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DIV. OF OIL, GAS & MINING

July 7, 2004

VIA HAND DELIVERY AT THE INFORMAL CONFERENCE

Lowell P. Braxton, Director
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Incoming
C/007/0013 *OK*

RE: Outline of Comments and Objections Presented During the Informal Conference for the Lila Canyon Extension, UtahAmerican Energy, Inc., Horse Canyon Mine, C/007/0013, Task ID #1859

Dear Mr. Braxton,

The Southern Utah Wilderness Alliance (SUWA) appreciates the opportunity to provide you with an outline of the comments we presented during the Informal Conference in the above referenced matter. In addition to the comments outlined below, SUWA is confident that the Division will require UtahAmerican Energy Inc. (UEI) to correct all of the deficiencies that either they or the Board have previously recognized. The informal conference held today, as well as the continued submissions by UEI and analyses by the Division, may disclose other concerns related to the technical adequacy of the permit application package (PAP) that SUWA may address through additional comments submitted during the technical review process. It should be noted that the citations below are for reference, and do not represent an exhaustive list of the rules, regulations, or laws applicable to SUWA's concerns.

- 1. Acid- or toxic-forming materials.** Rule 624.300 requires the applicant to collect samples from test borings or drill holes and analyze these samples for acid- or toxic-forming materials. Specifically, Rule 624.320 requires the applicant to perform chemical analyses for acid- or toxic-forming or alkalinity-producing materials and their content in the strata immediately above and below the coal seam to be mined.

File in:

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Refer to Record No. *0032* Date *07072004*

In C *10070013* *2004* *Incoming*

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Under Rule 626, an applicant may request the Division to waive in whole or in part the requirements of 624.300. However the waiver may be granted only if the Division finds in writing that the collection and analysis of such data is unnecessary because other information having equal value or effect is available to the Division in a satisfactory form.

UEI has not provided the data and analyses required under Rule 624, and have instead requested an exemption from the Division under Rule 626. UEI cites the following reasons for its request:

1. UEI claims that there has been no problem with acid- or toxic-forming materials at the nearby Sunnyside Mine. In fact the record is very clear that there has been a problem with acid-generation at the Sunnyside refuse pile. Acidic water carrying iron and other minerals seeped from the base of the refuse pile into a channel.
2. UEI has provided analyses from boreholes S-24 and S-25, located 2 miles from the permit area. However, inspection of the logs and analytical results for the strata above the coal seam down to the Mancos Shale indicate that in S-24, 7 out of 18 samples (40 percent) have greater than 1% total sulfur with the highest sample containing 4.61%. The logs of S-25 indicate that 6 out of 13 samples (46 percent) have greater than 1% total sulfur with the highest sample containing 2.72 %. Thus, these data indicate that there is an acid-generation potential.
3. UEI states that all material brought from the mine will be tested and treated as though it is acid- or toxic-forming. However this does not satisfy Rule 626, which requires "information having equal value or effect" as chemical analysis of samples collected from test borings or drill holes.

Our concerns are that:

1. UEI has not provided data and analysis required under Rule 624, or information having equal value, as required under Rule 626.
2. All indications are that the material removed from the mine will be acid-generating. It was at Sunnyside, chemical analyses and logs of drill holes off the permit area indicate high sulfur content, and even logs of holes drilled in the permit area report the presence of pyrite.
3. UEI proposes to use this material, the underground development waste, as structural fill for

surface facilities.

2. Subsurface water resource maps. Rule 722.100 requires submission of cross sections and maps showing the location and extent of subsurface water, including the areal and vertical distribution of aquifers and portrayal of seasonal differences of head. While UEI has identified both what it calls a "regional aquifer" and several "perched aquifers," it has not complied with this requirement.

In response to this Rule, UEI has submitted Figures 7-1 and 7-2; however:

Figure 7-1 shows water levels for only a very small portion of the mine site between the three IPA wells. The area for which data exist only covers about 162 acres, which is approximately 3.5 percent of the 4,664-acre permit area.

Figure 7-2 is not a cross-section. It depicts water level changes thru time, not thru the permit area.

3. **Surface water resources.** Rule 724.200 requires the applicant to submit information on surface-water quality and quantity sufficient to demonstrate seasonal variation. The Rule further requires the collection, at a minimum, of baseline data on specified parameters for the water quality description and of baseline information on seasonal flow rates for the water quantity description. For years, the Division has interpreted this Rule to require the submission of baseline information collected quarterly for a minimum of two years prior to permit issuance.

In addition to numerous ephemeral washes, there are six intermittent streams within the permit area: Lila Canyon, Little Park Wash, Stinky Spring Wash, IPA #1 Wash, Pine Springs Wash, and No Name Wash.

UEI has never submitted any data on surface water quantity or quality for any of the washes.

UEI and the Division know that these drainages flow intermittently in response to snow melt runoff and/or rainfall events. In fact, Division personnel have documented evidence of flows in

all drainages, including the drainage through the middle of the proposed disturbed area.

UEI only reports several observations of “no flow”; however these do not provide the data required under Rule 724.200.

UEI has never attempted to collect these data even though remote methods for collecting both water quality and flow depth are well within the state of the art, are standard practice by the U.S. Geological Survey, and have been used in the permitting of other coal mines in Utah.

4. Ground water quantity. Rule 724.100 requires the applicant to submit data on the seasonal quantity of ground water. Ground-water quantity descriptions will include, at a minimum, approximate rates of discharge or usage and depth to the water in the coal seam, and each water-bearing stratum above and potentially impacted stratum below the coal seam. As with surface water, the Division’s own guidance interprets this rule to require collection of baseline data quarterly for two years. UEI has failed to submit data required under this rule.

For the regional aquifer:

- UEI does not provide two years of seasonal baseline data from IPA-1, -2, and -3, or from L-16-G and L-17-G. (Table 1)
- UEI’s description of the piezometric surface is clearly flawed in that it is depicted as a uniformly dipping planar surface over the entire permit area. UEI has extrapolated a piezometric surface to the 4,664-acre permit area on the basis of water level data in the IPA wells, an area that only covers 3.5 percent of the permit area.
- UEI provides no information on the rates of discharge of ground water, the hydraulic conductivity, the recharge area, or incredibly, the discharge area.
- UEI fails to address the effect of lithology, regional structure, or faults on the movement, discharge, depth, etc. of the ground water in the regional aquifer.

For the perched aquifer:

- UEI does not provide two years of seasonal baseline data from the seeps and springs (L-6-G through L-12-G). (Table 1)

5. Ground water quality. Rule 724.100 requires the applicant to submit data on the seasonal quality of ground water. Water quality descriptions will include, at a minimum, total dissolved solids or specific conductance corrected to 25 degrees C, pH, total iron and total manganese. Again, the Division's own guidance interprets this rule to require collection of baseline data quarterly for two years. UEI has failed to submit data required under this rule.

For the regional aquifer:

- UEI has never collected, or attempted to collect, any water quality samples from the IPA wells.
- UEI has provided some data from Redden Spring (RS-2). However, Redden Spring is in the area of the Horse Canyon mine and therefore it does not represent pre-mining baseline conditions, it is not proposed for monitoring, and there are not two years of seasonal baseline data.
- UEI has provided some data from L-16-G and L-17-G. However, it is not clear, based on the information presented by UEI, whether or not these springs are connected to the regional aquifer, and the effect, if any, of the Central Graben Fault. In addition, there are not two years of seasonal baseline data for these springs (Table 1).

For the perched aquifer:

- UEI has not submitted two years of seasonal baseline data from the seeps and springs (L-6-G through L-12-G). (Table 1)

6. **Coal mine waste.** "Coal mine waste" means coal processing waste and underground development waste. Rule 528.320 requires that all coal mine waste will be placed in new or existing disposal areas within a permit area which are approved by the Division for this purpose. Coal mine waste will meet the design criteria of R645-301-536, however, placement of coal mine waste by end or side dumping is prohibited.

UEI proposes to dump coal mine waste (underground development waste), and use it as structural fill upon which the shop and warehouse will be built. This handling of the coal mine waste is in violation of Rule 528.320. In addition, it is unclear how UEI proposes to construct the shop and warehouse on this material when it is supposed to be placed in a disposal area.

7. **Inadequate ground water monitoring plan.** According to Rule 731.211, the permit application will include a ground-water monitoring plan based upon the analysis of all baseline hydrologic, geologic and other information in the permit application. Where there are no baseline data, or incomplete baseline data, there can be no determination of impacts and no effective monitoring.

With regard to the regional aquifer:

- UEI proposes to monitor only ground water depth, not water quality, from the IPA wells. In addition, the IPA wells will be destroyed during mining. UEI proposes to monitor ground water quantity and quality from only two sites, L-16-G and L-17-G. However; these springs may not even be connected to the regional aquifer, they are not within the permit area, they are only 400 feet apart, and there are incomplete baseline data (see number 4 and 5 above, and Table 1).

With regard to the perched aquifer:

- UEI proposes to monitor ground water from only 5 seeps and springs (L-7-G, L-8-G, L-9-G, L-11-G, and L-12-G). While this plan is inadequate on its face, the problem is made worse by the facts that: 1) there are incomplete baseline data for all these proposed monitoring sites (see number 4 and 5 above, and Table 1); 2) L-8 G and L-9-G are located outside the permit area; and 3) L-11G is a spring above the Horse Canyon Mine, and

there are no pre-mining baseline data. Thus, there are only two proposed monitoring sites in the permit area, and only partial baseline data exist for these sites.

8. **No baseline data for surface water monitoring plan.** According to Rule 731.221 the permit application will include a surface-water monitoring plan based upon the analysis of all baseline hydrologic, geologic and other information in the permit application. Where there are no baseline data, there can be no determination of impacts and no effective monitoring.

There are no baseline data, either water quality or water quantity, for surface flows in Lila Canyon, Little Park Wash, Stinky Spring Wash, IPA #1 Wash, Pine Springs Wash, or No Name Wash (see number 3 above). Thus, there will be no basis for comparison during monitoring.

9. **The PHC is flawed.** Rule 728.200 requires that the PHC determination will be based on baseline hydrologic, geologic and other information collected for the permit application. As discussed in numbers 1 through 5 above, there are no baseline data, or incomplete baseline data upon which the PHC can include findings. Specifically, there can be no determinations or findings on:

- Whether adverse impacts may occur to the hydrologic balance (728.310)
- Whether acid-forming or toxic-forming materials are present that could result in the contamination of surface- or ground-water supplies (728.320)
- What impact the proposed coal mining and reclamation operation will have on:
 - Sediment yield from the disturbed area (728.331)
 - Acidity, total suspended and dissolved solids and other important water quality parameters of local impact (728.332)
 - Flooding or stream flow alteration (728.333)
 - Ground-water and surface-water availability (728.334)

10. Water consumption. The PAP does not consider all sources of water that will be consumed by the proposed mining operation, and contains an error in calculating the coal moisture loss. When dust suppression is included in the water consumption, and the stated mining rate of 4.5 M tons/year is used, the amount of water consumed will be approximately 112 acre-feet per year, not the 62 acre-feet per year calculated by UEI. This is in excess of the amount of water consumption that has been identified by the USFWS that requires mitigation. UEI has not demonstrated that this water consumption will not jeopardizing the continued existence of and/or adversely modify the critical habitat of the Colorado River endangered fish species: the Colorado pikeminnow, humpback chub, bonytailed chub, and razor back sucker.

UEI states that this process water will be hauled from the Price River. However, nowhere in the PAP is the effect of removing 112 ac-ft/yr from the Price River analyzed. There are no baseline data on water quality or water quantity above and below the proposed point of diversion, and therefore it will be impossible to determine the impacts from this withdrawal. In addition, there are no baseline data or analyses of the potential impacts to vegetation and/or wildlife. Finally, it is not clear from the information in the PAP whether or not UEI has a water right for the Price River.

11. Cumulative Impact Area. The information provided by UEI is not sufficient to allow the Division to establish a hydrologically reasonable CIA boundary. Specifically;

1. The recharge and discharge areas of the regional aquifer have not been identified. Without this information, the Division cannot establish the CIA boundary.
2. The effect of the faults on the occurrence, movement, and discharge of water in the regional aquifer is not addressed.
3. There is no explanation for the occurrence of ground water in the Mancos Shale (L-16-G and L-17-G)
4. The CIA boundary must include the Price River because UEI intends to divert up to 112 ac-ft/yr and because it is a potential discharge area for the regional aquifer.

12. Operation Plan. According to Rule 731, the permit application will include a plan, with maps and descriptions, specific to the local hydrologic conditions. It will contain the steps to be taken during coal mining and reclamation operations through bond release to minimize disturbance to the hydrologic balance within the permit and adjacent areas, to prevent material damage outside the permit area, and to support approved postmining land use.

The plan submitted by UEI fails to minimize disturbance to the hydrologic balance for the following reasons.

1) With regard to subsidence impacts, UEI claims that there will be no impacts to surface or groundwater resources based on the fact that, although subsidence has occurred at the Horse Canyon Mine, there were no impacts. This is of course impossible to demonstrate because there is no pre-mining hydrologic baseline data to which the data on existing water resources can be compared. UEI does acknowledge that subsidence has occurred at the Horse Canyon Mine, and it is therefore only logical to conclude that it will occur at the Lila Canyon Mine.

UEI also claims that there will be no impacts to the surface streams from subsidence because of the overburden thickness. However, parts of Little Park Wash have overburden thickness of 500 feet, and several reaches of other streams in the permit area have overburden thickness of approximately 1,000 feet. A cursory review of the literature provides documentation that under similar geologic conditions and mining methods, subsidence has occurred at coal mines where the overburden thickness was as much as 1,500 feet.

At the Deer Creek Mine, the U.S. Bureau of Mines reports "A maximum of 2.7 feet of subsidence over the two longwall panels mined at a depth of 1,500 feet." (Surface subsidence over longwall panels in the Western United States: Monitoring program and preliminary results at the Deer Creek Mine, Utah: Information Circular 8896).

At the Cyprus Plateau Mine, the U.S. Geological Survey reports "Land surface subsided and moved several feet horizontally. The perennial stream and a tributary upstream from the mined area were diverted into the ground by surface fractures where the overburden thickness above the Wattis coal seam is about 300 to 500 feet." (Hydrology of the North Fork of the Right Fork of

Miller Creek, Carbon County, Utah, before, during, and after underground mining: U.S.G.S. Water-Resources Investigations Report 95-4025, prepared in cooperation with the Utah Division of Oil, Gas, and Mining)

At the Geneva Mine, in the Sunnyside Mining District, the U.S. Geological Survey reports that "Large tension cracks, some of which are hundreds of feet long and range from about 0.06 inch to as much as three feet in width formed in massive sandstone at the top of the Mesaverde Group about 900 feet above the mine area. These cracks divert all surface- and ground-water flow in this area to lower strata or to the mine workings." (Some engineering geologic factors controlling coal mine subsidence in Utah and Colorado: U.S. Geological Survey Professional paper 969).

Based on the evidence of subsidence at the Horse Canyon Mine, and the well-documented evidence of subsidence at nearby mines in similar geologic strata, it is obvious that subsidence will occur at the Lila Canyon Mine. Subsidence fractures will impact several streams, seeps and springs. Unfortunately, as stated above in numbers 3-5, there are absolutely no baseline data for the surface streams within the permit area, and incomplete baseline data on the ground water resources, so it will be impossible to determine the impacts that subsidence will have to the hydrologic balance within the permit and adjacent areas, whether or not there will be material damage outside the permit area, and the limitation on supporting the approved postmining land use.

2) With regard to stream buffer zones, Rule 731.610 states that no land within 100 feet of an intermittent stream will be disturbed by coal mining and reclamation operations unless the Division specifically authorizes coal mining and reclamation operations closer to, or through, such a stream. The Division may authorize such activities only upon finding that:

731.611. Coal mining and reclamation operations will not adversely affect the water quantity and quality or other environmental resources of the stream.

UEI proposes to conduct mining operations within 100 feet of the Lila Canyon channel. Because there are no baseline data on the water quality or water quantity in Lila Canyon, the Division cannot determine whether or not the mining operation will adversely affect the water quantity and quality or other environmental resources of the stream. Thus, the Division cannot

support a decision to authorize mining within the stream buffer zone.

13. The PAP lacks required survey data. The PAP fails to contain certain survey data required under the rules. According to the rules, “[a]ll technical data submitted in the permit application will be accompanied by the names of persons or organizations that collected and analyzed the data, dates of the collection and analysis of the data, and descriptions of the methodology used to collect and analyze the data,” and “[t]echnical analyses will be planned by or under the direction of a professional qualified in the subject to be analyzed.” *R645-301-131 and 132.*

UEI and DOGM cannot “agree” to discard the requirement under the rules to provide such information, as they apparently attempt to for certain surveys. Further, it appears that no information is provided for the vegetation survey of the permit area beyond the proposed disturbed area. SUWA reserves the right the request the information required under the rules for all technical data submitted in the PAP.

14. Vegetation survey is not adequate. The PAP fails to include a description of the vegetative communities and productivity throughout the affected area adequate to predict the potential for reestablishing vegetation. *R645-301-321; -323.*

- * Surveys were conducted only within the proposed mine site location, rather than throughout the entire affected area including the Range Creek and Price River drainages.

- * Although Plate 3-2 illustrates the plant communities, the PAP fails to include discussions regarding such communities and lacks detail with regard to the species within each community.

- * The vegetative survey should have been conducted in the spring, rather than July through August, especially during a drought.

- * The descriptions of the vegetative communities around the seeps, springs and reaches is cursory, and does not represent adequate baseline information.

15. Site-specific resource information is not adequate. The PAP does not contain the site-specific resource information required by the rules, and the information presented in the PAP is not sufficient to design a protection and enhancement plan. *R645-301-322*. Site specific resource information is required where, as here, the permit area or adjacent areas include listed or proposed threatened and endangered plant and animal species; high value habitats including riparian areas, cliffs, migration routes, and wintering areas; or other species or habitats of agency concern. *R645-301-322.200 et. seq.* Despite these rules, either UEI has failed to provide, or the Division has apparently not required such site specific information. For example:

Amphibians: Division should require formal survey for amphibians. Noting the lack of amphibian observation is not sufficient under the regulations requiring site specific information. UEI merely inserts “The permittee has never observed amphibians at or near this location.” This does not confirm whether or not amphibians actually live in these locations, but only implies that someone from UEI had not seen any at a particular time. Obviously, it is in UEI’s best interest to claim that no amphibians are present. The rules require a formal survey and monitoring plan to ensure protection of amphibians and their habitat. Further, “the permittee” does not meet the requirement to provide the names of the people making the observations, whether or not they were qualified, the dates, and the data collection methodology. *R645-301-131, 132.*

Mexican Spotted Owls: As recognized by the Division, UEI must conduct MSO surveys and provide results of the ground-truthing surveys. UEI states that it will not inventory areas “where the depth of mining is so deep as not to cause any surface effects.” As discussed previously, 1,000 feet of overburden may not be sufficient. Thus, all areas of potential impact must be surveyed.

Raptors: There is no explanation of the details of the raptor survey, which fails to comply with *R645-301-131, 132*. Further, the flight path illustrated in Appendix 3-5 shows that the survey did not cover the entire area of potential affect.

Southwest willow flycatcher: As discussed above, we are concerned with impacts to Range Creek and the Price River. Because these waters may be impacted, the PAP must address the potential impacts to the Southwest willow flycatcher.

Endangered Fish Species: Due to the impacts of mine discharge and water consumption, the PAP must evaluate the impacts to the Bonytailed Chub, Colorado Pikeminnow, Humpback Chub, and Razorback sucker.

Sensitive Plant Species: None of the surveys conducted extend throughout the entire potentially affected area. Those that were conducted may not have been conducted at the appropriate time, or by qualified individuals. See attached declaration of Dr. Ron Kass, 11/29/2001.

Appendix 7-7 and 7-8: The information on plant, fish and wildlife species contained in Appendices 7-7 and 7-8 are not sufficient to comply with the regulations. The level of detail must be sufficient to design the protection and enhancement plan required under 301-333.

16. Subsidence impacts to plants and animals are not adequately assessed. The PAP fails to include information on subsidence adequate to assess impacts to plant and wildlife species. R645-301-332; -358.

As discussed above, subsidence may impact seeps and springs throughout the affected area, including areas where there is more than 1000 feet of cover. If springs and seeps are dewatered, impacts to various wildlife species would be extensive. UEI's discussion of subsidence is incorrectly limited to its effect on snake dens, and fails to describe how it will minimize disturbances using the best technology currently available.

17. Impacts to fish and wildlife are not adequately assessed. The PAP fails to include information necessary to adequately assess impacts to fish and wildlife and related environmental values, including the sensitive fish species identified by the U.S. Fish and Wildlife Service. R645-301-333; -358.

As discussed above, UEI's quantitative water consumption assessment is not accurate. In actuality, UEI will be taking 112 acre feet of water directly from the Price River, which may adversely affect the endangered fish in the Upper Colorado River Basin. Further, mine waste will discharge into the Price River, increasing selenium. Thus, consultation with FWS must occur, and UEI must fully describe how it intends to comply with the Endangered Species Act, and to prevent dewatering, increased selenium, and other impacts to these species.

18. Disturbance, monitoring, and protection of habitat. The PAP fails to comply with the rules requiring the operator to avoid disturbance of wildlife habitats, and fails to describe how wildlife will be monitored and protected from hazardous materials. R645-301-358.400; -358.530; -526.222.

Again, as discussed above, the proposed mining operation may impact seeps, springs, drainages, Range Creek, the Price River, and other high value wildlife habitats, and fails to include an adequate plan to avoid such disturbances or restore such habitats should they be harmed. This directly violates the rules. Locating surface facilities near a relatively high concentration of Golden Eagle nest sites risks the taking of such eagles, nests, or eggs, also in violation of the rules. Further, in direct contradiction to the Division's concerns, UEI intends to develop the drainage located in the southwest portion of the mine site area that communicates with the Price River. This drainage is an important wildlife corridor, and the regulations require that disturbances and adverse impacts to wildlife be minimized. The PAP fails to explain using the best technology available why this location is the "most logical taking into consideration both the engineering and environmental aspects."

19. Land use capability is not accurately described, the reclamation plan is not adequate, and the area is unsuitable for mining. The PAP fails to include information that accurately describes the capability of the land affected by the coal mining and reclamation operations, and fails to demonstrate that the land will be returned to its premining land-use capability, or a higher or better use. Mining in the proposed permit area may, at a minimum, affect productivity of water supply, scientific and aesthetic values, and natural systems. R645-301-411.100, -411.120; -412; -414; and R645-301-115. The rules do not contemplate the *current management* of the

lands, but rather the uses that the lands are *capable of supporting*, or even higher uses. The Bureau of Land Management found the proposed mining area, including the lands on which UEI proposes to construct surface facilities, to have wilderness character. See attached BLM 1999 Wilderness Inventory. In other words, the lands are capable of supporting wilderness, regardless of how they are currently managed.

20. Cultural resources have not been adequately surveyed for and protected. The PAP fails to include information from a complete cultural resource survey, a plan that describes measures to prevent adverse impacts to such resources, and a determination of “No Historic Properties” by the State Historic Preservation Office. *R645-301-411.140--144*. The PAP still fails to include a complete cultural survey of the entire affected area, including Range Creek -- an area that is extremely culturally significant. The discussion on cultural resources contains uncertainties and assumptions, and fails to provide any confidence that all cultural resources in the affected area have been identified and will be protected from harm.

21. Subsidence control is not adequately addressed. The PAP fails to include information necessary to adequately assess the quantity and quality of all state-appropriated water supplies that could be impacted by subsidence, and fails to include an adequate plan for repair, replacement, or restoration of such supplies or surface lands. *R645-301-525.130; -525.400; 525.480; -525.510; -731.530*.

UEI’s discussion regarding the need to replace, repair, or restore state appropriated water sources damaged by subsidence is both inaccurate and inadequate. First, the presumption is that subsidence caused the damage, and UEI’s statement attempts to shift the burden of proof (“after proof of damage by mining in Lila Canyon . . .”). Second, the PAP merely lists ways to replace the water, without describing a plan for doing so. There is no discussion regarding the potential impacts of these replacement measures. For example, trucking water could have additional impacts to wildlife and wilderness qualities, and may be impossible during the winter. Constructing wells may dewater other natural sources, cause impacts to vegetation surrounding the wells, and impact wilderness resources.

22. The coal haul road must be included as part of the permit area. The PAP must include the coal haul road within the “affected area” and include all information necessary for the permitting process. *R645-100-200*. The rules require the Division to include within the “affected area,” “every road used for purposes of access to or for hauling coal to or from coal mining operations,” unless the road is found exempt. The so called Emery County road 126 does not exist beyond the 2.6 mile section listed in the Emery county road log, and there is no evidence of maintenance by the County of the remaining “route” to the proposed mine. The present alignment and condition of the route cannot sustain the intensity of traffic and type of vehicles for the proposed mining operation. The route would need new right of way permits from the BLM, realignment, and reengineering to construct a substantial paved road capable of safely handling the heavy traffic associated with an active coal mine that ships coal by truck.

Obviously, none of these “improvements” would be contemplated “but for” the proposed mine, and the “road” fails the primary criteria for exemption from permitting. Therefore, the Division must analyze the impacts on the various resources from road construction as part of the permitting process.

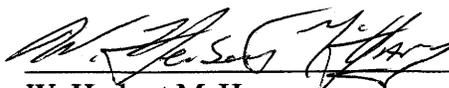
23. The proposed Lila Canyon Mine must be applied for, noticed and processed as a new permit. The proposed mine must be processed and approved through application of a new permit. *R645-303-222*. Although the text of the public notice states that the application “is being processed as a new permit,” everything else in the notice operates against this statement. Specifically, the public notice is titled “HORSE CANYON MINE EXTENSION” (emphasis added), and states that permit is being processed under the Horse Canyon permit number. Further, the map included in the notice depicts the Horse Canyon mine in solid black, while the Lila Canyon mine is outlined. The result fails to display the fact that the proposed Lila Canyon mine “extension” is actually over three times the coal ownership acreage of the Horse Canyon mine permit area, and involves new surface facilities. Thus, the public has not been effectively notified of the impending processing of a new permit for a completely new mine three times the size of the Horse Canyon mine.

Further, although the rules contemplate application for, and issuance of, a new permit, using the

procedures for a new permit is not the same as issuing a new permit. Indeed, UEI has not applied for a new permit, and the Division is not reviewing the application in contemplation of issuing a new permit. Rather, UEI has requested, and the Division contemplates issuing, an extension, that will be known as part "B" to the existing Horse Canyon mine permit. This does not comply with the Division's rules.

SUWA appreciates your time considering these comments and those presented during the informal conference, and looks forward to working with the Division throughout the technical review process. Please contact me if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "W. Herbert McHarg", written over a horizontal line.

W. Herbert McHarg

Southern Utah Wilderness Alliance

Table 1 Lila Canyon ground water sampling dates – proposed monitoring sites.

| Water Monitoring Station | Autumn 2001 | Winter 2002 | Spring 2002 | Summer 2002 | Autumn 2002 | Winter 2003 | Spring 2003 | Summer 2003 | Autumn 2003 | Winter 2004 | Spring 2004 |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Regional Aquifer | | | | | | | | | | | |
| L-16-G | | | | 6/15; 8/14 | 10/16 | | 3/30 | 6/17 | 9/11; 11/3 | | 3/31 |
| L-17-G | | | | 6/15; 8/14 | 10/16 | | 3/30 | 6/17 | 9/11; 11/3 | | 3/31 |
| IPA-1 | 9/21; 10/10 | | 3/27 | 6/4; 8/13 | 10/15 | | | 6/16 | 9/10; 11/2 | | |
| IPA-2 | 9/21; 10/10 | | 3/27 | 6/4; 8/13 | 10/15 | | | 6/16; 8/21 | 11/2 | | |
| IPA-3 | 9/21; 10/10 | | 3/27 | 6/4; 8/13 | 10/15 | | | 6/16; 8/29 | 11/2 | | |
| Perched Aquifer | | | | | | | | | | | |
| L-6-G | | | | | | | | | | | |
| L-7-G | 10/10 | | | 6/4; 8/13 | 10/15 | | | 6/16 | 9/10 | | |
| L-8-G | 10/10 | | | 6/4; 8/13 | 10/15 | | | 6/16 | 9/12; 11/2 | | |
| L-9-G | 10/10 | | | 6/4 | 10/15 | | | 6/16 | | | |
| L-10-G | 10/10 | | 3/27 | 6/4; 8/13 | 10/14 | | | 6/16 | 9/12; 11/2 | | |
| L-11-G | 10/10 | | 3/27 | 6/4 | | | | 6/16 | 9/10 | | |
| L-12-G | 10/10 | | 3/27 | 6/4; 8/13 | 10/14 | | | 6/16 | 9/10 | | |

 = NO DATA
 = No Access 3/30/04

Winter - December, January, and February
 Spring - March, April, and May
 Summer - June, July, and August
 Autumn - September, October, November

**BEFORE THE BOARD OF OIL, GAS AND MINING
DEPARTMENT OF NATURAL RESOURCES
STATE OF UTAH**

| | | |
|------------------------------------|---|-----------------------------|
| In the Matter of the |) | |
| Request for Agency Action |) | |
| By Petitioner Southern Utah |) | Docket No. 2001-027 |
| Wilderness Alliance Regarding the |) | |
| Division of Oil, Gas and Mining's |) | |
| Approval of the Lila Canyon |) | Cause No. C/007/013-SR98(1) |
| Significant Permit Revision |) | |
| C/007/013-SR98(1) |) | |
| Filed by UtahAmerican Energy, Inc. |) | |

DECLARATION OF DR. RON KASS

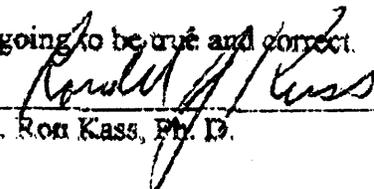
Dr. Ron Kass declares the following:

1. My name is Dr. Ron Kass, I am of over twenty-one years of age, of sound mind, capable of making this declaration, and I am personally acquainted with the facts herein stated.
2. My curriculum vitae is attached and incorporated herein. I am currently a resident of Springville, Utah. I am a graduate of New Mexico State University with a doctorate degree in plant ecology, and I have a Masters degree in taxonomy from Brigham Young University. I have conducted research, consulted, and have taught university classes in plant identification at BYU and New Mexico State University. I have worked for the Bureau of Land Management, and have been employed by Dr. Stanley Welsh, professor of botany at BYU. Since 1988 I have owned Intermountain Ecosystems, a consulting firm. This Declaration is filed in support of Petitioner's Request for Agency Action in the above captioned matter.
3. I have approximately ten years field experience in the Carbon and Emery County area, and I am familiar with the Lila Canyon area and its plant resources.
4. Based on my knowledge and a review of the relevant documents, I believe that the information in the permit application for the proposed Lila Canyon Mine is insufficient to adequately assess the threatened, endangered and sensitive plant species, and the impact to such species.

5. In particular the search for Despain foxtail (*Pediocactus despainii*) should have been conducted during the last week of April or 1st week of May. This species is very difficult to locate in its vegetative condition and only a real expert should conduct these searches during non-flowering times.
6. The Book Cliff's blazing star (*Adiantum multicaulis* var. *librina*) should have been included in the inventory of this area, as it is known to exist at the mouth of Horse Canyon and is a Colorado Plateau endemic. This species is on the Bureau of Land Management (BLM) special status list, and it was also listed as G3T1 by the Utah Rare Plant Workshop in 2000.
7. I, and other botanists in the state, recommend that only highly qualified botanists should conduct rare plant surveys, especially during sub-optimal times. The May 1998 inventory prepared by EIS Consulting reveals that that the specimen of canyon sweetvetch (*Hedysarum occidentale* var. *canone*) was taken to the BLM to be positively identified. If qualified botanists were doing the field work for EIS Consulting, there should be no need to consult the BLM for positive identification. Regardless, there are no botanists on staff at the BLM in Price. Indeed it is imperative that a qualified botanist performs the field work in order to identify new taxa, range extensions, and other rare and disjunct taxa possible at a given site.
8. In addition, although the documentation indicates that the proposed project may dewater seeps and springs, there is no indication that such seeps and springs were inventoried for baseline information on plant species dependant on these water sources. Such water sources are important refugia for locating disjunct species and extensions on habitat, and should be inventoried throughout July and August.
9. In summary, because the surveys performed for the proposed action either neglected to consider certain species, or were performed inadequately and at inappropriate times during the year, there is no possible way to determine the potential impacts due to the mining activities.

I DECLARE, under penalty of perjury, the foregoing to be true and correct.

Date 11-29-2001



Dr. Ron Kass, Ph. D.

5. In particular the search for Despain footcactus (*Pediocactus despainii*) should have been conducted during the last week of April or 1st week of May. This species is very difficult to locate in its vegetative condition and only a real expert should conduct these searches during non-flowering times.
6. The Book Cliffs blazing star (*Mentzelia multicaulis* var. *librina*) should have been included in the inventory of this area, as it is known to exist at the mouth of Horse Canyon and is a Colorado Plateau endemic. This species is on the Bureau of Land Management (BLM) special status list, and it was also listed as G3T1 by the Utah Rare Plant Workshop in 2000.
7. I, and other botanists in the state, recommend that only highly qualified botanists should conduct rare plant surveys, especially during sub-optimal times. The May 1998 inventory prepared by EIS Consulting reveals that that the specimen of canyon sweetvetch (*Hedysarum occidentale* var. *canone*) was taken to the BLM to be positively identified. If qualified botanists were doing the field work for EIS Consulting, there should be no need to consult the BLM for positive identification. Regardless, there are no botanists on staff at the BLM in Price. Indeed it is imperative that a qualified botanist performs the field work in order to identify new taxa, range extensions, and other rare and disjunct taxa possible at a given site.
8. In addition, although the documentation indicates that the proposed project may dewater seeps and springs, there is no indication that such seeps and springs were inventoried for baseline information on plant species dependant on these water sources. Such water sources are important refugia for locating disjunct species and extensions on habitat, and should be inventoried throughout July and August.
9. In summary, because the surveys performed for the proposed action either neglected to consider certain species, or were performed inadequately and at inappropriate times during the year, there is no possible way to determine the potential impacts due to the mining activities.

I DECLARE, under penalty of perjury, the foregoing to be true and correct.

Date _____

Dr. Ron Kass, Ph. D.

CURRICULUM VITAE
RONALD J. KASS, PH.D.



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EDUCATION

- Ph.D.** New Mexico State University, Las Cruces, NM. Depart. of Biology, Plant Community Ecology, 1992.
- M.S.** Brigham Young University, Provo, UT. Depart. of Botany and Range Science, Plant Taxonomy, 1983.
- B.S.** Brigham Young University, Provo, UT. Depart. of Zoology, Wildlife Ecology, 1978.

PROFESSIONAL EXPERIENCE

Principal--Intermountain Ecosystems, LLC.

25 years experience in: Endangered Species Inventory and Monitoring, Quantitative Vegetation Sampling and Reclamation, Botanical and Wildlife inventory, Wetland Delineation and Mitigation. Compliance with NEPA, USACOE, EPA, FERC, SMCRA, BLM, USFS and USFWS guidelines.

PRINCIPLE PROJECTS

ENDANGERED SPECIES

- 2001** SWCA/Northwest Pipeline. Rockies Displacement Expansion, Wyo. and Idaho.
HDR/UDOT Engineering, SLC, Ut. Southern Corridor EIS. St. George, Ut.
RB&G Engineering, Provo, Ut. American Fork Trail T&E inventory.
Sear-Brown Group/UDOT. US 191 EIS, Moab Ut..
Sear-Brown Group, Salt Lake City, Ut. Man of War Bridge BA. St George, Ut.
City of St. George, Ut. T& E clearance for Southwestern willow flycactcher.
UDOT Roadside Vegetation Inventory, Region 2.
BLM. Price Area Office. Status reports for *S. wrightiae* and *C. creutzfeldtii*.
Private Fuels Storage Facility, LLC. Expert witness for rare plants and vegetation.
- 2000** Sear-Brown Group, Salt Lake City, Ut. T & E clearance for Riverdale Bike Path.
Sear-Brown Group, Salt Lake City, Ut. T & E clearance for Man of War Bridge, St. George , Ut..
RB&G Engineering/UDOT, Provo, Ut. T&E clearance for Orem Center St. Project.
RB&G Engineering/UDOT Provo, Ut. T&E clearance for 4 Utah County Bridges.

SWCA, Salt Lake City, Ut. Solitude & DMB ski resort rare plant inventory.

Entranco, Salt Lake City, Ut. Atkinville Interchange T&E inventory. St George, Ut.

Entranco, Salt Lake City, Ut. Southern Corridor Biological Assessment. St George, Ut.

Environmental Management Associates, Elko Nevada. BLM Land Exchange T&E inventory.

W. W. Clyde, Springville, Ut. Wolf Creek Rd. T&E & raptor clearance, Tabiona, Ut.

W. W. Clyde, Springville, Ut. North Glendale Gravel Pit. T&E clearance, Kane, Co., Ut.

Pentacore, Midvale, Ut. *Spiranthes diluvialis* monitoring for American Fork Mall.

Pentacore, Midvale, Ut. *Spiranthes diluvialis* inventory Provo Industrial Park.

SWCA, Salt Lake City, Ut. Williams Corps. Aspen pipeline T&E inventory.

Sear-Brown Group, Salt Lake City, Ut. T & E clearance for Provo 800 North.

1999 USDA, Unita National Forest. King's woody aster (*Machaeranthera kingii*) inventory.

Michael Baker Jr., Salt Lake City. T&E clearance for fiber optic line-Colo. & Ut.

Sear-Brown Group, Salt Lake City, Ut. T&E clearance River Road Project, St. George, Ut.

W. W. Clyde, Springville, Ut. T&E clearance Green River gravel pit. Green River, Ut.

W. W. Clyde, Springville, Ut. T&E clearance for Snow Basin-Trapper Loop Road. Odgen, Ut.

Stone & Webster, Denver, Co. Rare plant inventory. Skull Valley Private Storage Facility, Tooele Ut.

UDOT & Entranco, Salt Lake City, Ut. Southern Corridor Desert Tortoise (*Gopherus agassizii*) inventory: St George, Ut.

Williams Corp. Salt Lake City, Ut. Southwestern willow flycatcher (*Empidonax traillii extimus*). Mancos Loop Pipeline. Mancos, Co.

SWCA. Salt Lake City, Ut. Williams Pipeline Co. Aspen Pipeline T& E.

1998 Orem City, Ut. Ute ladies tresses (*Spiranthes diluvialis*) inventory, restoration, and monitoring.

Burns & McDonnell Kansas City, Mo. *Spiranthes diluvialis* inventory for DM&E railroad. Wyo. & S. Dakota.

Engineering Planning Group, Draper, Ut. *Spiranthes diluvialis* inventory, American Fork, Ut.

Stone & Webster, Denver, Co. Rare plant, burrowing owl, and loggerhead shrike inventory. Skull Valley Private Storage Facility.

BLM. Richfield District, Ut. Rare plant, burrowing owl, Utah prairie dog and noxious weed inventory. Wayne Co.

HDR, & Baseline Data. Legacy Highway BA. Salt Lake City, Ut.

- Pic-Technologies, Denver, Co. Wetlands & T& E. Ultra Natural Gas EIS. Pinedale, Wy.
- SWCA, Salt Lake City, Ut. Williams Pipeline Co. Aspen T&E inventory, Price, Ut.
- SWCA, Salt Lake City, Ut. Questar Gas Co., Rare plant inventory, Price, Ut.
- 1997** Continental Lime Co., Delta, Ut. Rare plant inventory Cricket Mt. Mine Expansion.
- SWCA., Salt Lake City, Ut. Questar Pipeline. *Spiranthes diluvialis* inventory. Genola, Ut.
- River Gas Inc. Northport, Al. T&E inventory: Price Coalbed Methane.
- BLM. Ferron Gas EIS Rare plant inventory. Price, Utah.
- Northern Geophysical of America, Englewood, Co. Rare plant inventory Salina, Ut.
- BLM. Wright fishhook cactus (*Sclerocactus wrightiae*) demographic monitoring.
- HDR & Baseline Data. Legacy Highway EIS., Salt Lake City, Ut.
- 1996** McMurry Oil Company, Big Piney, Wy. Rare plant and logger head shrike inventory: Jonah EIS.
- Continental Lime Co., Delta, Ut. Rare plant inventory. Cricket Mt. Mine Expansion.
- Brush Wellman, Delta, Ut. Rare plant inventory. Topaz Mine Expansion.
- Kennecott Copper and The Nature Conservancy, Salt Lake City, Ut. Northern Oquirrh Mts. Bio-inventory.
- USFS Black Hills Natl. Forest, Sundance Wy. Rare plant inventory Bear Lodge N. F. Timber EA.
- Chandler Oil, Denver Colo. Rare plant inventory, Emery Co.
- Engineering Planning Group, Draper, Ut. Endangered species inventory, Spotted frog (*Rana pretiosa*) Ute ladies' tresses (*Spiranthes diluvialis*) American Fork, Ut.
- Baseline, Inc. Orem, Ut. Western Transportation Corridor MIS & T&E species.
- Northwest Pipeline, Salt Lake City, Ut. Rare plant inventory, Evanston, Wy.
- Mariah Assoc., Laramie, Wy. U.S. Gypsum Co., Kimball Draw EA.
- Golder Assoc., Denver, Co. Phelps Dodge Co. Chino Mine Expansion EA, Silver City, NM.
- 1995** USFS Dixie Natl. Forest, Cedar City, Ut. Status report for *Penstemon pinorum*.
- Northern Geophysical of America, Englewood, Co. Rare plant inventory Salina, Ut.
- Balcron Oil and Subsurface Exploration, Pasadena, Ca. Rare plant inventory Snake Valley Seismic Project. Millard Co, Ut.
- Northwest Pipeline Inc., Salt Lake City, Ut. Rare plant inventory for Piceance Creek Replacement Project. Rangely Co.
- Union Telephone Co., Lonetree, Wy. Rare plant and logger head shrike inventory.

1994

U.S. Gypsum Co, Chicago, Ill. Rare plant inventory: proposed Gypsum Mine in San Rafael, Ut.

Balcron Oil and Subsurface Exploration, Pasadena, Ca. Rare plant inventory: Snake Valley Seismic Project, Millard Co, Ut.

Resource Management International, Sacramento, Ca. Rare plant inventory: Ute ladies's tresses (*Spiranthes diluvialis*). Central Utah Project, Nephi Basin, Ut.

CH2M-Hill & Mt. Nebo Scientific, Springville Ut. Rare plant inventory: Ute ladies's tresses (*Spiranthes diluvialis*). Central Utah Project, Unitah Basin, Utah.

Baseline, Inc., Orem, Ut. Rare plant inventory: Ute ladies's tresses (*Spiranthes diluvialis*) on the UDOT Myton and Currant Creeks Bridge replacement.

Wyoming Fish and Game, Cheyenne, Wy. Rare plant inventory: Big Piney big game habitat enhancement project. Pinedale, Wy.

BLM, Rock Spring District Office. Status survey and habitat management plan for bastard draba milkvetch (*Astragalus drabelliformis*) in the Upper Green River Basin, Wy.

River Gas of Utah, Northport, Al. T&E inventory: Price Coalbed Methane EIS.

Freston, Ostler, Vernon & Assoc., Vernal, Ut. Rare plant inventory for Ute ladies's tresses (*Spiranthes diluvialis*), Ashley Creek Bridge replacement.

Enron Oil & Gas Corporation, Houston, Tx. T&E inventory: Upper Green River Basin.

Chevron, USA. Houston, Tx. Rare plant inventory: southwestern Wyo.

Mobil Oil Corporation, Bakerfield, Ca. Rare plant inventory: LaBarge oil fields.

Enviroserve Assoc., Fruit Heights, Ut. Rare plant inventory: Ute ladies's tresses (*Spiranthes diluvialis*) AT&T underground powerline: Strawberry Reservoir, Ut.

Freston, Ostler, Vernon & Assoc., Vernal, Ut. Rare plant inventory: Ute ladies's tresses (*Spiranthes diluvialis*), Fort Duchesne, Ut.

Heitzman Drill Services, Casper, Wy. Anadarko Petroleum EA., Helper Coalbed Methane EA-- rare plants. Helper, Ut.

Endangered Plant Studies, Orem, Ut. UDOT. LaVerkin Creek Bridge Replacement BA.

Williams Field Services, Salt Lake City, Ut. Rare plant inventory Big-Piney-LaBarge oil fields.

1993

U.S. Justice Dept., Denver Co. Expert witness for Zion National Park Virgin River Ajudication. Expert for hanging gardens and rare plants.

Mobil Oil Corporation & Heitzman Drilling, Casper, Wy. Rare plant inventory: LaBarge oil fields.

Texaco Inc. Heitzman Drilling. Stagecoach Draw EIS--rare plants. Farson, Wy.

Mobil EA: LaBarge Oil Field Expansion Program. Rare plants

Endangered Plant Studies, Orem, Ut. Pacific-Corp., Salt Lake City, Ut. Ismay and

- Mexican Water Powerline EA, Navajo Tribal Lands, Window Rock, Az.
- Williams Field Services. Green River, Wy. Rare plant inventory: Cathodic Protection Systems.
- Geo-Marine Inc., Plano, Tx. Rare plants and burrowing owls inventory: Wendover Nev.
- Chevron, USA. LaBarge, Wy. Rare plant inventory: LaBarge oil fields.
- BLM, Salt Lake City, Ut. Monitoring and demographics for Wright Fishhook cactus (*Sclerocactus wrightiae*).
- Mariah Associates, Inc., Laramie, Wy. Rare plant inventory: Cutthroat Gas plant. Granger, Wy.
- Enron Oil & Gas, Big Piney, Wy. Rare plant inventory, LaBarge, Wy.
- Pic-Technology, Denver, Co. Rare plant inventory: Basin Exploration. Big Piney, Wy.
- Utah Power and Light, Salt Lake City, Ut. burrowing owl and black footed ferret inventory: Navajo Reservation, Aneth, Ut.
- Pic-Technology, Denver, Co. Rare plant inventory: Northwest Pipeline Inc. Big Piney, Wy.
- Endangered Plant Studies, Orem, Ut. Utah Prairie Dog (*Cynomys parvidens*) inventory: Beaver, Ut.
- 1992** Endangered Plant Studies, Orem, Ut. Desert Tortoise (*Gopherus agassizii*) inventory: Walmart Inc. Wash. Co., Ut.
- Utah Power and Light Co., Salt Lake City, Ut. Rare plant inventory: Dixie N.F. Enterprize, Ut.
- BLM, Salt Lake City, Ut. House Range rare plant inventory.
- Ute Indian Reservation, Fort Duchesne, Ut. Rare plant inventory: *Spiranthes diluvialis*.
- USFWS, Denver, Co. Status reports: *Eriogonum soredium*, *Trifolium andersonii* var. *friscanum*, and *Lepidium ostleri*.
- Endangered Plant Studies, Orem, Ut. Pacific-Corp. EA: transmission corridor. BLM and Dugway Proving Ground.
- 1991** Endangered Plant Studies, Orem, Ut. Pacific-Corp. BA: transmission corridor for Dixie National Forest. Versar Engineering, Orem, Ut., UDOT. *Spiranthes diluvialis* inventory, U.S.Highway 89.
- Pic-Technology, Denver, Co. Rare plant inventory: Northwest Pipeline Inc., Wyo.,Ut and Id.
- Wayne Co. Water Conservancy District, Salt Lake City, Ut. *Spiranthes diluvialis*, Capital Reef National Park.
- 1990** BLM, Richfield District, Ut. Rare plant inventory: Warm Springs and House Range Resource Areas.
- Utah Heritage Program, Salt Lake City, Ut. Rare plant inventory: Tushar Mountains, Ut.
- BLM, Salt Lake City, Ut. Rare plant inventory: Great Basin and Deep Creek Mts.
- Chusa Energy Co. Farmington, NM. *Sclerocactus mesa-verde*. Navajo Indian Reservation.

- 1989** Endangered Plant Studies, Anadarko Petroleum Company, Denver, Co. Rare plant inventory: Lonetree, Wy.
BLM, Salt Lake City, Ut. Rare plant inventory: San Rafael Swell, Ut.
Chusa Energy Company, Farmington, NM. Black-footed ferret inventory: Navajo Indian Reservation, Blanding, Ut.
- 1988** Endangered Plant Studies, Orem, Ut. Utah Power and Light. Rare plant inventory: Blanding, Ut.
BLM, Salt Lake City, Ut. Rare plant inventory: San Rafael Resource Area, Ut.
Endangered Plant Studies, Orem, Ut. Seis-Pro Corp., Billings, Mt. Rare plant inventory: Nucla, Co.
Endangered Plant Studies, Orem, Ut. NPS, Springdale, Ut. Botanical inventory: Zion National Park.
Endangered Plant Studies, Orem, Ut. Questar Pipeline Inc., Salt Lake City, Ut. Rare plant inventory in Brown's Park, Ut.
- 1987** Endangered Plant Studies, Orem, Ut. NPS, Springdale, Ut. Botanical inventory: Zion National Park.
Endangered Plant Studies, Orem, Ut. Wayne Co. Water Conservancy District. Rare plant inventory : proposed Fremont River Dam.
Endangered Plant Studies, Orem, Ut. Utemco Mineral Corp., Uruvan, Co. Rare plant inventory: radioactive waste repository.
Endangered Plant Studies, Orem, Ut. Plateau Mining Corp., Wattis, Ut. Rare plant inventory.
- 1986** Endangered Plant Studies, Orem, Ut. NPS, Springdale, Ut. Botanical inventory: Zion National Park.
Neese Investigations, Salt Lake City, Ut. *Sclerocactus wrightiae* .BLM, Richfield, Ut.
- 1985** El Paso Natural Gas Company. Rare plant inventory: natural gas line in NM and AZ.
Transwestern Pipeline Corporation. Rare plant inventory: natural gas line, NM and Az.
Endangered Plant Studies, Orem, Ut. Wayne Co. Water Conservancy. Rare plant inventory: Fremont River Dam, Ut.
- 1984** Endangered Plant Studies, Orem, Ut. Amoco-Badger Oil Co. Vernal, Ut. Rare plant inventory.
Bio-West, Logan, Ut. Exxon USA, Midland Tx. Riley Ridge EIS.
Bio-West, Logan, Ut. San Juan Basin Coal, EIS, Farmington, NM.
Bio-West, Logan, Ut. Gulf Oil Corp, Houston, Tx. EIS. Commissary Ridge, Wy.
Endangered Plant Studies, Orem, Ut. Utah Power and Light. Rare plant inventory: Wash. Co., Ut.
Endangered Plant Studies, Orem, Ut. UDOT. Rare plant inventory: Interstate 70 in Emery Co., Ut.
Endangered Plant Studies, Orem, Ut. Utah Power and Light. Rare plant & Desert Tortoise (*Gopherus agassizii*) inventory: Wash. Co., Ut.
- 1983** Endangered Plant Studies, Orem, Ut. Utah Power and Light. Rare plant inventory: Unita Co., Wy

- Endangered Plant Studies, Orem, Ut. NGA, Engelwood, Co. Rare plant inventory: Price, Ut.
- Endangered Plant Studies, Orem, Ut. Chevron USA., Kemmerer, Wy. Rare plant inventory.
- Endangered Plant Studies, Orem, Ut. Bectel Corp., San Francisco, Ca. Rare plant inventory: railway facility
Lavender Canyon Nuclear Waste Repository.
- Endangered Plant Studies, Orem, Ut. Colorado-Ute Power, Montrose, Co. Rare plant inventory: Grand Junction,
Co.
- 1982** Endangered Plant Studies, Orem, Ut. Frontier Exploration, Billing Mt. Rare plant inventory: Price, Ut.
- Bio-West, Logan, Ut. BLM, Vernal, Ut. Rare plant inventory: Uinta Basin, Ut.
- Brigham Young University, Provo, Ut. Inventory for Zion Snail (*Physa zionis*). Zion Natl. History Association.
- 1979** BLM. Las Cruces, New Mexico. Rare plant inventory Sacramento Mts.
- 1978** Endangered Plant Studies, Orem, Ut. MX missel inventory in Nevada & Utah.

WETLAND

- 2001** W. W. Clyde,/UDOT. North Glendale Gravel Pit. Wetland determination, Kane, Co., Ut.
- Westland Construction. Springville Industrial Park delineation.
- RB&G Engineering/UDOT. Wetland delineation and mitigation. Antelope Creek, Duchesne Co. Ut.
- Natural Successions Inc. Springville, Ut. Wetland delineation. Springville Industrial Park.
- Meadow Valley Construction, Salina, Ut. Wetland determination.
- Utah Division of Wildlife Resource. Wetland delineation. Springville Fish Hatchery.
- Utah Division of Wildlife Resources. Wetland delineation. Provo Sportmans Access.
- Sear-Brown/UDOT. American Fork Park & Ride delineation and hydrological monitoring.
- 2000** HDR/UDOT, Ut. Springville Interchange wetland delineation and mitigation.
- W. W. Clyde. Springville, Ut. Sportmans Park Trail wetland determination. Park City, Ut.
- W. W. Clyde. Springville, Ut. Wolf Creek Gravel Pit determination. Summit Co, Ut.
- Utah County Rural Housing Development. Provo, Ut. Dry Creek subdivision delineation.
- Shady Glen Subdivision, Riverdale, Ut. Wetland delineation.
- RB&G Engineering, Provo, Ut. Spanish Fork Canyon wetland delineation & mitigation.
- 1999** HDR Engineering, Salt Lake City. Vaughn Burbridge delineation. Park City, Ut.

- Michael Baker Jr., Salt Lake City, Ut. Wetland delineation fiber optic line-Colo-Ut.
- Colliers-CRG, Salt Lake City, Ut. Wetland delineation. Farmington Ut.
- HDR& Pic-Tech, Denver, Co. Wetland delineation. DM&E Railroad, Wyo. & S. Dakota.
- W. W. Clyde. Springville, Ut. Wetland determination, Trapper Loop Snowbasin Rd.
- W. W. Clyde. Springville, Ut. Wetland determination-Gravel Pit Green River, Ut.
- 4-H Construction, Odgen, Ut. Wetland delineation.
- Williams Corp. Salt Lake City. Wetland delineation. Mancos Loop project. Mancos, Co.
- 1998** Pic-Tech, Denver, Co. Wetland delineation. Paiute Natural Gas Line from Wells to Elko, Nv.
- Doug Holmes, Blue Sky Ranch, Heber, Ut. Wetland delineation.
- Pic-Tech, Denver, Co. Wetland delineation. Northwest Pipeline. Twin Falls to Wells, Nv.
- Diversified Habitats. Salt Lake City, Ut. Wetland delineation. Farmington, Ut.
- Tiffany Development Co. Wetland delineation and mitigation. Roy, Utah.
- Robert Nelson Construction, Salem, Ut. Wetland delineation.
- EPG, Draper, Utah. Wetland delineation. Toshiba Development Project.
- 1997** Issac Springs Development, Riverdale, Ut. Wetland delineation and mitigation.
- Springville City Co., Ut. Wetland delineation. Springville Industrial Complex.
- HDR & Baseline Data, Inc. Orem, Ut. Legacy Highway. Wetland delineation team.
- Alco Group, Spanish Fork, Ut. Wetland delineation.
- Engineering Planning Group, Draper, Ut. Wetland delineation. Toomb Development, Provo, Ut.
- Engineering Planning Group, Draper, Ut. Wetland delineation. Jordan River-Palmer.
- Engineering Planning Group, Draper, Ut. Wetland delineation. Ogden Subdivision.
- 1996** Pic-Technologies, Denver, Co. Northwest Pipeline. Evanston pipeline delineation.
- Engineering Planning Group, Draper, Ut. Wetland delineation. Willow Creek Park, Lehi, Ut.
- Springville City Co. Springville, Ut. Wetland delineation. Springville Industrial Complex.
- Engineering Planning Group, Draper, Ut. Wetland delineation. Springville City, Ut.
- Engineering Planning Group, Draper, Ut. Wetland delineation. Genola, Ut.
- Engineering Planning Group, Draper, Ut. Wetland delineation. Macy's, Spanish Fork, Ut.

- Engineering Planning Group, Draper, Ut. Wetland delineation. Harold Toomb Development, Provo, Ut.
- 1995** Enviroserve, Fruit Heights, Ut. Heatherwood Subdivision, Ivory Homes, Roy Ut.
Williams Field Services, Green River, Wy. Wetland delineation. Green River Pipeline.
Ecological Planning and Toxicology, Corvallis, Or. Kennecott Copper wetland community analysis.
Enviroserve, Fruit Heights, Ut. Wetland delineation. Odgen Cove Subdivision.
- 1994** Pic-Tech, Denver, Co. Wetland delineation: Northwest Pipeline Repair Project. Rangely, Co.
- 1993** Pacificorp, Inc. Salt Lake City, Ut. Wetland delineation: Naughton Power Plant, Kemmerer, Wy.
- 1992** PIC Technology, Denver, Co. Wetland delineation: Northwest Pipeline Expansion, Wyo. and Id.
Ute Indian Reservation, Fort Duchesne, Ut. Wetland delineation: waste disposal plant..
- 1991** Wayne Co. Water Conservancy District, Salt Lake City, Ut. Wetland inventory: Fremont River Dam.
- 1983** Biowest Inc. Wetland inventory for the West Desert Pumping EIS Davis & Salt Lake Cos., Ut.

VEGETATION SAMPLING & RECLAMATION

- 2001** Southern Utah Fuels Co., Waste Rock re-vegetation monitoring.
- 2000** Southern Utah Fuels Co., Waste Rock re-vegetation monitoring.
- 1999** USDA, Uinta Natl. Forest. Vegetation monitoring for Mt. Goats in Mt. Nebo Wilderness Area.
- 1998** Southern Utah Fuels Co., Salina, Ut. Waste Rock and Reference re-vegetation monitoring.
- 1996** Coastal States Energy Co., Midvale, Ut. Vegetation inventory: waste rock monitoring Skyline Mine.
- 1995** Coastal States Energy Co., Midvale, Ut. Vegetation inventory: waste rock monitoring. Skyline Mine.
Ecological Planning and Toxicology, Corvallis, Or. Ecological risk assessment. Kennecott Copper Mine, Salt Lake City, Ut.
USFS Shoshone Natl. Forest, Cody, Wy. Soil/vegetation community typing on Absorbka Range.
- 1994** Ecological Planning and Toxicology, Corvallis, Or. Ecological risk assessment. Kennecott Copper, Ut.
Coastal States Energy Co., Midvale, Ut. Vegetation inventory: waste rock monitoring. Skyline Mine.
- 1992** Southern Utah Fuels Company. Helper, Ut. Vegetation inventory and reclamation plan, Skyline Mine.
Southern Utah Fuels Company. Helper, Ut. Vegetation and reclamation, Convulsion Canyon Mine, Ut.
- 1988** Endangered Plant Studies, Orem, Ut. Coastal States Energy Co. Monitoring and re-vegetation: Skyline Mine.
- 1985** Endangered Plant Studies, Orem, Ut. Coastal State Energy Co. Monitoring and re-vegetation: Skyline Mine.
Endangered Plant Studies, Orem, Ut. Southern Utah Fuels Co., Emery, Ut. Soils and vegetation inventory for

new lease area.

- 1984** Endangered Plant Studies, Orem, Ut. Coastal State Energy Co. Monitoring and revegetation at Skyline Mine.
- 1983** Mt. Nebo Scientific, Springville, Ut. Vegetation/ soil inventory: Diamond Shamrock Mine, Emery Co., Ut.
Mt. Nebo Scientific, Springville, Ut. Vegetation/soil inventory: Horse Cyn. Mine. Sunnyside, Ut. U.S Steel Corp.
- 1982** Utah International, Farmington, N. M. Soil/ vegetation inventory at San Juan and Navajo Mines.
Biowest, Logan, Ut. Reclamation plan for Riley Ridge Natural gas expansion. Wyoming.
- 1979** Endangered Plant Studies & NPI, Salt Lake City, Ut. Vegetation sampling and monitoring: Alaska pipeline: Prudoe Bay to Fairbanks to Tok.
- 1977-78** BLM, Moab District Office. Range technician. Vegetation mapping and sampling (SVIM).
BLM, Glenwood Sps., Co. Range technician. Vegetation mapping and sampling (SVIM).
- 1976** Brigham Young University and Dow Chemical Co. Gambel oak control.

PUBLICATIONS

5 scientific publications and 100 non-refereed reports.

PROFESSIONAL AFFILIATIONS

Society of Wetland Scientists, Natural Areas Assoc., Utah & Wyoming Native Plant Society.

CERTIFICATIONS

Nationwide Permit Workshop, Cleveland, OH. Wetland Training Institute, 2000.
Advanced Problems in Hydric Soil, North Carolina State University, 2000
Professional Wetland Scientist, Society of Wetland Scientists, 2000.
Habitat Evaluation Procedures, Phoenix AZ. USFWS 1995.
Southwestern Willow Flycatcher Survey Techniques, St. George UT. USFWS 1995, 1998.
Wetland Training Institute, Advanced Wetland Delineation, Charleston, SC. 1992.
Black Footed Ferret Survey Techniques, USFWS, 1990.

UTAH

Wilderness Inventory



1999

U.S. Department of the Interior • Bureau of Land Management

Desolation Canyon

Findings

INVENTORY UNIT ACRES

| Federal | State | Total |
|---|--------|---------------|
| With Wilderness Characteristics | | |
| 182,320 | 28,900 | 211,220 (97%) |
| Without Wilderness Characteristics | | |
| 5,700 | 0 | 5,700 (3%) |
| Inventory Unit Total | | |
| 188,020 | 28,900 | 216,920 |
| Contiguous Area-Wilderness Characteristics | | |
| Desolation Canyon WSA | | 290,845 |
| (UT-060-068A) | | |
| Floy Canyon WSA (UT-060-068B) | | 72,605 |

About 211,220 acres of the nine Desolation Canyon inventory units have wilderness characteristics. These units are a continuation of the many features and landforms found throughout the contiguous Desolation Canyon Wilderness Study Area (WSA) and enhance its magnificent wilderness qualities. In combination with the WSA, the nine units represent one of the largest blocks of roadless BLM public lands within the continental United States. This is a place where a visitor can experience true solitude—where the forces of nature continue to shape the colorful, rugged landscape.

Approximately 5,700 acres in three places along the fringe of the inventory units are unnatural and do not have wilderness characteristics.

The Floy Canyon and Desolation Canyon inventory units are physically connected at the end of the Right Hand Tusher Canyon Road within the state section.

Unit Description

Desolation Canyon is located in Grand, Emery, Carbon, Duchesne, and Uintah Counties. The southern boundary of the inventory unit is five miles north of Green River, Utah, while the northern boundary is located some 38 miles southwest of Vernal. The Green River bisects the unit on the north. The Uintah and Ouray Indian Reservation forms a part of the boundary

of the north end of the unit. Various roads, pipelines, and private lands form the boundaries of the remainder of the unit.

The terrain varies dramatically, from river bottoms and flood plains at about 4,200 feet elevation to the high ridges of the Tavaputs Plateau at 9,500 feet. Numerous mesas, ridges, plateaus, canyons, and deep remote drainages intersect with the Green River. The south and southwest portion of the inventory unit is defined by a 32-mile portion of the Book Cliffs. The units contain a wide diversity of vegetation, ranging from riparian zones along the river, to piñon and juniper woodlands; areas dominated by saltbush/sagebrush/ shadscale plant communities; and high ridges and plateaus forested with aspen, spruce, and fir.

Recreation is a dominant, use with some 7,000 boaters a year floating the Green River through Desolation Canyon. Many more recreationists utilize the accessible lower stretch of Gray Canyon for camping, fishing, hiking, and water sports. Hunting and sightseeing occur in outlying areas along the boundaries. Some cattle grazing takes place, and remnants of past oil and gas exploration are also present.

Wilderness Characteristics

Naturalness

Nearly all of the inventory units appear natural. While there are many scattered human imprints, their individual and cumulative impact on the natural character of most of the inventory units is minor. The imprints are in various stages of rehabilitation, with most being substantially unnoticeable in the area as a whole. The expansive landscape, diverse topography, and vegetation screens the scattered human intrusions within the units. Minor remnants of past oil and gas exploration, livestock grazing, and recreation pursuits remain, but most disturbance has been erased over time by the forces of wind, water and vegetation regrowth. Most of the significant or noticeable intrusions are located outside the boundaries.

Three areas do lack natural character. A small area in Unit 1 on the northern boundary near Fourmile Wash and Fourmile Bottom on the Green River lacks naturalness because of roads, old seismic lines, and reclaimed drill pads. Two small areas in Unit 8 also lack naturalness because of extensive off-highway vehicle use.

Outstanding Opportunities

Solitude

All nine units are contiguous to Desolation Canyon WSA and enhance the outstanding opportunities found in the WSA. Units 1 and 7 are of sufficient size and configuration to provide outstanding opportunities for solitude on their own. All of the units, together with the Desolation Canyon WSA, comprise a large, remote area where a visitor is truly isolated from the outside world. The vast size, configuration, numerous scenic vistas, diversity of vegetation, and rugged topography provide the visitor with numerous places and opportunities to become isolated from others. Most of the units are remote, accessible only by foot, horseback, or boat.

Primitive and Unconfined Recreation

The inventory units are contiguous to and are an extension of the Desolation Canyon WSA. They enhance the outstanding opportunities provided by the WSA, including multiple-day river float-boating trips in a primitive setting, hiking, hunting, horseback riding, backpacking, back-country camping, climbing, fishing, swimming, photography, viewing of cultural and historic sites as well as a diversity of wildlife, nature study, and viewing of scenic landscapes. The large size and configuration of this vast, wild area enhances the variety and extent of activities available.

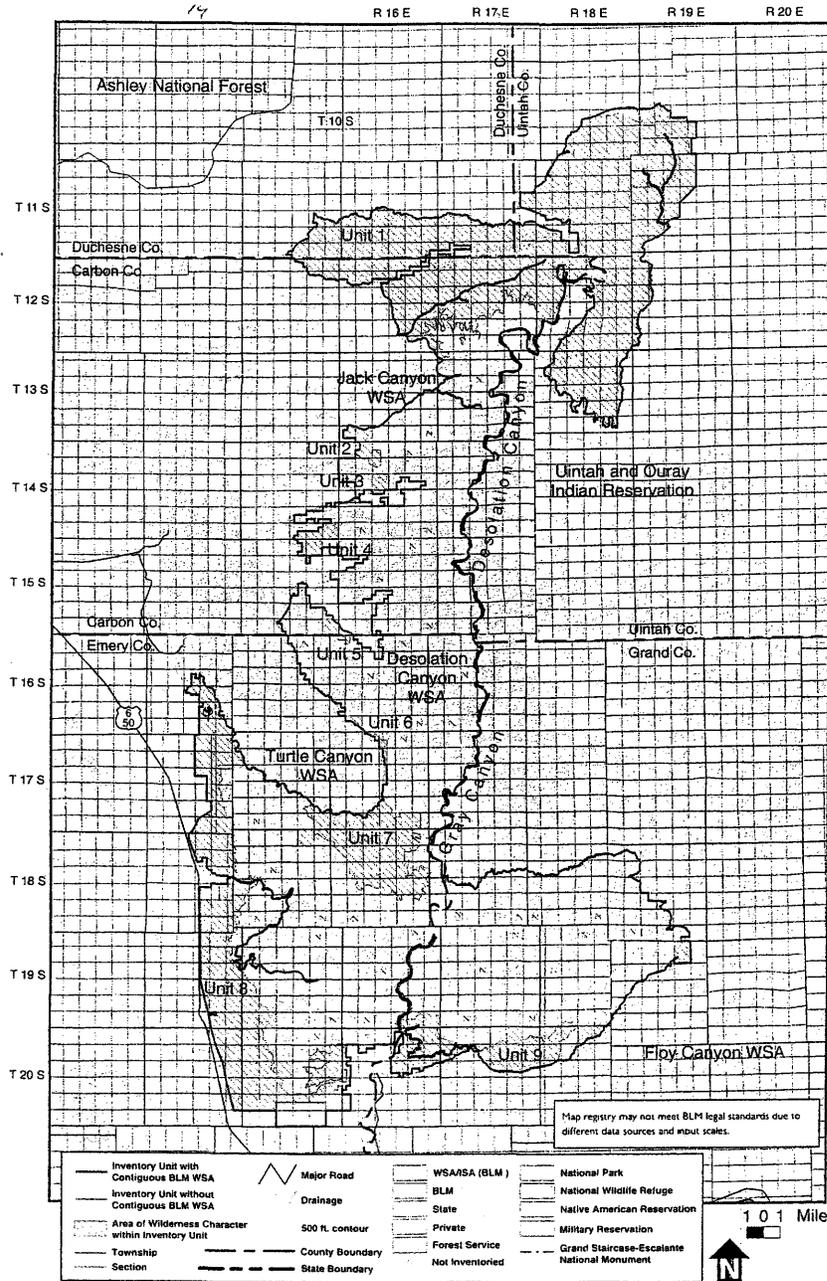
Supplemental Values

The inventory unit contains cultural, scenic, geologic, botanical, and wildlife values. Elevations and topography in the units vary from desert canyons to high mountain environments. Vegetation and wildlife habitats and species also vary greatly because of the diversity of terrain. Six endangered animal species occur or may occur in the units, including the peregrine falcon, black-footed ferret, bald eagle, Colorado squawfish, humpback chub, and bonytail chub. Ten special status animal species and six special status plant species also occur or may occur in some of the units.

DESOLATION CANYON—
The Green River flows by Nutters Hole through Desolation Canyon, the inventory unit is on the right side of the river.



Desolation Canyon



NORTHEAST REGION—Desolation Canyon

Turtle Canyon

Findings

INVENTORY UNIT ACRES

| Federal | State | Total |
|---|-------|--------------|
| With Wilderness Characteristics | | |
| 4,860 | 3,860 | 8,720 (100%) |
| Without Wilderness Characteristics | | |
| 0 | 0 | 0 (0%) |
| Inventory Unit Total | | |
| 4,860 | 3,860 | 8,720 |
| Contiguous Area-Wilderness Characteristics | | |
| Turtle Canyon WSA (UT-060-067) | | 33,690 |

All five Turtle Canyon inventory units (8,720 acres) have wilderness characteristics when considered in conjunction with the contiguous Turtle Canyon Wilderness Study Area (WSA). The units appear to be in a natural state, affected primarily by the forces of nature. A few short vehicle ways exist near the boundary, but they are in various stages of reclamation through erosional processes and revegetation, and thus do not significantly impact the natural character of the units. The scenic, steep, and jagged topography and dense vegetation provide outstanding opportunities to experience solitude and to engage in a variety of primitive and unconfined recreation activities. The inventory units also contain cultural, wildlife, and scenic values.

Unit Description

The Turtle Canyon inventory units are located about eight miles southeast of Sunnyside. They are on a divide between the Little Park Plateau above the Book

Cliffs to the west and Range Creek Canyon to the northeast. The units are contiguous to and extend the landforms of the Turtle Canyon WSA, an extremely steep and rugged area cut by canyons that are 1,000 to 3,000 feet deep. Elevations range from 4,800 feet in Turtle Canyon to 9,327 feet south of Little Horse Canyon near the head of Bear Canyon in the WSA. Vegetation is predominantly piñon and juniper woodland, with Douglas fir and mountain shrub communities scattered along the higher elevations and northern slopes. Much of the area has colorful rock outcrops of reds, greens, yellows, and grays. Uses of the units include coal exploration, cattle grazing, hunting, and hiking.

Wilderness Characteristics

Naturalness

The intrusions within the inventory units are widely scattered and related to ranching and coal exploration drilling. All of these intrusions are minor, have been reclaimed or are in various stages of natural rehabilitation, are well screened by vegetation and topography, and are substantially unnoticeable. The units appear to be in a natural state, affected primarily by the forces of nature as perceived by the average visitor on the ground.

Outstanding Opportunities

Solitude

The inventory units possess outstanding opportunities for solitude because they

are contiguous to and are extensions of the Turtle Canyon WSA, which provides outstanding opportunities for solitude. The steep and rugged terrain, numerous side canyons, and piñon and juniper woodlands all provide ample screening. Scenic views within the canyons and from the ridgetops enhance the feeling of being isolated and alone.

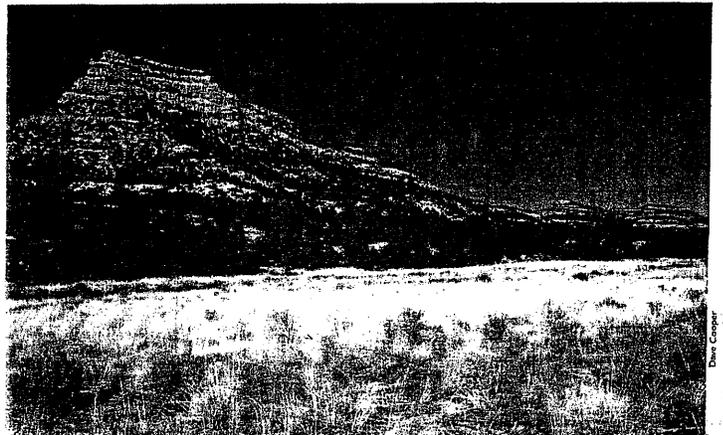
Primitive and Unconfined Recreation

The inventory units are contiguous to and are extensions of the Turtle Canyon WSA, where opportunities for primitive and unconfined recreation are outstanding. The WSA provides opportunities for hiking, climbing, camping, hunting, and sightseeing. These opportunities are outstanding because of the size and configuration of the WSA as well as the quality of the scenic, geologic, wildlife, and cultural features. The contiguous inventory units enhance and extend the primitive and unconfined recreation opportunities found within the Turtle Canyon WSA.

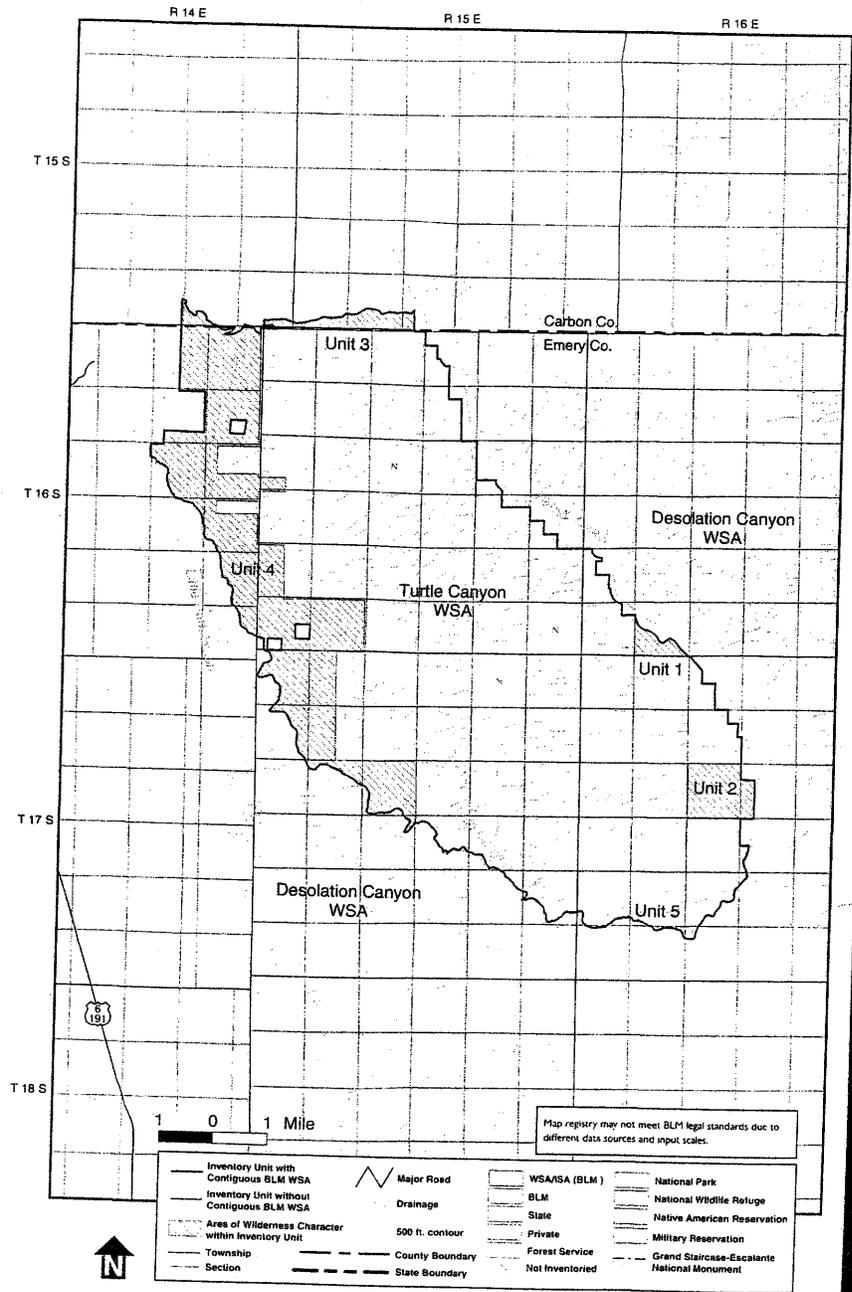
Supplemental Values

The WSA and inventory units have outstanding scenic quality, and significant Fremont period artifacts could be present. There are populations of mountain lion, elk, Rocky Mountain bighorn sheep, and black bear. Endangered peregrine falcons and bald eagles may frequent the area; six other special status animal species and three plant species could be present as well. Overall, the differences in terrain and vegetation and the variety of wildlife and wildlife habitat that exist here are seldom found in an area the size of the Turtle Canyon WSA.

TURTLE CANYON—Varied landforms and vegetation extend the outstanding opportunities for solitude found in the Turtle Canyon WSA into the inventory unit.



Turtle Canyon



NORTHEAST REGION—Turtle Canyon