

Well Name:	Jack Frost E1
Well Site location:	Unit D, Sec. 25, T27N, R10W
Pit Type:	Separator Pit
Producing Formation:	Basin Dakota
Pit Category:	Area III
Horizontal Distance to Surface Water:	> 1000 ft.
Vicinity Groundwater Depth:	> 100 ft.

RISK ASSESSMENT

Pit remediation activities were terminated when trackhoe encountered sandstone bedrock at 18 feet below grade.

No past or future threat to surface water or groundwater is likely based on the following considerations:

1. Past production fluids were contained locally by a relatively shallow sandstone bedrock located 18 feet below grade. Groundwater levels located on or close to the well pad are estimated to be at a much greater depth below sandstone bedrock.
2. Topographic information does not indicate off site lateral fluid migration near the earthen pit.
3. Daily discharge into the earthen pit has been terminated (double sidewall steel tank installed). Prior discharge into the pit is believed to be under 5 barrels per day.
4. Field headspace readings (OVM/PID) on Basin Dakota type locations do not reflect direct correlation to total BTEX per USEPA Method 8020 concentrations. Listed below are several typical AMOCO Basin Dakota pit soil analyses comparing headspace to Benzene and total BTEX results.

LOCATION	HEADSPACE (ppm)	BENZENE (ppm)	TOTAL BTEX (ppm)
Frost, Jack B 1E	1100	0.011	5.889
Berger A1	482	0.084	0.681
Mudge Com B 1E	684	0.017	16.438
L.C. Kelly #5	1235	0.643	13.908

The comparisons listed above demonstrates that headspace testing is not an accurate measurement to Benzene or total BTEX concentrations when above standards for Basin Dakota type pits.

Based upon the information given, we conclude that the subsurface lateral impact from the earthen pit is very limited and that the sandstone bottom creates enough of a permeable barrier as to subdue impact to groundwater below it (please refer to AMOCO's report "Post Excavation Pit Closure Investigation Summary, July, 1995", with cover letter dated November 30, 1995). AMOCO requests pit closure approval on this location.