

## Martin Haefele

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**From:** Shirley Maaskant [Shirley.Maaskant@paramountres.com]  
**Sent:** June 23, 2003 4:09 PM  
**To:** Martin Haefele  
**Subject:** project scope for Cameron Hills



Summary & Project  
status of current pcription June 23 :

The two attached documents outline Paramount's potential 10 year Cameron Hills plan as best we know it today, along with the summary of the current project status spread sheet.

Please don't hesitate to contact me if you require additional information.



## **Principal Development**

To continue with the current development which includes exploring, developing, producing and marketing natural gas and oil reserves associated with Paramount's Significant Discovery/Commercial Discovery area located on the plateau of the Cameron Hills in the Northwest Territories (NWT) about 75 km southwest of Enterprise, NWT.

Paramount has several current land use permits and water licences in place that facilitate existing and future seismic, drilling/completion/evaluation, tie-in and production operations. The current land use permit and water license applications submitted to the MVLWB include the drilling and tie-in of 5 wells, however, Paramount projects that up to 50 additional wells (not currently covered under existing permits) may be drilled and tied-in over the next 10 year period followed by approximately 5 to 10 years of gradual production decline abandonment and reclamation activity with timing dependent on the productive life of the Cameron Hills field.

The exploration and development stage includes the continuation of all aspects of the existing project plus additional drilling, the construction of associated gathering and production facilities and increased production. Wells will be strategically located for efficient primary reservoir drainage and ready conversion to a secondary or enhanced recovery scheme if technically feasible and economically desirable. Additional seismic will be required to unravel the detailed pool configuration and pinpoint future drilling sites.

The scope and timing of future exploration and development activity at this point is at best speculative. Additional wells and facilities pursuing incremental reserves and accelerated production will be evaluated annually for technical and commercial viability. In addition to balancing environmental and socio-economic effects, economics will ultimately govern the pace and degree of development of the Cameron Hills hydrocarbon reserves.

### **The drilling phase may include the following components:**

Drill, complete & evaluate approximately 50 new wells (approximately 3 to 8 per year) not including the 5 already permitted, over the next 10 years. Each new well location will be cleared and graded as required to a maximum size of 110 m by 110 m. Access to the well sites will be through existing access and cut-lines where possible although some new access routes will be constructed.

The drilling, completing and evaluation of wells usually involves the tasks listed below:

- Move in and set up drilling equipment (one or more as required)
- Drill well
- Move out drilling equipment or move to a new location

- Move in service rig
- Conduct completion operations
- Move out service rig or move to a new location
- Flow test the well to determine economics of project development by evaluating reservoir parameters including permeability, need for, or effectiveness of wellbore stimulation, well deliverability, potential reservoir size
- If economically viable, proceed with tie-in and production.

The facilitation of drilling activity requires additional development and activities to be undertaken. These include the following:

- Re-use a temporary winter access road, approximately 33 km in length from Indian Cabins, Alberta on Highway 35, to a point approximately 10 km into the NWT. This winter road access will follow the same alignment as the winter road previously permitted and used in the prior winter seasons.
- Air access will be via helicopter and fixed wing, likely to sites already permitted.
- Construction of ice bridges as required.
- Construct temporary 20 to 50 man camps. The camp locations will take advantage of previous camp or airstrip locations already permitted. Potable water source for the camps may come from existing potable wells or new wells will be drilled at each camp location.
- Obtain drilling water from a specific unnamed lake near the well site and if required, from the shallow water source wells.
- Dispose of drill waste in remote sumps. Some clearing and leveling will be required around the sumps.
- Use borrow pits as required. Soil excavated from the borrow pit will be used during the closure of the drilling fluid and sewage sumps using the mix/bury/cover method.

**The tie-in and production operations are contingent on the success of the drilling operation. Should they occur, they could include the following:**

- Oil/gas/water gathering & injection systems and well site facilities would be constructed and operated at each of the selected wells.
- Modification of the existing central battery located in H-03 117° 30', 60° 10' (already permitted)

The facilitation of the tie-in and production project would require the following additional developments and activities to be constructed, operated and/or used:

- Water disposal pipeline (approved for project to date)
- Fuel gas pipeline distribution system and/or electrical distribution system to the oil wells (approved for project to date)
- Test satellite facilities (location to be determined based on future drilling) which includes a test separator, flare knockout drum, flare stack, chemical tanks and pumps, and SCADA antenna (approved for project to date)

- Potential modification of use for the 101.6 mm pipeline (already permitted) to transport crude emulsion.
- Temporary 100 and 200 person construction camps
- Borrow pits
- Utilize the same existing winter access road discussed in the drilling section that is already permitted and constructed.
- Production operations access to the wells via all-terrain vehicles (ATV) in the summer and regular vehicles and/or snowmobiles in the winter
- Installation of ATV bridges potentially with flowlines suspended from them
- Any other undertakings in support of or in conjunction with the principle developments or accessory developments and activities.

### **Ten Year Projected Development Schedule**

**The possibility exists that activity could be curtailed within the next few years which would result in a significant reduction of this proposed program.** Paramount is proposing to begin construction activities in November with completion of construction by April on an annual basis. The dates are tentative and will change depending upon economics, proposed activity and frozen ground conditions. Production activity will continue throughout the year.

2003/04	Drill, tie-in and produce 5 wells covered under existing land use permits and not the subject of this EA. Potential acquire additional seismic already approved.
2003/04	Drill, tie-in and produce up to 3 additional wells (subject to this EA)
2004/13	On an annual basis, drill, tie-in and produce approximately 3 to 8 wells each year to an approximate total additional maximum of 50 wells (not including the 5 wells planned in 2003/04 under existing permits) – always dependent on prior years drilling success and economics. Acquire the balance of the approved 533-kilometer 3D program and potentially acquire an additional 200 kilometers of 3D.

### **Annual Projected Activity Timeline**

**Seismic** This is not projected to be an annual activity. Leading with recognition 2D seismic where practical, the acquisition of the balance of the approved 533-kilometer 3D and approximately 200 kilometers of an additional 3D could be acquired over the next 5 years.

The timeline of seismic field activity is dependent on the amount to be acquired and the availability of a primary contractor. Assuming the projected 200 kilometer 3D program were to be acquired in one season, we anticipate the field activity would commence approximately mid January with recording completed by the end of February.

**Drilling** To drill, complete and evaluate 3 to 8 wells, road and wellsite construction would occur one well after the other and the rigs would move from one well to the next. Usually one drilling rig would drill three or four wells, therefore, if 8 wells were planned, 2 or 3 drilling rigs would be required.

Service rigs – assuming service work would be required on existing wells, and incorporating that with new well completions, likely one service rig per four new wells, therefore, on an 8 well new program coupled with some existing well work - anticipate 2 service rigs. They would start up in early January and finish the end of March

Timing could be somewhat as follows:

- First Frost – Dec 1
- Open Alberta and NWT access routes into area – Dec 2 - Dec 17
- Construct first new wellsite - Dec 18 – 23
- Move in drilling rig and drill well – Jan 2 - Jan 17
- Move out drilling rig, move in service rig, complete and test well Jan 18 - Feb 2
- This process would be repeated with up to three drilling rigs and commence from one well to the next as required.
- All rig activity would be completed approximately mid March.

**Pipeline** Tying-in successful wells commences once the well has been drilled and evaluated to ensure pipe is required. On an annual basis, anticipate starting mid January and finishing first week in April. This is dependent on number of wells to tie-in.

#### **Production Operations**

Two production operators are in the Cameron Hills field at all times, checking wells and maintaining production all year. This is not anticipated to change.

#### **Current Project and Land Use Permit Status**

Paramount has 27 existing wells in the Cameron Hills area in the NWT, with 12 of them currently connected to the gathering system. The central battery at H-03 has been constructed, as has the 304.8 mm trans-boundary pipeline from H-03 to the Alberta header at 5-24. The Trans-boundary pipeline connects to Paramount's Alberta pipeline system to the Bistcho plant, which processes and distributes the Cameron Hills hydrocarbon and Alberta natural gas.

The following table outlines Paramount's existing project components and their current status.

# Permitted Activity Status as of June 2003

X Activity Permitted Not Conducted

■ Activity Conducted & Ongoing

■ Activity Conducted & Completed

A Applied For – In EA

Well	Access Road	Drilling	Pipeline	Fuel Line	Power Line	Prod.	Seismic	Federal Surface Lease
A-05,60 10 117 30	■	■	■					X
A-52,60 20 117 30	X	X						Site reclaimed
A-68,60 10 117 15	X							X
A-73,60 10 117 30	■	■	■					X
B-08,60 10 117 30	■	■	■					X
B-13,60 10 117 00	X	X						Site reclaimed
B-25,60 10 117 30	■	■	X	X	X			X
C-19,60 10 117 30	■	■	X					X
C-50,60 10 117 30	■	■	■					X
C-74,60 10 117 15	■	■	■	X	X			
C-75,60 10 117 15	■	■	X	X	X			X
D-49,60 10 117 30	■	■	X					
D-78,60 10 117 15	X	X	X	X	X			
F-03,60 10 117 15	X	X	X	X	X			
F-34,60 20 117 30	X	X						
F-38,60 10 117 30	A	A	A					
F-73,60 10 117 15	■	■	■	X	X			
F-75,60 10 117 15	■	■	X					
G-21,60 20 117 30	■	■						X
G-48,60 10 117 30	A	A	A					
H-03,60 10 117 30	■	■	■	X	X			
H-58,60 10 117 30	■	■	■					
H-72,60 10 117 15	X	X	X	X	X			
I-10,60 10 117 30	■	■						X
I-16,60 10 117 30	■	■						X
I-73,60 10 117 15	■	■	X	X	X			
I-74,60 10 117 15	■	■	X					X
J-11,60 10 117 15	X	X						Site reclaimed
J-37,60 10 117 30	■	■	■					X
J-62,60 10 117 15	■	■						X
J-76,60 10 117 00	X	X						Site reclaimed
K-74,60 10 117 15	■	■	■	X	X			
L-44,60 10 117 30	■	■						X
L-46,60 10 117 30	A	A	A					
L-47,60 10 117 30	■	■	X					X
M-31,60 10 117 00	■	■						X
M-49,60 10 117 30	■	■	X					
M-73,60 10 117 15	■	■	■	X	X			X
N-28,60 10 117 30	■	■	■					X
N-36,60 10 117 30	A	A	A					
P-57,60 10 117 30	A	A	A					
4 Bridges	■					■		
H-04 Satellite	X					X		
H-03 Battery	■					■		
Airstrip	X					X		
Borrow Pits	■					■		
2 Temp Camps	■					■		
2D Seismic							X	
3D 40km2 (304 km)							X	
3D 1062 km							533 km remaining	

**Permitted Activity Status as of June 2003**

**X Activity Permitted Not Conducted**

**■ Activity Conducted & Completed**

**■ Activity Conducted & Ongoing**

**A Applied For – In EA**