

UTAH OIL AND GAS CONSERVATION COMMISSION

REMARKS WELL TAG ELECTRIC ZONE FLS  WATER SAMPLES SECTION NO. (ED) SUB REPORT AND

DATE FILED **4-14-92**

LAND FEE & PATENTED SURVEY LICENSE NO. PU PA L# **U-65943** H/AN

FULLY'S AFFR. ED **6-8-92**

SUCCESS

COMPLETED FURTHER PRODUING

DATA FIELD LIT

GRAND PART

G/R

PRODUCTION ZONES

TOTAL DEPTH

AS LITTLE AS

DATE APPROVED **PH 7 7 94**

FILE **WILDCAT**

**MATT'S SUMMIT**

**CARBON**

**MATT'S SUMMIT FEDERAL A-2** API NO. **43-007-30151**

LOC# **1850' FNL** **1600' FWL** SE NW 14

TAG - - - - -

12S 9E 14 ANADARKO PETROLEUM CORP.

STATE OF UTAH  
DIVISION OF OIL, GAS AND MINING

**APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK**

1. Lease Designation and Serial No  
**U-65943**

2. If Indian, Allottee or Tribe Name  
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3. Unit Agreement Name  
**Matt's Summit**

4. Farm or Lease Name  
**Matt's Summit Federal**

5. Well No  
**A-2**

6. Field and Prod. or Wildcat  
**Wildcat 101**

7. Loc., Sect., T., R., N., or S., and Survey or Area  
**SE/NE Sec. 14, T12S, R9E**

8. County or Parish | 9. State  
**Carbon | Utah**

10. Type of Work  
**DRILL  DEEPEN  PLUG BACK**

11. Type of Well  
**Oil Well  Gas Well  Other Coalbed Methane  Single Zone  Multiple Zone**

12. Name of Operator  
**Anadarko Petroleum Corporation**

13. Address of Operator  
**P. O. Box 4499, Houston, TX 77210-4499**

14. Location of Well (Report location clearly and in accordance with any State requirements)  
At surface  
**1850' PNL & 1600' FWL of Sec. 14**  
At proposed prod zone  
**SAND**

15. Distance in miles and direction from nearest town or post office  
**Approximately 7 miles north of Helper, Utah**

16. Distance from proposed location to nearest property or lease line ft. (Also to nearest dflg line, if any)  
**530'**

17. N. of acres in lease  
**1840**

18. No. of acres assigned to this well  
**160**

19. Distance from proposed location to nearest well, drilling completed or applied for, on this lease, ft.  
**2319'**

20. Proposed depth  
**5000' MRO**

21. Rotary or cable tool  
**Rotary**

22. Elevation (Show whether DI, RT, GR, etc.)  
**GR: 7941'**

22. Approx date work will start  
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**PROPOSED CASING AND CEMENTING PROGRAM**

Size of Hole	Size of Casing	Weight per Foot	Setting Depth	Quantity of Cement
12-1/4"	8-5/8"	24.0	400'	200 cu. ft.
7-7/8"	5-1/2"	15.5	3000'	300 cu. ft.

The following items are attached to this APD:

1. Drilling Program with EOP Schematic.
2. Survey Plat

RECEIVED  
APR 14 1992

DIVISION OF  
OIL, GAS & MINING

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM. If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

I hereby certify that this report is true and complete to the best of my knowledge.

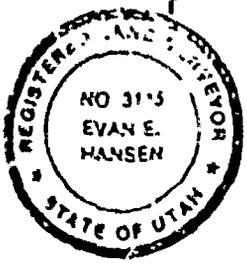
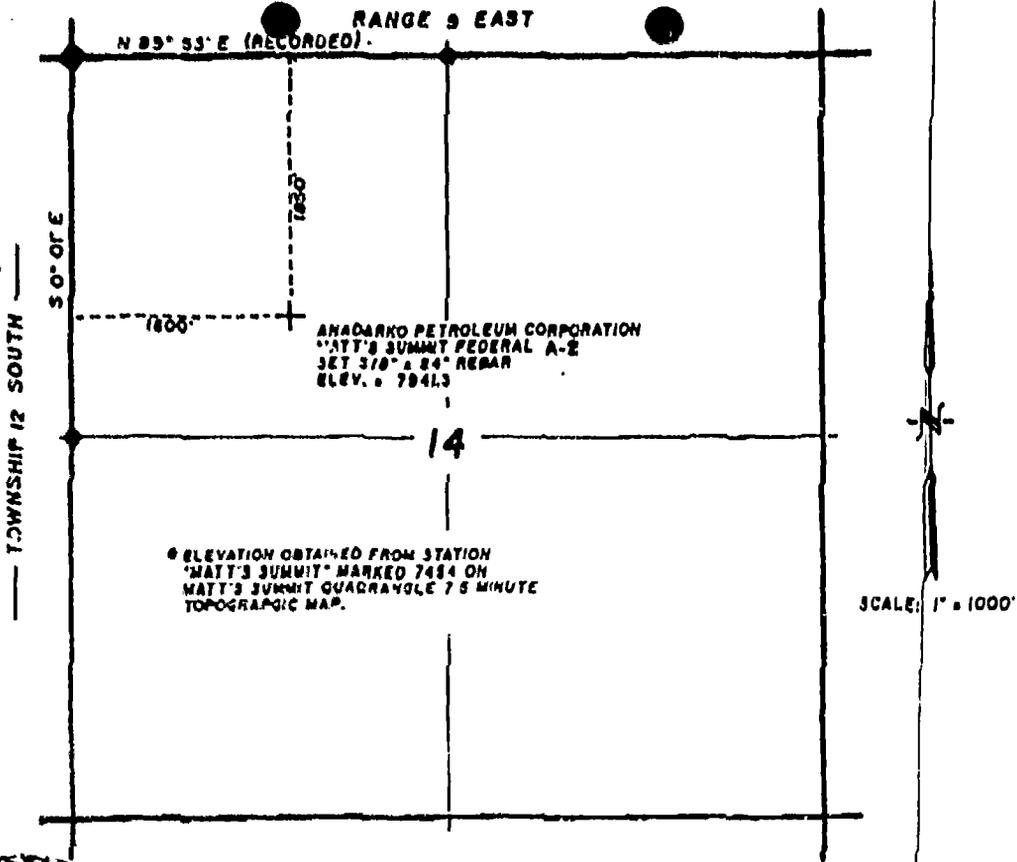
Subscribed James Mathews Title Coordinator, Regulatory & Safety Date 4/13/92

(This space for Review or State office use)  
APD No. 43-007-30151 Approval Date 6-8-92

Approved by \_\_\_\_\_ Title \_\_\_\_\_  
Conditions of approval, if any \_\_\_\_\_

OFFICE OF THE STATE  
OF UTAH DIVISION OF  
OIL, GAS, & MINING  
DATE: 6-8-92  
BY: James Mathews  
CONFIDENTIAL

\*See Instructions On Reverse Side



**BASIS OF BEARING**

BASIS OF BEARING S 89° 53' W, OBTAINED FROM G.L.O. PLAT DATED OCTOBER 30, 1918 BETWEEN THE NORTHWEST CORNER AND THE NORTH QUARTER CORNER OF SECTION 14, TOWNSHIP 12 SOUTH, RANGE 9 EAST, SALT LAKE BASE AND MERIDIAN.

**LEGEND**

- ◇ FOUND BRASS CAP SECTION CORNER
- FOUND BRASS CAP QUARTER CORNER

**SURVEYOR'S CERTIFICATE**

I, EVAN E. HANSEN, DO HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR AND PROFESSIONAL ENGINEER HOLDING CERTIFICATES NO. 315 AND NO. 2222 AS PRESCRIBED UNDER THE LAWS OF THE STATE OF UTAH. I FURTHER CERTIFY THAT I HAVE MADE A SURVEY OF THE TRACT OF GROUND SHOWN AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

Evan E. Hansen  
EVAN E. HANSEN

NOV. 23, 1921  
DATE

<b>Empire Engineering</b>		
1665 E SAGEWOOD RD PRICE UTAH 84301		
ANADARKO PETROLEUM CORPORATION MATT'S SUMMIT FEDERAL A-2		
Drawn By. TH	Approved By. EEH	Drawing No.
Date: 11-29-21	Scale: 1" = 1000	EEOG-115

DRILLING PLAN  
TO ACCOMPANY APPLICATION FOR PERMIT TO DRILL

Company: Anadarko Petroleum Corp. Well: Matt's Summit Federal A-2

Location: SE NW Sec. 14 T12S-R9E Lease No: U-65943 (Federal)

1450' FNL & 1600' FWL of Sec. 14

Carbon County, Utah Surface Elevation: 7941.3'

A. Estimated Tops of Important Geologic Markers:

<u>Geologic Marker</u>	<u>Depth</u>
Flagstaff	Surface
North Horn	800'
Price River	2100'
Castlegate Sandstone	3165'
Blackhawk Coal	4110'
Spring Canyon Sandstone	4700'

B. Estimated Depth at Which Water, Oil, Gas, or Other Mineral-Bearing Zones are expected to be encountered:

Gas-bearing Blackhawk Coals are expected to be encountered from 4110'-4700'.

All fresh water zones and prospectively valuable mineral zones encountered during drilling will be recorded by depth and adequately protected. All oil and gas shows will be tested to determine commercial potential.

C. Pressure Control Equipment:

An 11", 3000 psi WP double gate hydraulic BOP with pipe rams and blind rams will be installed on the 8-5/8" casing head. The BOP stack will be tested prior to drilling below surface casing. The ram preventers will be tested to 70% of the working pressure of the casing head. The annular will be tested to 50% of its working pressure. Operational checks will be made daily or on trips. A BOP schematic is shown on attached Exhibit "A".

The BOP system will be consistent with API RP 53. Pressure tests will be conducted before drilling out from under all casing strings which are set and cemented in place. Blowout preventer controls will be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned. Preventers will be inspected and operated at least daily to ensure good mechanical working order. This inspection will be recorded on the daily drilling report. Preventers will be pressure tested before drilling casing cement plugs.

The accumulator system will meet IADC guidelines concerning pump capacities, storage capacity, and reservoir volume. Closing unit fluid volume will be sufficient to pre-charge the system to operating pressure plus 50% excess. One set of controls will be in the doghouse on the rig floor and one set will be remote on the drilling pad.

D. Casing Program

Surface Casing - 8-5/8" casing will be set at approximately 400'.

Production Casing - 5-1/2" casing will be set at approximately 5000' if well is to be completed.

	<u>Size</u>	<u>Wt./Ft.</u>	<u>Grd.</u>	<u>Thrd.</u>	<u>Condition</u>
Surface	8-5/8"	24.0	K-55	8rd	New
Production	5-1/2"	15.5	K-55	3rd	New

Casing Design Factors

The safety factors on casing strings will equal or exceed the following values:

Collapse	1.0
Joint Strength	1.6
Burst	1.33

Cement Program

Surface - Cement will be circulated to the surface. Casing will be cemented with approximately 200 cu. ft. of API Class 'G' cement.

Production- Casing will be cemented with approximately 300 cu. ft. of API Class 'G' cement. The actual cement volume will be based upon hole depth and gauge and will be determined from logs. Cement will be circulated to the surface to protect possible fresh water zones.

Additional additives will be used to retard the cement, accelerate the cement, control lost circulation, or control fluid loss. All cementing will be done in accordance with API cementing practices.

E. Mud Program and Circulating Medium:

Fresh water circulated through the reserve pit will be used for drilling the 12-1/4" surface hole to 400'. A low solids, non-dispersed mud system with funnel viscosity of 35-40 seconds, API water loss of 10-20 cc/30 minutes, and 8.8-9.2 ppg mud weight will be used for drilling from below surface pipe at 400' to TD.

The mud system will be visually monitored.

A truck-mounted air drilling rig may be used to drill the surface hole to 400' and to pre-set the surface casing before moving a drilling rig on location to drill the rest of the hole to TD.

Sufficient mud materials will be stored at the well site to maintain mud requirements and to control minor well control or lost circulation problems.

F. Coring, Logging and Testing Program:

- a. Conventional coring in the Blackhawk Coal interval (4110'-4700') may be performed, depending upon shows and hole conditions.
- b. DST's may be run depending upon shows.
- c. The following logging program is planned for the interval from surface pipe to TD (400'-5000' est.):
  1. DIL
  2. LDT-CNI-ML-NGT-SDT over prospective intervals
  3. Possible GLT over prospective intervals
- d. A mud logging unit with chromatograph will be used from approximately 3100' to TD.
- e. Productive zones will be swab tested. Water produced during testing will be contained in the temporary reserve pit. All possible oil will be stored and sold. Gas may be flared during testing.

G. Abnormal Conditions and Potential Hazards:

Abnormal conditions such as abnormal temperatures or pressures are not anticipated. Potential hazards such as H<sub>2</sub>S are also not anticipated.

or floor beam  
Minimum, 6 inches

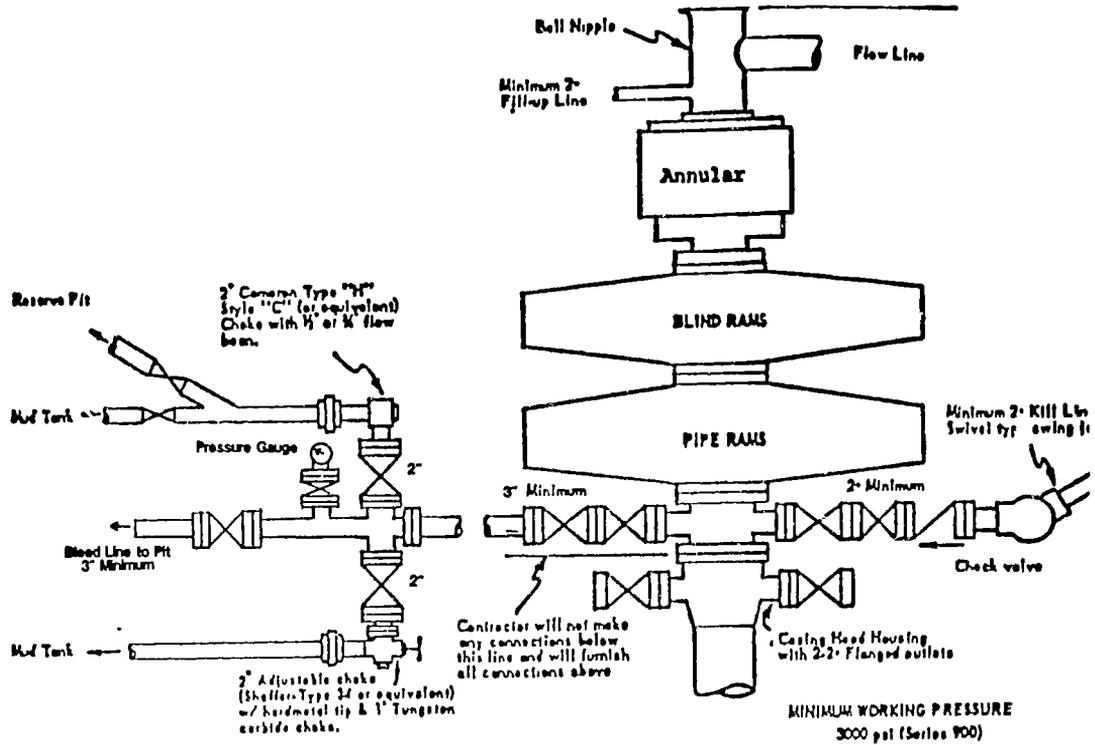


EXHIBIT A



MINIMUM BLOWOUT PREVENTER  
REQUIREMENTS - NORMAL  
PRESSURE (SHALLOW) SERVICE

FEBRUARY 8, 1994

TO: WELL FILE

FROM: K. M. HEBERTSON

RE: Status, Matt's Summit Federal A-2 43-007-30151 14-12S-9E

Per telephone conversation with the operator concerning the status of this well, it was determined that the well will not be drilled and the operator has acknowledged that the APD has expired. The operator has been informed that the APD will need to be refiled in order to drill this well at a future date.

As of the above date the APD has been rescinded and the file sent to the LA archives.

KMH

OPERATOR Madison Petroleum Corp. <sup>110033</sup> DATE 4-17-90

WELL NAME Mat. Summit Federal A-1

SEC SE1/4 T 10S R 9E COUNTY Carbon

13-001-37151  
API NUMBER

Actual (1)  
TYPE OF LEASE

CHECK OFF:

PLAT

BOND

NEAREST WELL

LEASE

FIELD SLBM

POTASH OR OIL SHALE

PROCESSING COMMENTS:

Approving as unit with per. in. BDM

Water Permit

RACC 4-17-90

APPROVAL LETTER:

SPACING.

R615-2-3

Mat. Summit  
UNIT

R615-3-2

N/A  
CAUSE NO. & DATE

R615-3-3

STIPULATIONS:

1- water permit



Norma H. Raughter  
Secretary  
Dale C. Malcom  
Deputy Secretary  
Therese M. Patten  
Director

# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF WILDLIFE RESOURCES

Wildlife Division  
483 West North Main  
P.O. Box 64501 Salt Lake City, Utah 84165-0501  
801-437-3310

April 21, 1992

Mr. Robert M. Anderson  
Heitzman Drill-Site Services  
P.O. Box 3579  
Casper, Wyoming 82602

Dear Bob:

The Division of Wildlife Resources (DWR) appreciates your letter of March 18 requesting our input on the development of an Environmental Assessment for Anadarko Petroleum Corporation's Matt's Summit Coalbed Methane Project. The following are DWR's comments, concerns, and recommendations regarding this project. These comments relate to full field development, as well as the exploratory phase of this project.

A variety of wildlife species inhabits the proposed project area. Impacts of this project vary according to species. Critical and high priority deer and elk habitats are found within the project boundaries. Impacts to these species will be displacement from traditional ranges due to disturbance from drilling activities. They will be forced to occupy less favorable habitats or habitats already occupied. In either case, vigor and reproductive success of these populations will decline. These species are most vulnerable to disturbances during calving, fawning, and winter seasons. Calving and fawning habitat is located on the southern portion of the project area. Critical winter habitat extends from the central portion of the area to the northern boundary. DWR suggests that no drilling activity takes place from 4/15 to 7/5 on the southern half of the project area and from 12/1 to 4/15 on the northern half of the project area.

Construction of barriers (fences, pipelines, conveyor systems and canals) that inhibit big game migrations to and from seasonal ranges must not be allowed. Fence specifications should meet existing criteria for height and design for livestock and big game. Enclosed is a copy of fence specifications that will enhance safety for wildlife.

(2)

Mr. Robert M. Anderson

April 21, 1992

As you know, the raptor survey conducted on March 25 revealed one stick nest in the NW1/4SW1/4 of section 10. The activity of this nest can not be determined until later this spring. However, a 0.5 mile buffer zone around this nest does not include any of the proposed wells. This nest should be monitored to determine activity and what species utilizes this nest so that future planning can take this into consideration. Impacts to raptors of this exploratory project should not be significant. Full field development may cause conflict with this existing nest. Additional raptor surveys will need to be conducted prior to full field development.

The proposed project area supports numerous nongame mammals and bird species. Many of these make up the prey base for raptors and other carnivores found in this area. Due to the small home range of these small mammals and birds, any destruction of habitat is significant. Habitat destruction associated with drilling and road construction should be avoided where possible. Only necessary construction should be allowed.

Sage grouse inhabit the entire project area. No breeding leks are known to occur within project boundaries. However, leks are located within two miles of the project boundaries. Areas within a two mile radius of breeding leks are used for nest and brood habitat. This means that portions of the project area would be used as nest/brood habitat. Sage grouse have a limited distribution in southeastern Utah. The Park's population represents one of the few opportunities in this area to hunt or view sage grouse. Loss of this population would be significant. DWR suggests that activities be restricted from 3/15 to 6/30 in those areas of the project within two miles of a lek to minimize impacts to nesting sage grouse. These areas would likely include the north and east edges of the project area.

All water sources in the area are crucial to aquatic and terrestrial wildlife. Instream flows associated with perennial and intermittent drainages, as well as seep and springs, must be maintained at suitable levels for wildlife drinking water, wetland ecosystem maintenance, and fisheries maintenance. Actions resulting in a 50% or more reduction in available daily flow to wildlife should be disallowed. Water discharged into drainages must meet water quality specifications and should not significantly change instream water temperature. Water quality and quantity must not be negatively affected by actions associated with this project. Activities resulting in depletion of flows to the Colorado River Basin could necessitate a remittance to the U.S. Fish and Wildlife Service for recovery management of endangered species.

(3)

Mr. Robert M. Anderson

April 21, 1992

Surface disturbance in riparian zones should be avoided. Buffer zones should be established to protect riparian vegetation associated with perennial and intermittent streams, seeps, and springs. Riparian areas provide critical habitat for a wide variety of wildlife species and should be protected from disturbances associated with this project. Any disturbance to riparian vegetation that does occur will require revegetation.

Surface disturbance activities resulting in loss of habitat should be avoided or minimized. Unavoidable habitat disturbance will require mitigation. Short term projects, those that can be revegetated within the first growing season following commencement of the project, less than ten acres in size will usually only require revegetation and impact avoidance measures. Short term projects exceeding ten acres would require additional mitigation requirements. Surface disturbing impacts of any size which last beyond the first growing season following commencement of the project are viewed as long term and require significant mitigation. "On-site, in-kind, one-for-one" mitigation is preferred. If there are no other alternatives, "off-site or out-of-kind" mitigation can be negotiated.

Reclamation projects need to include closing and revegetating any roads constructed in conjunction with the project. Unnecessary existing roads in critical habitat should also be considered for closure and reclamation.

Reclamation projects should occur as soon after completion of the project as possible and must be designed to enhance the local area's wildlife habitat. The basic life requirements of wildlife (food, water, cover, and space) should be considered. Revegetation prescriptions must address terrain and soil characteristics and the species adaptability to the site. Seed purity, viability, seedbed preparation requirements, local precipitation and planting dates must also be considered. Revegetated areas should be protected from livestock grazing until establishment has occurred. A minimum of six species each of grasses, forbs and shrubs should be included in the plantings. The enclosed revegetation lists should be of assistance as reclamation for this project is planned.

Specific mitigation and reclamation measures can be recommended when the degree of impacts is determined and specific sites identified. Road closures, water developments, erosion control structures, grazing management, and vegetation treatments are some on-site possibilities. Long term impacts and cumulative

(3)

Mr. Robert M. Anderson

April 21, 1992

impacts associated with Cockrell Oil's gas field development may require off-site habitat acquisition and improvement. Cumulative impacts of these two projects will be significant and must be considered.

We appreciate the opportunity to provide comments at this stage of the project. Maps provided to you for the Cockrell EA should contain the habitat classification for elk, deer, moose and sage grouse. If you have any questions or if we can be of further assistance, please contact Ken Phippen, Regional Wildlife Manager (637-3310).

Sincerely,



Miles Moretti  
Regional Supervisor

Copy: Ralph Miles, DWR  
Mark Bailey, BLM

SR/lcl

Enclosures

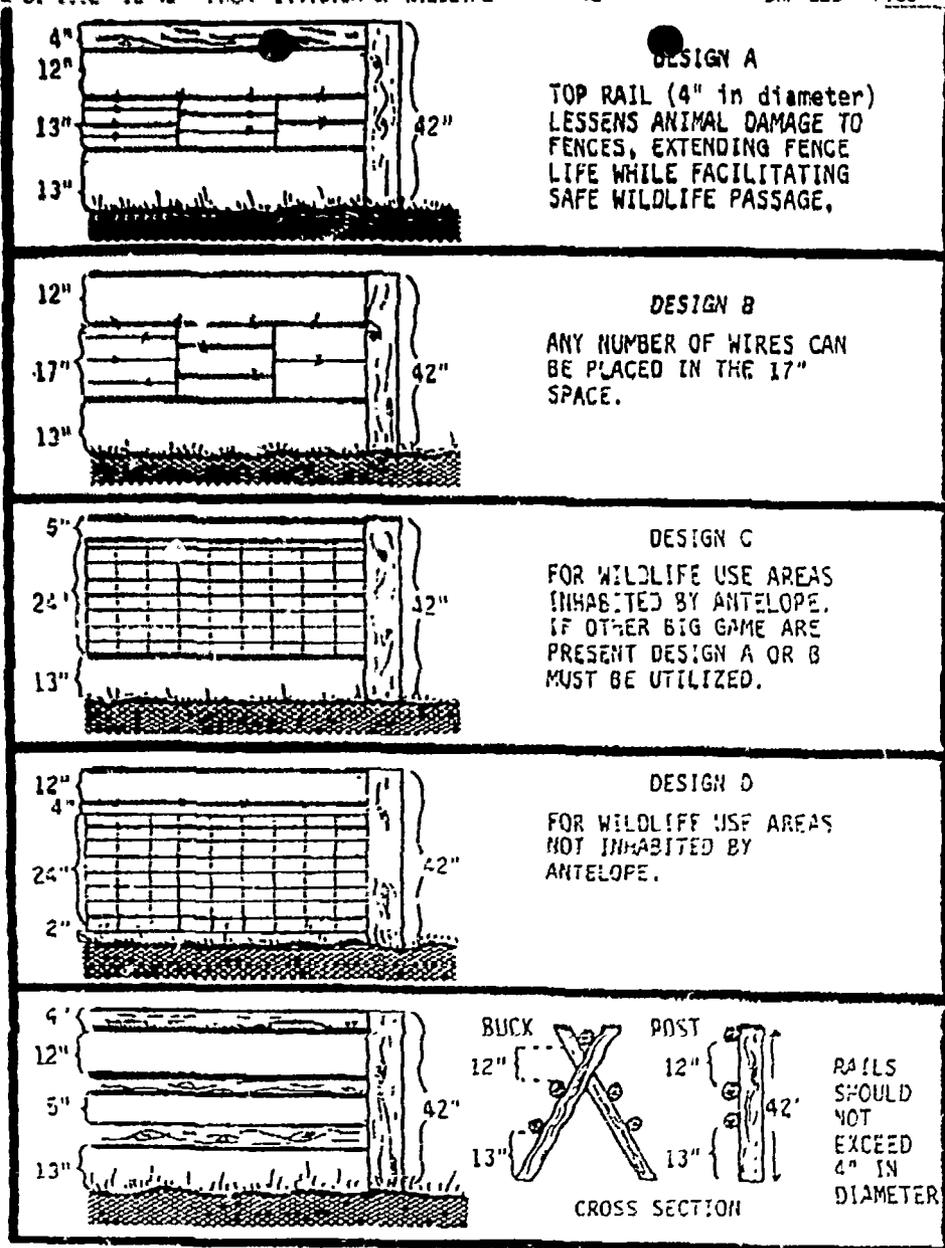


FIGURE F5. Fence specifications for containing livestock while allowing big game passage. Total fence height must not exceed 42". The space between the two top wires should be at least 12" to allow passage of juvenile big game, a smooth top wire is needed. The bottom wire should be at least 13" from the ground and smooth to allow big game to crawl beneath, particularly antelope.

Recommended guidelines for seedbed preparation and planting techniques in the MONTANE ecological association.

- A. Seedbed Preparation: (1) Disturbed areas should be double ripped. (2) Fertilizer (0-16-0) at a rate of 100 lb/acre should be disked into the topsoil mass prior to seeding. (3) Where possible, the grass segment of the seed mix should be drilled. The remainder of the seed mix should be hydrosprayed in a slurry containing tackifier (60 lb/acre) and wood fiber mulch (400 lb/acre). Seed mix applied by hydrospray technique should be increased by 1.5 times. This first application containing seed should be immediately followed by another hydrosprayed slurry to incorporate more tackifier (60 lb/acre), more wood fiber mulch (2,000 lb/acre), and nitrogen fertilizer (33-0-0 distributed at a rate of 100 lb/acre). (3a) If a hydrospray technique is not utilized, the seed mix should be drilled. (3b) If broadcast, the seed mix should be doubled, spread, and covered through use of a harrow or chain. (4) After seed application (3a or 3b), nitrogen fertilizer (33-0-0 distributed at a rate of 100 lb/acre) should be broadcast and an acceptable mulch should be applied at a rate of 2,000 lb/acre to protect raw soil from erosion and to conserve moisture. Mulch should be held in place by tackifying, crimping, or netting. (5) Seeding should occur following a permanent killing frost which is usually after October 1.
- B. Nursery Stock or Transplants: Planting of nursery or transplant stock should occur in spring when soil moisture is greatest. Nursery stock should be planted after dormancy breaks, greatest success for transplant stock is achieved during dormancy. Shoots spaced 2, 3, 4, 6, 10, 12, 15, and 15 feet apart will act over 100%, 44%, 27%, 12%, 6%, 30%, 25%, and 10% plants per acre, respectively. A 10% canopy cover is the goal. All plantings need to have soil compacted around the roots.
- C. Cuttings of Woody Pterocarpus Species (willow, cottonwood, etc.): Cut stems at a length of 12 to 18 inches from 1-3 year old local, wild stock (0.5 to 1.0 inch diameter) with a 30-45° angle on basal end. Lateral branches and leaves must be removed. Cuttings can be immediately transplanted or if cut in winter cold stored in snow filled bags until the ground thaws. The basal end can be dipped in indolebutyric acid prior to planting to aid in root formation. When planting, all but one inch of the stem should be extended into the moist soil to a depth of the water table. This will protect regenerators from inadvertent injury. Dormant logs (1.5 to 6 inches diameter and up to 20 feet long) can also be used for many species as long as the water table is reached.
- D. Bare-root or Containerized Plants: Prior to planting, bare-root or containerized plants should be stored at 34-39° F for one week to "harden". Planting should be in an adequately sized hole to insure that roots are well distributed and extending full length into the hole. For bare-root and containerized stock, care needs to be taken that the root hairs are not allowed to dry. The outer edge of the root mass for containerized stock should be scarified to alleviate root binding.
- E. Plugs: Plugs of vegetation can be excavated with a shovel or front-end loader. They should be handled such that moist soil remains packed firmly around the roots. A similar sized hole needs to be excavated and the plug planted.
- F. Rhizomic Plants: Woody plants with interconnected root stock should be located and excavated intact. The tops of plants should be removed so that only one remains. Connecting roots should be aligned vertically and buried. In the instance of herbaceous plants, rhizomes can be harvested with a front-end loader, and distributed with a banner spreader. A one inch layer of top soil should be compacted over plantings.

Table 1. Revegetation prescription for disturbed areas within the ASPEN ecosystem in the MONTANE ecological association.<sup>1,2</sup>

Plant Material	Pounds of Pure Live Seed/Acre
<b>GRASS SPECIES<sup>2</sup>:</b>	
Mountain brome ( <i>Bromus caryinatus</i> )	2.0
Smooth brome ( <i>Bromus inermis</i> )	1.0 (southern variety)
Palute orchardgrass ( <i>Dactylis glomerata</i> )	0.5
Intermediate wheatgrass ( <i>Aegropyron intermedium</i> )	1.0
Kentucky bluegrass ( <i>Poa pratensis</i> )	0.2
Meadow foxtail ( <i>Alopecurus pratensis</i> )	0.5
<b>FORB SPECIES<sup>3</sup>:</b>	
Alfalfa ( <i>Medicago sativa</i> )	1.0 (Ladak, Noned, Spreader)
Porter licorice root ( <i>Ligusticum porteri</i> )	1.0
Rocky mountain penstemon ( <i>Penstemon strictus</i> )	0.5
Silky lucine ( <i>Lupinus sericeus</i> )	1.0
Pacific aster ( <i>Aster chilensis</i> )	0.2
Sweet arice ( <i>Osmorhiza occidentalis</i> )	1.0
<b>SHRUB AND TREE SPECIES<sup>4</sup>:</b>	
Antelope bitterbrush ( <i>Burnsia tripartita</i> )	0.5
Mountain snowberry ( <i>Symphoricarpos oreophilus</i> )	2.0
Mountain big sagebrush ( <i>Artemisia tridentata vasevora</i> ) <sup>6</sup>	0.25 (20% purity)
Silver sagebrush ( <i>Artemisia cana wislizenii</i> ) <sup>6</sup>	0.5 (20% purity)
Woods rose ( <i>Rosa woodsii</i> )	1.0
Red elderberry ( <i>Sambucus racemosa</i> )	1.0 (uncleaned)
TOTAL	15.15
<b>NURSERY OR TRANSPLANT STOCK<sup>5</sup>.</b>	
	STEMS/ACRE (SPACING)
Quaking aspen ( <i>Populus tremula</i> )	1,210 per acre (6 ft. apart)
Bigsage maple ( <i>Acer saccharum grandidentatum</i> )	436 per acre (10 ft. apart)
Mountain ash ( <i>Sorbus soredulina</i> )	436 per acre (10 ft. apart)

<sup>1</sup>Here attached: Recommended guidelines for seedbed preparation and planting techniques in the MONTANE ecological association.

<sup>2</sup>Alternate grass species: Basin wildrye (*Elymus cinereus*), Bearded wheatgrass (*Aegropyron trachyauleum*), Thurber fescue (*Festuca thurberi*), Foxtail barley (*Hordeum jubatum*)

<sup>3</sup>Alternate forb species: Gray aster (*Aster glaucoides*), Showy goldeneye (*Helianthus multiflorus*), Cicer milkvetch (*Astragalus cicer*), Lobelief groundsel (*Senecio multiflorus*), American witch (*Vicia americana*), Mountain goldenrod (*Solidago multiradiata* - collected)

<sup>4</sup>Alternate shrub and tree species: Shrubby cinquefoil (*Potentilla fruticosa*), Saskatoon serviceberry (*Ampelodesmosis alifolia*), Wax currant (*Ribes cereum*), White rubber rabbitbrush (*Chrysothamnus nauseosus hololeucos*), Blue elderberry (*Sambucus cerulea*), Bigtooth maple (*Acer saccharum grandidentatum*)

<sup>5</sup>Alternate nursery or transplant stock. Willow (*Salix* spp.), Rocky mountain maple (*Acer glabrum*)

<sup>6</sup>This species should not be covered. It should be hydro-sprayed in the seed mix slurry or broadcast over the surface after drilling or covering of other seed and before application of mulch.

<sup>7</sup>For regeneration of aspen stands it is recommended that remnant aspen clones be ripped with a chisel toothed tool to break up the rhizomatous structures. This should stimulate adventitious sprouting of aspen from the rhizomes.

Table 1. Revegetation prescription for disturbed areas within the RIPARIAN WETLAND ecosystem in the MONTANE ecological association.<sup>1</sup>

Plant Material	Pounds of Pure Live Seed/Acre
<b>GRASS SPECIES<sup>2</sup>:</b>	
Reed canarygrass ( <i>Phalaris arundinacea</i> )	0.5
Timothy ( <i>Phleum pratense</i> )	0.5
Kentucky bluegrass ( <i>Poa pratensis</i> )	0.2
Reger brome ( <i>Bromus biebersteini</i> )	1.0
Meadow fescue ( <i>Festuca pratensis</i> )	1.0
Basin wildrye ( <i>Elymus cinereus</i> )	1.0
Streambank wheatgrass ( <i>Agropyron dasystachyon riparium</i> )	1.0
<b>FORB SPECIES<sup>3</sup>:</b>	
Strawberry clover ( <i>Trifolium fragiferum</i> )	1.0
Richardson geranium ( <i>Geranium richardsonii</i> )	1.0
Pacific aster ( <i>Aster chilensis</i> )	0.2
Western yarrow ( <i>Achillea millefolium lam.losa</i> )	0.1
Silky lucine ( <i>Lucinus sericeus</i> )	1.0
Snowy goldeneye ( <i>Yellowiris multiflora</i> )	1.0
<b>SHRUB AND TREE SPECIES<sup>4</sup>:</b>	
Silver sagebrush ( <i>Artemisia cana</i> ) <sup>6</sup>	0.5
Blue elderberry ( <i>Sambucus cuneata</i> )	2.0 (uncleaned)
Red raspberry ( <i>Rubus idaeus</i> )	1.0
Woods rose ( <i>Rosa woodsii</i> )	1.0
TOTAL	14.0
<b>NURSERY OR TRANSPLANT STOCK<sup>5</sup>:</b>	
Willow ( <i>Salix</i> spp.)	STEMS/ACRE (spacing) 1,210 (6 ft. apart) placed at high water line
Narrowleaf cottonwood ( <i>Populus angustifolia</i> )	436 (10ft. apart) evenly distributed
Thinleaf alder ( <i>Alnus incana occidentalis</i> )	436 (10 ft. apart) evenly distributed
Beaked sedge ( <i>Carex rostrata</i> )	10,888 (2 ft. apart) plugs cut from local stock and planted in moist areas

<sup>1</sup>Note attachment: Recommended guidelines for seedbed preparation and planting techniques in the MONTANE ecological association.

<sup>2</sup>Alternate grass species: Sheep fescue (*Festuca ovina*), Rough stalked bluegrass (*Poa trivialis*), Smooth brome (*Bromus inermis* - northern variety), Intermediate wheatgrass (*Agropyron intermedium*)

<sup>3</sup>Alternate forb species: Idaho licoriceroot (*Licusticum tenuifolium*), Mountain bluebells (*Mertensia siliata* - collected), Wasatch pentstemon (*Pentstemon cyananthus*), Strawberry clover (*Trifolium fragiferum*)

<sup>4</sup>Alternate shrub and tree species: Currant (*Ribes* spp.), Common chokecherry (*Prunus virginiana*), Raspberry (*Rubus* spp.), Red elderberry (*Sambucus racemosa*)

<sup>5</sup>Alternate nursery or transplant stock: Water birch (*Betula occidentalis*), Red-osier dogwood (*Cornus stolonifera*), Mountain sedge (*Carex scopulorum*)

<sup>6</sup>this species should not be covered. It should be hydrosprayed in the seed mix slurry or broadcast over the surface after drilling or covering of other seed and before application of mulch.

Fig. 1. Revegetation prescription for disturbed areas within the SAGEBRUSH/GRASS ecosystem in the MONTANE ecological association.

Plant Material	Pounds of Pure Live Seed/Acre
<b>GRASS SPECIES<sup>1</sup>:</b>	
Intermediate wheatgrass ( <i>Arrhenatherum intermedium</i> )	1.0
Blue grama ( <i>Tripsacum dactyloides</i> )	2.0
Hard shrub fescue ( <i>Festuca ovina</i> )	0.5
Beard grass ( <i>Amma biflorata</i> )	1.0
Knobby bluegrass ( <i>Poa nuttallii</i> )	0.2
Purple needlegrass ( <i>Stipa spaldingii</i> )	0.5
<b>FORB SPECIES<sup>2</sup>:</b>	
Alfalfa ( <i>Medicago sativa</i> )	1.0 (Local, Home, Spreader)
Northern plectranth ( <i>Plectranthus purshii</i> )	1.0
Common yucca ( <i>Yucca glauca</i> )	1.0
Yellow water ( <i>Salix glauca</i> )	0.2
Utah penstemon ( <i>Penstemon utahensis</i> )	0.5
Rockmountain penstemon ( <i>Penstemon brevidens</i> )	0.5
<b>SHRUB AND TREE SPECIES<sup>3</sup>:</b>	
Mountain big sagebrush ( <i>Artemisia tridentata</i> )	0.25 (20% purity)
Utah big sagebrush ( <i>Artemisia tridentata</i> )	0.25
Mountain snowberry ( <i>Amelanchier alnifolia</i> )	1.0
Wild currant ( <i>Ribes cereum</i> )	1.0
TOTAL	
	17.7
<b>UNITS OF TRANSPLANT STOCK<sup>4</sup>:</b>	
Grass seedling ( <i>Tripsacum dactyloides</i> )	STEMS/ACRE (SPACING)
Wild currant ( <i>Ribes cereum</i> )	Plant 5/4 of each species per acre
Mountain snowberry ( <i>Amelanchier alnifolia</i> )	randomly spaced 6 feet apart to
	reach a goal of 2,722 stems/acre.

<sup>1</sup>Note: Attachments: Recommended guidelines for seedbed preparation and planting techniques in the MONTANE ecological association.

<sup>2</sup>Alternate grass species: Bluebunch wheatgrass (*Arrhenatherum spicatum*), Thickspike wheatgrass (*Arrhenatherum elaeagnifolium*), Puccinellia wheatgrass (*Arrhenatherum intermedium triflorum*), Smooth brome (*Bromus laevissimus*)

<sup>3</sup>Alternate forb species: Chafflower sunflower (*Helianthus scaberrimus*), Palmer penstemon (*Penstemon palmeri*), Clear milkweed (*Asclepias speciosa*), Silver cholla (*Yucca arborescens*), Porter lilac-cactus (*Lithospermum porteri*)

<sup>4</sup>Alternate shrub and tree species: Arctostaphylos (*Arctostaphylos uva-ursi*), Saskatoon serviceberry (*Amelanchier alnifolia*), Gooseberry currant (*Saxifraga oppositifolia*)

<sup>5</sup>Alternate nursery or transplant stock: Arctostaphylos (*Arctostaphylos uva-ursi*), Utah serviceberry (*Amelanchier alnifolia*), Snow-apple (*Paronychia pennsylvanica*), Greenleaf manzanita (*Arctostaphylos manzanita*), Utah big sagebrush (*Artemisia tridentata*)

<sup>6</sup>This species should not be covered. It should be hydroseeded in the seed mix slurry or broadcast over the surface after drilling or covering of other seed and before application of mulch.

HEITZMAN DRILL-SITE SERVICES

DALE HEITZMAN

ROBERT M ANDERSON

May 5, 1992

Ms. Dianne R. Nielsen, Director  
State of Utah  
Division of Oil, Gas and Mining  
3 Triad Center, Suite 350  
Salty Lake City, Utah 84180-1203

RECEIVED

MAY 07 1992

DIVISION OF  
OIL, GAS & MINING

RE: Anadarko Petroleum Corporation  
Matt's Summit Coalbed Methane Project  
Carbon and Utah Counties, Utah

Dear Ms. Nielsen;

Heitzman Drill-Site Services is currently in the process of preparing an Environmental Assessment of six (6) coalbed methane wells and one (1) water injection well proposed by Anadarko Petroleum Corporation in Carbon and Utah Counties, Utah. These seven (7) total wells represent a pilot program for coalbed methane in the Matt's Summit area and, if successful, could result in full field development of the coalbed methane resource within the leasehold/unit area. Full field development would be analyzed under a separate document to be prepared at a later date and would be contingent upon production results obtained from this pilot program.

The seven (7) well locations to be included in this pilot program are as follows:

1. Matt's Summit State B-1 : Coalbed Methane Well  
NW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ , Section 10, T12S, R9E; Carbon County, UT
2. Matt's Summit Federal A-1 : Coalbed Methane Well  
NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ , Section 15, T12S, R9E; Carbon County, UT
3. Matt's Summit Federal A-2 : Coalbed Methane Well  
NW $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ , Section 14, T12S, R9E; Carbon County, UT
4. Matt's Summit Federal B-1 : Coalbed Methane Well  
SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ , Section 11, T12S, R9E; Carbon County, UT

Ms. Dianne R. Nielsen  
May 5, 1992  
Page Two

5. Matt's Summit State C-1 : Coalbed Methane Well  
NW $\frac{1}{4}$ SE $\frac{1}{4}$ , Section 2, T12S, R9E; Carbon County, UT
6. Matt's Summit Federal B-2 : Coalbed Methane Well  
NW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ , Section 11, T12S, R9E; Carbon County, UT
7. Emma Park State A-1 : Water Injection Well  
NE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ , Section 32, T11S, R9E; Utah County UT

For your convenience, I have included a brief "Proposed Action" to acquaint you with the drilling proposal as well as a map showing the location for each of these proposed well locations.

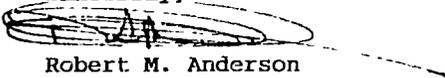
As stated above, this environmental assessment will only address the initial exploration phase of the Matt's Summit Coalbed Methane Project and will be prepared under guidance provided by the Price River Resource Area Office, Bureau of Land Management.

In this regard, I would like to request that your office review this exploration proposal and provide any comments/concerns which your office may have regarding this project and the potential impacts (or benefits) to the State of Utah arising therefrom.

Should you require any additional information or have any questions in this regard, please do not hesitate to give me a call.

Your kind attention to this matter will be most appreciated.

Sincerely,



Robert M. Anderson

RMA/ibm  
Enclosure



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Frank R. Matthews, P.E.  
Division Director

305 West 10th Street  
Salt Lake City, Utah 84119  
Telephone: (801) 538-5340  
Telex: 500000

June 8, 1992

Anadarko Petroleum Corporation  
P.O. Box 4499  
Houston, Texas 77210-4499

Gentlemen:

Re: Matt's Summit Federal A-2 Well, 1850 feet from the north line, 1600 feet from the west line, SE 1/4 NW 1/4, Section 14, Township 12 South, Range 9 East, Carbon County, Utah

Pursuant to Utah Code Ann. § 40-6-18, (1953, as amended), Utah Admin. R. 649-2-3, and Utah R. 649-3-4, approval to drill the referenced well is hereby granted.

In addition, the following specific actions are necessary to fully comply with this approval:

1. Submittal to the Division of evidence providing assurance of an adequate and approved supply of water as required by Utah Code Ann. § 73-3, Appropriations, prior to commencing drilling operations.
2. Compliance with the requirements of Utah Admin. R. 649-1 et seq., Oil and Gas Conservation General Rules
3. Notification within 24 hours after drilling operations commence.
4. Submittal of Entitlement Action Form, Form 6, within five working days following commencement of drilling operations and whenever a change in operations or interests necessitates an entitlement status change
5. Submittal of the Report of Water Encountered During Drilling, Form 7.
6. Prompt notification prior to commencing operations, if necessary, to plug and abandon the well. Notify Frank R. Matthews, Petroleum Engineer, (Office) (801) 538-5340, (Home) (801) 476-8613, or R. J. Firth, Associate Director, (Home) (801) 571-6068

Page 2  
Anadarko Petroleum Corporation  
Matt's Summit Federal A-2 Well  
June 8, 1992

7. Compliance with the requirements of Utah Admin. R 649-3-20, Gas Flaring or Venting, if the well is completed for production.

Prior to commencement of the proposed drilling operations, plans for facilities for disposal of sanitary wastes at the drill site should be submitted to the local health department. These drilling operations and any subsequent well operations should be conducted in accordance with applicable state and local health department regulations. A list of local health departments and copies of applicable regulations are available from the Department of Environmental Quality, Division of Drinking Water/Sanitation, telephone (801)538-6159

This approval shall expire one year after date of issuance unless substantial and continuous operation is underway or a request for an extension is made prior to the approval expiration date. The API number assigned to this well is 43-007-30151.

Sincerely,



R. J. Firth  
Associate Director, Oil and Gas

ldc  
Enclosures  
cc. Bureau of Land Management  
J. L. Thompson  
WO11

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE\*  
(Other instructions on  
reverse side)

FORM APPROVED.  
Budget Bureau No. 1004-0136  
Expires August 31, 1985

<b>APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK</b>				6. LEASE DESIGNATION AND SERIAL NO. <b>U-66943</b>
1a. TYPE OF WORK <b>DRILL <input checked="" type="checkbox"/></b> <b>DEEPEN <input type="checkbox"/></b> <b>PLUG BACK <input type="checkbox"/></b>  b. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER Coalbed Methane <input type="checkbox"/> SINGLE ZONE <input type="checkbox"/> MULTIPLE ZONE <input type="checkbox"/>				7. UNIT AGREEMENT NAME <b>Matt's Summit</b>
2. NAME OF OPERATOR <b>Anadarko Petroleum Corporation</b>				8. FARM OR LEASE NAME <b>Matt's Summit Federal</b>
3. ADDRESS OF OPERATOR <b>P.O. Box 4499 Houston, TX 77210-4499</b>				9. WELL NO. <b>A-2</b>
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.) At surface <b>1850' FNL &amp; 1600' FWL of Sec. 14</b> At proposed prod. zone <b>Same</b>				10. FIELD AND POOL, OR WILDCAT <b>Wildcat</b>
14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE* <b>Approximately 7 miles north of Helper, Utah</b>				11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA <b>SE/NW Sec. 14, T12S, R9E</b>
15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest city, town, etc., if any) <b>530'</b>		16. NO. OF ACRES IN LEASE <b>1840</b>		17. NO. OF ACRES ASSIGNED TO THIS WELL <b>160</b>
18. DISTANCE FROM PROPOSED* LOCATION TO NEAREST WELL, DRAINING, COMPLETED, OR APPLYING FOR, ON THIS LEASE, FT. <b>2319'</b>		19. PROPOSED DEPTH <b>5000'</b>		20. ROTARY OR CABLE TOOLS <b>Rotary</b>
21. ELEVATIONS (Show whether OF, AT, OR, ETC.) <b>GR: 7941'</b>				22. APPROX. DATE WORK WILL START <b>July 1, 1992</b>
23. PROPOSED CASING AND CEMENTING PROGRAM				
SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12-1/4"	8-5/8"	24.0	400'	200 cu.ft.
7-7/8"	5-1/2"	15.5	5000'	300 cu.ft.

13-007-30151

JUL 30 1992

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM. If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout prevention program, if any.

24. SIGNED James C. Stringer TITLE **Coordinator, Regulatory & Safety** DATE **4/13/92**

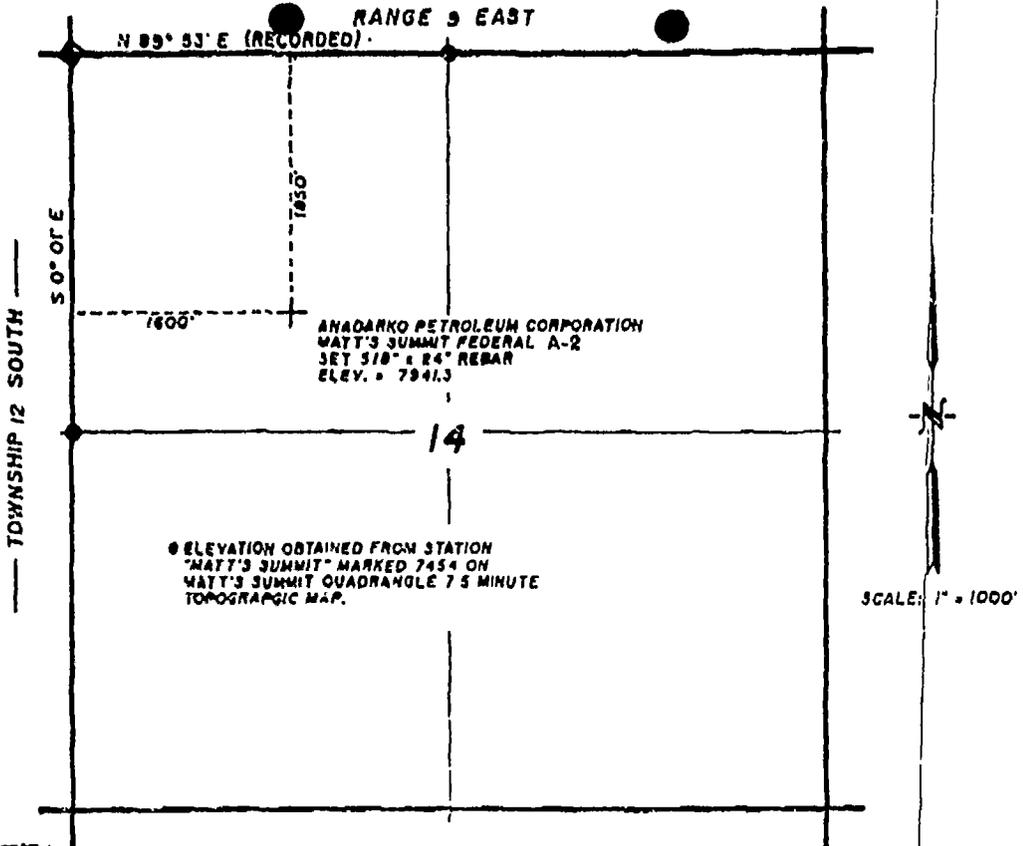
(This space for Federal or State off. use)

PERMIT NO. \_\_\_\_\_ APPROVAL DATE \_\_\_\_\_

APPROVED BY /s/ WILLIAM C. STRINGER TITLE Assistant Manager DATE \_\_\_\_\_

FOR THE DIRECTOR OF BUREAU OF LAND MANAGEMENT  
OFFICE OF PERMITTING AND REGULATION  
PERMIT TO DRILL 4-A CONT.

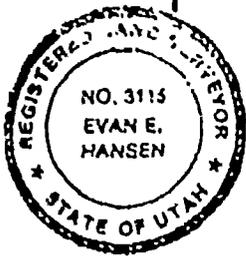
\*See Instructions On Reverse Side



ANADARKO PETROLEUM CORPORATION  
 MATT'S SUMMIT FEDERAL A-2  
 SET 5/18 & 24 REBAR  
 ELEV. = 7941.3

● ELEVATION OBTAINED FROM STATION  
 "MATT'S SUMMIT" MARKED 7454 ON  
 MATT'S SUMMIT QUADRANGLE 7 5 MINUTE  
 TOPOGRAPHIC MAP.

SCALE: 1" = 1000'



BASIS OF BEARING

BASIS OF BEARING S 89° 53' W, OBTAINED FROM S.L.O. PLAT DATED OCTOBER 30, 1916 BETWEEN THE NORTHWEST CORNER AND THE NORTH QUARTER CORNER OF SECTION 14, TOWNSHIP 12 SOUTH, RANGE 9 EAST, SALT LAKE BASE AND MERIDIAN.

LEGEND

- ◇ FOUND BRASS CAP SECTION CORNER
- FOUND BRASS CAP QUARTER CORNER

SURVEYOR'S CERTIFICATE

I, EVAN E. HANSEN, DO HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR AND PROFESSIONAL ENGINEER HOLDING CERTIFICATES NO. 3115 AND NO. 3354 AS PRESCRIBED UNDER THE LAWS OF THE STATE OF UTAH. I FURTHER CERTIFY THAT I HAVE MADE A SURVEY OF THE TRACT OF GROUND SHOWN AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

Evan E. Hansen  
 EVAN E. HANSEN

NOV. 29, 1997  
 DATE

<b>Empire Engineering</b>		
1665 E JAGI WOOD RD PHOENIX, UTAH 84301		
ANADARKO PETROLEUM CORPORATION MATT'S SUMMIT FEDERAL A-2		
Drawn By TH	Approved By EEH	Drawing No.
Date: 11-20-91	Scale: 1" = 1000'	EEOG-115

Anadarko Petroleum Corporation  
Well No Matt's Summit Federal A-2  
SENW Sec. 14, T 12 S , R. 9 E  
Carbon, County, Utah  
Lease U-65943  
Matt's Summit Unit

### CONDITIONS OF APPROVAL

Approval of this application does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Be advised that Anadarko Petroleum Corporation, is considered to be the operator of the above well and is responsible under the terms and conditions of the lease for the operations conducted on the leased lands.

Bond coverage for this well is provided by ES0128 (Principal - Anadarko Petroleum Corporation) via surety consent as provided for in 43 CFR 3104.2

This office will hold the aforementioned operator and bond liable until the provisions of 43 CFR 3106.7-2 concerning responsibility are met

This permit will be valid for a period of one year from the date of approval. A one-time, 90 day extension of this period may be granted. After permit termination, a new application must be filed for approval.

All lease operations will be conducted in full compliance with applicable regulations (43 CFR 3100), Onshore Oil and Gas Orders, lease terms, notices to lessees, and the approved plan of operations. The operator is fully responsible for the actions of his subcontractors. A copy of these conditions and the approved plan will be made available to field representatives to insure compliance.

#### A DRILLING PROGRAM

1. There will be no deviation from the proposed drilling and/or workover program without prior approval from the Assistant District Manager. "Sundry Notice and Report on Wells" (Form 3160-5) will be filed for approval for all changes of plans and other operations in accordance with 43 CFR 3162.3-2. Safe drilling and operating practices must be observed.
2. Daily drilling and completion progress reports shall be submitted to the District office on a weekly basis.

3. No trivalent or hexavalent chromate additives shall be used in the mud system. Due to potential for contamination of usable quality water aquifers, chromates are banned from Federal leases.
4. Operations authorized by this permit shall not be suspended for more than 30 days without prior approval of the Authorized Officer. All conditions of this approval shall be applicable during any operations conducted with a replacement rig.
5. Should the well become productive, the BLM, District Office must be notified no later than five business days after production begins. Notification shall be by letter or sundry notice, or orally to be followed by a letter or sundry notice.
6. Gas produced from this well may not be vented or flared beyond an initial authorized test period of 30 days or 50 Mmcf following its completion, whichever comes first, without prior written approval of the Authorized Officer.
7. The 3000 psi (3M) BOP system will be consistent with API RP 53 and Onshore Oil and Gas Order No. 2. Pressure tests of the surface casing and all BOP equipment potentially subject to pressure will be conducted before drilling the surface casing shoe. Blowout preventer controls will be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned. Ram preventers shall be inspected and operated each trip (no more than once a day is necessary), and annular preventers shall be inspected and operated weekly to ensure good mechanical working order. These inspections shall be recorded on the daily drilling report.
8. When the completion program is determined, a sundry notice describing the completion shall be submitted to the BLM, Moab District Office.
9. Surface casing shall be set in a competent zone of the North Horn Formation. Surface casing shall be equipped with a centralizer on each of the bottom three joints and it shall be cemented to surface.
10. The cement volume behind the production casing shall be sufficient to circulate the top of cement to 350 ft from surface (50 ft into the 8 5/8" surface casing), therefore protecting all potential fresh water zones.
11. During air drilling, a mist and/or dust diversion system must be used to keep excessive cuttings dust from escaping from the blowout pit.

## CONDITIONS OF APPROVAL

### 1. Access Conditions

- a. Existing roads and trails will be upgraded only to allow for adequate drainage measures. Any damage caused to roads during the project will be repaired
- b. Prior to construction of the new access road, an onsite analysis will be conducted to flag the exact route and establish design criteria. The route will be located as identified under proposed action in the EA.
- c. Design criteria will be established to meet requirements of BLM's Class III road system. Any road will have a maximum travel surface of 18 feet. Total disturbed width will be limited to 25 feet.
- d. The Price River Resource Area Manager will be notified at least 48 hours prior to any surface-disturbing activities associated with access road and drill pad construction.
- e. Dust control on all portions of the route will be required during project construction and during well drilling, and it may be necessary later if the project reaches economic production.
- f. During inclement weather when activity could result in deep rutting of the roads (6 inches or more) or excessive disturbance of the right-of-way, a stop work order may be verbally issued by the Area Manager with a follow-up written order. An authorization to resume work will be required.
- g. Flow measurements are to be taken at the head of each produced water discharge line and at each junction and/or discharge point, whether for surface or underground discharge. These will be recorded every 72 hours or more often when necessary. This data will be summarized and reported monthly to BLM-PRRA. Any incidence of flow data discrepancy is to be reported to the State Division of Environmental Health and the Price River Resource Area within 48 hours. This is to be resolved within 12 hours of discovery.
- h. Summarized results of all analyses of produced water will be sent to the Price River Resource Area, preferably on a monthly basis initially. This is to include baseline data already gathered.
- i. Plans will be formulated for long-term monitoring of aquifers and springs in the area of proposed development to assess any cumulative impacts that may trigger the need for an Environmental Impact Statement

j. There will be no deviation from the proposed drilling and/or workover program without prior approval from the Assistant District Manager for Minerals. Safe drilling and operating practice must be utilized at all times. All wells, whether drilling, producing, suspended, or abandoned and/or separate facilities, will be identified in accordance with 43 CFR 3162.6.

k. "Sundry Notice and Report on Wells" (Form 3160-5) will be filed for approval of any changes of plans and other operations in accordance with 43 CFR. 3162.6.

l. The dirt contractor will be provided with an approved copy of the surface use plan.

m. This permit will be valid for a period of one year from the date of approval. After permit termination, a new application must be filed before approval may be granted for any future operations.

Each APD will have well-specific wildlife conditions of approval attached.

2. Well-Specific Wildlife Conditions

<u>Well Number</u>	<u>Lease Status</u>	<u>Surface Ownership</u>	<u>Location</u>
Federal B-1	Federal	Federal	T12S R9E Sec 11 SESW
Federal A-2	Federal	Federal	T12S R9E Sec 14 SENW
Federal A-1	Federal	Federal	T12S R9E Sec 15 SENE

1. In order to protect sage grouse nesting/brood rearing, wintering mule deer and elk, fawning and calving deer and elk; exploration, drilling and other development activity will be allowed only during the period from 7/1 through 11/1.
2. No surface occupancy or other surface disturbance within 330 feet of the centerline of perennial streams or within 660 feet of springs.
3. Participate in development and implementation of an offsite mitigation plan to compensate for 53.9 acres of direct habitat loss and 3,936 acres of reduced habitat suitability.
4. Delay drilling and other development activity until after August 1, 1992 to avoid impacts to the active redtail hawk nest in section 11.
5. Relocate Federal B-1 well approximately 1,200 feet due west into the W/2SESW of section 11 to minimize impacts to redtail hawk nest territory in section 11.

6. Construct three artificial nest structures in suitable trees in the vicinity of the active redtail hawk nest and out of the area of influence of any of the facilities proposed in Anadarko's exploration program. Site selections will be made by a consultant for the proponent qualified as a raptor biologist and coordinated with BLM and UDWR. Construction methods, materials and specifications will be developed by the proponent's consultant and submitted to BLM for approval prior to construction. Construction must be completed prior to November 1, 1992.

7. Construction of new roads will, to the extent practical, be located away from ridgetops and/or utilize existing topography and vegetation to screen developments.

8. Possession of either firearms or pets by company personnel will not be allowed in the project area.

9. Maximum speed limit for all secondary roads within the project area is 25 miles per hour and shall be posted accordingly.

10. Company will post state wildlife laws and regulations in conspicuous places at job site.

## B. SURFACE USE PLAN

1. The dirt contractor will be provided with an approved copy of the surface use plan of operations before initiating construction.
2. All wells, whether drilling, producing, suspended, or abandoned, will be identified in accordance with 43 CFR 3162.6
3. A cultural resource clearance will be required before any construction begins. The operator is responsible for informing all persons in the area who are associated with this project that they will be subject prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the authorized officer (AO). Within five (5) working days, the AO will inform the operator as to:
  - whether the materials appear eligible for the National Register of Historic Places;
  - the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and,
  - a time frame for the AO to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation costs. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

4. The reserve pit shall be located in cut material, with at least 50% of the pit volume being below original ground level. Three sides of the reserve pit will be fenced before drilling starts. The fourth side will be fenced as soon as drilling is completed, and shall remain until the pit is dry. As soon as the reserve pit has dried all areas not needed for production will be rehabilitated.

5. Surface disturbance and vehicular travel will be limited to the approved location and access road. Any additional area needed must be approved by the Area Manager in advance.

6. Trash must be contained in a trash cage and hauled away to an approved disposal site as necessary but no later than at the completion of drilling operations.

7. If the well is productive, cattle guards will be installed on the access road at fence crossings. The access road will be rehabilitated or brought to Resource (Class III) Road Standards within sixty (60) days of dismantling the drilling rig. If this time frame cannot be met, the Area Manager will be notified so that temporary drainage control can be installed along the access road.

8. If a tank battery is constructed on this lease, it will be surrounded by a dike of sufficient capacity to contain 150% of the storage capacity of the largest tank in the battery. All loading lines and valves will be placed inside the berm surrounding the tank battery.

9. All permanent (on-site for six (6) months or longer) structures constructed or installed (including oil well pumping units) shall be painted a flat, nonreflective, earth tone color to blend with the local environment, as determined by the Rocky Mountain Five-State Interagency Committee. All facilities shall be painted within six (6) months of installation. Facilities required to comply with the Occupational Safety and Health Act (OSHA) may be excluded. Colors shall be coordinated with the Price River Resource Area office prior to initiating painting.

10. All off-lease storage, off-lease measurement, or commingling (on-lease or off-lease) shall have prior written approval from the Assistant District Manager.

11. Pipeline construction activity is not authorized under this permit.

12. Copies of all water analysis required by the State of Utah in relation to surface discharge of produced water will be submitted to the Moab District Office, Bureau of Land Management.

13 Produced waste water will be confined to an unlined pit for a period not to exceed ninety (90) days after initial production. During the ninety (90) day period, an application for approval of a permanent disposal method and location, along with the required water analysis, will be submitted for the Assistant District Manager's approval pursuant to Onshore Oil and Gas Order No. 3 (NTL-2B).

14 If at any time the facilities located on public land authorized by the terms of the lease are no longer included in the lease (due to contraction in the unit or other lease or unit boundary change) the BLM will process a change in authorization to the appropriate statute. The authorization will be subject to appropriate rental, or other financial obligation determined by the authorized officer (AO)

## C. REQUIRED NOTIFICATIONS AND APPROVALS

Required verbal notifications are summarized in Table 1, attached

Spud- Written notification in the form of a Sundry Notice (Form 3160-5) will be submitted to the District office within twenty-four (24) hours after spudding (regardless of whether spud was made with a dry hole digger or big rig). If the spudding occurs on a weekend or holiday, the written report will be submitted on the following work day.

Undesirable Events/Immediate Reports- Spills, blowouts, fires, leaks, accidents, or any other unusual occurrences shall be immediately reported to the Resource Area in accordance with requirements of NTL-3A.

Cultural Resources- If cultural resources are discovered during construction, work that might disturb the resources is to stop, and the Area Manager is to be notified

First Production- Should the well be successfully completed for production, the Assistant District Manager, Minerals Division will be notified when the well is placed in producing status. Such notification may be made by phone, but must be followed by a sundry notice or letter not later than five (5) business days following the date on which the well is placed on production

A first production conference will be scheduled within fifteen (15) days after receipt of the first production report. The Resource Area Office will coordinate the field conference.

Well Completion Report- Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report and Log" (Form 3160-4) will be submitted to the District Office not later than thirty (30) days after completion of the well or after completion of operations being performed, in accordance with 43 CFR 3162.4-1. Two copies of all logs, core descriptions, core analyses, well test data, geologic summaries, sample description, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, will be filed with Form 3160-4. Samples (cuttings, fluids, and/or gas) will be submitted when requested by the Assistant District Manager.

Plugging and Abandonment- If the well is completed as a dry hole, plugging instructions must be obtained from the BLM, Moab District Office prior to initiating plugging operations. Table 1 of this document provides the after-hours phone numbers of personnel who are authorized to give plugging instructions.

A "Subsequent Report of Abandonment" (Form 3160-5) will be filed with the Assistant District Manager, Minerals Division within thirty (30) days following completion of the well for abandonment. This report will indicate where plugs were placed and the current status of surface restoration. Upon completion of approved plugging, a regulation marker will be erected in accordance with 43 CFR 3162.6. Final abandonment will not be approved until the surface reclamation work required by the approved APD or approved abandonment notice has been completed to the satisfaction of the Area Manager or his representative, or the appropriate surface managing agency.

Venting/Flaring of Gas- NTL-4A allows venting/flaring of gas during the initial well evaluation period not to exceed 30 days or 50 Mmcf. Venting/flaring beyond the initial test period threshold must be approved by the District Office.

TABLE 1

NOTIFICATIONS

Notify Dean Nyffeler, Don Stephens or Mike Kaminski of the Price River Resource Area, at (801) 37-4584 for the following.

2 days prior to commencement of dirt work, construction or reclamation;

1 day prior to spudding,

50 feet prior to reaching surface casing setting depth,

3 hours prior to testing BOPE;

If the person at the above number cannot be reached, notify the Moab District Office at (801) 259-6111. If unsuccessful, notify one of the people listed below

Well abandonment operations require 24 hour advance notice and prior approval. In the case of newly drilled dry holes, verbal approval can be obtained by calling the Moab District Office, Branch of Fluid Minerals at (801) 259-6111. If approval is needed after work hours, you may contact the following

Dale Manchester, Petroleum Engineer	Office (801) 259-6111
	Home (801) 259-6239

Eric Jones, Petroleum Engineer	Office (801) 259-6111
	Home (801) 259-2214

If unable to reach the above individuals, please call the following

Lynn Jackson,	Office (801) 259-6111
Chief, Branch of Fluid Minerals	Home (801) 259-7990

## 2.0 PROPOSED ACTION AND ALTERNATIVES

### 2.1 Proposed Action

The proposed action involves the drilling, completion and evaluation of six additional (6) coalbed methane wells and one (1) water injection well at surface locations as shown below:

1. Matt's Summit State B-1 : Coalbed Methane Well  
NW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ , Section 10, T12S, R9E; Carbon County, UT
2. Matt's Summit Federal A-1 : Coalbed Methane Well  
NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ , Section 15, T12S, R9E; Carbon County, UT
3. Matt's Summit Federal A-2 : Coalbed Methane Well  
NW $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ , Section 14, T12S, R9E; Carbon County, UT
4. Matt's Summit Federal B-1 : Coalbed Methane Well  
SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ , Section 11, T12S, R9E; Carbon County, UT
5. Matt's Summit State C-1 : Coalbed Methane Well  
NW $\frac{1}{4}$ SE $\frac{1}{4}$ , Section 2, T12S, R9E; Carbon County, UT
6. Matt's Summit Federal B-2 : Coalbed Methane Well  
NW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ , Section 11, T12S, R9E; Carbon County, UT
7. Emma Park State A-1 : Water Injection Well  
NE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ , Section 32, T11S, R9E; Utah County UT

Considering that the exploration for, development, and production of coalbed methane gas is a radically different technology from conventional natural gas wells, it is essential to gather preliminary information on the coal seam(s) prior to undertaking extensive and/or expensive development thereof.

In this regard, drilling of the six (6) exploratory well locations listed above is necessary in order to provide the following baseline data:

1. coal thicknesses in the drilling area,
2. volumetric gas content of these coals,
3. BTU content of the methane gas contained therein,
4. length of time required to dewater the coal(s) and initiate gas desorption therefrom,

2.1 Proposed Action - Continued

5. relative volume(s) of water which must be removed per well prior to the onset of gas desorption,
6. quality of the water produced from the coal seam(s), and
7. potential gas production (volumetric) from the target coal seam(s) once desorption has peaked.

Once these parameters have been more accurately defined, a decision can be made as to the commercial feasibility of additional development of the coalbed methane resource in this area.

Of these six (6) exploratory well locations, four (4) are situated on federally owned surface estate, one (1) is owned by the State of Utah and the remaining location is situated on privately owned surface estate, as shown in Table 1-1, below.

Table 1-1

Surface Ownership of Proposed Well Locations

Well Name	Surface Ownership
State B-1	Park Ventures
Federal A-1	United States of America (BLM)
Federal A-2	United States of America (BLM)
Federal B-1	United States of America (BLM)
State C-1	Jerry, James and Dix Jensen
Federal B-2	United States of America (BLM)

The proposed water injection well is located on privately-owned surface estate belonging to: Norma Jeanne Moynier et al.

### 2.1.1 Construction Operations

The leveled (pad) area required for each of the seven (7) well locations for drilling, completion and initial evaluation operations will be approximately 1.56 acres in size. The total surface disturbance resulting from construction of all seven (7) well locations (including areas of cut, fill and topsoil/subsoil storage) will equal approximately 25.33 acres, for an average of 3.62 acres/well location.

In addition, approximately 2.25 miles of new access road construction will be required for access to these seven (7) proposed well locations, for an average of 0.32 miles of road construction per well location. Considering a total disturbed right-of-way (ROW) width not to exceed thirty (30) feet, this road construction would result in approximately 8.20 acres of additional surface disturbance, equal to approximately 1.17 acres of new road construction per well location.

### 2.1.2 Drilling Operations

Drilling operations on these wells should require no more than twenty-one (21) days per well location from the time the drilling rig is moved onto the well location and rigged up until such time as the hole has been drilled, casing set and the rig moved off of the location.

The actual drilling operation will utilize a water-based mud system with non-hazardous additives for lost circulation, hole stabilization and/or hole conditioning prior to logging and/or running casing. Basically, this system involves drilling with water and utilizing additives (such as bentonite) to prevent hole collapse in water sensitive formations (shales).

Upon completion of the drilling operation, production casing is set to total depth and cemented back to surface, isolating all formations in the hole, which effectively eliminates any possibility for fluid communication between potential hydrocarbon bearing zones and any fresh water aquifers which may be encountered in the hole.

### 2.1.3 Completion Operations

Once the well has been drilled and cased, a work-over unit is moved onto the well location and completion operations are commenced which generally require an average of five (5) days per well location. This completion operation consists of cleaning out the hole, logging, pressure testing the casing and perforating the targeted horizons in the coal seam downhole.

After the casing has been perforated, production tubing is run and the well is flow tested for initial water/gas production rates. Based upon the initial performance of the well, a decision may be made to fracture (frac) the coal seam(s) with a mixture of sand and gelled water. As the formation is fractured, the resulting fissures (fractures) are filled with sand which props open these fissures, thereby facilitating the flow of water and/or gas into the well bore.

After completion operations, the well will be placed on pump with pumping operations continuing until such time as a proper evaluation of the coalbed methane reservoir has been obtained (estimated six (6) months, minimum).

### 2.1.4 Evaluation Operations

Generally speaking, methane gas within the coal bed is held in place by pressure from water contained in fractures within the coal seam. Mechanical pumping removes this water, lowering the formation pressure, and thus allowing the gas to "desorb" from the coal. An evaluation of the actual volume(s) of water removed from these exploratory wells prior to commencement of desorption coupled with the resultant desorption rates can be extrapolated to calculate the commercial feasibility of additional development including potential well densities required to accomplish economic recovery of the coalbed methane resource.

As the coal is dewatered, desorption will occur and methane gas will commence flowing to the surface. Typically, there is an inverse relationship between water and gas production, with water volumes tending to decrease over time as the coal is dewatered, while gas volumes tend to increase as the water is removed from the formation. Eventually, an equilibrium will be reached at which point maximum gas desorption will occur in association with diminished water production. However, this equilibrium can only be maintained as long as the well remains on pump.

#### 2.1.4 Evaluation Operations - Continued

Should the well be "shut-in" for any period of time, the coal will recharge with water resulting in a loss of gas production therefrom.

#### 2.1.5 Disposal of Produced Water

Initially, Anadarko proposes to dispose of waters produced from these wells through underground injection. Subsurface injection of produced water would be in strict accordance with Underground Injection Control (UIC) rules and regulations.

As an alternative to subsurface disposal, Anadarko Petroleum Corporation would consider reverse osmosis for treatment of the produced water stream, discharge of the treated water and re-injection of the concentrate. Surface water discharge would be regulated under an NPDES (National Pollutant Discharge Elimination System) permit (to be issued by the State of Utah), in conjunction with an NTL-2B (Notice to Lessees Number 2B) application (to be issued by the Price River Resource Area Office, Bureau of Land Management).

Issuance of these permits for the surface discharge of produced waters would be contingent upon the water meeting pre-established minimum criteria for quality and would include a rigorous testing regimen to insure that the discharged water continues to meet the minimum standards established by the Environmental Protection Agency for surface discharges.

#### 2.1.6 Pipelines

During the initial dewatering phase of operations, the need for a pipeline to transport gas will not be necessary as only minimal quantities of gas will be produced. Gas produced during this initial evaluation phase of operations will be vented to the atmosphere under authority from both the State of Utah and the Bureau of Land Management.

Buried pipelines would be required for transport of produced water to the disposal/treatment facility and would be installed adjacent to the existing access road right-of-ways.

### 2.1.6 Pipelines - Continued

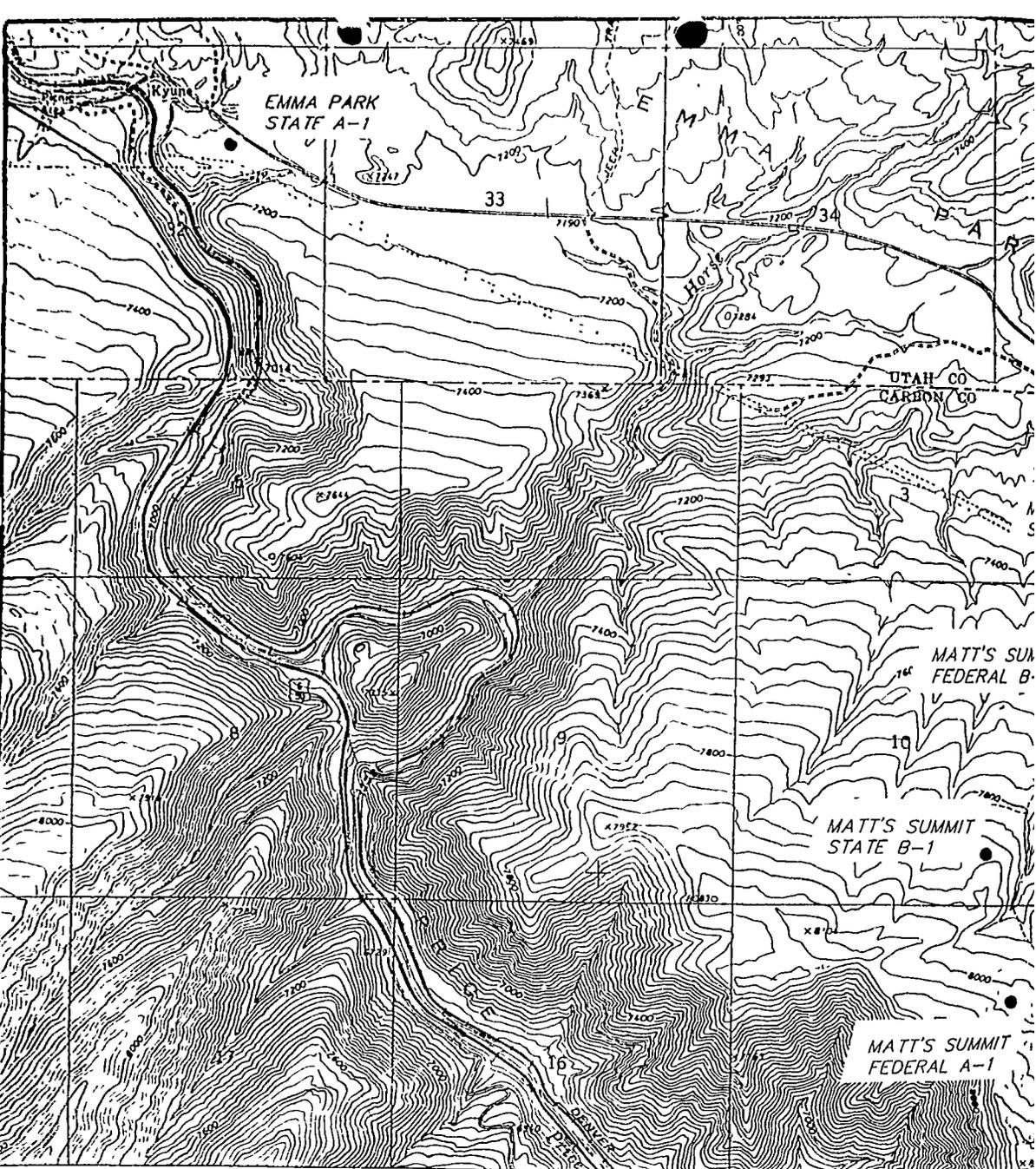
These pipelines would be buried to an average minimum depth of four (4) feet below the natural ground level in order to prevent freeze-up during the winter months and potential damage from surface activities. Considering a disturbed right-of-way (ROW) width not to exceed fifteen (15) feet, installation of these subsurface pipelines will result in approximately 1.82 acres of surface disturbance per mile of pipeline.

### 2.1.7 Abandonment

As a result of this evaluation program, Anadarko Petroleum Corporation will ultimately make a decision as to the commercial feasibility of developing the coalbed methane resource within the leasehold. If the decision is made to abandon the project, all above ground facilities would be removed from the well locations and the existing well bore(s) would be physically plugged with cement in accordance with requirements of the appropriate regulatory agencies.

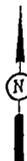
Upon completion of plugging operations, both the abandoned well location and attendant access road will be reclaimed according to the requirements of the appropriate surface management agency and/or each respective private surface owner.

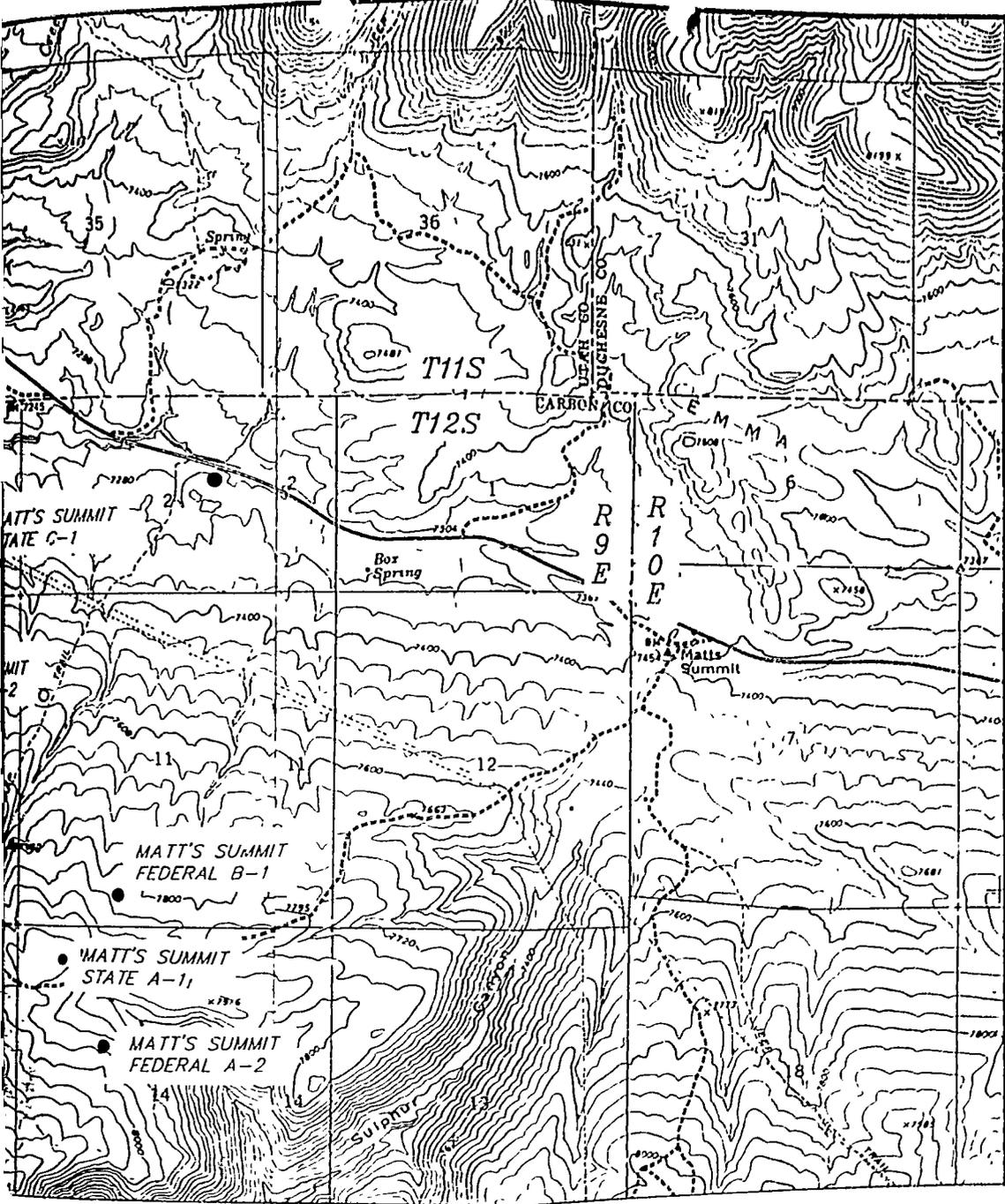
If commercial production is obtained from these well locations, we could reasonably expect production to occur over a fifteen (15) to thirty (30) year period. As wells become non-productive, they will be plugged, abandoned and reclaimed as described above.



TOPOGRAPHIC  
MAP

SCALE 1" = 2000





**ANADARKO PETROLEUM CORPORATION**

MATT'S SUMMIT UNIT AREA  
 T11S, R9E, & T12S, R9E, S.L.B & 1



# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF WILDLIFE RESOURCES

Norman H. Bangerter  
Governor  
Lee C. Hansen  
Executive Director  
Timothy H. Provan  
Division Director

1596 West North Temple  
Salt Lake City, Utah 84116-3195  
801 538 4700  
801 538 4709 Fax

July 1, 1992

*2. Further for consideration  
and file*

RECEIVED

JUL 08 1992

DIVISION OF  
OIL, GAS & MINING

Dr. Dianne R. Nielson, Director  
Division of Oil, Gas and Mining  
355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180

Dear Dianne:

*see 14. 100, 4E 43 007-30151*

This letter is in response to four applications for permits to drill (APD's) in the Matts Summit area of Carbon County. The APD's are for Matts Summit State B-1 well, Matts Summit Federal B-1 well, Matts Summit Federal A-2 well and Matts Summit Federal A-1 well.

Enclosed is a letter dated April 21, 1992, to Mr. Robert Anderson, consultant for Heitzman Drill-Site Services, who is preparing an environmental assessment for Anadarko Petroleum Corporation's Matts Summit Coalbed Methane Project. The letter outlines the Division of Wildlife Resources' concerns and recommendations regarding this project. The issues and recommendations found in the letter should be considered as these APD's are reviewed. We are particularly concerned with the cumulative impacts to wildlife of this project and Cockrell Oil's methane project in this same area. The impacts of these two projects represent a significant alteration of critical wildlife habitat. Such impacts should be considered and addressed.

We appreciate the opportunity to provide input on these applications. We will also be working with the Bureau of Land Management as they complete the NEPA process for this project. If you have any questions regarding our comments, please contact Ken Phippen, Regional Habitat Manager (637-3310).

Sincerely,

Timothy H. Provan *1/10/92*  
Director

Enclosure

STATE ACTIONS

Mail to.  
RDCC Coordinator  
116 State Capitol  
Salt Lake City, Utah 84114

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1. ADMINISTERING STATE AGENCY  
OIL, GAS AND MINING  
355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203

2. STATE APPLICATION IDENTIFIER NUMBER:  
(assigned by State Clearinghouse)

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3. APPROXIMATE DATE PROJECT WILL START:  
Upon approval

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4. AREAWIDE CLEARING HOUSE(S) RECEIVING STATE ACTIONS:  
(to be sent out by agency in block 1)  
Southeastern Utah Association of Governments

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5. TYPE OF ACTION.  Lease  Permit  License  Land Acquisition  
 Land Sale  Land Exchange  Other \_\_\_\_\_

---

6. TITLE OF PROPOSED ACTION  
Application for Permit to Drill

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7. Anadarko Petroleum Corporation proposes to drill the Matt's Summit A-2 well (wildcat) on federal lease U-65943, Carbon County, Utah. This action is being presented to RDCC for consideration of resource issues affecting state interests. The U.S. Bureau of Land Management is the primary administrative agency in this action and must issue approval before operations commence.

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8. LAND AFFECTED (site location map required) (indicate county)  
SE/4 NW/4, Section 14, Township 12 South, Range 9 East, Carbon County, Utah

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9. HAS THE LOCAL GOVERNMENT(S) BEEN CONTACTED?

---

10. POSSIBLE SIGNIFICANT IMPACTS LIKELY TO OCCUR  
See Attachment

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11. NAME AND PHONE NUMBER OF DISTRICT REPRESENTATIVE FROM YOUR AGENCY NEAR PROJECT SITE, IF APPLICABLE

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12. FOR FURTHER INFORMATION, CONTACT  
Frank R. Matthews  
PHONE 538-5340

13. SIGNATURE AND TITLE OF AUTHORIZED OFFICIAL  
*Frank R. Matthews*  
DATE 5/14/92 Petroleum Engineer

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WOI187