Murphy Oil Chicken Creek b-94-B/94-G-6
and the Marathon Canada Sikanni c-40-J/94-G-3
Natural Gas Drilling Projects

A Comparison

by
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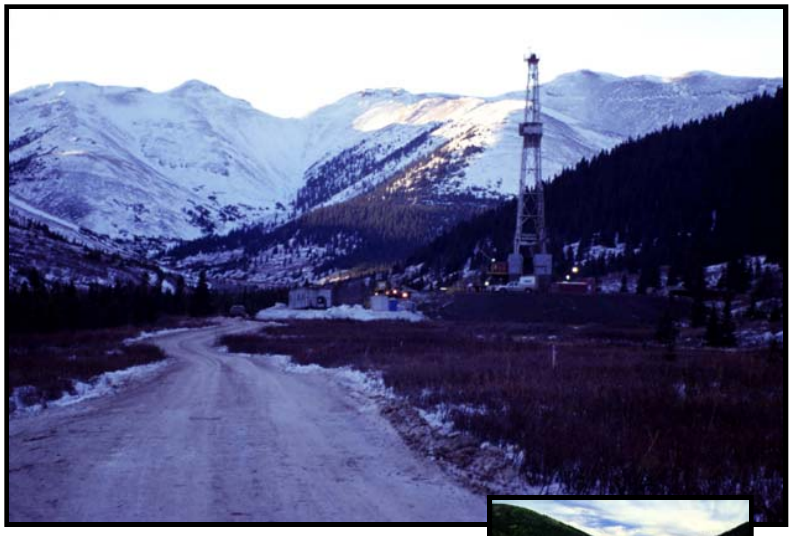
The Murphy Chicken and Marathon Sikanni projects are located in the Upper Sikanni Management Plan area, near the eastern margin of the Muskwa-Kechika Management Area. Both projects are located in valleys that are highly used by wintering moose and caribou, and have high summer use by grizzly bear and elk. The surrounding mountains are high quality Stone sheep habitat. Prior to these projects no roaded access existed into either valley.



Murphy Chicken Lower Wellsite and Snow Road

Marathon Canada Sikanni Wellsite

Murphy Oil utilized an innovative road layout and design that included access constructed partially in the dry creekbed of Chicken Creek itself. Road construction used snow and ice created by snowguns as a temporary roadbase. The remaining portions of the route traversed a steep timbered hillside and sections of open willow valley bottom.

Marathon Canada utilized the previously existing Loranger Creek access trail to a point approximately 3.5 km from the wellsite. After leaving the Loranger Creek trail new access was constructed up a timbered hillside and then through relatively relatively level terrain and a wildlife habitat burn to the wellsite. Portions of this route also utilized ice and snow created by snow guns as a roadbase while other portions of the route utilized conventional cut and fill road building technology.

Access Routes- Hillside.

Both projects traversed sections of timbered hillside of roughly equal steepness. Murphy Oil's corridor was cleared of trees, leaving the ground surface intact, then covered by geotextile matting, followed by a snow and ice roadbase and finally a cap of shale quarried outside the MK area. All of this material was removed at the conclusion of the project. This road construction technique resulted in very little ground disturbance.

Murphy Chicken Snow Road-Winter 2000-1
-note steep slope traversed.

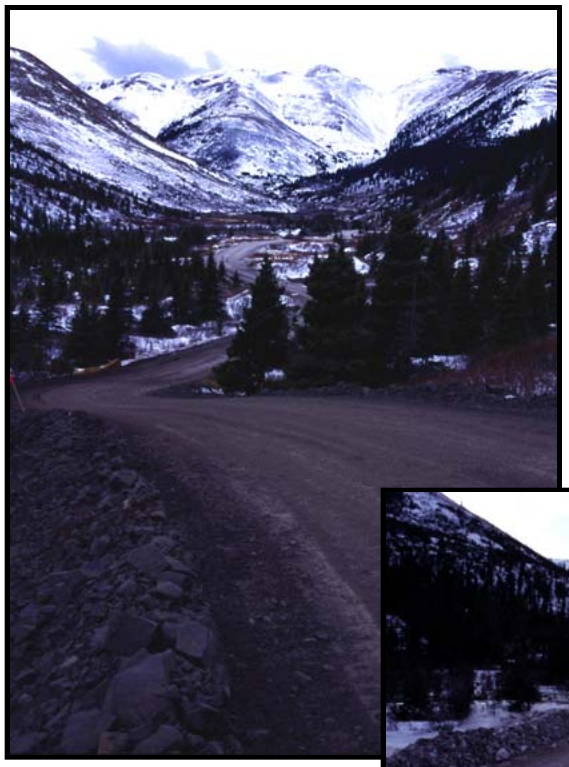
Murphy Chicken Snow Road-Summer 2001

Marathon Sikanni road up hillside
Summer 2002

In Marathon's case, the hillside corridor was first cleared. Next a conventional cut and fill roadbase was constructed resulting in approximately 2 kms. of complete removal and disturbance of the existing ground surface.

It appears difficult to justify the cut and fill road construction technology used by Marathon in this case given the high level of resulting ground disturbance, since the Chicken Creek project had demonstrated that snow fill technology was effective in traversing similar slopes while resulting in a much lower level of ground disturbance.

Access Routes- Upper Sections, through relatively level valley Bottoms.



Both projects encountered relatively level valley bottom or gently sloping side hills in their upper sections.

Murphy Oil constructed access up the dry creekbed of Chicken Creek using geotextile matting, artificial snow, and a cap of shale on the hills. Outside of the creek sections similar snow road technology was utilized in the valley bottom and upper steeper sections of hillside where some side slopes were encountered.

Murphy Chicken Ice Road- note slopes traversed.

**Marathon Road-
upper section of cut and fill
on shallow side slope**

Marathon also constructed sections of their access utilizing snow road technology resulting in very little ground disturbance in these sections.

However, Marathon's construction crews reverted to conventional cut and fill technology for a section of roadbase located near the wellsite in an area of shallow side slope. This was possibly due to pressures to construct the wellsite in a short period of time. The use of cut and fill resulted in unnecessary ground disturbance. Note that the Murphy Chicken project utilized snow road technology to successfully traverse similar or steeper sections of hillside for equal or greater distances.

**Marathon Road-
east end of upper section of cut and fill**

**Marathon Road-
end of hillside section of
cut and fill**

Wellsite Construction.

Murphy upper wellsite and road location, summer 2001

Over the course of the winter of 2000-1 Murphy Oil constructed well pads for two wells. For each, geotextile matting was laid down on the original willow covered ground surface then overlain with an artificial snow base and completed with a shale cap. Some minimal clearing of sub-alpine fir was required for the upper wellsite which was located on an area of side slope. This well pad was left in place over the summer of 2001 and utilized to complete the well in the winter of 2001-2.

Marathon utilized conventional cut and fill technology for the construction of their wellsite. This resulted in a much greater degree of disturbance than was the case in either of the Murphy wellsites. Again, it appears difficult to justify the use of this conventional technology in this case given that the upper Murphy wellsite demonstrated that a removable snow and shale well pad was technically successful on an area of similar side slope, even where that well pad had to remain in place over the span of two winter drilling seasons.

Marathon Wellsite- summer 2002

Results.

A summer inspection showed that the Murphy Chicken project had been successful in achieving a minimal level of impact to vegetation. Virtually no cutting of ground surface had been required, resulting in very little disturbance. Areas previously covered by matting and roadbase material had recovered well.

Murphy Chicken upper wellsite and access route- note slope similar to Marathon wellsite.

Conclusion

The ice road technology developed by Murphy Oil for their Chicken Creek location appears to have been successful. This technology appears to be highly appropriate in areas of willow or meadow where all season roads are not required.

Many impacts typical of conventional roaded technologies and cut and fill road and wellsite construction have been avoided and it appears that natural vegetation will recover quickly.

Reclaimed upper Murphy wellsite, summer 2002- note natural vegetation regrowth

In contrast the Marathon Sikanni project appears to be much less successful. A far greater degree of ground disturbance was created on the timbered hillside portion of their access road, in the upper section of relatively level valley bottom, and in the wellsite area itself, all due to the use of conventional cut and fill technology. Given that the Murphy Chicken Creek projects have demonstrated the successful use of much less damaging snow road technology in areas of similar slope, it appears that the use of the more damaging technology was unjustified in this case.

Upper Murphy wellsite and access route- summer 2002

Recommendation.

Murphy Oil has demonstrated that snow road technology can be successful within the Muskwa-Kechika Management Area. Future projects should consider the use of this technology, and utilize it under conditions similar to those encountered in the Chicken Creek or Marathon Sikanni projects. Under conditions similar to those encountered in the Marathon Sikanni project, cut and fill road and wellsite construction technology should not be allowed in the future.

Lower Murphy wellsite- summer 2002.
note recovered vegetation, and herd of elk on wellsite.

well center.