ID	Station	Soil Type	Bottom Width-Ft.	Lin.Ft.	Slope	Hydraulic Radius	Manning's "n"	Required Flow CFS	Velocity	Required Depth	Actual Depth	Type	Ditch Material
CWD-1A	0+00 to 0+32 (A')	Unbarg Loam	3.8	32	6.90%	0.584	N/A	15.2	1.91	1.22	4.4	Trapezoidal	Grass Mixture
	0+32 to 1+18 (B')	Unbarg Loam	3.5	86	2.90%	0.7	N/A	15.2	2.66	1.47	3.5	Trapezoidal	Grass Mixture
	1+18 to 1+80 (C')	Unbarg Loam	3.3	62	6.80%	0.46	N/A	15.2	4.94	0.93	2.0	Trapezoidal	Grass Mixture
	1+80 to 2+37 (D')	Unbarg Loam	3.3	57	0.20%	1.3	N/A	15.2	1.11	2.57	2.6	Trapezoidal	Grass Mixture
	4+90 to 8+38 (E')	Unbarg Loam	4.3	348	4.20%	0.594	0.038	24.17	5.42	1.08	1.9	Trapezoidal	Rip Rap
	8+38 to 10+81 (F')	Unbarg Loam	2.2	243	2.20%	0.64	0.038	24.17	5.61	1.02	2.1	Trapezoidal	Rip Rap
	10+81 to 12+40 (G')	Unbarg Loam	1.6	159	6.10%	0.548	0.038	24.17	6.48	1.23	2.1	Trapezoidal	Rip Rap
	12+40 to 18+95 (H')	Unbarg Loam	1.6	655	3.60%	0.675	0.036	24.17	6.07	1.59	3.0	Trapezoidal	Rip Rap
CWD-1B	18+95 to 24+01 (I')	Unbarg Loam	2.3	506	4.10%	0.275	0.3	4.38	4.23	0.65	3.0	Trapezoidal	Graded Loam to Cobbles when noncollodial
CWD-1C	24+01 to 27+58 (J')	Unbarg Loam	2.7	357	4.30%	0.221	0.3	3.23	3.74	0.57	3.0	Trapezoidal	Graded Loam to Cobbles when noncollodial
CWD-1D	27+58 to 24+01 (J')	Unbarg Loam	2.7	12	13.40%	0.049	0.3	0.33	2.43	0.35	3.0	Trapezoidal	Graded Loam to Cobbles when noncollodial
Cattle Guard		Steele	6.5	35	0.50%	0.183	0.013	3.37	2.61	0.49	3.0	Trapezoidal	Steel
CWD-2	0+00 to 0+05 (A')	Unbarg Loam	3.8	5	19.10%	0.11	0.3	2.38	4.98	0.42	3.0	Trapezoidal	Graded Loam to Cobbles when noncollodial
	0+05 to 0+70 (B')	Unbarg Loam	5.79	65	17.70%	0.09	0.3	2.38	4.19	0.39	1.3	Trapezoidal	Graded Loam to Cobbles when noncollodial
	0+70 to 1+60 (C')	Unbarg Loam	3.91	90	6.20%	0.142	0.3	2.38	3.37	0.46	1.07	Trapezoidal	Graded Loam to Cobbles when noncollodial
	1+60 to 4+70 (D')	Unbarg Loam	4.79	310	1.70%	0.193	0.3	2.38	2.15	0.51	2.05	Trapezoidal	Graded Loam to Cobbles when noncollodial
	4+70 to 6+12 (E')	Unbarg Loam	3.11	142	0.60%	0.988	0.3	35.76	3.88	1.59	3.64	Trapezoidal	Graded Loam to Cobbles when noncollodial
	6+12 to 7+90 (F')	Unbarg Loam	7.23	178	0.90%	0.784	0.3	35.76	3.89	1.29	2.98	Trapezoidal	Graded Loam to Cobbles when noncollodial
	7+90 to 11+95 (G')	Unbarg Loam	7.62	405	3.00%	0.893	0.3	35.76	2.32	1.56	2.68	Trapezoidal	Graded Loam to Cobbles when noncollodial
	11+95 to 14+56 (H')	Unbarg Loam	5.34	261	1.80%	1.113	N/A	35.76	2.33	1.96	1.99	Trapezoidal	Grass Mixture
	14+56 to 18+00 (I')	Unbarg Loam	5.84	344	2.60%	0.699	N/A	35.76	2.58	1.74	1.79	Trapezoidal	Grass Mixture
	18+00 to 20+84 (J')	Unbarg Loam	6.18	284	2.90%	0.979	N/A	35.76	2.8	1.67	3.82	Trapezoidal	Grass Mixture
	20+84 to 22+20 (K')	Unbarg Loam	3.94	136	3.10%	0.719	N/A	35.76	1.38	1.6	1.6	Trapezoidal	Grass Mixture
	22+20 to 25+95 (L')	Unbarg Loam	1.98	375	1.50%	1.206	N/A	76.82	2.37	2.58	2.54	Trapezoidal	Grass Mixture
	25+95 to 26+61 (M')	Unbarg Loam	3.84	66	15.90%	0.814	0.3	76.82	9.25	1.53	7.29	Trapezoidal	Rip Rap
	26+61 to 31+87 (N')	Unbarg Loam	8.34	526	2.30%	0.495	0.03	85.86	4.75	1.11	6.21	Trapezoidal	Graded Loam to Cobbles when noncollodial
ID 00	Minimum	Unbarg Loam	2	9	2.10%	0.26	0.3	2.76	2.95	0.65	0.8	Trapezoidal	Graded Loam to Cobbles when noncollodial
ID 0	Minimum	Unbarg Loam	2	210	10.00%	0.13	0.3	1.4	4.03	0.45	0.8	Trapezoidal	Graded Loam to Cobbles when noncollodial
ID 1A	Minimum	Unbarg Loam	2	260	7.64%	0.17	0.3	2.14	4.25	0.51	0.8	Trapezoidal	Graded Loam to Cobbles when noncollodial
ID 1B	Minimum	Unbarg Loam	2	9	2.22%	0.35	0.3	5.27	3.65	0.79	0.8	Trapezoidal	Graded Loam to Cobbles when noncollodial
ID 1C	Minimum	Unbarg Loam	2	20	3.50%	0.31	0.3	5.27	4.29	0.73	0.8	Trapezoidal	Graded Loam to Cobbles when noncollodial
ID 1D	Minimum	Unbarg Loam	2	136	2.70%	0.346	0.3	6.18	4.82	0.77	0.8	Trapezoidal	Graded Loam to Cobbles when noncollodial
ID 1E	Minimum	Unbarg Loam	8.3	274	6.60%	0.222	0.3	9.39	4.68	0.53	0.8	Trapezoidal	Graded Loam to Cobbles when noncollodial
ID-2A	Minimum	Unbarg Loam	1.25	187	2.00%	0.21	0.025	1.09	3.27	0.58	0.8	Trapezoidal	Graded Loam to Cobbles when noncollodial
ID-2B	Minimum	Unbarg Loam	0.66	265	4.20%	0.22	0.3	1.83	3.77	0.67	0.8	Trapezoidal	Graded Loam to Cobbles when noncollodial
ID-3	Minimum	Unbarg Loam	1		10.00%	0.2	0.03	2.51	5.4	0.59	0.8	Trapezoidal	Graded Loam to Cobbles when noncollodial
ID 4	Minimum	Unbarg Loam	4	128	5.30%	0.372	0.3	10.94	5.05	0.75	0.8	Trapezoidal	Cobbles and Shales
ID-5A Sta. 1	Minimum	Unbarg Loam	3	75	2.00%	0.138	0.3	1.19	2.25	0.46	0.71	Trapezoidal	Shales and Hardpans
ID-5A Sta. 2	Minimum	Unbarg Loam	4	305	1.90%	0.51	N/A	2.07	1	1.07	1.1	Trapezoidal	Grass Mixture
ID 5B	Minimum	Unbarg Loam	3	329	2.00%	0.22	0.025	3.01	3.08	0.57	1.1	Trapezoidal	Shales and Hardpans
ID-6	Minimum	Unbarg Loam	2	160	12.00%	0.062	0.025	0.45	3.25	0.37	0.8	Trapezoidal	Course Gravel noncollidal

CDRMS Permit C-1981-035 Boundary

CDRMS Permit C-1981-035 Affected Area

OSMRE PAP C-0106A Boundary

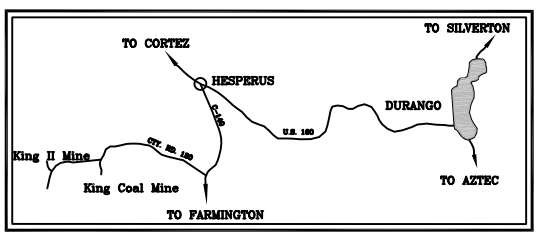
OSMRE PAP C-0101A Boundary

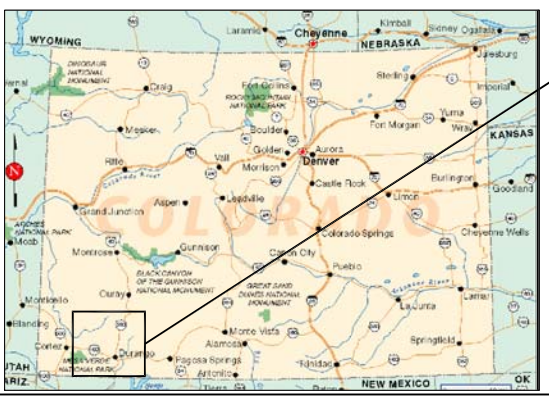
King I Mine CDRMS Permit C-1981-035

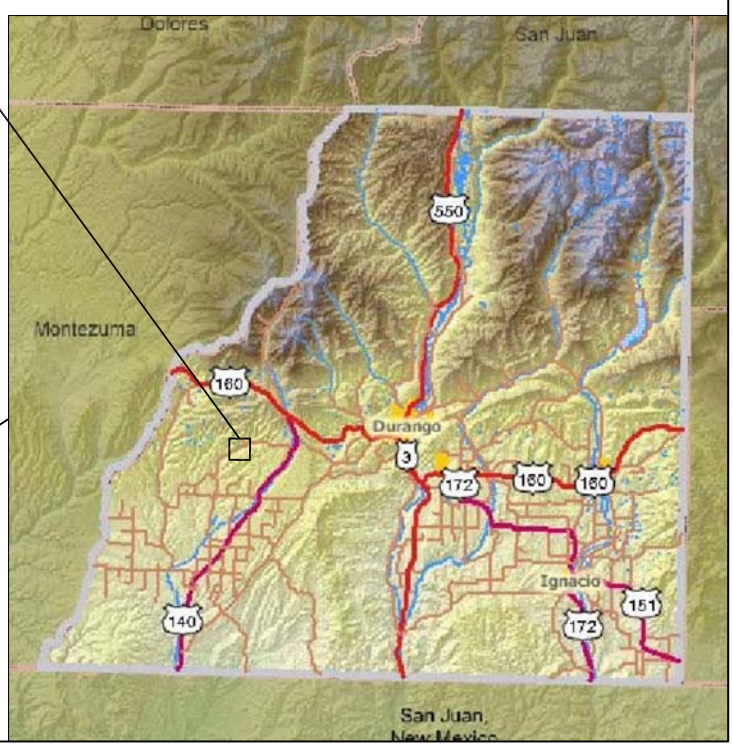
King II Mine CDRMS Permit C-1981-035

OSMRE Indian Lands PAP CO-0106A

OSMRE Indian Lands PAP CO-0101A







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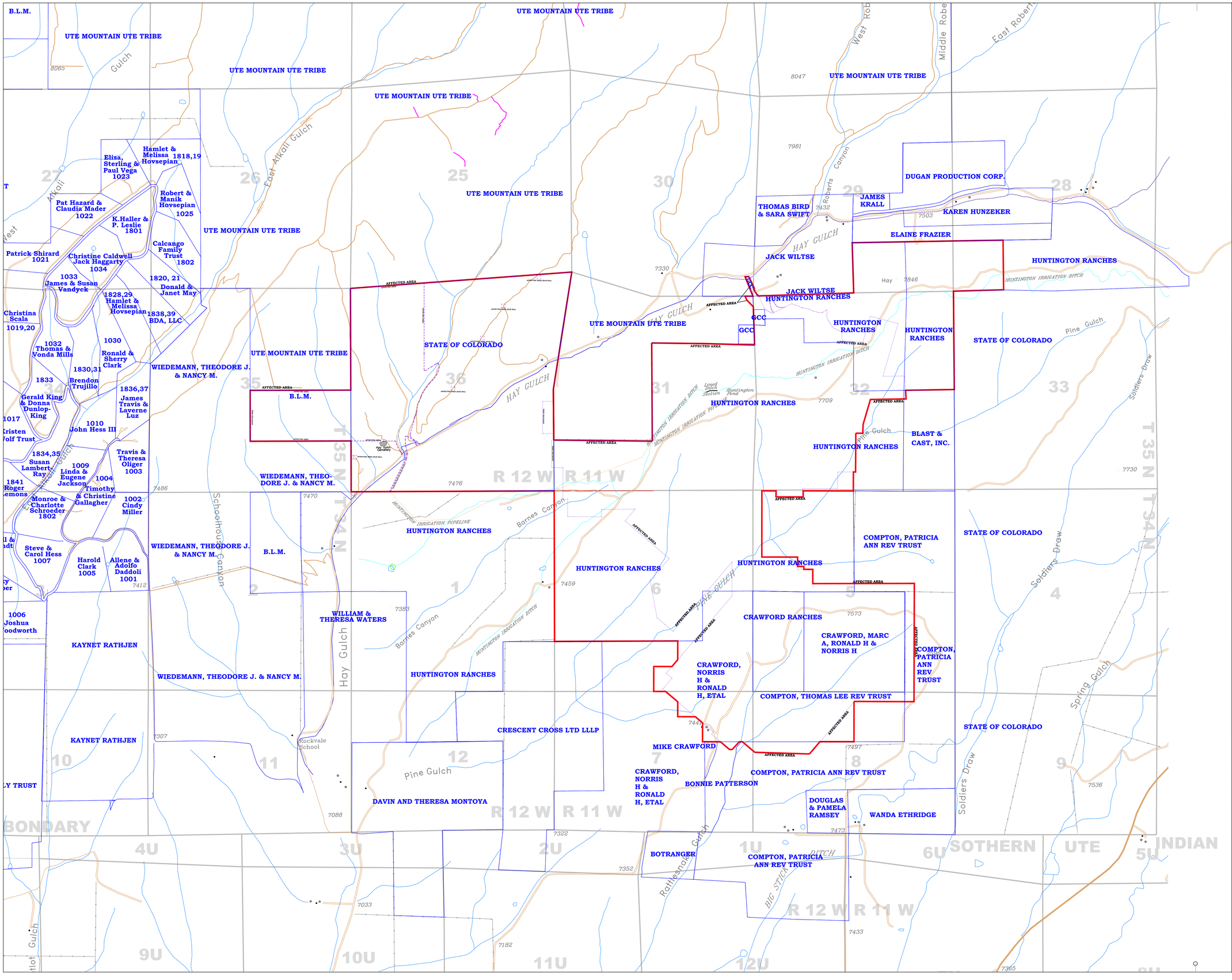
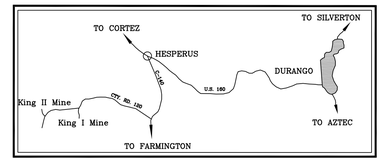
Hesperus, CO 81326
Colorado Mining Permit C-1981-035

King II Mine
6473 C.R. 120
Map King II-001
Permit & Adjacent Areas

Scale:	1" = 2100'	Designed By:	Tom Bird
Date:	07/11/17	Drawn By:	Tom Bird
File Path:	Environmental\King II\Permit Maps		
File Name:	King II-001 Permit & Adjacent Areas		
Plot Date:	07/11/17		
Plot Time:	9:55 am		





LEGEND

- PERMIT BOUNDARY
- AFFECTED AREA BOUNDARY
- SURFACE OWNERSHIP

Note: Surface ownership names and addresses within and contiguous to the permit area can be found in Sections 2.03.4(6) and 2.03.4(7) of the Permit Application Package.

REVISIONS

DATE	DESCRIPTION
04/30/15	TR-24/MT-07 Mid-Term Review Updates
07/14/15	TR-24/MT-07 Adequacy Review #1 Updates
08/23/16	TR-24/MT-07 Adequacy Review #2 Updates
07/11/17	RN-07 Preliminary Adequacy Review #1 Updates

I, _____, a professional engineer, certify that the information on this map is correct to the best of my knowledge and belief.

0' 1000' 2000' 3000'

Scale: 1" = 1000'

N

GCC Energy

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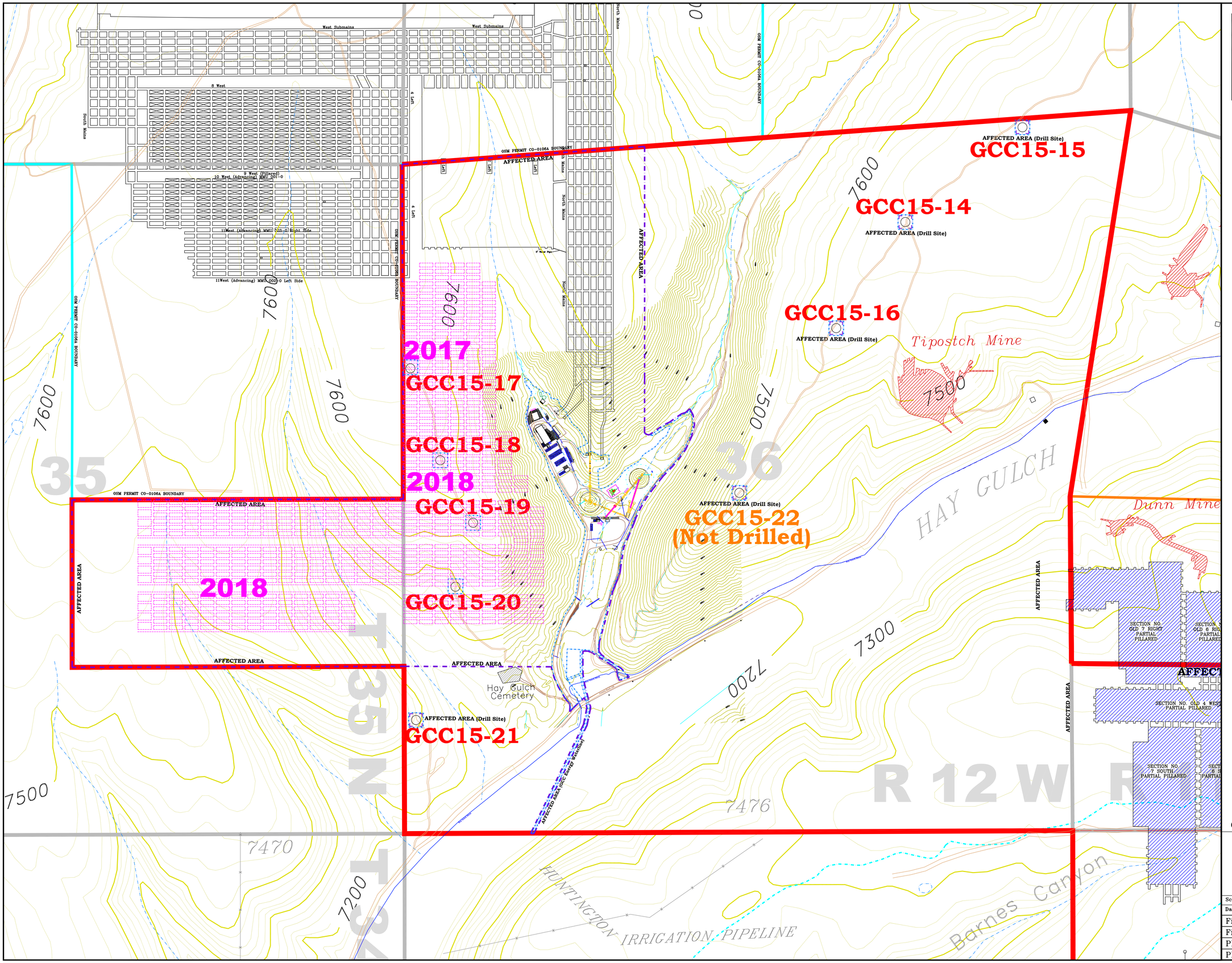
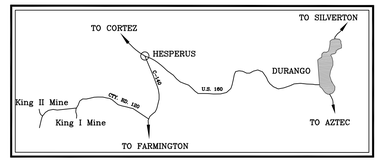
6473 County Road 120
Hesperus, CO 81326
Colorado Mining Permit C-1981-035

King II Mine
6473 C.R. 120
Map King II-002

Surface Ownership

Scale: 1" = 1000'	Designed By: Tom Bird
Date: 07/11/17	Drawn By: Tom Bird
File Path:	Environmental\King II\Permit Maps
File Name:	King II-002 Surface Ownership
Plot Date:	07/11/17
Plot Time:	9:55 am





LEGEND

- PERMIT BOUNDARY: CDRMS PERMIT C-1985-035
- PERMIT BOUNDARY: OSMRE PERMIT CO-0106A
- PERMIT BOUNDARY: OSMRE PERMIT CO-0101A
- AFFECTED AREA BOUNDARY
- AREAL EXTENT OF SURFACE DISTURBANCE
- TOWNSHIP & SECTION BOUNDARIES
- UNDERGROUND MINE WORKINGS
- 2018 PROJECTED UNDERGROUND MINE DEVELOPMENT, YEAR
- GCC15-15 TR-22 DRILL HOLE LOCATIONS
- OLD MINES
- AREA WHERE PILLERS HAVE BEEN REMOVED (PULLED)
- ROADS

REVISIONS

DATE	DESCRIPTION
04/30/18	TR-24/MT-07 Mid-Term Review Updates
07/14/15	TR-24/MT-07 Adequacy Review #1 Updates
03/22/16	TR-24/MT-07, Surface Disturbance Boundary Correction
07/28/16	TR-24/MT-07, Clarify Disturbed Area & Affected Area Polygons
07/11/17	RN-07 Preliminary Adequacy Review #1 Updates

I, _____, a professional engineer, certify that the information on this map is correct to the best of my knowledge and belief.

0' 300' 600' 900'

Scale: 1" = 300'

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6473 County Road 120
Hesperus, CO 81326
Colorado Mining Permit C-1981-035

King II-005
Mine Plan Map

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Date:	07/06/17	Drawn By:	Tom Bird
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File Name:	King II-005 Mine Plan		
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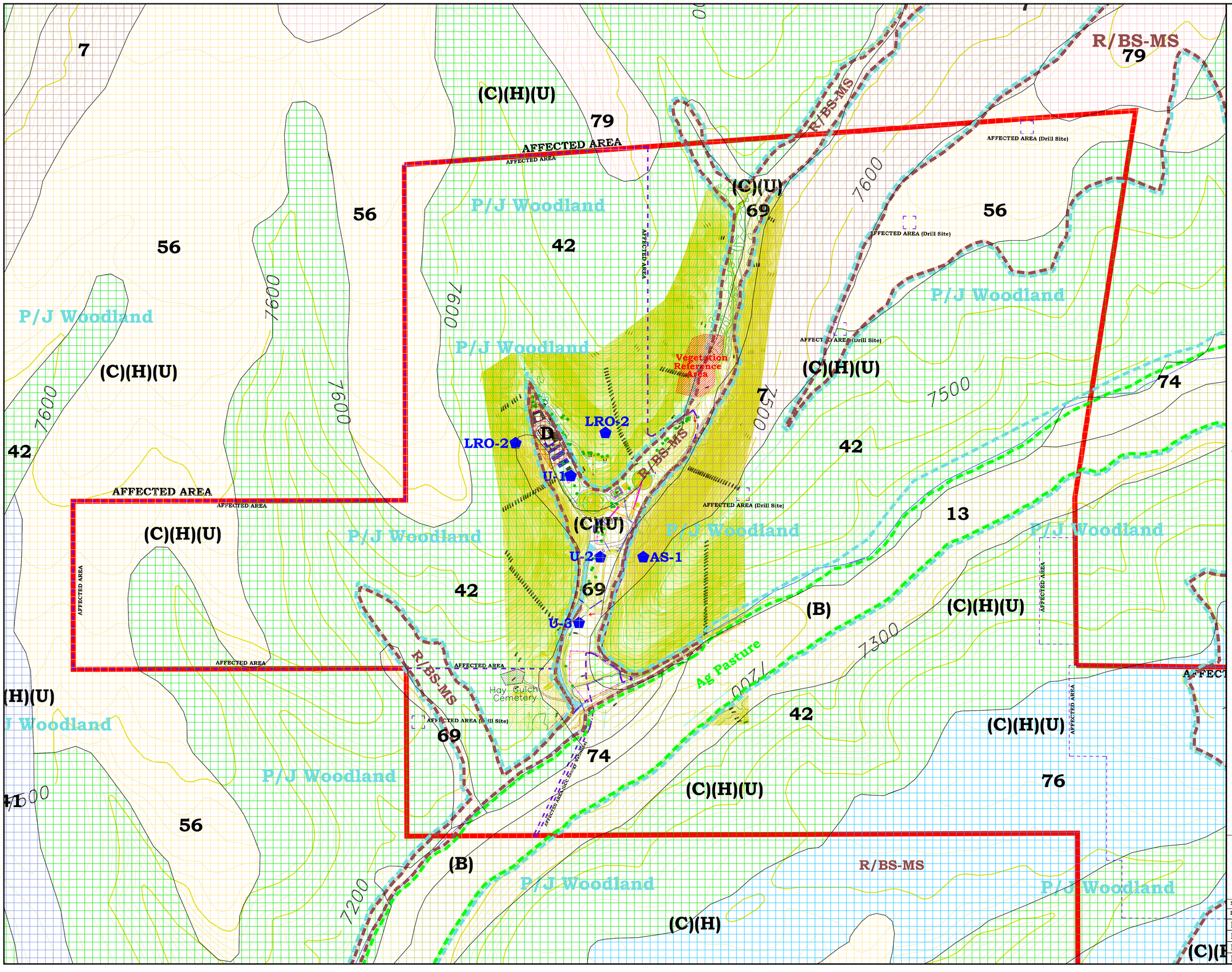
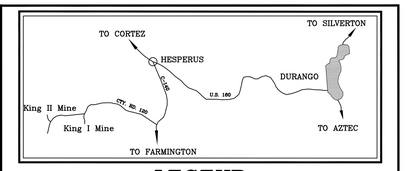
Plot Time:	9:55 am		





LEGEND

PERMIT BOUNDARY
AFFECTED AREA BOUNDARY
ROADS

Soils

- 3 – Anvik Loam, 12–45% Slopes
- 7 – Archuleta–Sanchez, Stony, Complex, 12–65% slopes MLRA 36
- 13 – Big Blue Clay Loam
- 21 – Coni Loam, 4–25% Slopes
- 30 – Fortwingate–Rock Outcrop Complex, 6–25% Slopes
- 31 – Goldvale Very Stony Fine Sandy Loam, 15–65% Slopes
- 39 – Hesperus Loam, 3–12% Slopes
- 41 – Lazear Stony Loam, 6–25% Slopes
- 42 – Lazear–Rock Outcrop Complex, 12–65% Slopes
- 47 – Nutrioso Loam
- 56 – Pulpit Loam, 3–12% Slopes
- 64 – Simpatico Loam
- 69 – Umbarg Loam
- 71 – Valto–Rock Outcrop Complex, 12–65% Slopes
- 74 – Vosburg Fine Sandy Loam, 3–8% Slopes
- 76 – Witt Loam, 3–8% Slopes
- 79 – Zau Stony Loam, 3–9% Slopes
- 80 – Zau Stony Loam, 9–25% Slopes
- D – Disturbed

Soil Sample Point

Vegetation

P/J Woodland = Pinyon–Juniper Woodland
R/BS–MS = Rabbitbrush/Big Sage Mixed Shrubland
Ag Pasture = Agricultural Pastureland

Land Use

(C) – Rangeland
(H) – Fish & Wildlife Habitat
(U) – Undeveloped
(B) – Pastureland

REVISIONS

DATE	DESCRIPTION
04/30/15	TR-24/MT-07 Mid-Term Review Updates
07/14/15	TR-24/MT-07 Adequacy Review #1 Updates
08/23/16	TR-24/MT-07 Adequacy Review #2 Updates
07/11/17	RN-07 Preliminary Adequacy Review #1 Updates

I, _____, a professional engineer, certify that the information on this map is correct to the best of my knowledge and belief.

0' 300' 600' 900'

Scale: 1" = 300'

N

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Colorado Mining Permit C-1981-035

King II-006
Soils, Vegetation & Land Use

Scale: 1" = 300'	Designed By: Tom Bird
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Plot Date:	07/11/17
Plot Time:	9:55 am