NOTICE OF INTENTION TO CONDUCT HYDROLOGIC INVESTIGATION

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MAY 31 2005
DIV. OF OIL, GAS & MINING

MAY 2005
C/O Interwest Mining Company
(Managing Agent)

PACIFICORP

Energy West Mining Company
(Mine Operator)

Right Fork of Rilda Canyon

File in:
- ☐ Confidential
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In C/0150018 Incoming
Date: 052605, For additional information
#0050

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MAY 2005

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Technical Specification for the Construction of Test Wells in Rilda and Mill Fork Canyons

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Right Fork of Rilda Canyon: The hydrologic investigation will occur on a designated Federal Coal Lease (U-06039). The alluvial test holes will not penetrate any known coal resource.

Mill Fork Canyon: The hydrologic investigation will occur on lands administered by the Forest Service. The alluvial test holes will not penetrate any known coal resource.

Pacificorp is hereby filing a Notice of Intention to Conduct Hydrologic Investigation under the requirements of R645-201-200.

R-645-200-200. Responsibilities.

210. Responsibility to Comply with Regulations. PacifiCorp will comply with the requirements of R645-200 through R645-303.

220. Responsibility of the Division to Review and Reply. The Division will receive and review this Notice of Intention to conduct Hydrologic Investigation. The Division will review and reply within 15 days.

230. Responsibility of the Division to Coordinate with Other Agencies. The Division will coordinate review of this Notice with the other appropriate government agencies (U.S.D.A. Forest Service, BLM, OSM, etc.). Pacificorp will provide enough copies of this notice to the Division for distribution to these agencies.

R645-201. Exploration: Requirements for Exploration Approval.
R645-201-100. Responsibilities for Exploration Plan Review.

110. Exploration Plan Review, Responsibility of Division.
Right/Left Forks of Rilda Canyon: The lands on which this exploration will be conducted are within the Deer Creek Mine permit boundary, and therefore, hydrologic investigation plan review will be the responsibility of the Division, Forest Service, and BLM..
Mill Fork Canyon: The lands on which this exploration will be conducted are outside the Deer Creek Mine permit boundary, and therefore, hydrologic investigation plan review will be the responsibility of the Forest Service and BLM.

120. Requirements of 43 CFR 3480-3487. N.A.

130. Division Responsibility to Coordinate with Other Agencies. This Notice of Intention to Conduct Hydrologic Investigation and Drilling Plan will be submitted to the Forest Service and the Division for review and approval.

R645-201-200. Notices of Intention to Hydrologic Investigation.

210. Division Review Requirement. Notices of Intention to conduct Hydrologic Investigation where 250 tons or less of coal will be removed require Division review prior to conducting exploration. Pacificorp is submitting this Notice to the Division in May of 2005, allowing the agencies time to review and approve the Notice before exploration activities begin on September 1, 2005.

220. Required Applicant Information. This Notice of Intention to Conduct Hydrologic Investigation is required to include the following pertinent information.

221. Name, Address, and Telephone Number of Applicant:

APPLICANT:

PacifiCorp
One Utah Center
201 South Main, Suite 2100
Salt Lake City, Utah 84140-0021
(801)220-4612

OPERATOR:

Energy West Mining Company
15 North Main Street
Huntington, Utah 84528
(801)687-9821

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222. Name, Address, and Telephone Number of the Applicant's Representatives:

RESPONSIBLE REPRESENTATIVE:

Chuck Semborski or Ken Fleck
Energy West Mining Company
15 North Main Street
P.O. Box 301
Huntington, Utah 84528
(435)687-4720
(435)687-6638

223. Description of Exploration Area. Narrative and map describing the hydrologic investigation area and indicating where drilling will occur:

PROPOSED HYDROLOGIC INVESTIGATION AREA:

Rilda Canyon: Two proposed hydrologic test holes are located within the current Federal Coal Lease U-06039, in Section 29, Township 17 South, Range 7 East, Salt Lake Base and Meridian. The drilling will occur on lands in which the surface is administered by the U.S.D.A. Forest Service (USFS) and the subsurface by the Bureau of Land Management (see accompanying maps entitled Rilda Canyon Hydrologic Investigation - General Location Maps, Aerial Photos).

The proposed holes will be drilled in the Right and Left forks of Rilda Canyon, tributary to Huntington Canyon in Emery County, Utah. Access to this location will be from Emery County Road #306.

Mill Fork Canyon: Two proposed hydrologic test holes are located within the Section 21, Township 17 South, Range 7 East, Salt Lake Base and Meridian. The drilling will occur on lands in which the surface is administered by the U.S.D.A. Forest Service (USFS) and the subsurface by the Bureau of Land Management (see accompanying maps entitled Rilda Canyon Hydrologic Investigation - General Location Maps, Aerial Photos).

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The proposed holes will be drilled in Mill Fork Canyon, tributary to Huntington Canyon in Emery County, Utah. Access to this location will be from Forest Development Road #245.

Table 1. Rilda Canyon/Mill Fork Canyon Hydrologic Investigation Proposed Drilling for 2005:

HOLE NUMBER	LOCATION	ELEVATION (Feet)	ESTIMATED DEPTH[1] (Ft)	SURFACE OWNERSHIP	SUBSURFACE OWNERSHIP
Test Hole #1	Adjacent to Reclaimed Road	7727'	60'	USFS	Federal Coal Lease U-06039
Test Hole #2	South of Emery County Road #306	7719'	60'	USFS	Federal Coal Lease U-06039
Test Hole #3	South of Forest Development Road #245	7717'	60'	USFS	Un-Leased Federal Coal
Test Hole #4	South of Forest Development Road #245	7716'	60'	USFS	Un-Leased Federal Coal

[1] Estimated depth based on results previous drilling and regional experience.

224. Period of Intended Exploration:

PROJECT STARTUP DATE: August 15, 2005

PROJECT COMPLETION DATE: August 25, 2005

It is anticipated that all drilling and reclamation activities associated with this project will be completed within 10 days following the date of implementation.

225. Method of Exploration. Method of exploration to be used, and practices to be used to protect the area from adverse impacts and reclaim the area in accordance with R645-202:

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The method of hydrologic investigation to be used is a truck mounted drill rig. Access to the test well locations will be as follows:
Rilda Canyon: Existing, partially reclaimed road intersects Emery County Road #306 near the Right Fork stream crossing. This road existed to access resources of the Right Fork of Rilda Canyon, including; coal prospecting and exploration, timber harvesting and livestock grazing. In cooperation with the Forest Service, PacifiCorp reclaimed a portion of the main road and converted it to a trail system in 1997. All drilling equipment, and personnel related to the proposed hydrologic investigation will be restricted to the existing road and reclaimed trail.
Mill Fork Canyon: Existing Forest Development road #245 parallels Mill Fork Creek, drilling will occur near the reclaimed ARCO #4 coal mine. All drilling equipment, and personnel related to the proposed hydrologic investigation will be restricted to the existing road.

Pre-Work Meeting:
A pre-work meeting including the responsible company representatives, contractors, Division of Oil, Gas and Mining, and the Forest Service will be conducted at the project location prior to commencement of operations.

Drill Methods & Procedures: PacifiCorp proposes to drill a total of four shallow rotary drill holes to fully penetrate to alluvial deposits. Each hole will be drilled to bedrock. Drill cuttings will be logged by a State of Utah Registered Professional Geologist. Each hole will completed by installing 6-inch diameter PVC casing, screened in the lower 20 feet. A filter pack will be placed in the annular space adjacent to the screens through the saturated zone, with a bentonite seal placed above the filter pack to the surface. The test holes will developed to remove smear zones that may have resulted from drilling. The drilling will be done by a drilling contractor experienced in drilling techniques (refer to the Technical Specification for the Construction of Test Wells in Rilda and Mill Fork Canyons).

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The following support equipment will be required:

2 pickup trucks: stationed along Emery County Road #306 and/or Forest Development Road #245
1 drill rig and support equipment

Rilda Canyon:

Test Well #1: Initialization of the project will include moving two boulders positioned near the intersection main access road and Emery County Road #306 (refer to Photos #1-4). The drill rig components and associated materials, tools and equipment will be transported by truck to the areas indicated on the accompanying map. Site preparation will be held to a minimum. No roads will be constructed, travel will be on existing ground surface. Brattice or other similar material will be placed on the ground beneath the entire drill rig.

Test Well #2: Access to the site will be from Emery County Road #306 (refer to Photos #5). The drill rig components and associated materials, tools and equipment will be transported by truck to the areas indicated on the accompanying map. Site preparation will be held to a minimum. No roads will be constructed, travel will be on existing ground surface. Brattice or other similar material will be placed on the ground beneath the entire drill rig.

Mill Fork Canyon:

Test Well #3: Access to the site will be from Forest Development Road #245 (refer to Photos #6-7). The drill rig components and associated materials, tools and equipment will be transported by truck to the areas indicated on the accompanying map. Site preparation will be held to a minimum. No roads will be constructed, travel will be on existing ground surface. Brattice or other similar material will be placed on the ground beneath the entire drill rig.

Test Well #4: Access to the site will be from Forest Development Road #245 (refer to Photos #8). The drill rig components and associated materials, tools and equipment will be transported by truck to the areas indicated on the accompanying map. Site preparation will be held to a minimum. No roads will be constructed, travel will be on existing ground surface. Brattice or

other similar material will be placed on the ground beneath the entire drill rig.

Following test hole completion, water levels in the wells will be allowed to stabilize and the depth of water determined. Pump tests will be performed on each well to provide hydraulic conductivity of the alluvial aquifer at each location. Well locations and elevations will be surveyed to allow the stratigraphic and water level data to be interpreted. PacifiCorp proposes to allow the test wells to remain in-place until the summer of 2006. After recording the reaction of the test wells to the high flow conditions, PacifiCorp will remove the PVC casing and fill the remaining portion of the hole with sand. The data collected from the this evaluation should be sufficient to allow decisions to be made regarding potential construction methods and yields of the spring collection system in the test area.

Drill Hole Access:
No access road or pad construction will be necessary for the proposed project. Drilling equipment and materials will be transported to the drill site by a truck mounted rotary rig. Personnel will access the site by vehicle via existing roads and on foot. The drill sites are relatively level; therefore, no site preparation will be minimal. Only trees and scrubs necessary for access and safety will be removed. An area no larger than approximately 40' by 40' will be occupied at the drill site. Leveling of drilling equipment will be accomplished using hand tools and supports (wood blocks, etc.) transported to the site. All materials, tools and equipment will be removed immediately upon completion of drilling and reclamation activities.

Practices to Protect from Adverse Impacts and to Reclaim the Area:
During drilling, water will be recirculated to the extent possible. Any returned cuttings and other materials will be captured in a container at the drill site. If a drill pit is necessary, the pit will lined with impervious material. The cuttings will be transported from the drill site to the Deer Creek Waste Rock Site for disposal. Containment of possible fluid spills will be achieved through the use of brattice ground cover, silt fence, and if necessary, earthen berms. If spills occur, all affected materials will be removed from the site and disposed of at an approved location. If soil is

removed during spill containment and clean-up, the site of removal will be recontoured and seeded with the approved seed mixture.

Fuel and/or lubricating oil containers not stored in a truck will be placed on brattice or other acceptable ground cover at a site located away from drainage channels and surrounded by brattice, earthen berm or other acceptable containment structure. If spills occur, clean-up will be conducted as stated above.

Access by personnel associated with the drilling project will be via vehicle or by foot to the drill site. Therefore, no additional access facilities will be constructed.

Following completion of drilling and completion of the test holes, the drill rig and all associated equipment and materials will be removed. All trash and extraneous materials will be removed from the US Forest Service property and disposed of at an approved location. The sites will be reclaimed by: 1. Removing all trash, cuttings, and contaminated soil. 2. Recontouring site to original contour, and 3. Re-seeding with the approved seed mix, and scattering deadfall over the site.

Fire Suppression Equipment:
All gasoline and diesel powered equipment will be equipped with effective mufflers or spark arresters which meet applicable Forest Service specifications. Fire suppression equipment will be available to all personnel working at the project site. Equipment will include at least one hand tool per crew member consisting of shovels and pulaskis and one properly rated fire extinguisher per vehicle and/or combustion engine.

R645-202. Compliance Duties.
R645-202-100. Required Documents.

"Each person who conducts exploration will have available a copy of the Notice of Intention to Conduct Hydrologic Investigation...for review by an authorized representative of the Division upon request."

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Road Use Permits:
The Forest Service will be notified 48 hours in advance that heavy equipment will be moved onto National Forest System lands and that surface disturbing activities will commence.

As stated earlier, access in Rilda Canyon will be achieved utilizing Emery County Road #306 from State Highway 31 in Huntington Canyon.

PacifiCorp will obtain a road use permit for Mill Fork Forest Development Road #245.

Archeological Information:

All proposed activities are along preexisting roads developed in the Rilda and Mill Fork canyons. All hydrologic investigation activities will be restricted to these roads.

R645-202-200. Performance Standards.

210. Requirements of the State Program. All exploration and reclamation operations will be conducted in accordance with the coal exploration requirements of the State Program/Forest Service, and any conditions on approval for exploration and reclamation imposed by the Division.

Pacificorp will comply with all coal exploration requirements of the State Program, and any conditions on approval of the exploration plan.

220. Inspection and Enforcement. Any person who conducts any exploration in violation of the State Program will be subject to the provisions of 40-10-20 of the Act and the applicable inspection and enforcement provisions of the R645 Rules.

Pacificorp will comply with all exploration requirements of the State Program, and any conditions on approval of the exploration plan. Pacificorp welcomes inspection of its exploration operations at any time during exploration.

230. Operational Standards.

231. Non-Disturbance of Habitats. Habitats of unique or unusually high value for fish, wildlife, and other related environmental values and critical habitats of endangered or threatened species identified pursuant to the

Endangered Species Act of 1973 (16 U.S.C. 1531 et. seq.) will not be disturbed during exploration.

As detailed in **225**, vegetated resources will not be impacted during the hydrologic investigation. All activities associated with the project will be restricted adjacent to the preexisting roads. Prior to mobilizing th drill rig to the individual drill sites, the surface area will be protected with an impervious barrier. Upon completion of the hydrologic testing, all materials related to the project will be removed.

Surveys for Threatened, Endangered and Sensitive (TES) plant and animal species have been conducted in connection with various projects in this area of Rilda Canyon (Surface Facilities, Permit Extension and Powerline) and the Mill Fork coal leasing process. Results of these surveys have been provided to the various regulatory agencies in the applications for the projects. No TES plants or animals have been found in the area of the proposed drill holes.

232. Road Construction and Use. All roads or other transportation facilities used for exploration will comply with the applicable provisions of R645-301-358...R645-301-762.

Pacificorp will use only existing roads for this project. No new roads will be constructed.

233. Topsoil Removal and Storage. Topsoil will be separately removed, stored, and redistributed on areas disturbed by exploration activities as necessary to assure successful revegetation or as required by the Division.

The method of drilling used by Pacificorp for these holes assures that topsoil is not disturbed as all activities will be restricted are adjacent to the preexisting roads. Impervious ground cover is used under the rig to protect the surface; therefore the topsoil is not disturbed.

234. Diversions of Overland Flows. Diversions of overland flows and ephemeral, perennial, or intermittent streams will be made in accordance with R-645-301-742.3.

No disturbance will be made to the stream course.

235. Minimizing Disturbance to Hydrologic Balance. Exploration will be conducted in a manner which minimizes disturbance to the prevailing hydrologic balance in accordance with R645-301-356.300...and R645-301-763. The Division may specify additional measures which will be adopted by any person engaged in coal exploration.

During exploration, surface disturbance will consist only that which is necessary to level the rig. No drill pad will be constructed, so there will be no additional runoff during precipitation events. No impoundments to contain runoff will be necessary. Overall impact on the hydrologic balance will be minimal, if any.

236. Acid- or Toxic Forming Materials. Acid- or toxic-forming materials will be handled and disposed of in accordance with R645-301-731.110, 731.300, and 553.260.

No Acid- or Toxic earth materials or coal waste will be produced used, or handled during this drilling program.

240. Reclamation Standards.

241. Excavations. No excavations will be necessary for the proposed project, all activities will be restricted to the preexisting roads.

242. Re-Vegetation. All areas disturbed by exploration activities will be revegetated in a manner that encourages prompt revegetation and recovery of a diverse, effective, and permanent vegetative cover. Revegetation will be accomplished in accordance with the following:

242.1 Re-Seeding. All areas disturbed by exploration activities will be seeded or planted to the same seasonal variety native to the areas disturbed. If the land use of the exploration area is intensive agriculture, planting of the crops normally grown will meet the requirements of R645-202-242.100.

All drilling areas will be promptly re-seeded upon completion of each hole, removal of equipment, and recontouring of the site, if necessary, with a seed mix approved by the surface management agency and the Division.

The following is the seed mix specified from previous years approved drilling permits, and will be used unless changes are indicated by the agencies.

Species	lbs/acre (PLS)
Basic Mix	
Columbia needle grass - *Stipa columbiana*	4.5
Slender wheatgrass - *Elymus trachycaulus*	4.5
Sandbergs bluegrass - *Poa secunda*	0.75
Pacific aster - *Aster chilensis*	0.2
Supplement*	
Sulfur flower - *Eriogonun umbellatum*	2.0
Rocky Mountain penstemon - *Penstemon strictus*	0.75

** Seed should be purchased in individual seed packets, not as mixture.*

The seed mixture will be hand broadcast and the area will be hand raked following seeding to cover the seed. Following seeding, any dead-fall that was removed from the drill site will be replaced.

242.2 Soil Surface Stability. The vegetative cover will be capable of stabilizing the soil surface from erosion.

Since the soil and vegetative cover will not be removed, and the vegetation will spring back up as soon as the drilling equipment is removed, this requirement will be met.

No crops are raised in the project area. Crop replacement will not be necessary.

243. Reclamation of Boreholes. Each exploration hole, borehole, well, or other exposed opening created during exploration will be reclaimed in accordance with R645-301-529, R645-301-551, R645-301-631, R645-301-738, and R645-301-765.

No mine openings or exploration openings will be created, therefore R645-301-529 and R645-301-551 do not apply in this case. As described in 225, the test wells will be utilized to document the hydrologic characteristics of the alluvium in Rilda and Mill Fork canyons. Each of these holes will be developed as a water monitoring well as detailed in **225**. Any variance from this procedure will be approved in advance by DOGM and USFS.

244. Removal of Equipment. All facilities and equipment will be promptly removed from the exploration area when they are no longer needed for exploration, except for those facilities and equipment that the Division determines may remain to:

244.1 Provide additional environmental data;

244.2 Reduce or control the on-site and off-site effects of the exploration activities;

244.3 Facilitate future coal mining and reclamation operations by the person conducting the exploration.

When each drill rig setup is no longer needed for the project, the complete assemblage of equipment will be removed immediately from the area to facilitate reclamation work and free this equipment for use elsewhere by the contractor.

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R645-203. Exploration: Public Availability of Information.
R645-203-100. Public Records.

Except as provided in R645-203-200, all information submitted to the Division under R645-200 will be made available for public inspection and copying at the Division.

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ATTACHMENT

Technical Specification for the Construction of Test Wells
in Rilda and Mill Fork Canyons

May 2005 ***PacifiCorp***

TECHNICAL SPECIFICATION FOR THE CONSTRUCTION OF TEST WELLS IN RILDA AND MILL FORK CANYONS

1.0 SCOPE

1.1 PURPOSE

This specification covers the drilling of test wells in Rilda and Mill Fork Canyons, Emery County, Utah (see attached drawing). The test wells are to be drilled as specified in this document and completed as directed by the Owner or the Engineer. The Drilling Contractor shall provide all goods and services called for in this specification, except as otherwise noted.

1.2 BACKGROUND INFORMATION

In November 2004, Energy West directed the installation of seven piezometers in the Right Fork of Rilda Canyon to evaluate the feasibility of producing groundwater for domestic use from the alluvial aquifer. Geologic logs of those wells are provided in Attachment A.

Energy West now desires to install test wells in Rilda and Mill Fork Canyons to better quantify the available groundwater resource in the alluvium of the area (a total of four (4), one each in the Right and Left forks of Rilda Canyon and two in Mill Fork Canyon). It is anticipated that the alluvium in the Right Fork of Rilda Canyon is approximately 50 to 60 feet deep. Similar alluvial depths are anticipated in the Left Fork of Rilda Canyon and in Mill Fork.

2.0 DEFINITION OF TERMS

Whenever used in this specification, the following terms shall have the meanings indicated, and these shall be applicable to both the singular and plural and masculine and feminine thereof:

Drilling Contractor. The person, firm, or corporation with whom the Owner has contracted to perform this work. The Drilling Contractor must be licensed by the Utah Division of Water Rights to drill water wells in the State of Utah.

Engineer. EarthFax Engineering, Inc. and its duly authorized representatives.

Owner. Energy West

3.0 SAFETY AND PROTECTION

The Drilling Contractor shall be responsible for maintaining and supervising all safety precautions, including ensuring the safety of and preventing damage, injury, or loss to (1) all employees of the Drilling Contractor on the project and other persons who may be affected thereby, (2) all materials or equipment to be incorporated therein, whether in storage on or off site, and (3) other property at the site or adjacent thereto, including trees, shrubs, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction. Neither the Owner nor the Engineer assumes responsibility for the health and safety of the Drilling Contractor or his employees during performance of the Work.

The Drilling Contractor shall comply with all applicable laws, ordinances, rules, regulations, and orders of the Owner or Engineer, and any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss. The Drilling Contractor shall erect and maintain, as required by the conditions and progress of the work, all necessary barricades, signs, flags, lights, and other safeguards to prevent injury to workmen and others on or about the construction site.

In emergencies affecting the health and/or safety of persons or the work on property at the site or adjacent thereto, the Drilling Contractor, without special instruction or authorization from the Owner or Engineer, is obligated to act, at his discretion, to prevent threatened damage, injury, or loss. He shall give the Owner or Engineer prompt written notice of any significant changes in the work or deviations from the contract documents caused thereby, and a change order shall thereupon be issued covering the changes and deviations involved.

4.0 CLEAN UP

The Drilling Contractor shall keep the premises free from accumulations of waste materials, rubbish, and other debris resulting from the work, and at the completion of the work at each well site, shall remove all waste materials, rubbish, and debris from and about that site as well as tools, construction equipment and machinery, and surplus materials, leaving the site clean. The Drilling Contractor shall restore to their original conditions those portions of the site not designated for alteration by the contract documents.

5.0 SUPERVISION OF WORK

The Drilling Contractor shall direct the work of his personnel in an efficient manner with his best skills and attention. The work and services to be performed under this specification shall be subject to monitoring and inspection by the Owner and Engineer. Representatives of various public agencies may also perform periodic inspection. Such inspection will be for the purpose of determining technical compliance with this specification and other appropriate rules and regulations.

6.0 DRILLING AND WELL CONSTRUCTION

6.1 DRILLING

6.1.1 Drilling Methods. Drilling of the test wells shall be accomplished using dual rotary, casing hammer, cable tool, or similar methods that rely on the installation of temporary steel casing to maintain borehole integrity. No drilling mud, foam, or other additives, other than water, shall be used in drilling, unless otherwise approved by the Owner or Engineer. In each case, the borehole shall be drilled to bedrock at a sufficient diameter to accommodate the anticipated well casing, gravel pack, and grout seal, with a minimum nominal thickness of 2 inches of gravel pack and grout around the permanent casing and couplings. No fluids shall be injected into the production well during drilling of the monitoring well other than clear water unless specifically approved by the Owner or Engineer. It shall be the responsibility of the Drilling Contractor to ensure that each borehole maintains alignment, plumbness, and roundness during installation.

Temporary casing shall be installed during construction of each test well to maintain borehole integrity. The diameter of this temporary casing shall be sufficient to accommodate the anticipated well casing, gravel pack, and grout seal, with a minimum thickness of 2 inches of

gravel pack and grout around the permanent casing and couplings, but not less than 10 inches. A drill shoe shall be welded or threaded on the lower end of the temporary casing string before driving.

During drilling, formation samples shall be collected by the Drilling Contractor in a manner chosen by the Drilling Contractor and approved by the Owner or Engineer. Formation samples must be collected at sufficient frequency and at sufficient increments of depth to permit a thorough evaluation by the Owner or Engineer of the lithologic properties of the formations encountered during drilling of the borehole. At least one formation sample shall be collected each 5 feet and at any pronounced changes in lithology.

6.1.2 Driller's Log. During all drilling and installation activities at the site, the Drilling Contractor shall maintain a daily report and shall deliver this report upon request to the Owner or Engineer. The report shall give a description of all materials encountered, number of feet drilled, number of hours on the job, down time due to mechanical failure or other causes, feet of casing set, and other pertinent data as may be requested by the Engineer.

Following completion of all drilling activities at the site, the Drilling Contractor shall prepare and submit the appropriate forms to the Utah Division of Water Rights concerning the drilling and construction activities. A copy of these forms shall be provided to the Owner and the Engineer.

6.2 TEST WELL MATERIALS

6.2.1 Well Casing. All test well casing shall be new Schedule 40 PVC. The casing shall have a nominal diameter of 6 inches and shall bear mill markings that will identify the material as that specified. For bid purposes, assume that 40 feet of casing will be installed in each well. Actual completion depths and casing and screen lengths will be determined by the Owner or Engineer based on borehole hydrogeology. All joints on the casing shall be flush threaded (i.e., not solvent welded).

6.2.2 Well Screen. All well screen shall be of the continuous-slot, wire-wound design, reinforced with longitudinal bars. Each adjacent coil of wire shall be shaped in such a manner as to increase in size inward. The well screen shall be fabricated of PVC, with a nominal diameter of 6 inches. For bid purposes, assume that 20 feet of screen will be installed in each well. The screen shall have an aperture of 0.020 inch (i.e., 20 slot).

6.2.3 Gravel Pack. The gravel pack shall be 16- to 40-mesh silica sand, consisting of clean, well-rounded, smooth, and uniform particles. The sand shall be siliceous, with a limit of 5 percent by weight of calcareous material. Not more than 2 percent of the filter material shall consist of thin, flat, or elongated pieces, as determined by hand picking. The filter shall be free of shale, clay, dirt, and organic impurities.

6.3 WELL INSTALLATION

6.3.1 Sanitary Protection of Wells

At all times during the progress of the Work, the Drilling Contractor shall use reasonable precautions to prevent either tampering with or entrance of foreign materials into the wells. All holes shall be covered when unattended to prevent entry.

6.3.2 Screen and Casing Installation

It is currently anticipated that each well will be completed with 20 feet of PVC screen and 40 feet of PVC casing. Actual screen and casing lengths will be specified in the field by the Owner or Engineer. The casing and screen shall be lowered into the borehole using the drilling rig or a service rig, utilizing clamps, elevators, or other mechanical devices as needed.

Casing and screen shall be joined using flush-threaded joints that are an integral part of the materials. At least one centralizer, installed near the bottom of the screen, shall be used to position screen in the borehole. The completed string of casing and screen shall be of sufficient length to extend from the desired depth to a point approximately 1 foot above the existing land surface. A PVC cap shall be placed on top of the casing when installation is complete.

6.3.3 Gravel-Pack Installation

The gravel pack will consist of a 16- to 40-mesh gravel and shall be installed in the annular space between the well screen and the borehole wall, extending from the bottom of the borehole to a point approximately 5 feet above the top of the screen in each well. The gravel shall be installed using a tremie pipe. Approximately 2 feet of 70-mesh silica sand shall be placed on top of the 16- to 40-mesh gravel pack layer to serve as a barrier between the gravel pack and the cement grout. If necessary, clean water may be poured into the tremie pipe as the gravel pack is emplaced, thereby helping to carry the pack into the well. The temporary steel casing shall be gradually pulled from the hole as the gravel pack is emplaced, taking care to ensure that the temporary casing is not pulled above the top of the gravel pack.

6.3.4 Grout Installation

A mixture of Portland cement and not more than 7 gallons of clean water per bag (94 pounds) of cement shall be used for grouting the annular space between the drill-bore hole wall and the well casing. The use of other admixtures to reduce permeability, increase fluidity, and/or control time of set must be approved by the Owner or Engineer prior to use.

Grout material shall be emplaced in the annular space between the well casing and the borehole wall above the top of the gravel pack to the ground surface. This grout shall be installed using a positive displacement method such as pumping, forced injection by air pressure, or tremie installation. The grout pipe shall have a minimum nominal diameter of 1 inch and shall extend from the surface to the bottom of the zone to be grouted.

Grout shall be placed from the bottom to the top in one continuous operation unless directed otherwise in the field by the Engineer. Where the grout extends into any temporary steel casing, this casing shall be pulled gradually as the grout is installed. However, in no case shall the temporary steel casing be pulled above the top of the existing grout level. The grout pipe may be slowly raised as the grout is emplaced but the discharge end of the grout pipe must be submerged in the emplaced grout at all times until grouting of a given section is completed. To the extent possible, the grout pipe shall be maintained full to the surface at all times until grouting of the entire specified zone is completed. In the event of interruption of grouting operations, the bottom of the grout pipe shall be raised above the grout level and shall not be resubmerged until all air and water have been displaced from the pipe and the pipe flushed clean with clear water.

6.4 SURFACE PROTECTION

Following completion of grouting operations but prior to curing of the grout, a 5-foot section of 8- to 10-inch diameter steel pipe shall be placed in the grout, extending above the top of the PVC casing. A lockable well cap shall be installed on top of the steel protective casing to prevent unauthorized entry.

Following installation of the surface protection and caps, a concrete pad shall be constructed around the well cover. This pad shall extend a minimum of 6 inches below and 4 inches above the ground surface. The pad shall be square (measuring three feet on a side) or round (measuring three feet in diameter). The surface of the pad shall be sloped away from the well cover to shed water. Foreign materials such as metal scraps, large cobbles, wood chips, etc. shall not be incorporated into the pads.

6.5 WELL DEVELOPMENT

Following completion of the grouting operations and installation of the surface protective casing and pad, each test well shall be developed by surging and bailing and/or pumping. If surging is performed, it shall be done using either a solid or valved surge block. Fines drawn into the well shall be bailed or pumped out periodically before such accumulation reaches 10 percent of the submerged screen length. If pumping is used to develop the wells, a pump with a capacity of at least 50 gallons per minute at the dynamic pumping head shall be used. Surging and bailing and/or pumping of each well shall continue shall continue until the water obtained from each well is visibly clear or as approved by the Owner or Engineer.

APPENDIX A

Geologic Logs of Rilda Canyon Piezometers

Geologic Log 1 of 2

EarthFax

STATIC ≈ 40.5' @ 5" AUGERS

PROJECT No.: 936-04 HOLE No.: 1

DATE BEGIN: 11/15 DATE END: 11/15

DRILLER: L & L LOGGER: JRH FIRST WATER AT: 28'

Comments	Sample Method	Drilling Rate	Depth	Graphic Log	Lithologic Description
		2/2/8			
15"/18"		→	5.0		DARK YELLOWISH BROWN (10YR 4/4) SILTY SAND W/ SILT GRAVELLY SAND W/ SILT ALL LOOSE, MOIST
					BOULDER ~1'
100%		2/2/4	10.0		DUSKY RED (2.5YR 3/3) SILTY SAND LOOSE (INTERBEDDED) SILTY SAND SANDY SILT, SAND @ 11' 1"
					SILT W/ CLAY @ 12.5
			15.0		SILTY SAND SOME CLAY SAND MIXED IN REDDISH BROWN SILTY CLAY DRY
.5/[illegible]		50/			BOULDER @ 16'
RECOVERY ON DRY					
			20.0		CLAYS MIXED
		10/26/5			
			25.0		BEGINNING OF GRAVELS
.9/1.5		11/12/9			INTERBEDDED GRAVELLY SANDS, SANDY GRAVELS W/ SILT SOME CLAYS DAMP GRAVELS < 2" WATER @ 28'(?)
			30.0		
1.5/1.5		2/3/2			SILTY SANDS AND CLAY SILT (< 1" LENSES) SATURATED, SOME CLAY STRINGERS SAME GRAVELS
			35		
1.0/1.5		6/3/11			AS ABOVE ~~NOT SAT.~~ MOIST Ex @ 26'
					WATER @ 35'
		21/2/6	40		SAND W/ SOME SILT SATURATED Mg, QTZ, SUBROUN

Geologic Log

EarthFax

PROJECT No.: _____ HOLE No.: 1

DATE BEGIN: _____ DATE END: _____

DRILLER: _____ LOGGER: _____ FIRST WATER AT: _____

Comments	Sample Method	Drilling Rate	Depth	Graphic Log	Lithologic Description
		20/20/18	40		
100%			45		fg - Mg SAND w/ SMALL BOULDERS SAT. V. LOOSE
		1/4/12	50		SAME SAND W/ MORE GRAVELS NO BOULDERS GRAVELS ARE ANGULAR TO SLIGHTLY ROUND 1/4 - 1/2" SOME 1" SAT LOOSE (COULD BE BROKEN UP BOULDERS
.8/1.5		16/30	55		AS ABOVE
		12/27/38	60		AS ABOVE WX SAND STONE 64' REFUSAL IN SANDSTONE
S	50 3 in.		65		NO SAMPLE

Geologic Log

EarthFax

DIETRICH 120

PROJECT No.: _____ HOLE No.: 2

DATE BEGIN: 11/16 DATE END: _____

DRILLER: RAY LOGGER: JRH FIRST WATER AT: 31'

Comments	Sample Method	Drilling Rate	Depth	Graphic Log	Lithologic Description
			5.0		
1.4/1.5	1/6/8				STRONG BROWN (7.5 YR 4/6) SILTY SAND AND SANDY SILT, LOOSE, ALSO GRAVELS, DAMP
					BOULDER @ 8'
			10.0		
1.3/1.5	5/6/11				BROWNISH YELLOW (10YR 6/6) SAND AND GRAVELLY SAND W/ SOME SILT. GRAVELS ARE SUBROUND < 3/4". GRAVELS @ ~ 11 - 11.5', DAMP SANDS ARE MOD SORTED
			15.0		
		4/30/50 NO REFUSAL			MATRIX AS ABOVE W/ MORE COBBLES, BOULDERS
					BOULDER @ 16'
			20.0		
		50 REFUSAL			NO SAMPLE - REFUSED ON BOULDER
			25.0		
.6/1.5		50			BROWNISH YELLOW (10 YR 6/6) SANDY GRAVEL W/ COBBLES, AND SOME SILT BOULDERS TOO GRAVELS ARE MOD. ROUNDED. LOOSE, DAMP
			30.0		
0.5/1.5	13/14/0				AS ABOVE SATURATED @ 31'
			35.0		
1.0/1.5	22/35/9				AS ABOVE - SATURATED SOME ORGANICS
			40.0		
1.4/1.5	46/31/34				AS ABOVE
			45.0		
1.2/1.5	39/35/32				AS ABOVE
			50.0		
					REFUSAL @ 49' IN HARD ROCK

Geologic Log

EarthFax

PROJECT No.: _____ HOLE No.: 3

DATE BEGIN: 11/17 DATE END: 11/18

DRILLER: L&L LOGGER: JRH FIRST WATER AT: ~32'

Comments	Sample Method	Drilling Rate	Depth	Graphic Log	Lithologic Description
.7/1.5	15/20/16		5.0		2" OF DARK SOIL - SILTY SAND W/ GRAVEL VERY MOIST, ROOTS, ORGANIC AND 6" OF CRUSHED SS
.8/1.5	4/16/23		10.0		MOTTLED ORANGE, RED, YELLOW BROWN SANDY GRAVEL W/ SOME SILT & GRAVELS = 1/4 - 2" 60%
.6/1.5	7/16/50		15.0		SIMILAR TO ABOVE EX. ~~NO REC~~, GRAVELS SMALLER 1/4 - 1" AND 25%
	4/29/30		20.0		SAME W/ COBBLES SOME ORGANICS DARK BROWN MATRIX SILTY SAND)
"TOUGH DRILLING"					
1.3/1.5	15/17/15		25.0		~~40~~ % OF SAMPLE IS > LARGE GRAVEL (BROKEN) REST IS SAND W/ SILT, MG, LOOSE, OCCASIONAL ORG., CRUDE ~~SED~~ LAMINATION. SL DAMP
1.0/1.5	8/5/8		30.0		~35% > 1/4 GRAVEL REST IS GRAVELLY SAND SMALL GRAVELS & COARSE SAND DOWN TO SILT SIZE VERY MOIST @ 31'
1.0/1.5	13/14/11		35.0		AS ABOVE SATURATED AND VERY MOIST
"SOFT DRILLING"					
	8/7/8		40.0		40 - 40.5 10% GRAY SAND W/ SM-MED ROUNDED GRAVEL, ~~SED~~ SILT CHUNKS OF COAL MOSTLY MG SAND) 40.5 - 41 YELLOW BROWN ~~SAND~~ GRAVELLY SAND 50% ~~SATURATED~~, LOOSE
			45.0		NO SAMPLE
SOFT ROCK					41 - 45' - ROCK
1.0/1.5	8/20/18		50.0		BROKEN COBBLES / BOULDERS
					51 - 55 HARD ROCK
			55.0		T.D. NO SAMPLE

Geologic Log

EarthFax

PROJECT No.: _____ HOLE No.: 4

DATE BEGIN: 11/17 DATE END: _____

DRILLER: RAY LOGGER: JRH FIRST WATER AT: ~8'

Comments	Sample Method	Drilling Rate	Depth	Graphic Log	Lithologic Description
.9/1.5 Rock @ 8'		6/14/20	5.0		BROWN (7.5YR 4/3) SILTY SAND W/ GRAVEL & COBBLES, LOOSE SL DAMP COLOR GRADES LIGHTER @ 6' SATURATED ZONE BETWEEN 6.5 – 10' SEEPAGE
.8/1.5		34/38/27	10.0		GRAVELS AND COBBLES W/ SOME SAND LOOSE DRY
0.7/1.5 Hard @ 19'		15/8/6	15.0		BROWN AND DARK BROWN (7.5YR 4/3, 3/3) SILTY SAND W/ GRAVEL AND SOME COBBLES, DAMP, MOD DENSE, ORGANICS IN 2 SMALL LAMINATIONS
		11/21/24	20.0		AS ABOVE MATRIX W/ MORE GRAVELS & COBBLES ~70% ROCK IN SAMPLER
27' RCAC Hard Rx		13/17/16	25.0		AS ABOVE ~ 50% ROCK
1.3/1.5 BIG RX @ 32, 34		15/20/36	30.0		MOSTLY RX AND SILTY SAND MIX EXCEPT @ 31' 25' LAYER OF: OLIVE BROWN (2.5Y 4/3) SILT, STIFF, ORGANICS ALSO A CHUNK OF SHALE (PINK)
1.2/1.5		24/12/22	35.0		GRAVEL AND COBBLES W/ SOME SAND SATURATED AT 36', MED DENSE. SAMPLE TAKEN
1.0/1.5 EASY DRILLING		17/34/29	40.0		MOSTLY BROWN SS W/ WATER ON TOP NO SAMPLE
1.0/1.5		17/19/13	45.0		SOME SILT GRAVELLY SAND, GRAVELS <2" ~30% LOOSE, GOOD CLEAN WATER
1.0/1.5		14/15/23	50.0		SILTY SAND W/ SMALL GRAVEL AND OCCASIONAL LARGE GRAVEL, ORGANICS, FIRST TRACES ALLUVIAL LOOKING SAMPLE
1.1/1.5		10/31/22	55.0		AS ABOVE PLENTY OF ORGANICS Rock @ 57' REFUSAL @ 59' NO SAMPLE

Geologic Log

EarthFax

PROJECT No.: _____ HOLE No.: B #5

DATE BEGIN: 1/17 DATE END: _____

DRILLER: _____ LOGGER: JRH FIRST WATER AT: 8'

Comments	Sample Method	Drilling Rate	Depth	Graphic Log	Lithologic Description
1.0/1.5	2/2/4		5.0		DARK REDDISH BROWN (5YR 3/2) SANDY SILT SL. DAMP, ROOTS, SOFT W/ GRAVEL GRADES TO: YELLOWISH BROWN (10YR 5/4) SILTY SAND W/ GRAVEL " LOOSE, SL DAMP → WATER @ 8.0 " BOULDER @ 7.0 SOFT @ 8.0
	4/3/7		10.0		DARK GRAYISH BROWN (10YR 4/2) SILTY SAND TO SANDY SILT W/ OCCASIONAL GRAVEL 1" - 3" LARGER GRADATIONAL CONTACTS. ROOT. COBBLE @ 11.5 " BIG ROCK ~ 14'. LOTA GRAVEL, THOUGH"
.7/1.5	20/50 4"		15.0		YELLOWISH BROWN GRAVEL W/ SOME SAND DAMP
			20.0		" I THINK WE'RE IN BED RX!" WE'VE BEEN RX SINCE 15'" " NO, MAYBE A 5' BOULDER"
1.0/1.5					BROKEN SANDSTONE RX IN SAMPLER MAYBE SOME SAND TOO. NO LONGER LOOKS ALLUVIAL - COLLUVIA ~~NO SAMPLES TAKEN~~
	46/50 2.5"		25.0		REFUSAL @ 25'
					7.0 - 0 BENT 6.0 - 2.0 NATIVE 7.5 - 6.0 BENT 25 - 7.5' SAND
					5' - 0' PVC 25 - 5' 10 SLOT

Geologic Log

EarthFax

PROJECT No.: _____ HOLE No.: 6

DATE BEGIN: 11/18 DATE END: 11/18

DRILLER: RAT LOGGER: JRH FIRST WATER AT: —

Comments	Sample Method	Drilling Rate	Depth	Graphic Log	Lithologic Description
1.0/1.5		2/2/2	2.5		(5YR 3/3) DARK REDDISH BROWN SANDY SILT, SOFT - ROOTS, ORGANIC, TOP SOIL
					GRADES TO DARK REDDISH BROWN SILTY SAND MED DENSE, DAMP
1.0/1.5		4/6/6	7.5		NOW SAME SILTY SAND, DRY HARD/CEMENTED BIG ROOT OCCASIONAL LG GRAVEL
					~11' - BIG ROCK
			12.5		NO SAMPLE TAKEN - SOLID ROCK
					BOULDERS/COBBLE
1.0/1.5		9/15/16	17.5		YELLOWISH BROWN GRAVEL AND COBBLES W/ SAND LOOSE, SL DAMP. GRAVEL SUBROUND 80% > SM GRAVEL SAND MG
1.1/1.5		7/26/50/4.5"	22.5		AS ABOVE W/ 50% > SM GRAVEL SMALL CHUNKS OF COAL
1.2/1.5		19/35/35	27.5		AS ABOVE 60-70%
			30.0		REFUSED @ 30' IN THE HARDEST ROCK WE'VE ENCOUNTERED YET

Geologic Log

EarthFax

STATIC ≈ 34'

PROJECT No.: _____ HOLE No.: 6A

DATE BEGIN: 11/19 DATE END: _____

DRILLER: MIKE LOGGER: SAM FIRST WATER AT: ~37'

Comments	Sample Method	Drilling Rate	Depth	Graphic Log	Lithologic Description
.7/1.5	4/3/15		5.0		YELLOWISH BROWN (10YR 5/4) SILTY SAND W/ GRAVEL (SM) MOD ROUND GRAVEL 1/4 - 1/2" 10%, LOOSE SL DAMP
.8/1.5	5/4/6		10.0		SAME W/O THE SM. GRAVEL → OCCASIONAL LG GRAVEL ~5%
.7/1.5	6/12/6		15.0		LIGHT YELLOWISH BROWN (10YR 6/4) GRAVELLY SAND W/ SILT GRAVEL 1/2 - 2" ~30%, LOOSE, DRY
.9/1.5	11/14/17		20.0		BROWN (10YR 4/3) SANDY SILT AND COBBLES SOFT - FIRM, DAMP
.7/1.5	22/50 / 5.5"		25.0		YELLOWISH BROWN SAND W/ SUB ROUND SM GRAVEL (5%) AND BOULDER @ 26'
.9/1.5	12/41/28		30.0		SAME W/ LARGER GRAVELS AND SOME COBBLES 29' - START OF BOULDERS
			35.0		NO SAMPLE - SOLID RX
.7/1.5	6/25/20		40.0		BROKEN RX SATURATED
1.0/1.5	18/24/35		45.0		ROCKS W/ SAME SAND, LS CHUNK
	NO SAMPLE		50.0		ENTERED SHALE POINT @ ~50' 53' - T.D.

Geologic Log

EarthFax

PROJECT No.: _____ HOLE No.: 7

DATE BEGIN: 11/18 DATE END: _____

DRILLER: RAY LOGGER: JRH FIRST WATER AT: _____

Comments	Sample Method / Drilling Rate	Depth	Graphic Log	USCS	Lithologic Description
1.3/1.5	4/6/9	5.0			DARK GRAY SILT W/ V.F. SAND, SOFT/FIRM DAMP, ROOTS @ 6" GRADES TO YELLOWISH BROWN SILTY SAND W/ GRAVEL - LOOSE, SL DAMP GRAVELS 1/4 - 1" 20%
	4/3/4	10.0			LIGHT YELLOWISH BROWN (10YR 6/4) FINE SAND W/ SILT SL DAMP, MED. DENSE, SOME ORGANICS (LOAM)
.8/1.5	7/35/30	15.0			BROKEN RX MOSTLY COBBLE SIZED
.8/1.5	15/14/20	20.0			"
.9/1.5	7/9/15	25.0			1" LAYER OF LIGHT GRAY FINE SAND W/ GRAVEL THE REST IS BROKEN COBBLES
	11/6/7	30.0			BIG ROCK STARTS @ ~28' NO SAMPLE IN HARD ROCK EASIER DRILLING AFTER 33'
.8/1.5		35.0			BROKEN RX AND 3" LAYER OF GRAY SILTY SAND, VERY MOIST (CAPILLARY)
.8/1.5	27/25/20	40.0			BROKEN ROCKS SATURATED
	50/4"	45.0			A FEW BROKEN ROCK SHARDS
		50.0			STILL IN ROCK - THAT'S QUITE ENOUGH

NOTICE OF INTENTION TO CONDUCT HYDROLOGIC INVESTIGATION RIGHT FORK OF RILDA CANYON and MILL FORK CANYON

PHOTOS

Rilda and Mill Fork canyons

May 2005

PacifiCorp

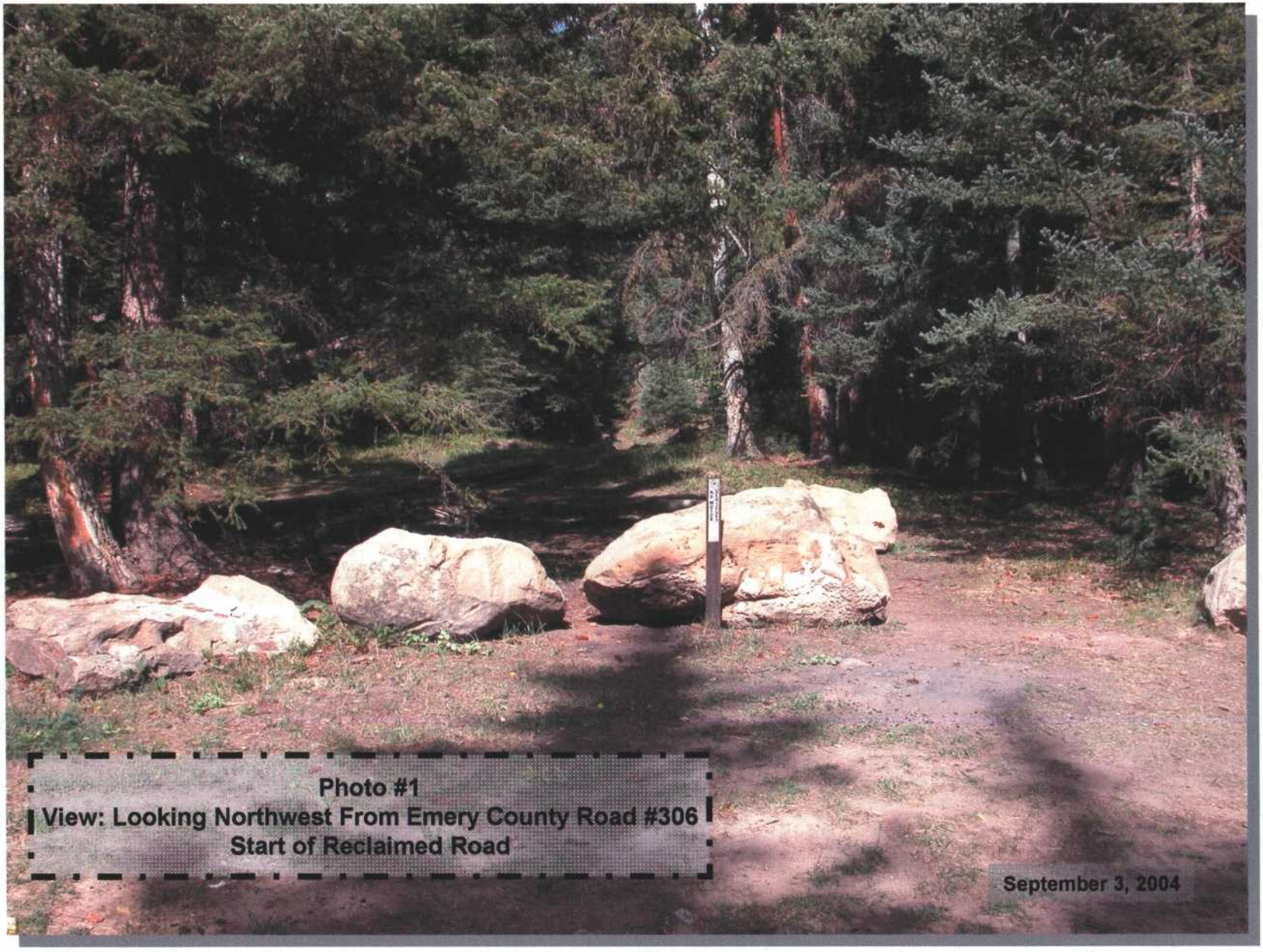
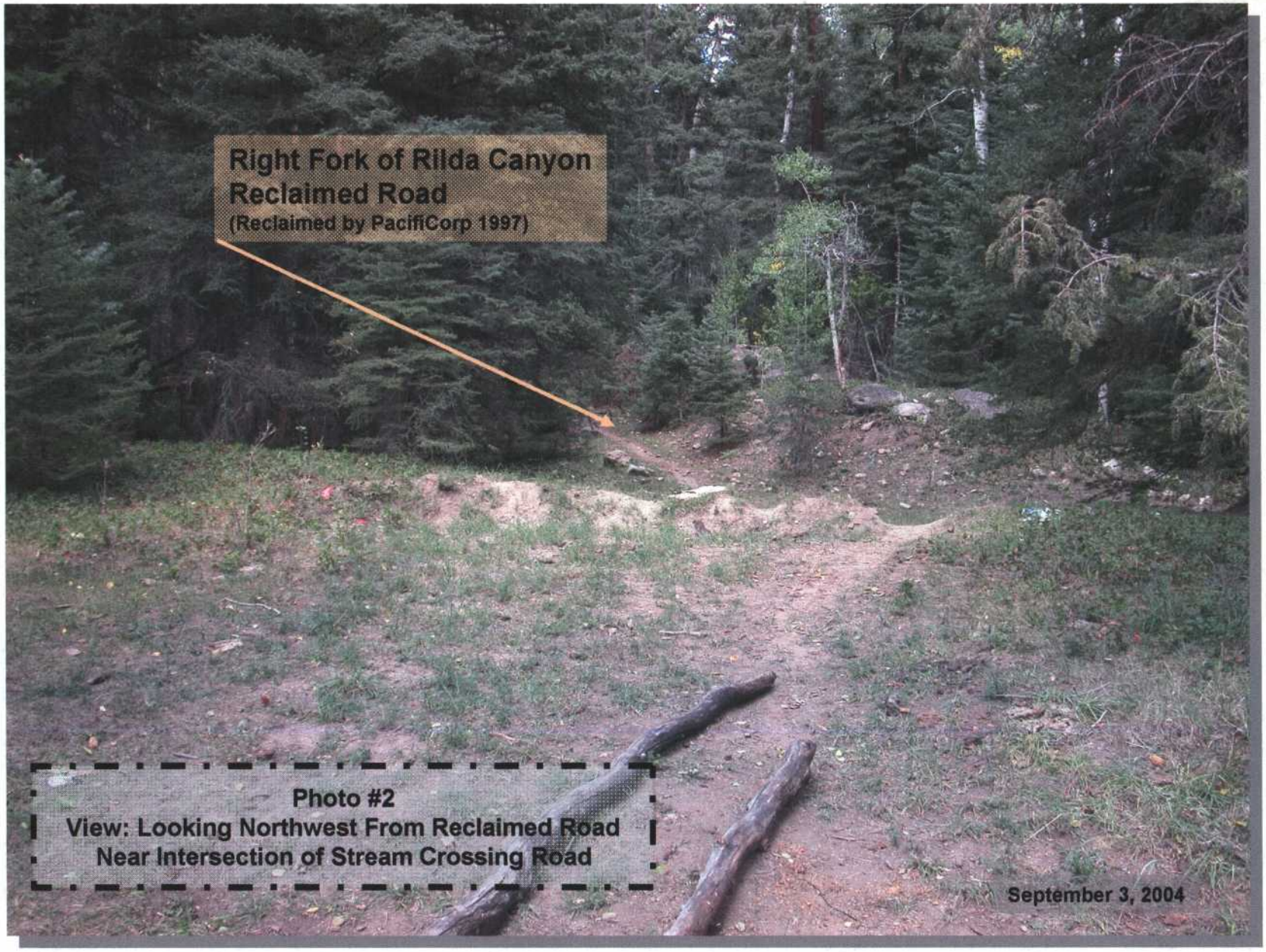
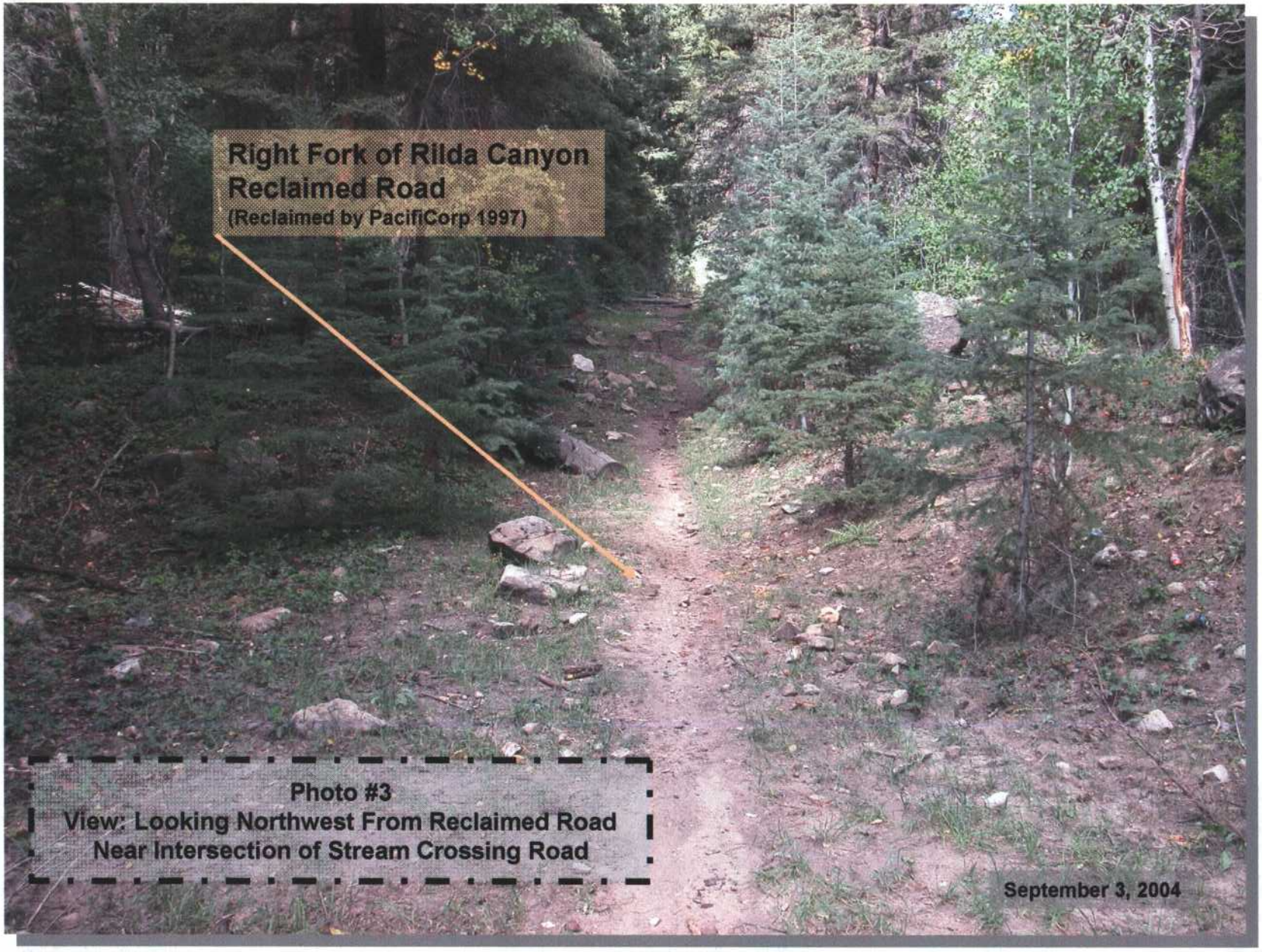
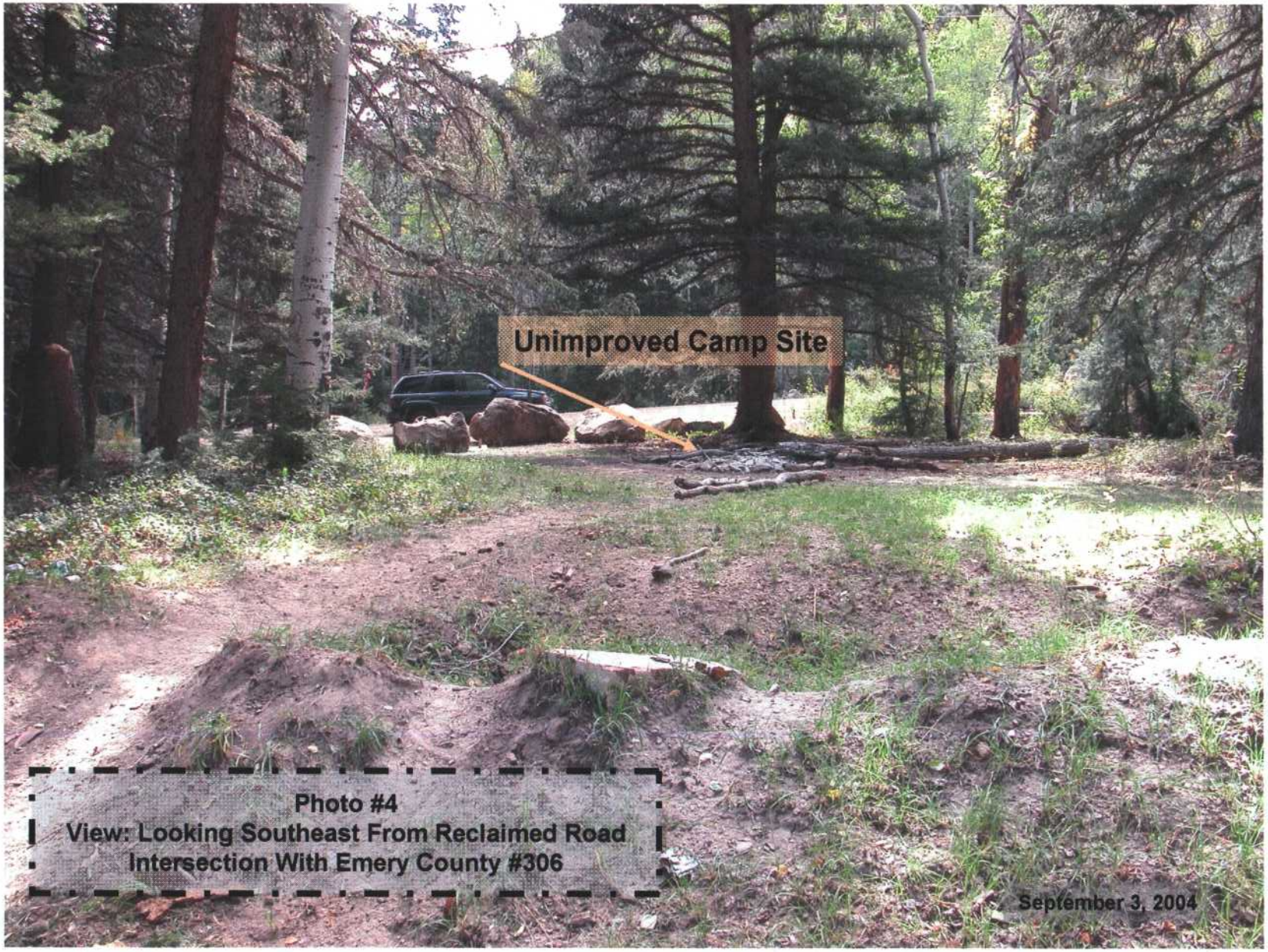
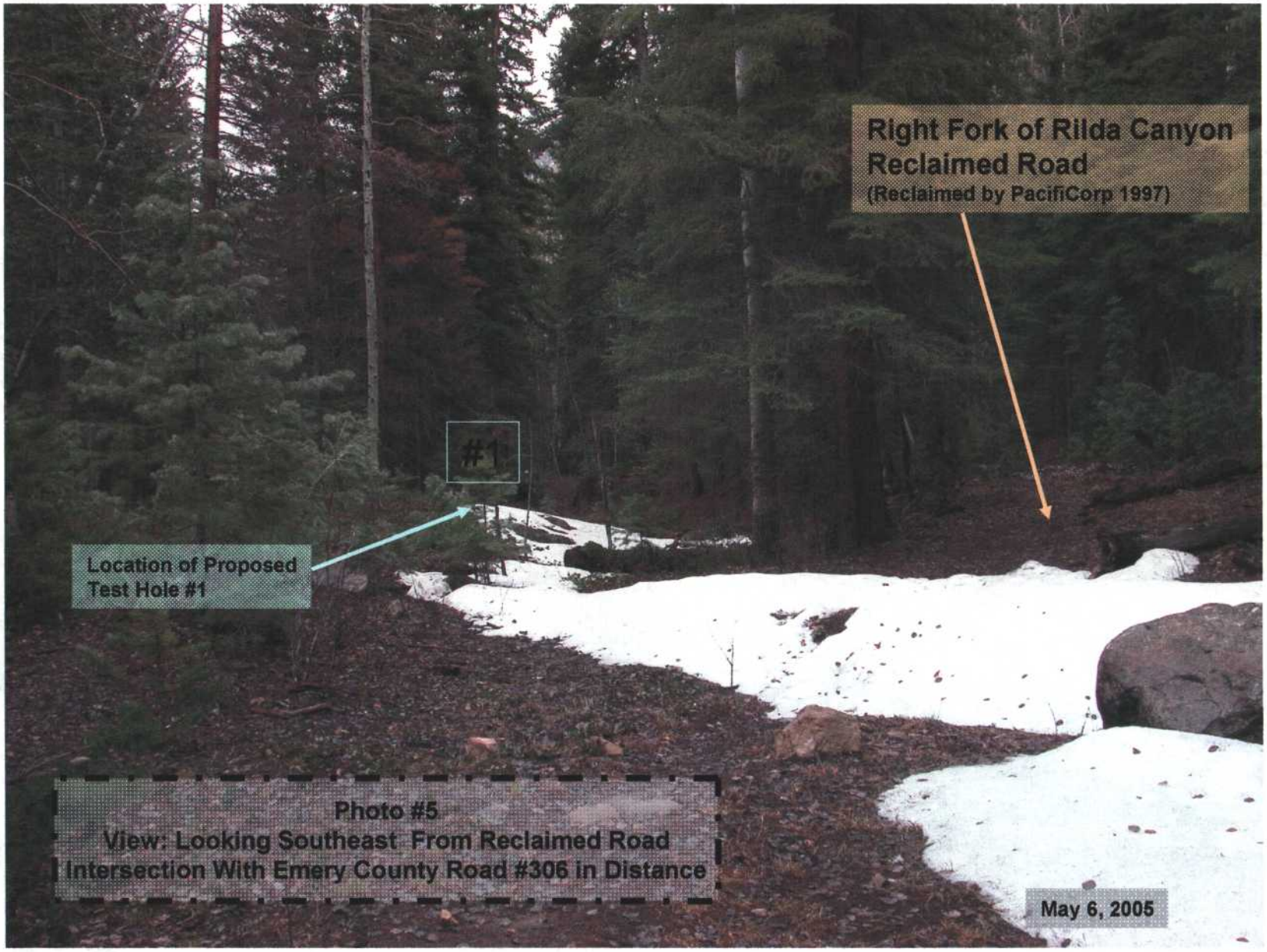


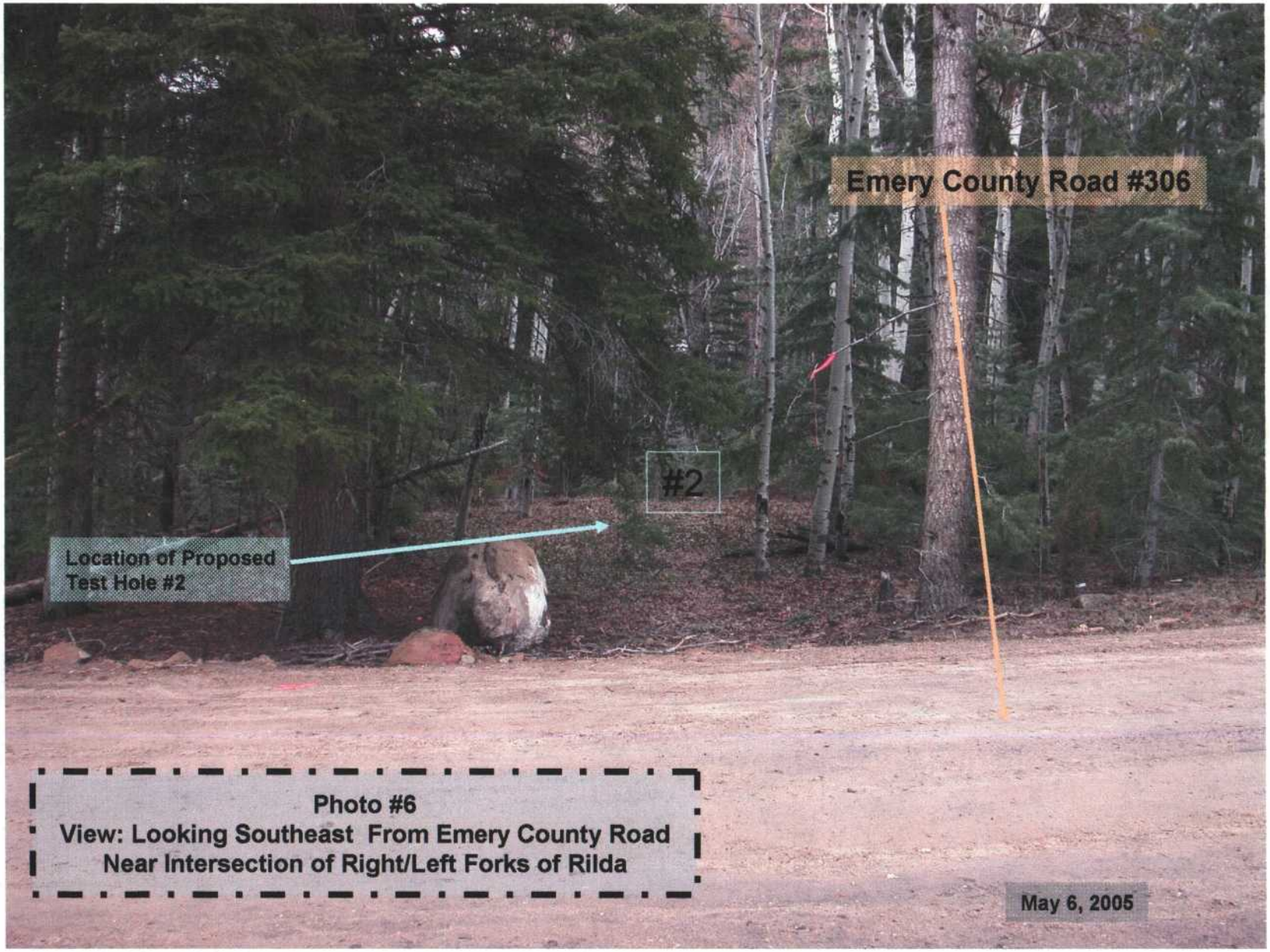
Photo #1
View: Looking Northwest From Emery County Road #306
Start of Reclaimed Road
September 3, 2004

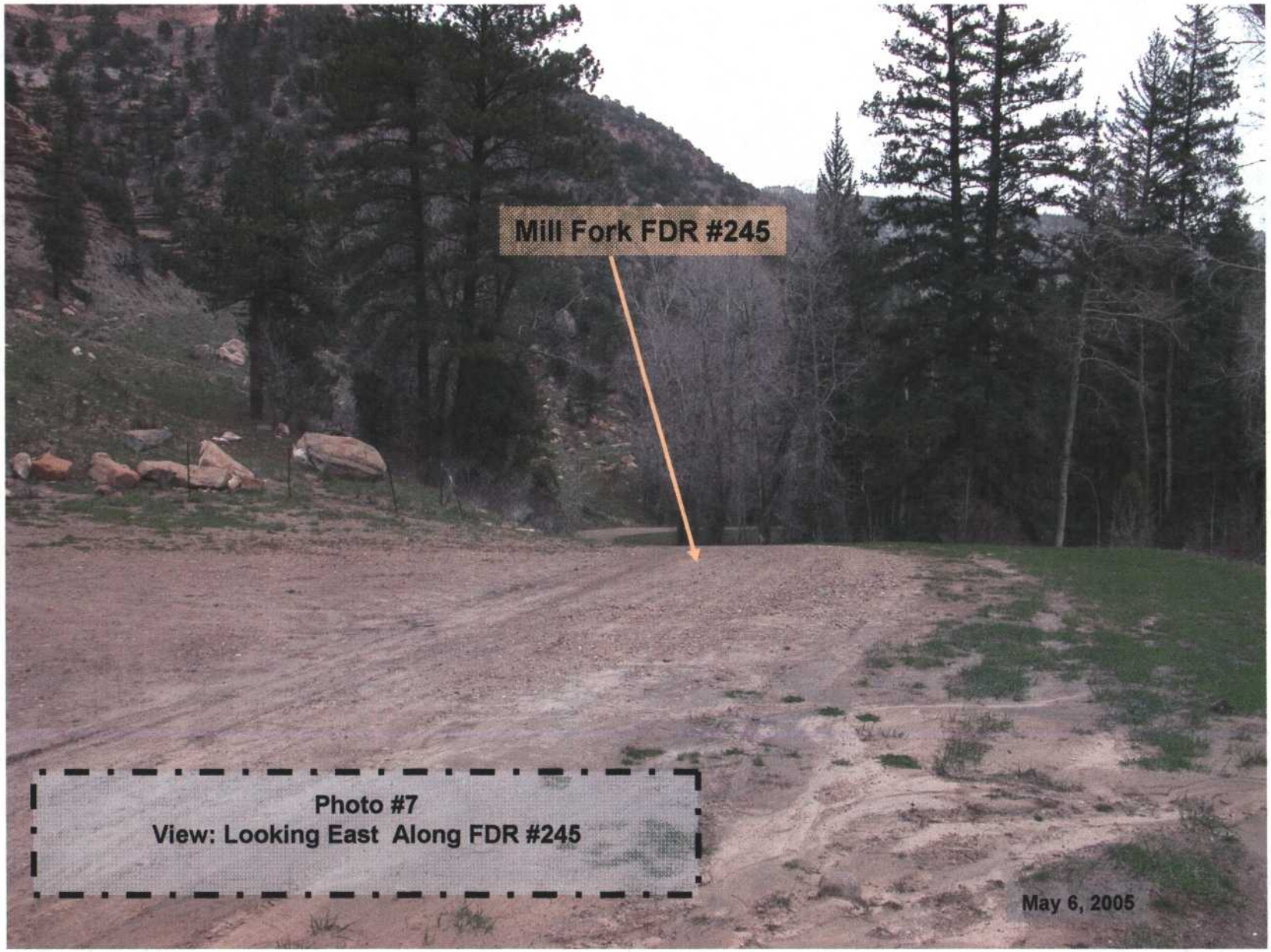

Right Fork of Rilda Canyon
Reclaimed Road
(Reclaimed by PacifiCorp 1997)
Photo #2
View: Looking Northwest From Reclaimed Road
Near Intersection of Stream Crossing Road
September 3, 2004

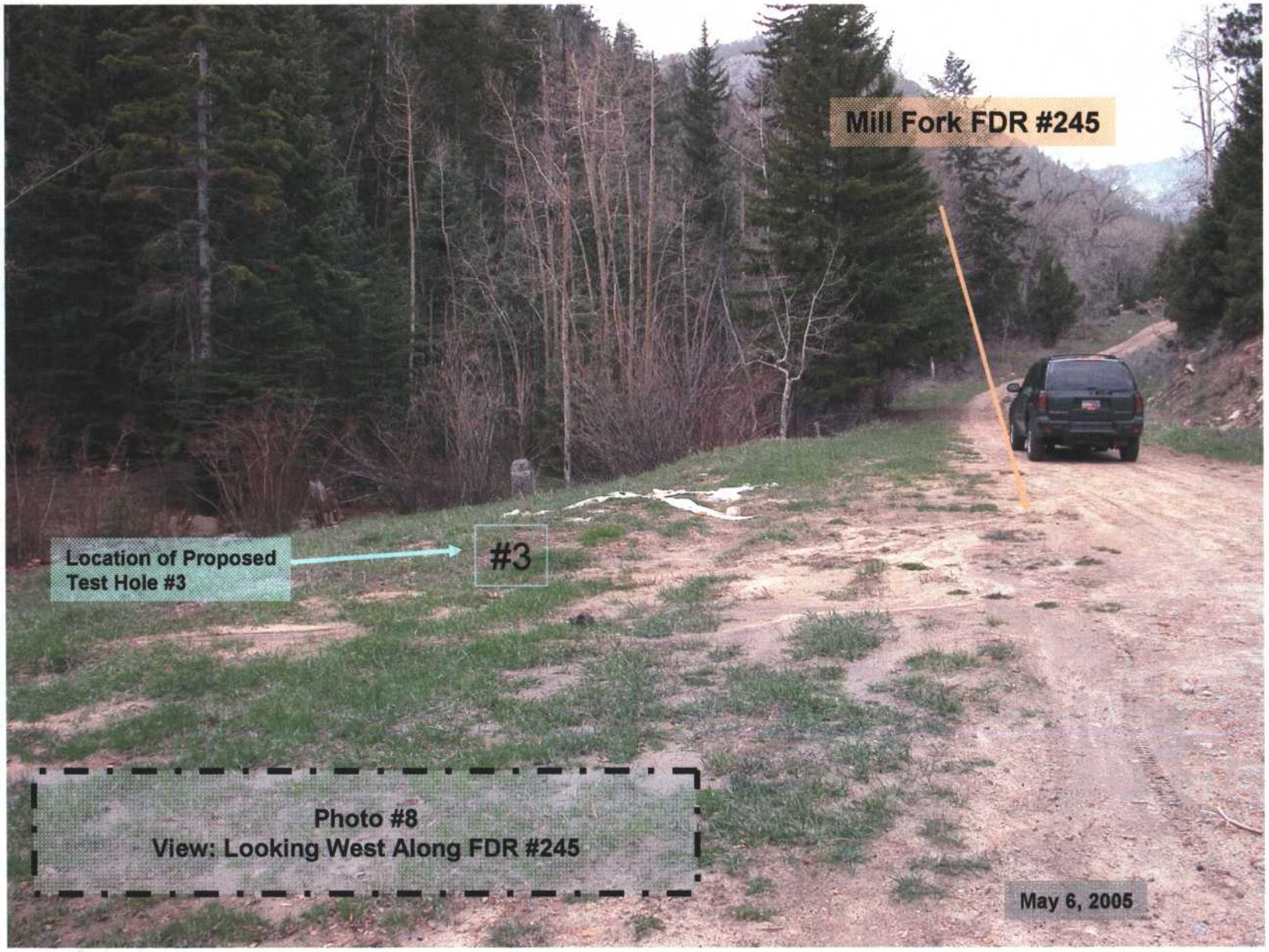

Right Fork of Rilda Canyon
Reclaimed Road
(Reclaimed by PacifiCorp 1997)
Photo #3
View: Looking Northwest From Reclaimed Road
Near Intersection of Stream Crossing Road
September 3, 2004

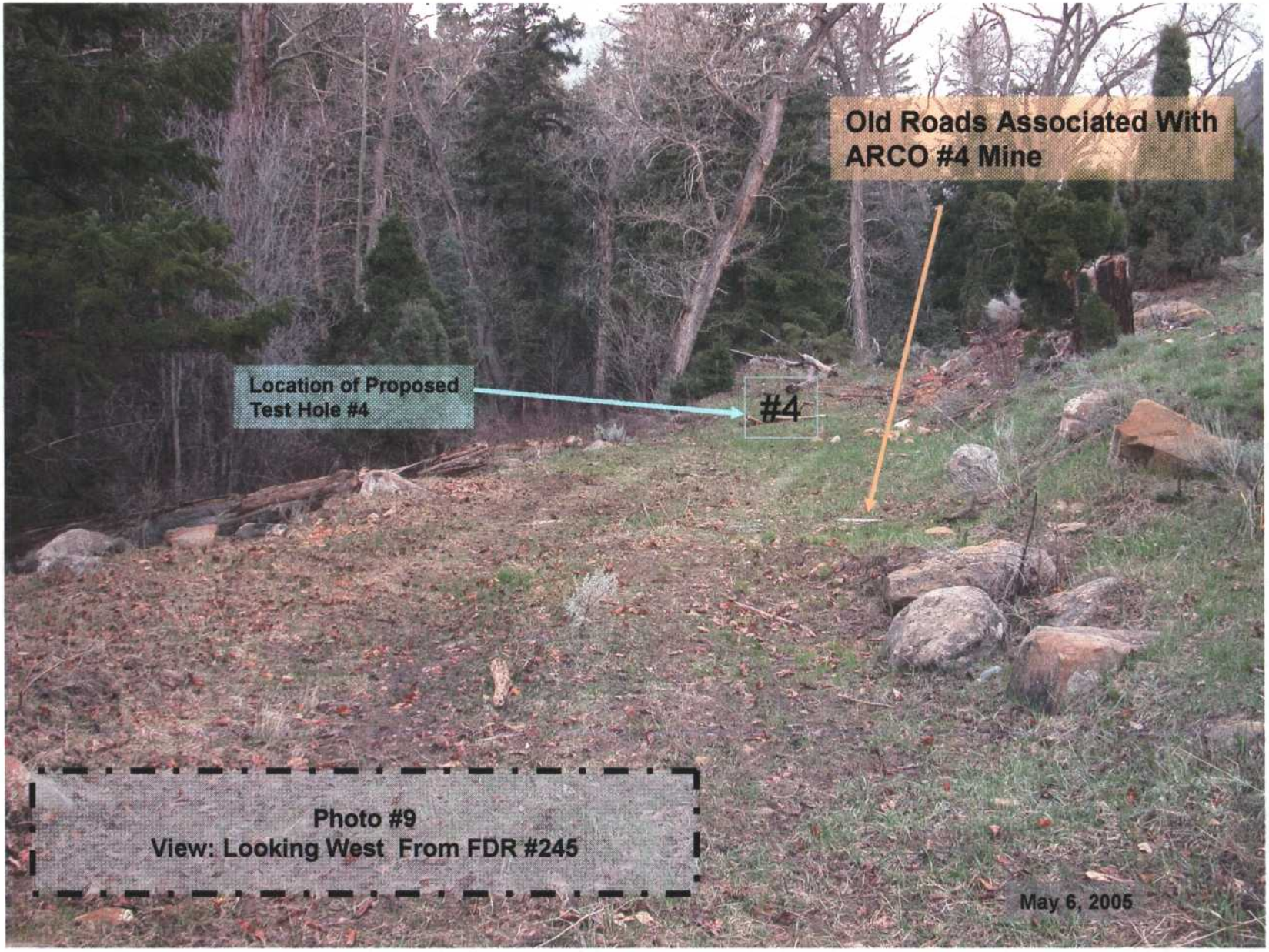

Unimproved Camp Site
Photo #4
View: Looking Southeast From Reclaimed Road
Intersection With Emery County #306
September 3, 2004


Right Fork of Rilda Canyon
Reclaimed Road
(Reclaimed by PacifiCorp 1997)
#1
Location of Proposed
Test Hole #1
Photo #5
View: Looking Southeast From Reclaimed Road
Intersection With Emery County Road #306 in Distance
May 6, 2005


Emery County Road #306
#2
Location of Proposed
Test Hole #2
Photo #6
View: Looking Southeast From Emery County Road
Near Intersection of Right/Left Forks of Rilda
May 6, 2005


Mill Fork FDR #245
Photo #7
View: Looking East Along FDR #245
May 6, 2005


Mill Fork FDR #245
Location of Proposed
Test Hole #3
#3
Photo #8
View: Looking West Along FDR #245
May 6, 2005


Old Roads Associated With
ARCO #4 Mine
Location of Proposed
Test Hole #4
#4
Photo #9
View: Looking West From FDR #245
May 6, 2005

NOTICE OF INTENTION TO CONDUCT
HYDROLOGIC INVESTIGATION
RIGHT FORK OF RILDA CANYON
and
MILL FORK CANYON

MAPS

RIGHT FORK OF RILDA CANYON

PROPOSED PORTAL FACILITY BOUNDARY

7725

PROPOSED SPRING COLLECTION STUDY AREA

EMERY COUNTY ROAD 306

OLD ROAD

OLD ROAD

CULVERT

RILDA CREEK

7800

7875

25 KV POWERLINE

LEFT FORK OF RILDA CANYON

Federal Coal Lease
U-06039

LEGEND

PHOTO #1

DIRECTION OF VIEW 1 PHOTO LOCATION

CAD FILE NAME/DISK#: 2005 PHOTOS AND MAPS\MAP 1.DWG

ENERGY WEST
MINING COMPANY
HUNTINGTON, UTAH 84528

DEER CREEK MINE
RILDA CANYON HYDROLOGIC INVESTIGATION
GENERAL LOCATION MAP

DRAWN BY:	K. LARSEN	MAP 1	
SCALE:	1"=60'	DRAWING #:	
DATE:	MAY 26, 2005	SHEET 1 OF 1	REV. ___

Dick N. & Quinevere A. Nielson

Beaver Creek Coal Company

U.S. National Forest

7500

7400

EMERY COUNTY ROAD 245

MILL FORK CREEK

9 8 7

LEGEND

PHOTO #1

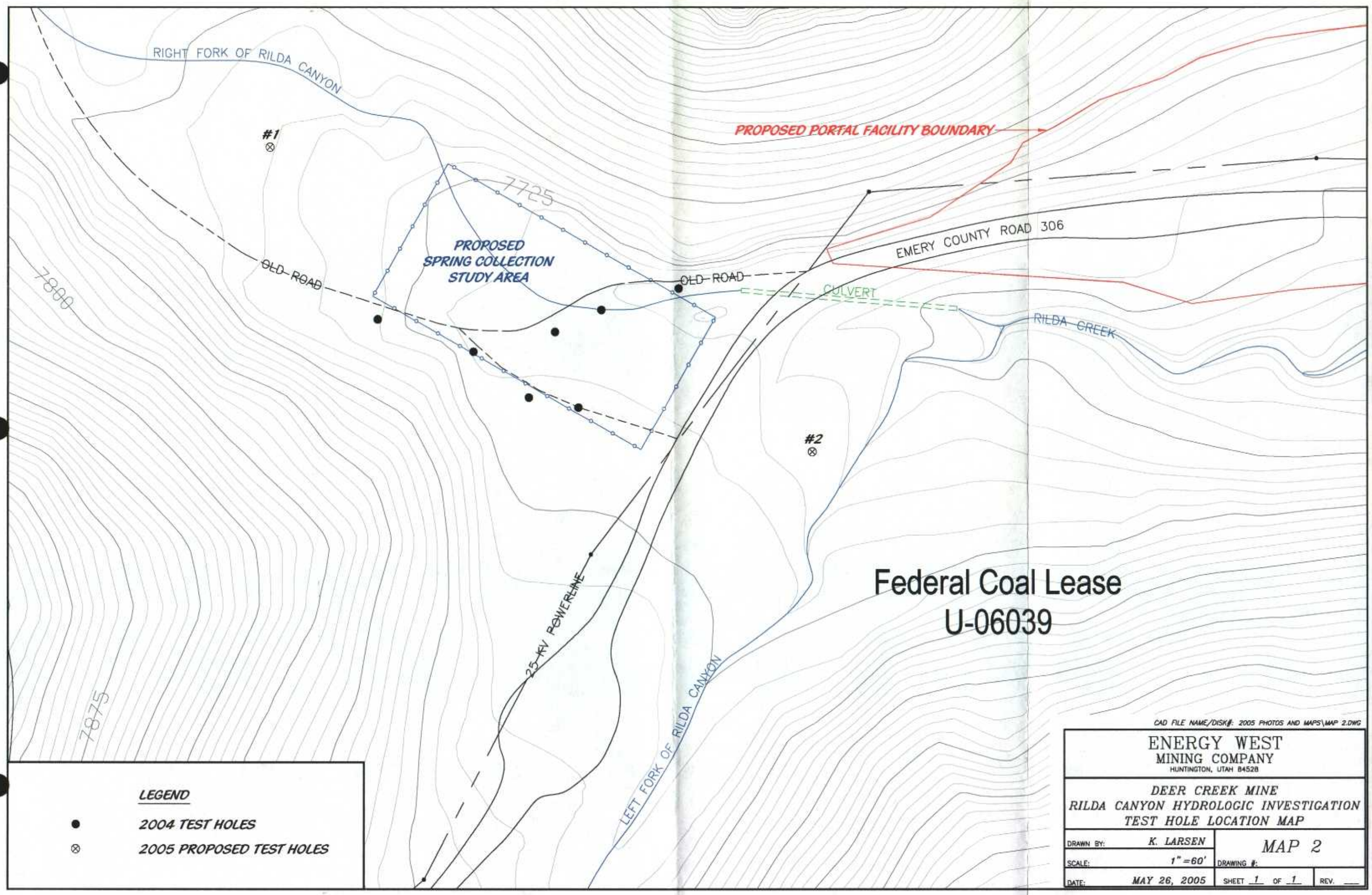
DIRECTION OF VIEW 7 PHOTO LOCATION

CAD FILE NAME/DISK#: 2005 PHOTOS AND MAPS\MAP 1A.DWG

ENERGY WEST
MINING COMPANY
HUNTINGTON, UTAH 84528

DEER CREEK MINE
MILL FORK CANYON HYDROLOGIC INVESTIGATION
GENERAL LOCATION MAP

DRAWN BY:	K. LARSEN	MAP 1A	
SCALE:	1"=60'	DRAWING #:	
DATE:	MAY 26, 2005	SHEET 1 OF 1	REV. ___


RIGHT FORK OF RILDA CANYON
#1
7725
PROPOSED SPRING COLLECTION STUDY AREA
OLD ROAD
7800
PROPOSED PORTAL FACILITY BOUNDARY
EMERY COUNTY ROAD 306
OLD ROAD
CULVERT
RILDA CREEK
#2
25 KV POWERLINE
LEFT FORK OF RILDA CANYON
7875
LEGEND
2004 TEST HOLES
2005 PROPOSED TEST HOLES
Federal Coal Lease
U-06039
CAD FILE NAME/DISK#: 2005 PHOTOS AND MAPS\MAP 2.DWG
ENERGY WEST
MINING COMPANY
HUNTINGTON, UTAH 84528
DEER CREEK MINE
RILDA CANYON HYDROLOGIC INVESTIGATION
TEST HOLE LOCATION MAP
DRAWN BY: K. LARSEN
SCALE: 1"=60'
DATE: MAY 26, 2005
MAP 2
DRAWING #:
SHEET 1 OF 1
REV.

Dick N. & Quinevere A. Nielson

Beaver Creek Coal Company

7500

7500

7400

EMERY COUNTY ROAD 245

#4

#3

MILL FORK CREEK

7400

U.S. National Forest

7500

LEGEND

⊗ 2005 PROPOSED TEST HOLES

CAD FILE NAME/DISK#: 2005 PHOTOS AND MAPS\MAP 2A.DWG

ENERGY WEST
MINING COMPANY
HUNTINGTON, UTAH 84528

DEER CREEK MINE
MILL FORK CANYON HYDROLOGIC INVESTIGATION
TEST HOLE LOCATION MAP

DRAWN BY: K. LARSEN		MAP 2A
SCALE: 1"=60'	DRAWING #:	
DATE: MAY 26, 2005	SHEET 1 OF 1	REV. ___

RIGHT FORK OF RILDA CANYON

Hiawatha Sub-Crop

Hiawatha Outcrop

Blind Canyon Outcrop

OLD ROAD

PROPOSED SPRING COLLECTION STUDY AREA

EMERY COUNTY ROAD 306

CULVERT

RILDA CREEK

LEFT FORK OF RILDA CANYON

7900

7750

7700

7750

7800

Qc

Qal

Kms

Ksp

LEGEND

Qc *Quaternary Colluvium Deposits and slopewash material consists of sandy gravel with varying amounts of silt and clay with gravel, including sandstone boulders and blocks of varying thickness, transported by gravity*

Qal *Quaternary Alluvium Deposits material consists of silt, sand, gravel with varying amounts of clay deposited as the result of water transport.*

Kbl *Cretaceous Blackhawk Formation consists of alternating mudstones, siltstones, sandstones, and coal. Although coal beds are generally found throughout the Blackhawk Formation, the thickest economically mineable seams are restricted to the lower 150 feet of the formation. The sandstone contained within the Blackhawk Formation is mostly fluvial stream channel deposits and increase in number in the upper portions of the formation. The total thickness of the Blackhawk Formation in the East Mountain area is about 750 feet.*

Ksp *Cretaceous Star Point Sandstone usually consists of three prominent massive cliff-forming beach-front sandstones totaling about 400 feet in thickness. These sandstone "tongues" are named from bottom to top: the Panther, The Storrs, and the Spring Canyon. In between the three tongues are beds of Masuk Shale. The intertonguing of the Star Point and Masuk shale represents three transgression/regression episodes along the shoreline of the Cretaceous Interior seaway. The upper contact of the Star Point Sandstone is usually abrupt and readily identifiable on outcrops.*

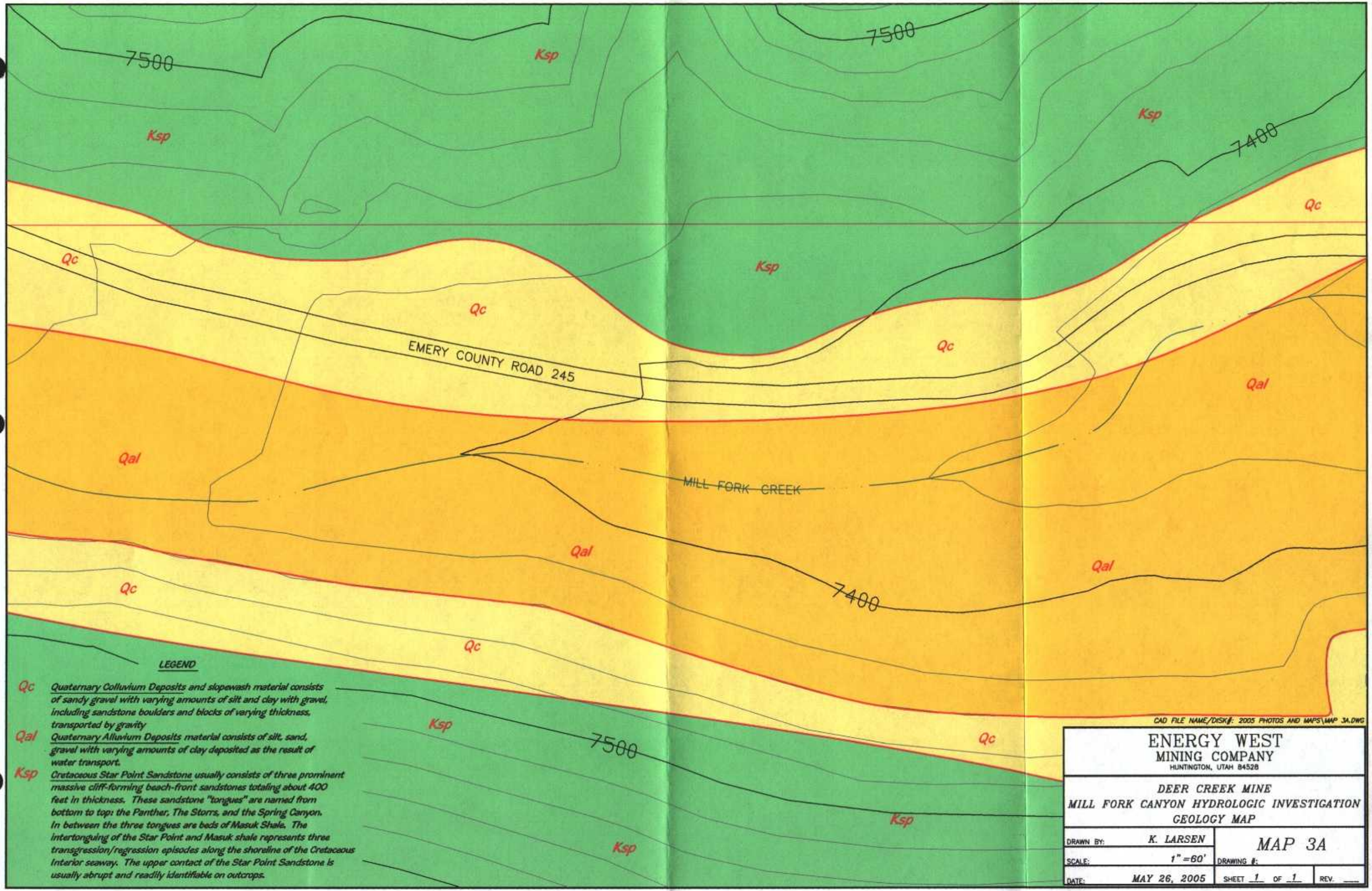
Kms *Cretaceous Mancos Shale: Masuk Shale Member; shale, gray, soft, slope former.*

CAD FILE NAME/DISK#: 2005 PHOTOS AND MAPS\MAP 3.DWG

ENERGY WEST
MINING COMPANY
HUNTINGTON, UTAH 84528

DEER CREEK MINE
RILDA CANYON HYDROLOGIC INVESTIGATION
GEOLOGY MAP

DRAWN BY:	K. LARSEN	MAP 3	
SCALE:	1" =60'	DRAWING #:	
DATE:	MAY 26, 2005	SHEET 1 OF 1	REV. ___



CAD FILE NAME/DISK#: 2005 PHOTOS AND MAPS\MAP 3A.DWG

ENERGY WEST
MINING COMPANY
HUNTINGTON, UTAH 84528

DEER CREEK MINE
MILL FORK CANYON HYDROLOGIC INVESTIGATION
GEOLOGY MAP

DRAWN BY:	K. LARSEN	MAP 3A	
SCALE:	1" = 60'	DRAWING #:	
DATE:	MAY 26, 2005	SHEET 1 OF 1	REV. ___

LEGEND

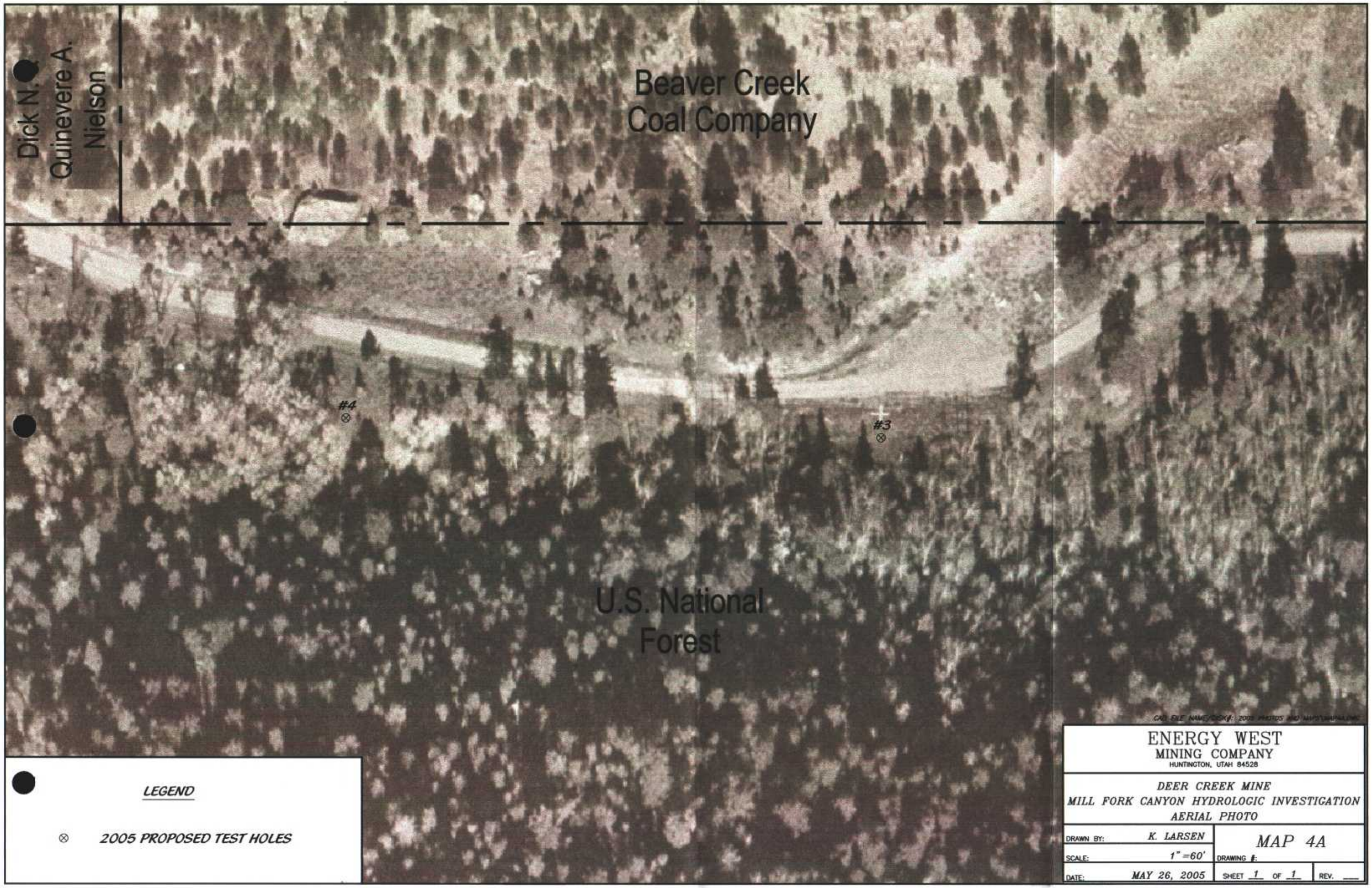
- 2004 TEST HOLES
- ⊗ 2005 PROPOSED TEST HOLES

CAD FILE NAME/DISK#: 2005 PROJECTS AND MAPS\MAP 4.DWG

ENERGY WEST
MINING COMPANY
HUNTINGTON, UTAH 84528

DEER CREEK MINE
RILDA CANYON HYDROLOGIC INVESTIGATION
AERIAL PHOTO

DRAWN BY:	K. LARSEN	MAP 4	
SCALE:	1" =60'	DRAWING #:	
DATE:	MAY 26, 2005	SHEET 1 OF 1	REV. ___



LEGEND

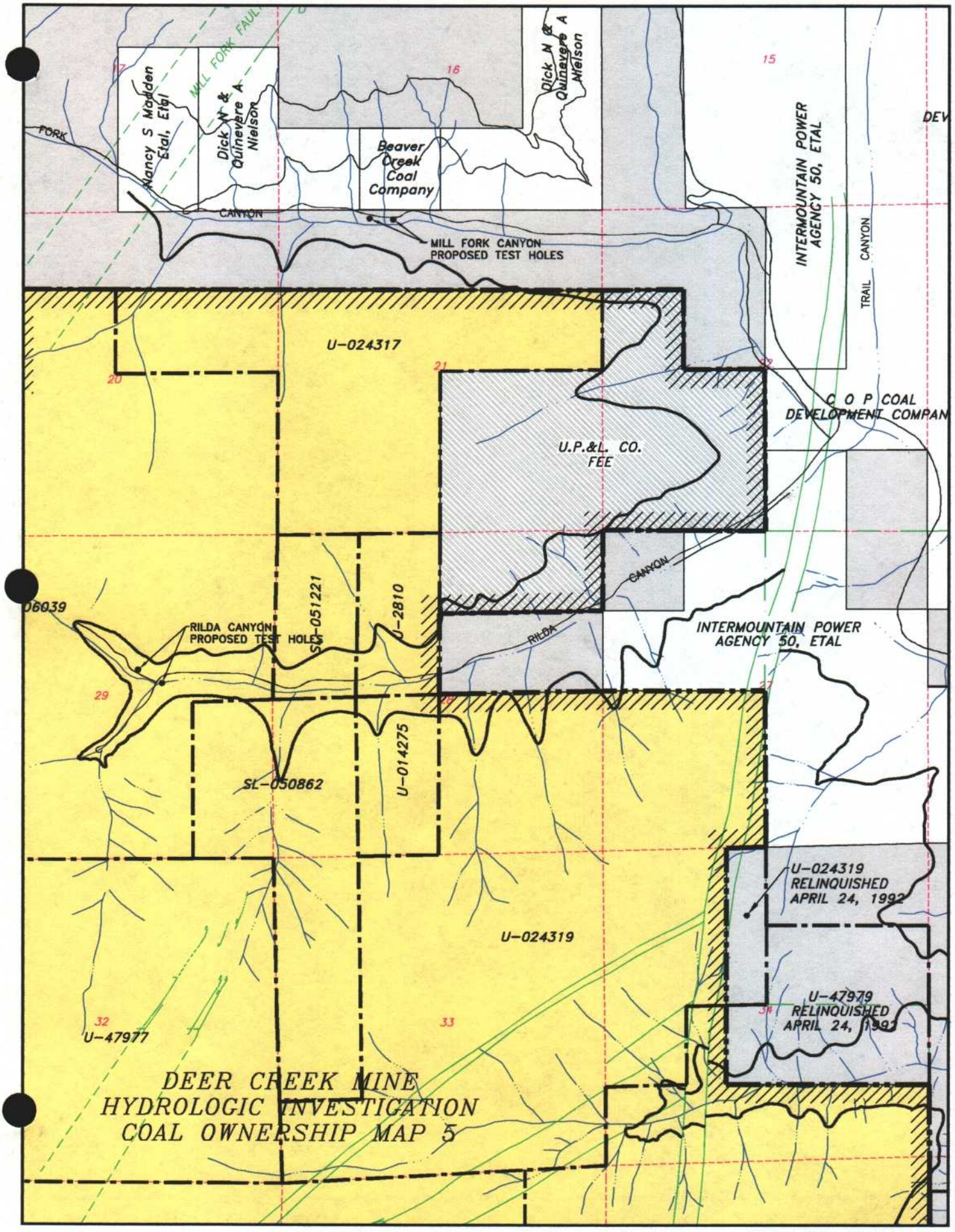
⊗ *2005 PROPOSED TEST HOLES*

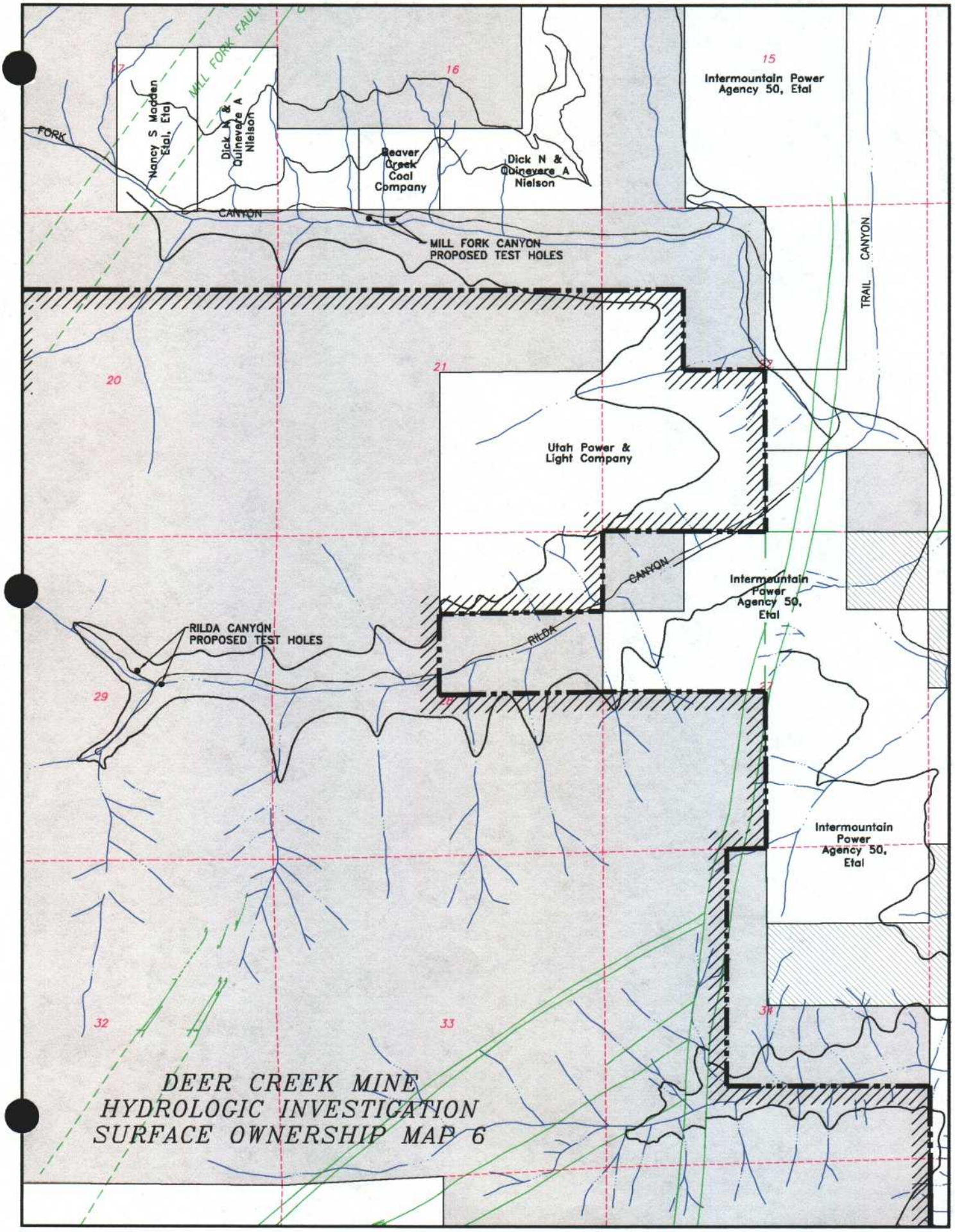
CAD FILE NAME/DISK #: 2005 PHOTOS AND MAPS\MAP4A.DWG

ENERGY WEST
MINING COMPANY
HUNTINGTON, UTAH 84528

DEER CREEK MINE
MILL FORK CANYON HYDROLOGIC INVESTIGATION
AERIAL PHOTO

DRAWN BY:	*K. LARSEN*	*MAP 4A*	
SCALE:	*1" =60'*	DRAWING #:	
DATE:	*MAY 26, 2005*	SHEET 1 OF 1	REV. ___


MILL FORK FAULT
Nancy S Madden Etal, Etal
Dick N & Quinevere A Nielson
Beaver Creek Coal Company
Dick N & Quinevere A Nielson
INTERMOUNTAIN POWER AGENCY 50, ETAL
TRAIL CANYON
FORK
CANYON
MILL FORK CANYON PROPOSED TEST HOLES
U-024317
C O P COAL DEVELOPMENT COMPAN
U.P.&L. CO. FEE
CANYON
RILDA
INTERMOUNTAIN POWER AGENCY 50, ETAL
RILDA CANYON PROPOSED TEST HOLES
SL-051221
U-2810
U-014275
SL-050862
U-024319 RELINQUISHED APRIL 24, 1992
U-024319
U-47979 RELINQUISHED APRIL 24, 1992
U-47977
DEER CREEK MINE
HYDROLOGIC INVESTIGATION
COAL OWNERSHIP MAP 5



DEER CREEK MINE
HYDROLOGIC INVESTIGATION
SURFACE OWNERSHIP MAP 6