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State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
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Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

December 8, 2017

John Byars, General Manager
Canyon Fuel Company, LLC
597 South SR24
Salina, Utah 84654

Subject: Deficient Application, 4 Right 4 East Panel, Canyon Fuel Company, LLC, Sufco Mine, C/041/0002, Task ID #5552

Dear Mr. Byars:

The Division has reviewed your application for the 4R4E amendment and has written an analysis and finding document. The Division has identified deficiencies that must be addressed before final approval can be granted. The deficiencies are listed as an attachment to this letter. As you are aware, most of the deficiencies were discussed with you in a meeting held at the Division offices on December 5, 2017.

The deficiencies authors are identified so that your staff can communicate directly with that individual should questions arise. The plans as submitted are denied. Please resubmit the entire application.

If you have any questions, please call me at (801) 538-5325.

Sincerely,

A handwritten signature in black ink that reads "Daron R. Haddock".

Daron R. Haddock
Coal Program Manager

DRH/sqs
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Technical Analysis and Findings

Utah Coal Regulatory Program

PID: C0410002
TaskID: 5552
Mine Name: SUFCO MINE
Title: 4 RIGHT 4 EAST PANEL

Summary

On October 26th, 2017, the Division of Oil, Gas and Mining (the Division) received an amendment to the Mining and Reclamation Plan (MRP) for the Sufco Mine. The amendment proposes the addition of the 4 Right 4 East Panel (the panel). The panel is located within an existing Federal Coal Lease (U-63214). The lease is part of the Quitchupah Tract/Lease. The lease was issued to the Permittee in 1989. The mine plan can be found on Plate 5-7. Mining will only occur within the Upper Hiawatha coal seam. At this time, no surface disturbance has been proposed or contemplated with this amendment. The proposed panel is located within the existing Cumulative Impact Area.

Deficiencies Details:

schriste

General Contents

Right of Entry

Analysis:

The amendment meets the State of Utah R645 requirements for Right of Entry.

The amendment proposes an additional longwall panel within an existing Federal Coal Lease (U-63214). The 4 Right 4 East panel (the panel) is located within what's referred to as the Quitchupah Lease. The lease was issued to the Permittee in 1989. At that time, mining was not anticipated in the area of the proposed panel. However; the location of the panel is located within the Quichupah Lease in its entirety. The legal description for the area authorized to mine in the Sufco Mine permit document encompasses the proposed location of the panel.

schriste

Maps and Plans

Analysis:

The amendment does not meet the State of Utah R6545 requirements for Maps and Plans.

Narrative detailing the Subsidence Control Plan in section 5.2.5.1 makes numerous references to Plates 5-10A, 5-10B,

5-10AC, 5-10BC, and 5-10CC none of which are located anywhere within the amendment, even in confidential sections of the MRP. Since anticipated areas of subsidence and those areas planned for protection from subsidence are shown on these plates, they are needed to make a complete and thorough review of this amendment.

Deficiencies Details:

The amendment does not meet the State of Utah R6545 requirements for Maps and Plans. Prior to final approval, the following deficiencies must be addressed:

R645-301-521, R645-301-122: The Permittee must provide the Division with missing reference materials, specifically: Plate 5-10A, Plate 5-10B, Plate 5-10C, Plate 5-10AC, Plate 5-10BC, and Plate 5-10CC.

jeatchel

Environmental Resource Information

General

Analysis:

The amendment meets the State of Utah R645-301-411 requirements for general environmental resource information. Volume 1, Chapter 4, Section 4.10, page 4-1 provides a description of the premining resources and land uses within the proposed permit area and adjacent areas. Plate 4-1 is a map indicating existing land uses of the permit area. The area above and around the 4R4E panel is designated mostly as general big game winter range with some range/grazing land nearby.

tmiller

Historic and Archeological Resource Information

Analysis:

The amendment does not meet the State of Utah R645-301-411 requirements for historic and archeological resource information. A cultural resource inventory was performed in July of 2017 by Tetra Tech and it concluded that no sites found within the area of the panel that were eligible for listing with the National Register of Historic Places. The inventory report includes a description of known archeological sites in the area and their eligibility for NRHP listing. The narrative, found on pages 4-12 and 4-13, states that "[t]he cultural resource inventory and SHPO concurrence letter agreeing with USFS in not listing the new sites are located in Appendix 4-2 (Confidential)." However, no such SHPO concurrence letter can be found in Appendix 4-2.

Deficiencies Details:

The amendment does not meet the State of Utah R645-301-411 requirements for historic and archeological resource information. The following deficiency must be addressed prior to final approval:

R645-301-411: The Permittee must provide information from the State Historic Preservation Officer indicating concurrence with the findings of the USFS.

tmiller

Vegetation Resource Information

Analysis:

The amendment does not meet the State of Utah R645-301-320 requirements for vegetation resource information. Page 3-4 states that "[i]n the summer of 2017 an environmental specialist documented vegetation types contained within the potential subsidence impact area above the 4R4E panel and adjacent areas (See the 4R4E Projected Subsidence Map in Appendix 6-4)" but it is unclear where this documentation is. The data is, presumably, summarized on page 3-4 but the inclusion of the actual documentation will make it clearer. The map on Plate 3-1 does show a delineation of existing plant communities in the area surrounding the panel location. However, the location of the panel and/or its areas of potential subsidence are not shown on the map making it difficult to determine what areas the proposed action may affect.

Deficiencies Details:

The amendment does not meet the State of Utah R645-301-320 requirements for vegetation resource information. The

following deficiency must be addressed prior to final approval:

R645-301-320: The Permittee must provide a map that delineates existing vegetative types that includes the location of the proposed 4R4E panel and the boundaries of potential subsidence. The Permittee must also provide the most up-to-date information regarding vegetation types located within the area of potential subsidence of the panel.

tmiller

Fish and Wildlife Resource Information

Analysis:

The amendment does not meet the State of Utah R645-301-322 requirements for fish and wildlife resource information. The amendment states, on page 3-12, that “[t]he panel is located just outside of what is considered crucial or critical winter range for deer and elk”. Plate 3-2 titled “Elk Range” is a map showing areas of priority and critical range for elk. Because the location of the panel and its area of potential subsidence are not included on the map and there is no additional documentation indicating that potential subsidence from 4R4E operations will not affect critical winter range for elk, the determination stated in the amendment that “subsidence associated with the 4R4E panel will not adversely affect elk and deer winter range or their migration routes” appears unsubstantiated. Using the map titled "Detail of Portal Surface Facilities" provided in the amendment in Appendix 5-14 titled "4R4E Panel Location", and comparing it to Plate 3-2 it appears that subsidence from the 4R4E panel may indeed affect critical elk winter range. Consultation with state and federal agencies resulted in the request that the areas of impact to critical elk winter range from 4R4E subsidence be clarified.

Deficiencies Details:

The amendment does not meet the State of Utah R645-301-322 requirements for fish and wildlife resource information. Following consultation with state and federal agencies, it is determined that the following deficiency must be addressed prior to final approval:

R645-301-322: The Permittee must provide site-specific information, including a map with the boundary of potential subsidence as it relates to the areas of priority and critical winter range for deer and elk.

tmiller

Land Use Resource Information

Analysis:

The amendment meets the State of Utah R645-301-411 requirements for land use resource information. Volume 1, Chapter 4, Section 4.10, pages 4-1 through 4-7 of the MRP provides a statement of the condition of the land within the permit area. Page 4-4 provides a narrative regarding the current uses of the land. It lists rangeland, timber harvesting, and general big game range as principle uses. Light yearly recreation includes camping, firewood gathering, hunting, some snowmobiling, and sightseeing from late spring to late fall. Overall, recreation is light but can become extremely heavy during the deer and elk hunts.

tmiller

Hydro Baseline Information

Analysis:

The amendment meets the State of Utah R645 requirements for Baseline Information.

4 Right 4 East Panel is located on the existing U-63214 within the Quitcupah Tract. The mine plan with 5-year projection, shown on Plate 5-7, indicates mining to occur only in the Upper Hiawatha seam. The overburden in this panel ranges from 300' to 900' with potential for subsidence above the 4R4E panel ranging from 1-5 feet, 2 feet on average. No surface disturbance is anticipated and/or planned with the proposed expansion. Previously submitted and approved baseline information relative to ground and surface water resources have been approved within the SUFCO mine area. The previous characterization of these resources provides an accurate picture of the baseline hydrology in the region. The Permittee provides baseline data and supporting narrative and analyses for water resources in the area of and adjacent to the 4R 4E panel on page 7-3 of the MRP and n Appendix 7-17.

Geologic information for areas within and adjacent to the 4R 4E panel is provided on page 7-5 and in Appendix 7-17. Plate 6-1 in the MRP shows the drill surface geology of the entire SUFCO mine. 4R4E is predominantly located in the

Blackhawk Formation.

Appendix 7-17 also discusses the water monitoring that is conducted within the Quitchupah Tract. Beginning in 1983, SUFCO mine personnel have performed quarterly monitoring of five creek sites, four springs, 13 monitoring wells, mine discharge water, and one roof drip site within the mine. The acquisition of the Quitchupah Coal Lease Tract in 1987, three springs, one creek and seven monitoring wells were added to the monitoring program. Of these sites, 13 are still being monitored including 7 streams and 6 springs.

Surface drainages are outlined on page 7-17 of the MRP, which include the North Fork of Quitchupah Creek, South Fork of Quitchupah Creek, Quitchupah Creek, Box Canyon including East Fork Box Canyon, Muddy Creek, and Cowboy Creek. The proposed 4R 4E panel falls nearest to the North Fork of Quitchupah Drainage.

Additionally, gain/loss studies have been performed on Quitchupah Creek in 1995 with findings in Thiros and Cordy in 1991. The goal was to evaluate and characterize the flow characteristics of this drainage. Measurements were made using a Marsh-McBurney brand automated pressure transducer flow meter. Information and figures for this are provided in Appendix 7-17.

Figure 4 of Appendix 7-17 provides a plan view of the surficial geology within the Quitchupah Coal Lease Tract. Figure 5 provides a southwest to northeast cross-sectional view of the geologic units within the Quitchupah Coal Lease Tract. Figure 6 depicts the generalized stratigraphic sections of each of the geologic units within the Quitchupah Coal Lease Tract. A detailed discussion of each of the geologic units within the area of panel 4R4E begins on page 8 of Appendix 7-17.

Plate 7-2, Surface and Groundwater Rights Quitchupah Tract depict the ground and surface water rights in the area of the 4R4E panels. The 3R4E panels are located in an area with minimal ground and surface water rights identified. Surface water right 94-949 is located on the North Fork of Quitchupah Creek approximately 1 mile southeast of the panel. A water runoff catchment pond (94-583) is located north of the 4R4E panels and a natural surface water pond is located approximately 3/4 of a mile northwest of the panel (9-584). The identified water rights are located well outside the anticipated subsidence area. Also, these areas have already been undermined according to the mine plan described in Plate 5-7. Based upon the baseline information presented in Appendix 7 -17, and the narrative provided on Page 7-19, a 2017 walking survey was completed on the surface above and immediately adjacent to the 4R4E proposed panel. The Permittee found no surface or groundwater sources. Further, exploration wells were drilled during 2017 and no water was encountered during the drilling process. Therefore, the area of Panel 4R4E is void of all water resources except the catchments described previously, with both of these ponds having already been undermined and are well outside the projected/potential limits of subsidence.

aumarva

Hydro Baseline Cumulative Impact Area

Analysis:

The amendment meets the State of Utah R534 requirements for Hydrologic Baseline Cumulative Impact Area.

The proposed 4R4E panel is located within the Quitchupah and Muddy Creek Cumulative Impact Area (CIA) located in Sevier County, Utah west of the town of Emery. The CIA is depicted on Plate 1, Location Map of the Cumulative Impact Area Quitchupah-Muddy Creek and Plate 2, Workings Map Cumulative Impact Area Quitchupah-Muddy Creek of the Cumulative Hydrologic Impact Assessment (CHIA). The hydrologic and geologic information required to establish the CIA has previously been provided to the Division. Federal lease U-63214 were awarded to the Permittee in 1989, ongoing water monitoring data continues to be provided to the Division at 13 locations, 6 springs and 7 streams stations, the CIA does not require a revision at this time.

aumarva

Probable Hydrologic Consequences Determination

Analysis:

The amendment does not meet the State of Utah R645 requirements for Probable Hydrologic Consequences Determination.

The approved MRP discusses the probable hydrologic consequences of mining beginning on page 7-26. A specific study of the surface and groundwater hydrology of the Quitchupah Tract is provided in Appendix 7-17. The 4R4E Panel is located within the Quitchupah Tract, within the U-63214 lease.

With the exception of subsidence, which is expected to be approximately 2 feet in the 4R4E area, no surface disturbance is proposed or anticipated. Further, no surface or groundwater resources have been identified in the area above 4R4E Panel or within the area of expected subsidence. The Permittee confirms the lack of water resources in the narrative provided on page 7-18 of the MRP. In 2017, the Permittee completed a walking survey above 4R4E and in the immediately adjacent areas and was unable to identify any surface or groundwater resources. In addition, the Permittee drilled several exploration wells in 2017, and no water was encountered during drilling. The Permittee does not provide walking survey dates or information on drilling depths to aid in hydrologic review.

Though no surface and groundwater resources have been identified above or immediately adjacent to the proposed 4R4E panel, one natural pond is established approximately 3/4 mile northwest of the Panel and a runoff catchment is located 1/2 mile just north of the panel. The Permittee does not mention the runoff catchment in the narrative, however it is pictured on the water rights map Plate 7-2. These two ponds are unlikely to be impacted by the panel because they are well outside the area of expected subsidence and they have already been undermined by long wall panels in the Quitchupah Lease.

Furthermore, due to the lack of water resources in the area above and immediately adjacent to the proposed panel, diminution or interruption of water resources is not anticipated as a probable hydrologic consequence. Similarly, contamination or impacts to water quality are also not anticipated.

The Permittee, however, must provide a more detailed account of the walking survey and exploration drilling where no water was identified in order to provide sufficient basis for which to claim no probable hydrologic impacts are expected due to the lack of water resources above and immediately adjacent to the proposed panel.

Deficiencies Details:

The amendment meets the State of Utah R645 requirements for Probable Hydrologic consequences. Prior to final approval, the Permittee must address the following deficiency:

R645-301-728.200, -724.300: The Permittee must provide drilling information, including depths, surface elevation, location map, and dates drilled for the exploration wells used as basis for lack of water resources in the area above and immediately adjacent to the proposed panel. Similarly, the Permittee must provide a more detailed account of the walking survey, including when the survey was conducted and climatological information during the period of the survey, in order to support the conclusion that water resources were not found in the area above and immediately adjacent to the proposed panel.

aumarva

Maps Archeological Site Maps

Analysis:

The amendment does not meet the State of Utah R645-301-411 requirement for archeological site maps. The maps included in the cultural resource reports in Appendix 4-2 show the boundary of the survey area and the location of all known archeological sites within the survey area. However, the location of the 4R4E panel and its area of potential subsidence are not included in the maps making it difficult to determine with certainty that the survey covered the entire area that will be potentially affected by the proposal.

Deficiencies Details:

The amendment does not meet the State of Utah R645-301-411 requirement for archeological site maps. The following deficiency must be addressed prior to final approval:

R645-301-411: The Permittee must provide a map that includes the 4R4E panel and its area of potential subsidence and that shows all cultural or historical resources listed or eligible for listing in the National Register of Historic Places in that area and the adjacent areas.

Maps Monitoring and Sampling Locations

Analysis:

The amendment does not meet the State of Utah R645 requirements for Monitoring and Sampling Location maps.

Plate 7-3, Hydrologic Monitoring Stations depicts the monitoring and sampling locations in the area of the proposed 4R4E panel. The Permittee, however, has not updated Plate 7-3, Hydrologic Monitoring Stations to accurately reflect the proposed mining activity in the 4R4E panel mining activity.

Deficiencies Details:

The amendment does not meet the State of Utah R645 requirements for Monitoring and Sampling Locations maps.

R645-301-722.100: The Permittee does not provide the location of proposed mining operations that have activated this permit revision. The Permittee must update Plate 7-3 with the proposed permit changes in panel location.

aumarva

Maps Subsurface Water Resources

Analysis:

The amendment meets the State of Utah R645 requirements for Subsurface Water Resource Maps.

The previously approved baseline data, Probable Hydrologic Consequences and subsequent CHIA document found that groundwater occurs in perched zones of limited areal extent within the area of the proposed 4R4E panel. The data provided in Appendix 7-17 and 7-18 of the approved MRP demonstrate that none of the formations down through the Blackhawk formation support a continuous aquifer. The ground water systems in the area are perched and discontinuous. Furthermore, through walking surveys and exploratory drilling operations, the Permittee states on Page 7-18 of the MRP that no water resources were encountered.

aumarva

Maps Surface Water Resource

Analysis:

The amendment meets the State of Utah R645 requirements for Surface Water Resource Maps.

Plate 7-2 identifies the state appropriated water rights within the permit and adjacent area. Additionally, Plate 7-3 depicts the surface water resources and drainages both within and adjacent to the permit area (including the proposed location of Panel 4R4E).

aumarva

Operation Plan

Air Pollution Control Plan

Analysis:

The amendment meets the State of Utah R645-301-422 requirements for compliance efforts undertaken by the Permittee with the Utah Division of Air Quality. Volume 1, Chapter 4, Section 4.2, pages 4-18 through 4-20 describes the air quality compliance information. The 4R4E amendment proposal does not alter the standards or plans and does not warrant changes to the existing air pollution plan.

tmiller

Subsidence Control Plan Renewable Resource

Analysis:

The amendment meets the State of Utah R645 requirements for Renewable Resources Survey.

The Permittee provides a subsidence survey in Plate 5-10. The permittee also provides information on Page 7-18 of the MRP of a walking survey and exploratory drilling where no water was encountered above or immediately adjacent to the proposed 4R4E panel. Furthermore, two surface ponds are located north and 3/4 mile northwest of the proposed panel. These ponds have water rights, have already been undermined by longwall mining, and are well outside the area of potential subsidence impacts. Based on the information provided, no renewable resources (i.e. water resources) would expect to experience material damage or diminution in the event of mine subsidence.

aumarva

Fish and Wildlife Protection and Enhancement Plan

Analysis:

The amendment does not meet the State of Utah R645-301-322 requirements for fish and wildlife protection and enhancement plan. The maps provided on Plate 3-2, Appendix 3-4, and Appendix 3-15 do not show the location of the 4R4E panel or its area of potential subsidence. Without this information it is difficult to determine what fish and wildlife resources will be impacted by the proposed activities and how to properly protect and/or enhance these environmental values. Volume 1, Chapter 3, Section 3.3.3 pages 3-38 through 3-41 does provide a plan to minimize disturbance and adverse impacts to fish and wildlife. Noise, created from the operation of the mine, is not expected to increase in the existing areas of disturbance associated with the mining activity. Because the proposed activity will only occur underground, the only surface disturbance that will potentially occur would be a result of subsidence. Maps that include the area of potential subsidence are necessary to identify what resources will potentially be impacted and how best to protect those resources.

Deficiencies Details:

The amendment does not meet the State of Utah R645-301-322 requirements for fish and wildlife protection and enhancement. Following consultation with state and federal agencies, it is determined that the following deficiency must be addressed prior to final approval:

R645-301-322: The Permittee must provide maps that include the location of the 4R4E panel and its area of potential subsidence with relation to critical winter range for deer and elk and to surveyed raptor nests in the area.

tmiller

Fish and Wildlife Bald and Golden Eagles

Analysis:

The amendment does not meet the State of Utah R645-301-322, R645-301-333, and R645-301-358 requirements for fish and wildlife bald and golden eagle protection. The 2017 raptor survey completed by Tetra Tech in July of 2017 indicated no eagle nests were located in the area of the 4R4E panel. Figure 1 of the report is a map showing the known active and inactive nests in the area. However, the location of the panel and its area of potential subsidence are not indicated on the map making it difficult to determine with certainty whether the nearby nests will be impacted or not by the subsidence of the proposed activity. Consultation with the U.S. Fish and Wildlife Service resulted in the request that this information be included in the application.

Deficiencies Details:

The amendment does not meet the State of Utah R645-301-322, R645-301-333, and R645-301-358 requirements for fish and wildlife bald and golden eagle protection. The following deficiency must be addressed prior to final approval:

R645-301-322: The Permittee must provide information specific to the 4R4E panel regarding the location of the panel and its area of potential subsidence in relation to any surveyed raptor nests.

tmiller

Vegetation

Analysis:

The amendment meets the State of Utah R645-301-331 requirements for protection of vegetation resources. Volume 1, Chapter 3, Section 3.3.2 and 3.3.3, pages 3-37 through 3-40 provides anticipated impacts on vegetation from subsidence and plans to minimize disturbances and adverse impacts. The proposed amendment does not include any

new surface disturbance so any disturbance to vegetation will come only from potential subsidence. The approved MRP adequately addresses plans for protection of vegetative resources included in the amendment.

tmiller

Hydrologic Ground Water Monitoring

Analysis:

The amendment meets the State of Utah R645 requirements for Groundwater Monitoring.

Appendix 7-17 discusses groundwater monitoring conducted in the Quitchupah Tract. The Permittee began quarterly monitoring of five creek sites, four springs, 13 monitoring wells, mine discharge water and one roof drip site within the mine in 1983. Once the Quitchupah Coal Lease Tract was acquired in 1989, three springs, one creek and seven monitoring wells were added to the monitoring program. The monitoring wells are monitored for water level only. Currently, 7 stream and 6 spring locations are still being monitored quarterly. Upon review of the baseline data provided in Appendix 7-17 and the narrative provided in Chapter 7, no groundwater springs or seeps have been identified in the area of 4R4E. Furthermore, through exploratory drilling, the Permittee also did not encounter any water. The closest spring sites that are monitored are well outside the potential limits of subsidence.

aumarva

Hydro Surface Water Monitoring

Analysis:

The amendment meets the State of Utah R645 requirements for Surface Water Monitoring.

The Permittee does not identify any surface water within the area above and immediately adjacent to the proposed 4R4E Panel. Surface water monitoring is ongoing within the tract, however, with the current water monitoring plan identifying 7 stream sites within the Quitchupah Tract. Further, monitoring site 006D is located on the South Fork of Quitchupah just above the confluence with the North Fork of Quitchupah Creek, with quarterly monitoring since 2012. Monitoring site 007 is located northwest of the panel and has been monitored quarterly since 1979. Monitoring site 042 is located downstream, and has been monitored quarterly since 1979 to the present.

aumarva

Maps Affected Area

Analysis:

The amendment does not meet the State of Utah R6545 requirements for Affected Area Maps.

The Permittee must revise plates that illustrate the limit of potential subsidence. A review of plates submitted in this amendment reveals a discrepancy in projected subsidence over the 4R4E panel. According to Plate 5-10 the limit of potential subsidence extends across the southern portion of the panel, whereas Appendix 6-4 depicts a scenario where subsidence is expected across the entire extent of the panel. Appendix 6-4 further clarifies that up to six feet of subsidence is anticipated outside of the potential subsidence limits depicted in Plate 5-10.

This same issue was brought forward by Steve Christensen in March 2017 under Task #5360 when a deficiency was written due to Plates 5-10 and Sheet No. 1 depicting contradictory information regarding potential subsidence limits over the proposed 3R4E Panel.

Deficiencies Details:

The amendment does not meet the State of Utah R6545 requirements for Affected Area Maps. Prior to final approval, the following deficiency must be addressed:

R645-301-521: The Permittee must revise all plates that depict the limit of potential subsidence. The projected subsidence depicted in Appendix 6-4 is not the same as depicted on Plate 5-10. The amendment and supporting maps should be consistent in the depiction and identification of the potential limits of subsidence.

jeatchel

Reclamation Plan

Hydrological Information Reclamation Plan

Analysis:

The amendment meets the State of Utah R645 rules for Hydrologic Reclamation Plan.

As the proposed mining of panel 4R4E does not call for any additional surface disturbance, the approved hydrologic reclamation plan does not require a revision with this amendment.

aumarva

CHIA

CHIA

Analysis:

The amendment meets the State of Utah R645 requirements for Cumulative Hydrologic Impact Assessment (CHIA).

The proposed location of panel 4R4E is located in the center of the existing Cumulative Impact Area (CIA). The Quitchupah and Muddy Creek CHIA was completed initially in 1989 with a second revision in 2005. The addition of the 4R4E panel does not require revisions to the existing CHIA as the potential impacts from coal mining activity in the area of the panel has been previously examined and a finding made by the Division that the mine plan has been designed to prevent material damage to the hydrologic balance.

aumarva