0057

INCOMING
C0411 0002

Canyon Fuel Company, LLC
SUFCO Mine
397 South 800 West
Salina, UT 84654
(435) 286-4880 Fax: (435) 286-4499

October 10, 2003

Forest Supervisor
Manti LaSal National Forest
599 West Price River Road
Price, UT 84501

Re: Elusive Peacock shelter floor support plan

Dear Supervisor:

A cribbing plan has been designed to keep the floor of the Elusive Peacock shelter intact while it is undermined. This will be accomplished by installation of cribs in the underlying alcove. In addition, a non- permeable liner will be spread across the shelter floor.

We plan to use a helicopter with a 200-foot drop line to transport cribs into the opening directly in front of the lower alcove. The helicopter can pick up bundles of cribs directly off flatbed trailers which would be parked near existing drill site 03-12-2. It is estimated that two semi's with flatbeds will be required to transport the cribs to the site. Our existing road use permit, number 0410-02-8, for the current drilling project covers Forest System Roads 007, 044 and 028. This permit should suffice for transport of the cribs. The helicopter is scheduled for Friday October 17th. It should take about one half day to helicopter the cribs to the site. Setting the cribs should be completed in 2 or 3 days with a four man crew.

There is an area of deadfall in front of the alcove that can be used to stage the cribs. A crew will hand carry the individual blocks from there into the alcove and set them. The floor of the lower alcove is covered with mud. The mud must be excavated to bedrock before cribs can be built. Plywood sheets (4' x 8') will be laid down on top of the muddy areas as much as possible to allow easier access to the crib area. A collective agreement will be arranged to pay for a Forest archeologist to observe the shoveling of the mud floor.

Even though the cribbing support is designed to keep the shelter floor intact, it is not intended to support the entire roof area of the lower alcove. Some spalling of rock is expected in unsupported areas. We expect that the cribbing will not be removed after mining is completed due to safety concerns.

We would like to discuss with you the use of an existing double track road to deliver the crews from Forest System Road 028 to a spot near the worksite. This double track road is

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OCT 17 2003
DIV. OF OIL, GAS & MINING

well established and is used to access a spring in the East Fork of Box Canyon by cattlemen and Forest personnel. We have been informed that the track is not within the Forest Road System. However, if the mine could use the double track road for this season, we would commit to reclaiming it next summer. Reclamation would consist of ripping, seeding and the construction of soil barriers at both ends of the track.

If you have any questions regarding this road-use permit modification, please give me a call at (435) 286-4400. I would certainly like to discuss the use of the double track road near the Elusive Peacock shelter.

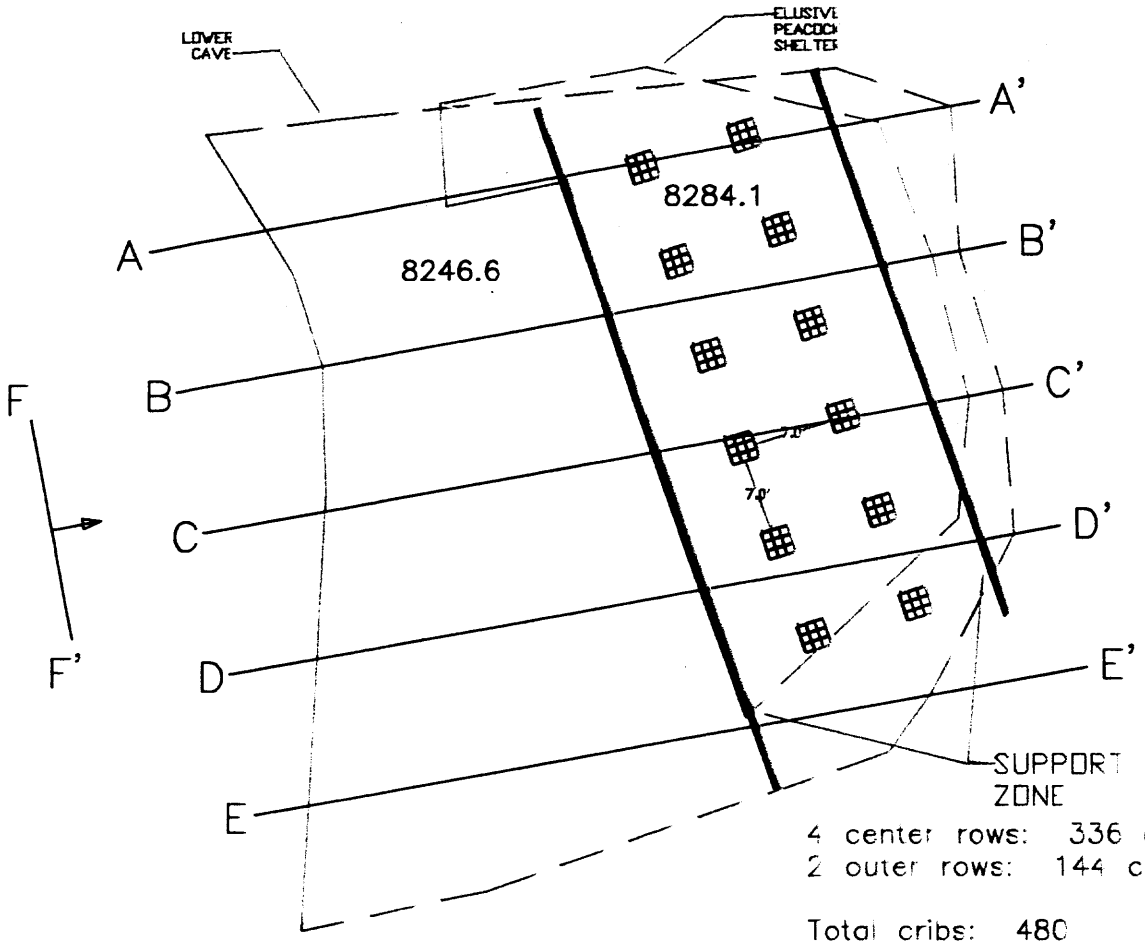
Sincerely,
CANYON FUEL COMPANY, LLC
SUFCO Mine

Kenneth E. May
Mine Manager

KEM:kb

cc: Division of Oil, Gas & Mining

SUFPUB\GOVT2003\USFS\EPsheltersupport



4 center rows: 336 cribs
2 outer rows: 144 cribs

Total cribs: 480
At 12' high, 4 center rows,
10' high, two outer rows
3 cribs/layer
cribs:10"x10"x36"

PLAN VIEW

REVISIONS OR UP-DATES			DATE 08/17/2003	
NO.	DATE	BY	DESIGNED BY:	
			DRAWN BY:	Mitchell
			CHECKED BY:	INITIALS
			SCALE 1" = 20'	

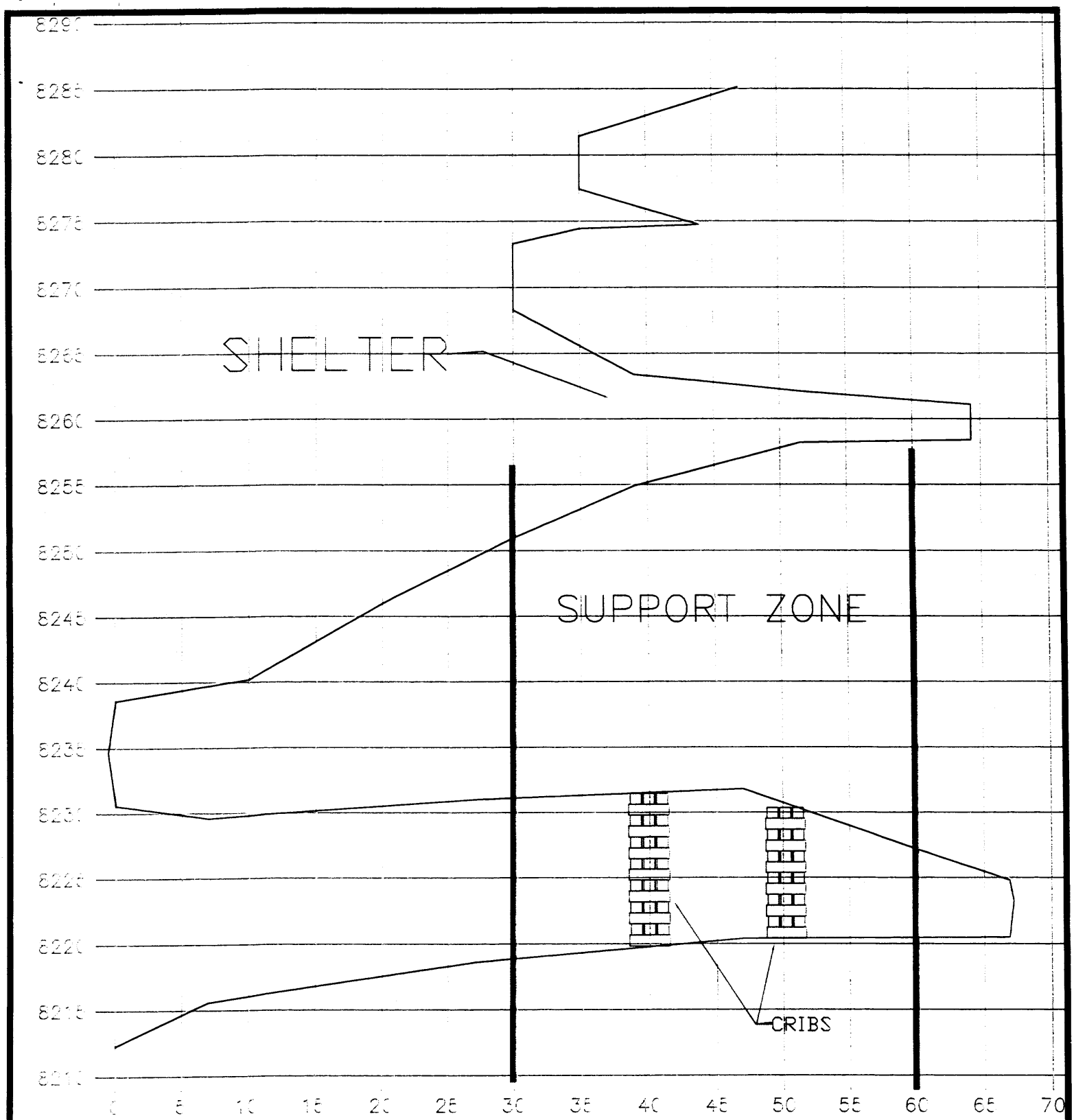
Canyon Fuel Company, LLC
SUFCO Mine

CRIB PLAN
ELUSIVE PEACOCK SHELTER

397 SOUTH 800 WEST
SALINA, UTAH 84654

DRAWING OR MAP NUMBER

0 10'



SECTION B – B'

REVISIONS OR UP-DATES			DATE: 09/17/2003	
NO.	DATE	BY	DESIGNED BY:	
			DRAWN BY:	MBunnell
			CHECKED BY:	INITIALS
			SCALE: 1" = 10'	

Canyon Fuel Company, LLC
SUFCO Mine

CRIB PLAN PROFILE
ELUSIVE PEACOCK SHELTER

397 SOUTH 800 WEST
SALINA, UTAH 84654

DRAWING OR MAP NUMBER:

FILENAME: H:\DRAWINGS\MAPSURF\EAST FORK BOX\ElusivePeacockCRIBPLAN.dwg

0 10'

ELUSIVE PEACOCK SHELTER
WOOD CRIB SUPPORT PLAN
M. BUNNELL 9/03

DESIGN METHOD: WOODCRIB VERSION 1.1. T. BARCZAK. 1994. U.S.B.M.

CRIB: 3 TIMBERS/LAYER
10" X 10" X 36" TIMBER

***** FORCE AND DISPLACEMENT CRITERIA FOR DETACHED BLOCK *****

***** INPUT DATA *****

FAILURE HEIGHT, ft..... 25
ENTRY WIDTH, ft..... 25
ROOF ROCK DENSITY, lbs/cu. ft.... 150

***** CRIB DESIGN CRITERIA *****

FORCE ASSUMING SHEAR FAILURE AT PILLAR, tons/ft..... [illegible]
FORCE ASSUMING ARCH FAILURE, tons/ft..... [illegible]
ALLOWABLE ENTRY CLOSURE -- DISPLACEMENT inches..... [illegible]

ENTER 'Y' TO CONTINUE OR 'N' TO EXIT?

***** MINE DESIGN CRITERIA *****

REQUIRED SUPPORT CAPACITY PER FOOT OF ENTRY, tons/ft..... [illegible]
CRITICAL ROOF DISPLACEMENT, inches..... 18.0
MINING HEIGHT, inches.....120.0

***** CRIB DESIGN *****

NUMBER OF TIMBERS PER LAYER..... [illegible]
TIMBER WIDTH, inches..... 18.0
TIMBER THICKNESS, inches..... 18.0
TIMBER LENGTH, inches..... 36.0
TIMBER OVERHANG DISTANCE, inches... [illegible]
TIMBER COMPRESSIVE STRENGTH, psi... [illegible]
TIMBER HARDNESS, lbs..... [illegible]
NUMBER OF CRIB ROWS IN ENTRY..... [illegible]

***** CRIB PERFORMANCE *****

CRIB CAPACITY AT CRITICAL DISPLACEMENT, tons..... [illegible]
SUPPORT CAPACITY PER FOOT OF ENTRY, tons/ft..... [illegible]
REQUIRED CRIB SKIN TO SKIN SPACING, ft..... [illegible]

ENTER 'Y' TO CONTINUE OR 'N' TO END?

CRIB GEOMETRY TERMS

NUMBER OF TIMBERS PER LAYER -- The number of timbers used to form one layer of the crib structure, typically 2, 3, or 4.

TIMBER WIDTH -- Timber width is the cross sectional dimension that establishes contact with adjacent timbers.

TIMBER LENGTH -- Timber length is the long dimension of the timber.

TIMBER THICKNESS -- Timber thickness is the height of the timber.

OVERHANG DISTANCE -- Overhang distance refers to the distance from the end of a timber to the contact established from timbers in adjacent layers.

CRIB HEIGHT -- The height of crib from top to bottom.

PRESS ENTER TO CONTINUE?

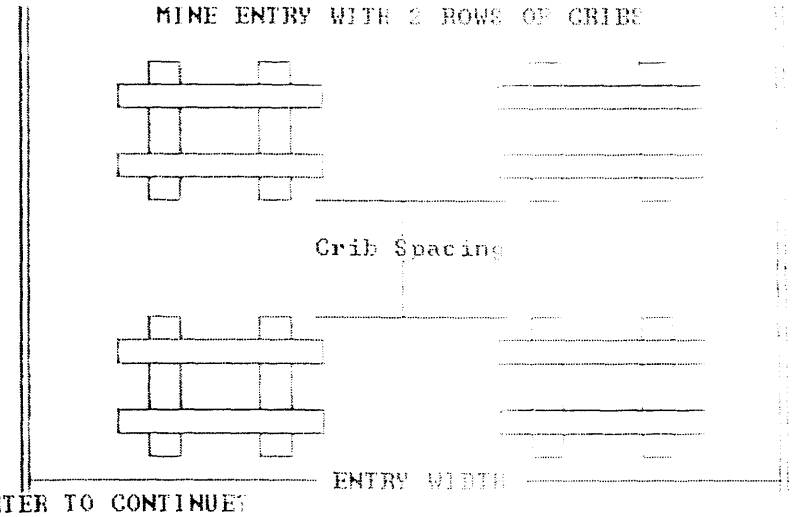
WOOD MATERIAL PROPERTIES

WOOD COMPRESSIVE STRENGTH -- The compressive strength of the wood perpendicular to the grain as measured on a four square inch area of a 2x2x6 inch block according to ASTM loading specifications.

WOOD HARDNESS -- Wood hardness is a measure of the force required to imbed a 0.44 inch diameter steel ball into a 2x2x6 inch section of wood.

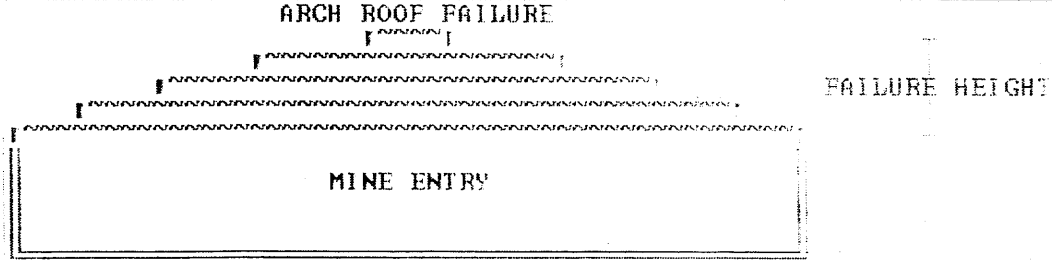
PRESS ENTER TO CONTINUE?

WOOD CRIB DEPLOYMENT

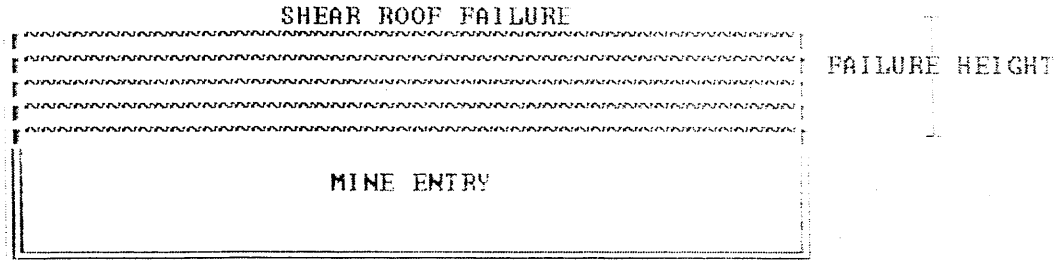


PRESS ENTER TO CONTINUE?

ARCH ROOF FAILURE

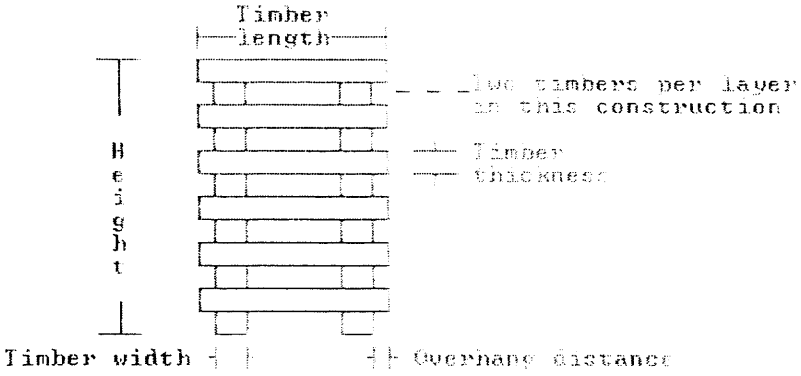


SHEAR ROOF FAILURE



PRESS ENTER TO CONTINUE?

********** CRIB GEOMETRY TERMS **********



ASPECT RATIO = Height / (Timber length - 2(Timber width + Overhang distance))

PRESS ENTER TO CONTINUE?

****** CRIB PERFORMANCE SUMMARY ******

TIMBER WIDTH (inches).....	10.0	NUMBER OF TIMBERS PER LAYER.....	3
TIMBER THICKNESS (inches).....	10.0	MINING HEIGHT (inches).....	120
TIMBER LENGTH (inches).....	36.0	WOOD COMPRESSIVE STRENGTH (psi).	597
TIMBER OVERHANG (inches).....	4.0	WOOD HARDNESS (lbs).....	390

Fcrib = (435.213 * (1-EXP(- .375 * δ)) + 1.058688 * δ) / 2

where: Fcrib = CRIB FORCE, tons
δ = DISPLACEMENT, inches

CRIB FORCE, tons	DISPLACEMENT, inches
197.8	6.0
221.5	12.0
226.9	18.0

PRESS ENTER TO CONTINUE?