APPENDIX E

MASTER DRILLING PLAN

MASTER DRILLING PLAN

Double Eagle Petroleum Company
P.O. Box 766
Casper, Wyoming 82602
(307) 237-9330

Cow Creek Area of Pod #6
Carbon County, Wyoming
June 15, 2001
Amended February 5, 2002

Double Eagle Petroleum Company is proposing the drilling of eight exploratory coalbed methane (CBM) wells near and in the Cow Creek Unit or Pod #6 of the Interim Drilling Plan associated with the Atlantic Rim Environmental Impact Study in Carbon County, Wyoming.

The Atlantic Rim Environmental Impact Study will commence in 2001 and cover approximately 300,000 acres. The EIS is expected to take 18-24 months to complete. During the interim period before the EIS completion, the Bureau of Land Management will allow the drilling of up to 200 exploratory wells. Currently oil and gas operators have identified 9 areas or "Pods" where these exploratory wells will located.

The Interim Drilling Plan associated with the Atlantic Rim Environmental Impact Statement allows for the drilling of 24 CBM wells in Pod #6 located in portions of sections 12 of Township 16 North, Range 92 West; and sections 7, 17, and 18, of Township 16 North, Range 91 West, Carbon County, Wyoming. Ten wells located in sections 8 and 17 of Township 16 North, Range 91 West, will be operated by PEDCO/Warren Resources. The remaining 14 wells in Pod #6 will be operated by Double Eagle Petroleum. Of this total 14 wells, Double Eagle has 2 existing wellbores, 4 approved permits to drill, and is proposing 8 additional locations. **This Master Drilling Plan focuses solely on those new proposed 8 locations to be operated by Double Eagle Petroleum.**

1. Wells to be covered by The Master Drilling Plan

Well Name	Location	Survey
CCU #12-7	Lot 6 (SW¼NW¼) (7, T16N-R91W)	300 FWL/1,750 FNL
CCU #13-7	Lot 7 (NW¼SW¼) (7, T16N-R91W)	500 FWL/2,400 FSL
CCU #14-7	Lot 8 (SW¼SW¼) (7, T16N-R91W)	500 FWL/660 FEL
DBLE #24-7	SE¼SW¼ (7, T16N-R91W)	660 FSL/1,650 FWL
DBLE #33-7	NW¼SE¼ (7, T16N-R91W)	1,980 FSL/1,980 FEL
DBLE #34-7	SW¼SE¼ (7, T16N-R91W)	660 FSL/1,980 FEL
DBLE #43-7	NE¼SE¼ (7, T16N-R91W)	660 FEL/1,980 FSL
DBLE #44-7	SE¼SE¼ (7, T16N-R91W)	600 FEL/660 FSL

2. Estimated Important Geological Markers

Horizon	Drilling Depth
Lewis Shale	Surface
Mesaverde	910'
Total Depth	1,500'

3. Estimated Depth of Anticipated Water, Oil, Gas or Minerals

Formation	Drilling Depth	Remarks
Mesaverde	910'	Oil, Gas or Water

4. Operator's Minimum Specifications for Pressure Control

A. A BOP schematic of the blowout preventer equipment which will consist of 2,000 psi W.P. Double Ram, Hydraulic Preventer is enclosed. All fill, kill lines will be 2,000 psi W.P. 0-160' no pressure control; 160'-1,500' 2,000# system. Note: This well is proposed as a "Coal Bed Methane" (CBM) well. A number of CBM wells drilled in the area indicate that the maximum anticipated surface pressure will not exceed 250 psi thus the BOP will only be tested to 1,000 psi.

B. Testing Procedures

1. Ram type preventers and associated equipment shall be tested to 1,000 psi. Pressure shall be maintained for at least 10 minutes, or until requirements of test are met, whichever is longer.

2. Tests will be run at the time of installation, prior to drilling out of casing shoe, whenever any seal subject to test pressure is broken, and at least every 30 days.

3. All casing strings will be pressure tested to 0.22 psi/ft or 1,500 psi (whichever is greater) prior to drilling the plug after cementing. Test pressure will not exceed 70% of the minimum internal yield of the casing.

C. Accessories to BOPs include upper and lower Kelly cock valves with handles and floor safety valve, drill string BOP.

D. An accumulator unit will be used that has sufficient capacity to close all the equipment on the stack. The accumulator unit will be located at the master accumulator and on the rig floor. Hydraulic controls will be located at the master accumulator and on the rig floor. Manual controls (hand wheels) will also be installed on the blind and pipe rams. Refer to the enclosed exhibit for the diagram of the "Accumulator System and Hydraulic Controls."

5. Casing and Cementing Program

A. All new casing.

B. Surface casing: 160' of 9-5/8", 36#/ft, J-55 ST&C and cement to surface with 90 sacks of cement. Centralizers will be placed 5' off bottom of surface hole, and then one per joint. Cementing will consist of 90 sacks of Class G with 2% Calcium Chloride and ¼-lb per sack of Flowcele with a weight of 15 lbs per gallon and a yield of 1.15 cubic feet per sack.

C. Production casing: 1,500' of 7", 23#/ft, J-55, ST&C, cemented with 225 sacks of cement. First Stage will consist of 125 sacks of Midcon 2 premium cement with a weight of 13 lbs per gallon and a yield of 2.0 cubic feet per sack. Second stage will consist of 100 sacks of Midcon 2 premium cement with a weight of 14.2 lbs per gallon and a yield of 1.59 cubic feet per sack. Anticipated top of cement is 400'.

6. Auxiliary Equipment

A. A float will not be used.

B. The pit will be monitored on a regular basis by a member of the drilling crew during the drilling of this well.

7. Mud Program

The mud system will consist of fresh water with appropriate weighting agents.

0' – 160' Fresh Water (8.5-8.6 lbs per gallon)
160' – TD Fresh Water with weighting agents (9.0-12.0 lb fluids as dictated by hole conditions).
Note: An adequate supply of weighting agents will be on hand for the purpose of assuring well control.

8. Testing Logging and Coring Program

A. The primary objective in this well is the Mesaverde Formation.

B. No Drilling Stem Tests will be run.

C. Logging: The following electrical logs will be run:
DIL/FDC/CNL – TD to surface casing

D. Coring: the decision to collect cores will be determined based on drilling samples.

E. Well completion and stimulation procedures will be determined following the evaluation of drilling results and open hole logs. A "Sundry Notice" will be submitted outlining the planned completion procedure at that time.

9. Abnormal Pressures or Temperatures

A. No abnormal temperatures have been noted or reported in wells drilled in the immediate area, nor at the depths anticipated in this well. The estimated static surface pressure is 250 psi or less. Anticipated Mesaverde Coals and Water Sands to be slightly over pressured.

B. No H_2S is anticipated.

10. Starting Date and Duration of Operations

The anticipated starting date is approximately August 1, 2001. Each drilling and completion operation should be completed in 45 days after spudding the well.

A COPY OF THE APPLICATION FOR PERMIT TO DRILL AND THESE CONDITIONS OF APPROVAL MUST BE FURNISHED TO YOUR FIELD REPRESENTATIVE AND BE AVAILABLE ON SITE.

GENERAL PERMITTING REQUIREMENTS

1. All lease operations are subject to the terms of the lease and the lease stipulations, the regulations of 43 CFR Part 3100, Onshore Oil and Gas Orders, Notices to Lessees (NTLs), the approved APD, and any written instructions or orders of the Authorized Officer. The following requirements are emphasized.

   Abandonment: In the event abandonment of the hole is desired, oral approval may be granted by this office but must be followed within five days with a Notice of Intention to Abandon (Form 3160-5). Unless the plugging is to take place immediately upon receipt of oral approval, the BLM Branch of Minerals must be notified at least 24 hours in advance of the plugging of the well in order that a representative can witness the plugging operation. The Subsequent Report of Abandonment (Form 3160-5) must be submitted within 30 days after the actual plugging of the wellbore, reporting where the plugs were placed and volumes of cement used, along with copies of the service company invoice and job log.

   The operator shall promptly plug and abandon each newly-completed, recompleted, or producing well which is not capable of producing in paying quantities. No well may be temporarily abandoned for more than 30 days without prior approval of the Authorized Officer. When justified by the operator, the Authorized Officer may authorize additional delays, no one of which may exceed an additional 12 months. Upon removal of drilling or producing equipment from the site of a well, which is to be permanently abandoned, the surface of the lands disturbed shall be reclaimed in accordance with a plan first approved or prescribed by the Authorized Officer.

   Completion Report: If the well is completed as a dryhole or as a producer, Well Completion or Recompletion Report and Log (Form 3160-4) must be submitted within 30 days after completion of the well or after completion of operations being performed, in accordance with 43 CFR 3160. Copies of all logs, core descriptions, core analyses, well test data, geologic summaries, sample descriptions, daily drilling reports, daily completion reports, and all other surveys or data obtained and compiled during the drilling, completion, and/or workover operations, will be filed with Form 3160-4.

2. Approval of this APD does not warrant that any party holds equitable or legal lease title.

3. This permit is valid for a period of one year from the day of approval or until lease expiration/termination, whichever is shorter. If the permit terminates, any surface disturbance created under the application shall be reclaimed in accordance with the approved plan.

4. The spud date shall be reported to the BLM Authorized Officer's representative within 24 hours following spudding. A follow-up report on Form 3160-5 confirming the date of spud shall be promptly submitted to this office within five working days from date of spud.

5. Verbal notification shall be given to the BLM Authorized Officer's representative at least 24 hours in advance of pluggings, DSTs and/or other formation tests, BOP tests, running and cementing casing (other than conductor casing), and drilling over lease expiration dates.

6. Verbal notification shall be given to the BLM's resource specialist at least 48 hours in advance of access road/well pad construction, seeding, and the initiation of any reclamation work.

7. Operations that deviate from the approved APD shall receive prior written approval from the Authorized Officer. Emergency approval may be obtained orally but such approval does not waive the written report requirement.

8. All lease exploration, development, production, and construction operations shall be conducted in a manner which conforms with all applicable Federal, State, and local laws and regulations.

9. Historic, Cultural, and Paleontological Resources

   The operator shall be responsible for informing all persons associated with this project that they shall be subject to prosecution for damaging, altering, excavating, or removing any archaeological, historical, or vertebrate fossil objects or site. If archaeological, historical, or vertebrate fossil materials are discovered, the operator shall suspend all operations that further disturb such materials and immediately contact the Authorized Officer. Operations shall not resume until written authorization to proceed is issued by the Authorized Officer.

   Within five working days, the Authorized Officer will evaluate the discovery and inform the operator of actions that will be necessary to prevent loss of significant cultural or scientific values.

   The operator shall be responsible for the cost of any mitigation required by the Authorized Officer. The Authorized Officer will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the Authorized Officer that the required mitigation has been completed, the operator shall be allowed to resume operations.

10. Hazardous Waste: Those wastes that qualify as exempt, under the Resource Conservation and Recovery Act (RCRA), Oil and Gas Exemption, may be disposed of in the reserve pit. *Generally, oil or gas wastes are exempt if they: 1) have been sent downhole and then returned to the surface during oil/gas operations involving exploration, development, or production; or 2) have been generated during the removal of produced water or other contaminants from the oil/gas production stream.* The term hazardous waste, as referred to above, is defined as a listed (40 CFR 261.31-33) or characteristic (40 CFR 261.20-24) hazardous waste under RCRA.

ADDITIONAL PERMITTING REQUIREMENTS

Drilling Plan:

BOP

1. All BOPE shall meet or exceed the requirements of a 3M system as set forth in Onshore Order No. 2.

2. The ram type preventer(s) shall be tested to the approved BOP stack working pressure when a test plug is used. If a test plug is not used, the ram type preventer(s) shall be tested to 70% of the minimum internal yield pressure of the casing.

3. The annular type preventer(s) shall be tested to 50% of the approved BOP stack working pressure.

4. A Sundry Notice (Form 3160-5), along with a copy of the BOP test report, shall be submitted to this office within five working days following the test.

5. If the bleed line is connected into the buffer tank (header), all BOP equipment including the buffer tank and associated valves will be rated at the required BOP pressure.

6. If an annular is used for the BOP, it will be tested to 2,000 psi.

7. Rotating heads are not acceptable for BOPs.

8. The kill line on the BOPE will have two valves and a check valve (two-inch minimum).

9. The choke line will have two valves, one being remotely operated (three-inch minimum).

10. The 5M BOPE will have a 5M annular.

11. The annular type preventer shall be tested to 1,000 psi.

12. All BOPE shall meet minimum standards for well control requirements as set forth in Onshore Order No. 2.

13 A Sundry Notice (Form 3160-5) shall be submitted to this office within five working days detailing the BOPE test (time/pressure chart).

Casing and Cementing:

1. The surface casing shall be cemented back to surface. In the event cement does not circulate to surface or fall back of the cement column occurs, remedial cementing shall be done to cement the casing back to surface.

2. Pea gravel or other material shall not be used to fill up around the surface casing in the event cement fall back occurs.

3. A Sundry Notice (Form 3160-5), along with a copy of the service company's materials ticket and job log, shall be submitted to this office within five working days following the running and cementing of all casing strings.

4. All casing strings shall be tested, prior to drilling out the casing shoe, to 0.22 psi/ft of casing string length or 1,500 psi, whichever is greater, but not to exceed 70% of the internal yield pressure of the casing.

5. Any change in the casing and cement design will be approved by the Authorized Officer prior to running casing and cementing.

6. No freshly hard banded pipe/collars will be rotated in the surface casing.

7. All surface casing will be blocked and centered prior to cut off and installation of the wellhead.

8. The volumes of cement for the production casing will be confirmed with the Authorized Officer prior to cementing.

9. The volume of cement for the production casing will be sufficient so the top of the cement shall be a minimum of 100 feet above the Lance formation.

10. There will be a minimum of 1,000 feet of surface casing.

11. The operator will notify the Authorized Officer of the selected casing design prior to running the casing.

    ** The surface casing shall have a minimum of one centralizer per joint on the bottom three joints of the casing starting with the shoe joint.

12. Prior to running any <u>used</u> casing, test results will be submitted to the Authorized Officer for approval. All casing shall meet or exceed API standards for new casing, and will have a minimal wall thickness of 87½% of the nominal wall thickness of new casing.

13. Test Sheets for the production casing must be submitted to this office and approved by the Authorized officer prior to running the casing.

14. The used casing must be approved by the Authorized Officer <u>prior</u> to running the casing. For approval, a copy of the test sheets for collapse, burst, tensil strength and wall thickness must be submitted to this office.

15. Test sheets for 2⅞" casing will be submitted and approved by the Authorized Officer prior to running casing (the work order number on the casing must match the work order number on the test sheets).

16. The production casing will be N-80 from surface to 9420' and S-95 from 9420' to TD.

17. The top three joints of the surface casing will be 8⅝", J-55, 32#.

<u>Mud Programs</u>:

1. Sufficient quantities of mud materials shall be maintained at the well site, at all times, for the purpose of assuring well control.

2. A trip tank shall be used on the 10M system.

3. Minimum mud monitoring equipment on the 10M system shall include: pit volume totalizer, stroke counter and flow sensor.

Other:

1. A summary of the drilling operation and/or completion operation shall be submitted on Sundry Notice (Form 3160-5), to this office, along with copies of the daily drilling reports and/or daily completion reports, on a weekly basis.

2. Any permanent plug placed in the well during drilling and/or completion operations must have prior approval of the Authorized Officer.

3. A copy of all logs, formation test reports, stimulation reports, etc. shall be promptly submitted to this office.

4. Gas produced from this well may not be vented or flared beyond an initial test period, 30 days or 50 MMcf, whichever first occurs, without approval of the Authorized Officer. Should gas be vented or flared without approval beyond the test period authorized above, you may be directed to shut-in the well until the gas can be captured or approval to continue the venting or flaring as uneconomic is granted, and you shall be required to compensate the lessor for that portion of the gas vented or flared without approval which is determined to have been avoidably lost.

5. DSTs shall meet or exceed the requirements set forth in Onshore Oil & Gas Order No. 2.

6. The tops of formations (including the Fox Hills) must be identified in the geological marker section of the Well Completion Report (form 3160-4).

7. All usable water zones must be isolated and protected.

8. All Special Drilling Operations per Onshore Order #2 during Air/Air Mist Drilling will be followed.

9. You will comply with all Special Drilling Operations per Onshore Order #2 during Air/Air Mist drilling.

10. All applicable requirements of Onshore Order No. 7 shall be met.

11. An Underground Injection Control (UIC) permit shall be obtained from the State of Wyoming and will be submitted to this office via a Sundry Notice, Form 3160-5, prior to any operations.

12. If approval for disposal is revoked by any authority , the BLM water disposal approval is immediately terminated and the operator is required to propose an alternative disposal method.

13. Information submitted in support of the UIC permit shall be transmitted to the Authorized Officer and must satisfy all applicable BLM statutory responsibilities.

14. The requirement for an automatic igniter or continuous pilot light on the blooie line will be waived.

15. A directional survey will be submitted to this office with the well Completion or Recompletion Report (Form 3160-4).

16. A Communitization Agreement or another arrangement for production allocation will be coordinated with the Reservoir Management Group.

17. Open hole logs consisting of deep, medium and shallow resistivity curves, a porosity log and gamma-ray and SP curves shall be run at TD to at least 50 feet above any zone which may be considered to be productive of hydrocarbons.

18. The production will be reported under Communitization Agreement WYW-110139.

19. The obligations of Section 9C of the amended Cow Creek Unit Agreement will be fulfilled. This office will be notified 24 hours prior to the pressure surveys. A minimum of 50 bbls will be produced from each zone prior to collecting the water sample. If mud or other contamination is visible, the zone will be produced until clean. If a breakdown fluid (acid or water) is used, this volume will be added to the minimum volume required.

20. The obligations of Section 9C of the amended Cow Creek Unit Agreement will be fulfilled. This office will be notified 24 hours prior to the pressure surveys.

21. Water will be collected and tested as follows:

    A. Produce the well for a minimum of 25 bbls.

    B. For chemical analyses for metal ions in the water, collect one filtered and acidized, one liter sample as follows:

        1) Filter the sample through a 0.45 µ filter, and

        2) Acidize the sample with one milliliter on nitric (HNO_3) acid.

    C. For chemical analyses for standard constituents in the water collect one, raw (unfiltered and nonacidized), one liter sample.

    D. Mark the sample bottles with the time and date the samples were collected, the location (Township, Range, Section, and quarter-quarter) of the well from which the sample was collected, the well number, and the initials of the sample collector.

    E. At the well head, make field measurements of pH, Specific Conductance, and Temperature.

    F. Chill samples and deliver to a certified chemical laboratory within seven days.

    G. Initiate a “Chain-of-Custody” form to accompany the water samples to the chemical laboratory.

Conditions of Approval for Application for Permit to Drill

Lease Number: Cow Creek Area Pod Date: February 14, 2002

Operator: Double Eagle

Well/Project Name: CBM

Legal Description: Sec.7, T.16 N., R.91 W.

DRILLING PLAN

BOP:

1. The BOPE approved for this Pod shall be tested to a minimum of 1,000 psi. The test will meet the requirements of Onshore Order No. 2.

2. A Sundry Notice (Form 3160-5), along with a copy of the BOP test report, shall be submitted to this office within five working days following the test.

3. If the bleed line is connected into the buffer tank (header), all BOP equipment including the buffer tank and associated valves will be rated at the required BOP pressure.

Casing and Cementing:

1. The surface casing shall be cemented back to surface. In the event cement does not circulate to surface or fall back of the cement column occurs, remedial cementing shall be done to cement the casing back to surface.

2. Pea gravel or other similar materials shall not be used to fill up around the surface casing in the event cement falls back.

3. A Sundry Notice (Form 3160-5), along with a copy of the service company's materials ticket and job log, shall be submitted to this office within five working days following the running and cementing of all casing strings.

4. All casing strings shall be tested, prior to drilling out the casing shoe, to 0.22 psi/ft of casing string length or 1,500 psi, whichever is greater, but not to exceed 70% of the internal yield pressure of the casing.

5. Any change in the casing and cement design will be approved by the Authorized Officer prior to running casing and cementing.

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7. All surface casing will be blocked and centered prior to cut off and installation of the wellhead.

Mud Programs:

1. Sufficient quantities of mud materials shall be maintained at the well site, at all times, for the purpose of assuring well control.

Other:

1. A summary of the drilling operation and/or completion operation shall be submitted on Sundry Notice (Form 3160-5), to this office, along with copies of the daily drilling reports and/or daily completion reports, on a weekly basis.

2. Any temporary or permanent plugs placed in the well must have prior approval of the Authorized Officer.

3. A copy of all logs, formation test reports, stimulation reports, etc., shall be promptly submitted to this office.

4. Gas produced from this well may not be vented or flared beyond an initial test period, 30 days or 50 MMcf, whichever first occurs, without approval of the Authorized Officer. Should gas be vented or flared without approval beyond the test period authorized above, you may be directed to shut-in the well until the gas can be captured or approval to continue the venting or flaring as uneconomic

is granted, and you shall be required to compensate the lessor for that portion of the gas vented or flared without approval which is determined to have been avoidably lost.