

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
MINERALS MANAGEMENT SERVICE

SUBMIT IN TRIPLICATE\*

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1. TYPE OF WORK DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/>		5. LEASE/PERMIT NO. <del>05-2182</del> <b>OCS-Y0871</b>		
b. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <u>Wildcat</u> SINGLE ZONE <input type="checkbox"/> MULTIPLE ZONE <input type="checkbox"/>		6. AREA & BLOCK <u>NR6-4 Block 678</u>		
2. NAME OF OPERATOR <u>Shell Western E &amp; P, Inc.</u>		7. WELL NO. <u>OCS Y-871 #1</u>		
3. ADDRESS OF OPERATOR (Where form is completed) <u>601 West Fifth Avenue, Suite 810; Anchorage, AK 99501</u>		8. UNIT AGREEMENT <u>N/A</u>		
4. LOCATION OF WELL (Report location in accordance with instructions*) At surface Lat. <u>70° 18' 52.56" N</u> Long. <u>144° 45' 31.64" W</u> At proposed prod. zone <u>UTM Zone 6 x=584,246.081 M y=7,802,334.601 M</u>		9. FIELD <u>Wildcat</u>		
12. DISTANCE IN MILES AND DIRECTION FROM NEAREST ONSHORE POINT OF DEPARTURE <u>24 Miles WNW of Barter Island</u>		10. EXPLORATORY <input checked="" type="checkbox"/> DEVELOPMENT <input type="checkbox"/>		
14. DISTANCE FROM PROPOSED LOCATION TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT. <u>N/A</u>		11. ADJACENT STATE <u>Alaska</u>		
15. PROPOSED DEPTH <u>MD 12,000</u> TVD <u>same</u>		13. NO. OF ACRES IN LEASE <u>5693.29</u>		
17. ELEVATIONS (Show whether DF or RKB) <u>39' RKB</u>		16. RIG NAME & TYPE <u>Explorer II (Drillship)</u>		
18. WATER DEPTH <u>119'</u>		19. APPROX. DATE WORK WILL START* <u>September 20, 1985</u>		
20. PROPOSED CASING AND CEMENTING PROGRAM				
SIZE OF HOLE	SIZE AND GRADE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT (CU. FT.)
36"	30" Structure Pipe	310 #/foot	358'	1250 C.F. to glory hole base
26"	20" K-55 VETCO LS	133 #/foot	1158'	2960 C.F. to glory hole base
17 1/2"	13 3/8" L-80 BT&C	72 #/foot	2650'	1390 C.F. 250' into 20"
* 12 1/4"	9 5/8" L-80 LT&C	53.5 #/foot	6000'	1530 C.F. 250' into 13 3/8"
9 7/8"	7" L-80 LT&C-ABC &/or L-80 FL4S	26#/foot	10,000'	3160 C.F. 400' into 13 3/8"

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Anchorage, Alaska

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OCS DISTRICT OFFICE

JUL 17 1985

MAY 17 1985

REGIONAL SUPERVISOR MINERALS MANAGEMENT SERVICE  
FIELD OPERATION ANCHORAGE, ALASKA  
MINERALS MANAGEMENT SERVICE

\* contingency casing.  
\*\* test casing.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: GIVE BLOWOUT PREVENTER PROGRAM AND MUD PROGRAM OR ATTACH DRILLING PROGNOSIS CONTAINING INFORMATION REQUIRED BY OCS ORDERS.

21. SIGNED [Signature] TITLE Sr. Staff Environmental Engineer DATE 5-16-85  
(This space for Federal or State office use)

APR  
PERMIT NO. 55-177-00002

APPROVAL DATE

PROVED BY [Signature]  
CONDITIONS OF APPROVAL, IF ANY:

TITLE

**DISTRICT SUPERVISOR**

DATE

16 JUL 1985

THIS APPROVAL IS SUBJECT TO THE ATTACHED REQUIREMENTS AND IS GOOD THRU  
16 JAN 1987 • AFTER THIS DATE, THIS APPROVAL IS NULL AND VOID AND  
PRIOR TO COMMENCING THE OPERATIONS THE APD MUST BE RESUBMITTED UNLESS  
PRIOR APPROVAL IS GRANTED IN WRITING.

MAY 8, 1985

# PACIFIC FRONTIER DRILLING PROGNOSIS

APD

AREA

WELL: OCS-Y-871 #1

WFE NO:

LOCATION: Lat. 70° 18' 52.56" N  
Long. 144° 45' 31.64" W

FIELD: Corona

OBJECTIVE: UTM Zone 6 X = 584,246.081M; Y = 7,802,334.601M  
EVALUATION GEOLOGYEST. ELEVATION: KB-39  
Water Depth - 119'

DRILLING

CORES	ELEC. SURVEYS	MUD LOGGER	SIGNIFICANT FORMATIONS	WELL DEPTH RKB BML	CASING AND CEMENT	HOLE SIZE	HOLE DEV. AND DIR. CONTROL	MUD PROG.
				MSL	39			
				Mud Line	158			
				Base of glory hole	185	27		
				30" Struct. Pipe	358	200		
				20" Cond. Pipe	1158	1000		
				Lavendar	1290			
				Dark Blue	2440			
				13-3/8" Surf. Csg	2650	2492		
				T. of Obj	2990			
				Vermilion	4540			
				B. of Obj	5540			
				9-5/8" Inter. Csg	6000	5842		
				9-5/8" casing available if needed				
				Top of Green	6740			
				Green event	8940			

No Cores Planned

Anadrill Resistivity - Gamma Ray MMD will be run from 30" shoe to TD

Run #1  
Run #2  
Run #3

DISFL, BHCS, GR, SP, LDT/DML, NGT, PML, SHOT, SMS

Same as run #1 plus RFT

5 & Velocity (VSP)

Mud Logger and Drilling Data Unit

26" Bit w/36" HO

D-17-1/2" UR-26"

9-7/8" opened to 17-1/2"

9-7/8" opened to 12-1/4" If 9-5/8" csg req'd

8-1/2" if 9-5/8" csg run

9-7/8" otherwise

1" or less

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MAY 17 1985

MINERALS MANAGEMENT SERVICE  
ANCHORAGE, ALASKA

500' radius target @ 10,000' maximum survey spacing 490' (MMS)

Sea water, viscous pills as required. Returns to surface for

Fresh water Lignosulfonate mud Weight and viscosity as required (sea water will be used if freshwater resupply becomes

AREA

Miller 7/18/85

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July 18, 1985

District Geologist

Drilling Prognosis for SWEPI's OCS-Y 0871, Well No. 1, (Corona Prospect)

Supervisor, District Office

Shell Western E&P, Inc. plans to drill Well No. 1 on their OCS-Y 0871 lease starting September 20, 1985 or sooner depending on ice conditions. The well will be vertically drilled to a depth of 10,000' TVD and may be extended to 12,000' TVD, by a drill ship, the CANMAR EXPLORER II. The site's location is in the Beaufort Sea, Sale 87 Area, north of Camden Bay. No information is available for wells on state land such as Flaxman Island 30 miles WSW. The prospect is an upthrown fault trap with potential reservoirs of Miocene shallow marine clastics. The primary target lies within the marine clastics (Miocene?) to be encountered between approximately 6,000' to 8,000'. From approximately 8,000' to 10,000', the well will penetrate the Torok Formation (?) of upper Cretaceous age. The Torok Formation consists of marine shale, siltstone, and turbidites, and has been associated with abnormal pressures.

The abnormal pressures have been theorized to account for the observed faulting by the failure of shale. This results in "rootless" faults which bottom in the shale and create rotational fault blocks. Any sand bodies within the rotated fault block may become isolated and develop abnormal pressures. The primary target is within one such fault-isolated sand body and may have become overpressurized.

The well does not appear to intersect any faults, but many faults, identified from seismic section were not drawn on the cross section submitted with the Exploration Plan, and a major fault could be intercepted below 8,000'. Accordingly, lost circulation of drilling fluids as a result of penetration of a fault could occur below 8,000'. Hydrogen sulfide is not expected, but should be anticipated in this wildcat location.

(Orig. Sgd.) Norman F. Miller

Norman F. Miller

bcc: ✓ OCS-Y 0871, Well No. 1, File 6.B.1 Area/District  
District Chron Only  
NMiller:mw:7-18-85

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Miller 7/18/85

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July 18, 1985

District Geologist

Geologic Hazards, OCS-Y 0871, Well No. 1, (SWEPI)

Supervisor, District Office

Shell Western E&P Inc. (SWEPI) has submitted the results of a shallow hazard survey performed by Dames and Moore for their lease OCS-Y 0871, and vicinity. The well is planned for September 20, 1985, but may be commenced earlier if ice conditions warrant.

The seafloor bathymetry in the southern portion of the lease area is characterized by an irregular surface with minor depressions and shoals, while in the northern part of the lease it attains a gentle northward slope. Water depths vary from 31 to 43 meters and the observed irregular bathymetry may be a consequence of the Stamukhi Zone effects. To the north of OCS-Y 0871, the seafloor slopes beneath the 50m contour where evidence of massive slumping is common, but no signs of sediment instability were observed on the lease.

No active surface faults were observed, however, the preservation of fault scarps is unlikely given the constant reworking of sediment. The majority of faults appear to approach surface and two major faults extend to within 10 milliseconds of the seafloor.

Water column anomalies (WCA's) associated with gas seepage were observed over most of the lease. Near the drill site the WCA's were associated with the subsurface trace of a fault. The gas could be recharged from depth by migration along this fault.

The fine surficial Holocene sediments are described as a soft silty clay overlying a clay unit. These sediments thin to less than 2 milliseconds over the site. The base of this Holocene unit provided a minimum estimated to the top of the subsea permafrost. Beneath the clays the underlying Gubik formation is lithologically diverse containing clastics with a prominent channeled unconformity. These channels may also be charged with shallow gas where they encounter a shallow fault.

The proposed site does not appear to overlie a fault plane, but not all faults identified from seismic data were plotted on a map, and the well may, in fact, intersect a fault plane. As stated earlier, these faults may be charged by shallow gas. Closure could not be determined due to the "wipe-out" caused by shallow gas. Closure may be inferred, however, since the site overlies an anticline which appears to reach to the surface.

Shallow gas is present at depths from 25 to 90 milliseconds under a large area of the lease, including the proposed site.

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I recommend:

1. Anticipate encountering shallow gas possibly under pressure.
2. Anticipate fluid loss from penetration of a fault plane.
3. Anticipate subsea permafrost below 2 milliseconds.

(Orig. Sgd.) Norman F. Miller  
Norman F. Miller

bcc: ✓ OCS-Y 0871, Well No. 1, File 6.B.1. Area/District  
District Chron Only  
NMiller:mw:7-18-85

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2-16-85

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Anchorage, Alaska

JUL 17 1985

REGIONAL SUPERVISOR  
FIELD OPERATION  
MINERALS MANAGEMENT SERVICE

16 JUL 1985

NM:DO

Shell Western E&P Inc.  
Attn: Mr. G. J. Anderson  
601 West Fifth Ave, Ste 8103  
Anchorage, AK 99501

Gentlemen:

Your Application for Permit to Drill, OCS-Y 0871, Well No. 1, in Sale 87 Area of the Beaufort Sea, (copy enclosed), which was submitted May 17, 1985, with subsequent revisions, is hereby approved, subject to the following:

1. The attached "Conditions of Approval to Drill...".
2. All other applicable conditions required in the Exploration Plan approval letter of April 12, 1985.
3. Approval of the drill rig by the Minerals Management Service prior to spudding of the well, and Shell Western E&P Inc. submitting the Current American Bureau of Shipping Classification, U. S. Coast Guard Certificate of Inspection, or other appropriate classification, with operational limitations.

When the operation conditions reach the state specified as an "Alert 3", as defined in the "Critical Operations and Curtailment Plan", the recording frequency should be increased from every three hours to once an hour, and the data should be noted on the daily drilling reports.

The possibility of abnormally pressured, gas charged sediments occurring at this location cannot be ruled out. Although your "Contingency Plan for Handling Shallow Gas Flows" and your Well Program should adequately handle the possible occurrence of gas, caution is advised.

Shell Western E&P Inc., Attn: G. Anderson, Anchorage, AK 99501

2

This well has been designated API No. 55-171-00002.

Sincerely,

(Orig. Sgd.) Brian Schoof

Brian F. Schoof  
Supervisor, District Office  
Field Operations

Enclosure (1)

cc: Dave Yesland, Shell Western E&P Inc., 601 W. 6th Ave. Ste 810,  
Anchorage, AK 99501

bcc: ✓ OCS-Y 0871, Well No. 1, File 6.B.1. Area/District w/enclosure  
Chron Area/District  
RD Chron

NMasri:BSchoof:mw:7-16-85

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
MINERALS MANAGEMENT SERVICE  
ALASKA OCS REGION

CONDITIONS OF APPROVAL TO DRILL FOR OIL OR GAS

OCS-Y 0871 Well No.1

Send submittals to the Supervisor, District Office, at this address:

U.S. Dept. of Interior  
Minerals Management Service  
District Office  
P.O. Box 101159  
Anchorage, AK 99510

1. Submit the well's surface location as soon as the final surveyed location and the K.B. elevation have been determined, on Form 9-331, "Sundry Notices and Reports on Wells", in triplicate plus two public information copies, to the Supervisor, District Office. Specify the well location (latitude/longitude, distance from lease lines, Mercadian, Loran C), the location of each anchor, and the amount of chain and wire rope deployed. Notify the U.S. Coast Guard Office of Jurisdiction of the location for listing in the local notice to mariners.
2. Submit a daily drilling report until the final status of the well is established (one copy, no prescribed form) outlining the following: drilling depth, bottom hole location (if a directional well), mud weight, principal items of work done during the previous day (running casing, testing, coring, sidewall sampling, logging, etc.), zones of abnormal pressure, lost circulation, depth of kicks, other hole difficulties encountered.
3. Submit as soon as available one copy of all field prints of well logs, directional surveys, and preliminary well test data. Submit mud logs on a weekly basis.
4. Submit as soon as available but no later than 30 days after completion of the well, three copies (two blue-line and one sepia) of all final well logs including composite mud logs; two copies of the composite directional surveys.
5. Submit within 30 days of completion of the well, two copies (plus two public information copies) of a Completion Report (Form 9-330) and a Well Summary Report. Note all occurrences of oil, gas, sulfur, and other minerals of potential geological interest on the Completion Report, including all important zones of porosity and contents thereof; cored intervals; and complete details of all drill stem or formation tests. Identify rock units in time-stratigraphic terms showing, the depths to the tops of the



Upper Pliocene, Middle Pliocene, Lower Pliocene, Upper Miocene, Middle Miocene, etc., on the Completion Report or on a marked electric log.

6. Submit a written notification (Sundry Notice, Form 9-331, in triplicate, plus two public information copies), of intent to change any approved plan of operations for approval. Emergency approval may be obtained verbally, but must be followed by the written notice.

A subsequent report for the casing string run is to be furnished on Form 9-331 for each string of casing run. When a leak-off test is performed at the casing shoe, furnish the results along with the casing report.

Applications for Approval to Abandon a Well shall be submitted in accordance with Subsections 1.1 and 1.2 of OCS Order No. 3.

7. Submit two copies of all well reports, geochemical analyses and core analyses as soon as available.
8. Submit as soon as available two copies of a paleontological identification report of all foraminifera, nannoplankton and/or palynomorphs by depth, if prepared, and two copies of velocity surveys, if run.
9. The Supervisor, District Office, will require sufficient time to examine well records before completion, suspension, or abandonment activities are commenced, or before approval of the proposed disposition of a well is granted.
10. Before coring or testing, notice will be given to the Minerals Management Service so that such operations may be witnessed.
11. Ship samples of all cores, representative cuts, unwashed bulk and washed (dry) ditch samples to the Minerals Management Service, Regional Supervisor, Offshore Resource Evaluation, 949 E. 36th Ave., Third Floor, Suite 316, Anchorage, AK 99508.
12. All operations shall be subject to inspection by Federal inspectors designated by the District Supervisor.
13. Maintain an emergency standby vessel/vehicle at all times during operations. No operations shall be conducted unless there is a standby vessel/vehicle within the immediate vicinity of the drilling unit but no farther away than 5 miles or 20 minutes steaming distance, whichever is less.

14. Should a well be successfully completed for production or recompleted for production in a new interval, this office must be notified when the well is placed in a producing status. Notification may be provided orally but must be confirmed in writing and received in this office no later than the fifth business day following the date on which the well is placed on production. Provide the following information with the notification:

- a. Operator name.
- b. Well name, number, and location.
- c. Date well was placed on production.
- d. The lease, communitized tract, or unit participating area to which the well's production is attributable.