Form DOGM – C1 (Last Revised 6/93) File Folder # 3

APPLICATION FOR PERMIT CHANGE

Title of Change: **Response to Forest Service Comments LBA#9**

0034

Permit Number: **ACT/015/032**

Mine: **Crandall Canyon**

Permittee: **Genwal Resources, Inc.**

Description, include reason for change and timing required to implement: **Response to March 28, 1995 Division letter coordinating interagency**

☐ Yes	☒ No	1. Change in the size of the Permit Area? _____ acres ☐ increase ☐ decrease.
☐ Yes	☒ No	2. Change in the size of the Disturbed Area? _____ acres ☐ increase ☐ decrease.
☐ Yes	☒ No	3. Will permit change include operations outside the Cumulative Hydrologic Impact Area?
☐ Yes	☒ No	4. Will permit change include operations in hydrologic basins other than currently approved?
☐ Yes	☒ No	5. Does permit change result from cancellation, reduction or increase of insurance or reclamation bond?
☐ Yes	☒ No	6. Does permit change require or include public notice publication?
☐ Yes	☒ No	7. Permit change as a result of a Violation? Violation #
☐ Yes	☒ No	8. Permit change as a result of a Division Order? D.O.#
☐ Yes	☒ No	9. Permit change as a result of other laws or regulations? Explain:
☐ Yes	☒ No	10. Does permit change require or include ownership, control, right-of-entry, or compliance information?
☐ Yes	☒ No	11. Does the permit change affect the surface landowner or change the post mining land use?
☒ Yes	☐ No	12. Does permit change require or include collection and reporting of any baseline information?
☐ Yes	☒ No	13. Could the permit change have any effect on wildlife or vegetation outside the current disturbed area?
☐ Yes	☒ No	14. Does permit change require or include soil removal, storage or placement?
☐ Yes	☒ No	15. Does permit change require or include vegetation monitoring, removal or revegetation activities?
☐ Yes	☒ No	16. Does permit change require or include construction, modification, or removal of surface facilities?
☐ Yes	☒ No	17. Does permit change require or include water monitoring, sediment or drainage control measures?
☐ Yes	☒ No	18. Does permit change require or include certified designs, maps, or calculations?
☐ Yes	☒ No	19. Does permit change require or include underground design or mine sequence and timing?
☐ Yes	☒ No	20. Does permit change require or include subsidence control or monitoring?
☐ Yes	☒ No	21. Have reclamation costs for bonding been provided or revised for any change in the reclamation plan?
☐ Yes	☒ No	22. Is permit change within 100 feet of a public road or perennial stream or 500 feet of an occupied dwelling?
☐ Yes	☒ No	23. Is this permit change coal exploration activity ☐ inside ☐ outside of the permit area?

☐ **Attach 3 complete copies of proposed permit change as it would be incorporated into the Mining and Reclamation Plan.**

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

Randolph B. Gains Envr. Manager 4/12/95
Signed – Name – Position – Date

Subscribed and sworn to before me this 12th day of April, 1995

Rosina Siaperas
Notary Public

My Commission Expires: 5-28-97

Attest: STATE OF UTAH
COUNTY OF Emery

ROSINA SIAPERAS
NOTARY PUBLIC - STATE of UTAH
775 EAST BRIARWOOD CIRCLE
PRICE, UT 84501
COMM. EXP. 5-28-97

RECEIVED
APR 13 1995
DIVISION OF OIL GAS & MINING

Received by Oil, Gas & Mining

ASSIGNED PERMIT CHANGE NUMBER

Form DOGM - C2 (Last Revised 6/93)

File Folder # 3

Application for Permit Change
Detailed Schedule of Changes to the Permit

Title of Change: Response to Forest Service Comments Division letter 3/28/95	Permit Number: ACT/015/032
	Mine: Crandall Canyon
	Permittee: Genwal Resources, Inc.

Provide a detailed listing of all changes to the mining and reclamation plan which will be required as a result of this proposed permit change. Individually list all maps and drawings which are to be added, replaced, or removed from the plan. Include changes of the table of contents, section of the plan, pages, or other information as needed to specifically locate, identify and revise the exiting mining and reclamation plan. **Include page, section and drawing numbers as part of the description.**

			DESCRIPTION OF MAP, TEXT, OR MATERIALS TO BE CHANGED
☐ ADD	☒ REPLACE	☒ REMOVE	Remove and replace pages 3-9, 3-9, 3-17, 3-18, 3-35, 3-36, 3-37.
☐ ADD	☐ REPLACE	☐ REMOVE	
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Any other specific or special instructions required for insertion of this proposal into the Mining and Reclamation Plan?

Some areas of the canyon are being used as a hunting range by raptors. A listing of the raptors are included in Table 5 within Appendix 3-3.

3.22.22 Habitats of Unusual High Value for Fish and Wildlife.

Plate 3-1 identifies all wildlife usage area of high value or critical value.

The haul road and surface facilities within the permit area will not disturb any winter range for deer or elk. Plate 3-1 shows elk and deer winter range in the valley bottoms.

Crandall Canyon represents only a portion of winter habitat for moose, the winter range encompasses all the Huntington drainage, with a tremendous amount of unoccupied adjacent habitat, reference Larry Dalton, the impacts will be minimal. The 0.5 acre winter range to be disturbed, of which the riparian habitats are ranked as being of critical value, only approximately 3000 square feet of riparian Habitat will be disturbed. According to Larry Dalton of the State of Utah Division of Wildlife Resources, there is a tremendous volume of adjacent unoccupied habitat suitable to absorb displaced moose. The southeastern Utah moose herd is proliferating at a **normal pace. There is an abundance of suitable habitat that is not occupied. This is due, in part to a low initial transplant population of moose and some illegal killing.**

As a majority of the road is outside of the permit area with the USFS requesting the haul road remain as a permanent improvement after mining ceases, the USFS as surface owner has jurisdiction over the road.

Genwal recognizes the fact that the Division of Wildlife Resources and the Division of Oil, Gas & Mining consider all seeps and springs to be important to wildlife. If, during the monitoring of the springs, it is **determined that the flow rate has decreased (and that the decrease is not associated with verified climatic changes) at** any seep or spring in the area, Genwal will notify the Division of Wildlife Resources, the Division of Oil, Gas & Mining and the U.S. Forest service. **If it is proven that mining operations and activities have impacted the seep or spring then Genwal will** begin working on an acceptable mitigation plan involving the use of guzzlers **or other approved methods.** The **method used** will be designed in cooperation with the Division of Wildlife Resources, the Division of Oil, Gas & Mining and the U.S. Forest Service and placed in the area of the effected spring. No other sources of water, other than the springs located by the seep and spring survey, are known to exist in the mine plan area. Genwal owns shares in the Huntington-Cleveland Irrigation Company that can be transferred if required, to meet the demands of an alternate water supply.

3.22.230 Other Species or habitat that Require Special Protection Under State or Federal Regulations.

In addition to the wildlife species previously mentioned, the U.S. Forest Service has indicated that spotted bats and spotted frogs occur on the Wasatch Plateau. Neither of these species have been identified within the mine permit area. At present, there are no known additional areas or species that require special protection. Although Genwal Coal will address any future concerns as they may arise.

3.22.300 Fish & Wildlife Service Review.

If following the Fish and Wildlife review of the above section it is determined the information provided is not adequate, Genwal Coal Company will take whatever steps are deemed necessary and reasonable to provide additional requested information in a timely manner. Note letter from USF&W Service Appendix 3-4.

3.23 Maps and Aerial Photography.

Genwal Coal Company has a complete set of aerial photographs of the permit area and will make the material available upon request to any regulatory agency. All applicable maps are included in each chapter outlining critical areas that are addressed.

3.23.100 Maps Showing Location of Reference Areas.

Plate 3-2, 3-7, 3-8, and 3-9 shows the location of the vegetation reference areas.

3.23.200

Elevations and locations of monitoring stations used to gather data for fish and wildlife, and any special habitat features; See Appendix 3-2 and 3-3. **This information was collected from the Utah Division of Wildlife Resources publication 90-11.**

The only construction work that may have an impact on the Crandall Creek fishery is the construction of the haul and access road. This haul and access road was constructed and is maintained under jurisdiction of the USFS. Impacts and required mitigation are addressed in the approved environmental assessment, authorizing the construction of the Crandall Canyon Road and Bridge as proposed by Genwal Coal Company, dated May 18, 1981. Also, the approved air pollution control plan, as submitted in the permit, contains itemized mitigation for dust abatement during construction. In 1983 the practice of dumping rock and soil adjacent to the mine site near Crandall Creek was stopped, to reduce impact to fish spawning and food production in Crandall Creek. Efforts will continue in the future to limit disturbance of fishery habitat.

Applicant feels that the initial aquatic study and report provides sufficient baseline data **(Appendix 3-2). Additional studies have been performed in 1994. The applicant agrees to conduct an additional aquatic macroinvertebrate study in the spring and fall of 1997 (as agreed to by the Price Office of the Forest Service). Thereafter, Genwal will conduct additional monitoring in the spring and fall of 2000 and every three years thereafter for the life of the mine (unless the study data indicate a different schedule).**

Genwal recognizes the fact that the Division of Wildlife Resources and the Division of Oil, Gas & Mining consider all seeps and springs to be important to wildlife. If, during the monitoring of the springs, it is **determined that the flow rate has decreased (and that the decrease is not associated with verified climatic changes)** of any seep or spring in the area, Genwal will notify the Division of Wildlife Resources, the Division of Oil, Gas and Mining and the U.S. Forest Service. **If it is proven that mining activities have reduced or eliminatedd the flow Genwal will** begin working on an acceptable mitigation plan involving the use of guzzlers **or other approved mitigation measures which replace the water in quantity and quality.**

These guzzlers **or remediation measures** will be designed in cooperation with the Division of Wildlife Resources, the Division of Oil, Gas and Mining and the U.S. Forest Service and placed in the area of the affected spring. No other sources of water, other than the springs located by the seep and spring survey, are known to exist in the mine plan area. Genwal owns shares in the Huntington-Cleveland Irrigation Company that can be transferred if required, to meet the demands of an alternate water supply.

Resources (UDWR) has conducted cliff nesting raptor surveys of the entire permit area. These surveys have located one site where Golden Eagles either have historically built eries or areas that have a potential for eries.

Aerial surveys of the eagle nest will be conducted every three years or on request of the U.S. Fish and Wildlife Service or the Utah Division of Wildlife Resources. Prior to the implementation of UDWR recommendations, Genwal Coal will advise Utah Division of Oil, Gas and Mining (UDOGM) and request their approval and/or recommendations. An annual survey will only be conducted: (1) in the event that UDWR recommends it, (2) this course of action will not unduly harass or stress nesting eagles, and (3) if prudent to insure their safety and/or habitat.

Wildlife.

In addition to cliff nesting raptors, there is a potential for 5 tree nesting raptors inhabiting the permit area. They are: the (1) Goshawk, (2) Sharp Shinned Hawk, (3) Red Tailed Hawk, (4) Swainson's Hawk and the (5) Ferrugenous Hawk (the Price office of the U.S. Forest Service is of the opinion that the Ferrugenous Hawk is unlikely to occur in the mine permit area). All of these species are condo-nestors and will normally have a number of nest locations and only utilize one per any one season. Other than surface disturbances the only potential impact to these species would be the loss of an active nest during the egg incubation period or when flightless young were occupying the nest. This could possibly occur as a result of subsidence with this possible impact, Genwal Coal Company representative contacted the UDWR **and the U.S. Forest Service** as per their recommendations. Appendix 3-8 outlines the course of action Genwal has agreed to implement.

3.40 Reclamation Plan.
3.41 Revegetation.

The revised acreage is correct in itemizing 6.65 acres of proposed disturbance within the permit area of 2165.42 acres (total lease acreage, including new leases), refer to Plates 1-1, 2-2 and 5-3. Each application will contain a reclamation plan for final revegetation of all lands disturbed by coal mining and reclamation operations, except water areas and the surface of roads approved as part of the postmining land use, as required in R645-301-353 through R645-301-357, showing how the applicant will comply with the biological protection performance standards of the State Program. The plan will include, at a minimum, **as described in the following Sections 3.41.100 through 3.41.300.**

3.41.100 Detailed Schedule and Timetable for Completion of each Major Step in the Revegetation Plan.

All reclamation, other than areas handled in contemporaneous reclamation, (see section in this chapter) will commence with final grading of disturbed surface areas, which should be completed in approximately one month. Within 30 days following completion of final grading (which should be in late September or early October), topsoil from the stockpile will be redistributed. Nutrients and

are addressed in the approved environmental assessment, authorizing

the construction of the Crandall Canyon Road and Bridge as proposed by Genwal Coal Company, dated May 18, 1981. Also, the approved air pollution control plan, as submitted in the permit, contains itemized mitigation for dust abatement during construction. In 1983 the practice of dumping rock and soil adjacent to the mine site near Crandall Creek was stopped, to reduce impact to fish spawning and food production in Crandall Creek. Efforts will continue in the future to limit disturbance of fishery habitat.

Applicant feels that the initial aquatic study and report provides sufficient baseline data. **Genwal has committed to conducting additional macrobiotic studies in the spring and fall of 1997 and again in the year 2000 and every three years thereafter for the life of the mine (unless study data show a different schedule would be effective).** Stream flow and water quality will also be monitored as proposed in previously submitted ground and surface water monitoring plans.

33.58.100

No coal mining and reclamation operation will be conducted which is likely to jeopardize the continued existence of endangered or threatened species listed by the Secretary or which is likely to result in the destruction or adverse modification of designated critical habitats of such species in violation of the Endangered Species Act of 1973. The operator will promptly report to the Division any state-or federally-listed endangered or threatened species within the permit area of which the operator becomes aware. Upon notification, the Division will consult with appropriate state and federal fish and wildlife agencies and, after consultation, will identify whether, and under what conditions, the operator may proceed.

3.58.200

No coal mining and reclamation operations will be conducted in a manner which would result in the unlawful taking of a bald or golden eagle, its nest, or any of its eggs. The operator will promptly report to the Division any golden or bald eagle nest within the permit area of which the operator becomes aware. Upon notification, the Division will consult with the U.S. Fish and Wildlife Service and the Utah Division of Wildlife Resources and, after consultation, will identify whether, and under what conditions, the operator may proceed.No nests or eries are located within any area that could feasibly be in jeopardy through mining or mine related activities and at no time will Genwal Coal Company proceed in any manner which could theoretically jeopardize raptors.

Resources (UDWR) has conducted raptor surveys of the entire permit area. These surveys have located one site where Golden Eagles either have historically built eries or areas that have a potential for eries. Aerial surveys of the eagle nest will be conducted every three years or on request of the U.S. Fish and Wildlife Service or the Utah Division of Wildlife Resources. Prior to the implementation of UDWR recommendations, Genwal Coal will advise Utah Division of Oil, Gas and Mining (UDOGM) and request their approval and/or recommendations. An annual survey will only be conducted: (1) in the event that UDWR recommends it, (2) this course of action will not unduly harass or stress nesting eagles, and (3) if prudent to insure their safety and/or habitat.

3.58.300

Nothing in the R645 Rules will authorize the taking of an endangered or threatened species or a bald or golden eagle, its

nest, or any of its eggs in violation of the Endangered Species Act of 1973 or the Bald Eagle Protection Act, as amended, 16 U.S.C. 668 et seq.

3.58.400

The operator conducting coal mining and reclamation operations will avoid disturbances to, enhance where practicable, restore, or replace, wetlands and riparian vegetation along rivers and streams and bordering ponds and lakes. Coal mining and reclamation operations will avoid disturbances to, enhance where practicable, or restore, habitats of unusually high value for fish and wildlife. See section 5.25.16.

3.58.500

Each operator will to the extent possible use the best technology currently available;

3.58.510

Ensure that electric power lines and other transmission facilities used for, or incidental to, coal mining and reclamation operations on the permit area are designed and constructed to minimize electrocution hazards to raptors, except where the Division determines that such requirements are unnecessary.

All electric transmission lines that could pose a threat to raptors have been safeguarded to minimize hazard.

3.58.520

Design fences, overland conveyers, and other potential barriers to permit passage for large mammals, except where the Division determines that such requirements are unnecessary,; and

3.58.530

Fence, cover, or use other appropriate methods to exclude wildlife from ponds which contain hazardous concentrations of toxic-forming materials.

No structures at Genwal Coal Company create barriers to wildlife and no hazardous or toxic materials are stored which wildlife could gain access.

Beam Calculations
Potential Subsidence Under Perennial Streams
With Less Than 400 Feet of Overburden

Forest Service Comment - The potential for subsidence under perennial streams must be discussed, and calculations shown for roof support between pillars where there is less than 400 feet of overburden.

1. Perennial streams within the permit area are protected from subsidence by Genwals committment to only conducting first mining under perennial streams and their associated buffer zones. As stipulated by the Price office of the U. S. Forest Service, a factor of safety of 2.5 will be used under perennial streams with cover less than 1000′ and a safety factor of 2.0 will be used in areas of more than 1000′ of cover. (See Appendix 5-2 of the mining and reclamation plan for more details).

   Thus, these data show that Genwal is protecting the perennial streams by their mine plans and committments to the factors of safety required by the Price Office of the U. S. Forest Service.

2. In determining the factors of safety for the mine roof with cover of 400′ or less (the potential for failure of the roof which may lead to subsequent subsidence under a perennial stream) several factors need to be understood. They are:

   A. With depth, pillar stresses are greater. Therefore, with reduced amounts of overburden pillar stresses become less and are not a factor in roof failure. (i.e. with less depth the pillars are not going to "push" their way through the immediate overburden units).

   B. With decreased overburden depths the potential for compressive failures decrease and the potential for tensile failures increase.

   C. The type (sandstone, shale, mudstone, etc.) and associated strength of the overburden which comprises the roof (immediately overlying the coal) has a significant role in determining the potential for failure.

   D. The width of the entry, length of the beam from pillar to pillar is a critical factor.

To determine the factor of safety for a self-supporting roof which does not utilize artificial support (roof-bolts), the following equation is used:

Formula:

$$\sigma_T = \frac{\gamma L^2}{2T}(SF)$$

$$L^2 = \frac{2\sigma_T t}{\gamma SF}$$

$$SF = \frac{2\sigma_T t}{\gamma L^2}$$

$$SF = \frac{2\,(1200\,lbs/Inches^2)\,(Sin)\,(12\,Inches/FT)}{(150\,lbs/FT^3)\,20FT^2}$$

SF = 3.84 for 8 inch sandstone roof
SF = 57.6 for 10 foot sandstone roof

(Note = These factors of safety are independent of depth)

σ (in psi) = modulus of rupture (esentially tensile strength from three-point bend test) ≈ 1/10 σc (one-tenth of compressive strength of roof rock). Also note; σc = 24 I (NX)′ where I (NX) is point-load strength index I = P/D where P = load at failure on specimen of diameter D.

t (inches) = beam thickness of immediate roof layer
γ (lbs per cubic foot) = unit weight of the rock plus other "loads".

S.F. = Safety factor, using Obert and Duvall (1967) guidelines, select value of 4 to 8 for tensile member

L (feet) = roof span without artificial support

Thus, with the mine conditions at Genwal and their committment to not mine within 200 feet of the outcrop, subsidence is not a viable concern under the perennial portion of Crandall Canyon or other stream within the permit area. An added factor of safety is also derived when the practice of roof bolting is taken into account.

10/31/1994