

Brenda Backen

From: Elaine DeBastien [elaine@mvlwb.com]
Sent: Thursday, June 27, 2002 3:46 PM
To: Brenda Backen (E-mail)
Subject: FW: Paramount Resources MV2000P0055



June 11 & 12.02
minus photos.p...

I'm not sure if he plans to mail a copy!

-----Original Message-----

From: Andrew Forbes [mailto:dianddf@ssimicro.com]
Sent: Thursday, June 27, 2002 9:49 AM
To: elaine@mvlwb.com
Subject: Paramount Resources MV2000P0055

Attached find my June 11 an 12/02 environmental report.



ENVIRONMENTAL INSPECTION REPORT

Permittee:	Paramount Resources Ltd., 4700 Bankers Hall West, 888 3 rd Street SW, Calgary, AB, T2P 5C5		
		Permit Expiry Date	Previous Inspection
Land Use Permit No.	MV2000P0055	January 17, 2007	April 02, 2002
Quarrying Permit No.	2002QP0012 and 19		
Contractor:	Subcontractor:		

Location(s) Inspected:	Entire project.
------------------------	-----------------

Current Stage of Operation:	Short term repairs are in progress.
-----------------------------	-------------------------------------

Program Modifications Approved:	None required.
---------------------------------	----------------

Condition of Operation "A" - Acceptable "U" - Unacceptable "N/A" - Not Applicable

	CONDITIONS OF PERMIT Mackenzie Valley Land Use Regulations Section 26 (1)	Aspect of the Land Use Operation Inspected	Applicable Permit Conditions by Number
		Right-of-way & stream crossings.	
f	Ponding, Flooding, Erosion, Slides & Subsidence	U	Condition 31: Erosion control Rights-Of-Way.
p	Matters Not Inconsistent With Northwest Territories Waters Act	U	9.(1) Except in accordance with the conditions of a licence or as authorized by regulations, made under paragraph 33(1)(n), no person shall, subject to subsection (2), deposit or permit the deposit of waste. (a) in any waters in a water management area; or (b) in any other place under conditions in which the waste, or any other waste that results from the deposit of that waste, may enter any waters in a water management area.
q	Matters Not Inconsistent With MVLU Regs.	U	SEC 9 (1) WATERCOURSE CROSSINGS No person shall deposit material or debris in a watercourse contrary to the <i>Northwest Territories Waters Act</i> or the <i>Fisheries Act</i> , or any regulations made under those Acts. SEC 15 RESTORATION OF PERMIT AREA Unless otherwise authorized by a permit, after completing a land-use operation, a permittee shall restore the permit area to substantially the same condition as it was prior to the commencement of the operation.

Explanatory Remarks

Refer to the attached "Explanatory Remarks Continued".

Representative on site (print name)	Inspector's Name (print)	Inspector's Signature
	Andrew Forbes	

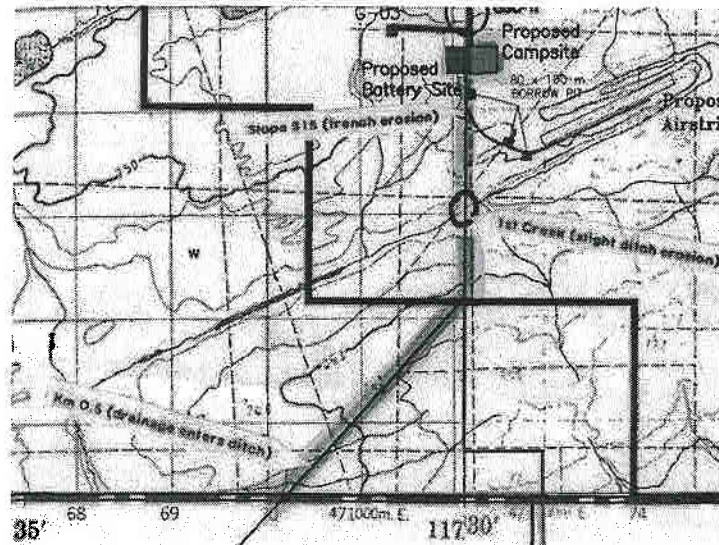
Environmental Inspection Report

Land Use Permit MV2000P0055

June 11 and 12, 2002

Explanatory Remarks Continued:

For the purpose of this inspection report I have labeled the slopes and refer to the creek, drainage and river crossings by their GSC numbers. I have included portions of a 1:50,000 map showing the various locations that are referred to.



Locations shown: Km 0.5, Slope 1st Creek & Slope S15

Km 0.5

Observations:

Located approximately 0.5 km from the Alberta boarder are two drainages that flow from east to west and are situated roughly 150 meters apart. Water from the northmost drainage is entering the ditch and flowing southward under the roach and empties into the south drainage. There are several washouts on the roach between the two drainages and I observed the water steadily moving southward. This situation appears to be causing an actual diversion of the natural drainage.

Requirements:

1. Correct the drainage diversion problem so that the natural drainage pattern is permanently restored and the chances of this reoccurring are eliminated.
2. Repair the eroded ditch.

1st Creek

1st Creek refers to the drainage located approximately 1.5 km south of the H03 Battery site.

Observations:

The creek crossing itself appears satisfactory with no signs of erosion or siltation. However the right-of-way to the south of the creek has diverted a small intermittent drainage northward along the ditch for approximately 80 meters. The water enters the r-o-w from the east then travels north for 30 meters or so before it swings west across the roach. It then travels north against the roach for approx. 50 meters where it then swings west into the bush just south of the access/r-o-w junction. Erosion is minor at this time.

Requirements:

1. Restore the natural drainage and ensure that the water no longer flows against the roach.
2. Repair the erosion.

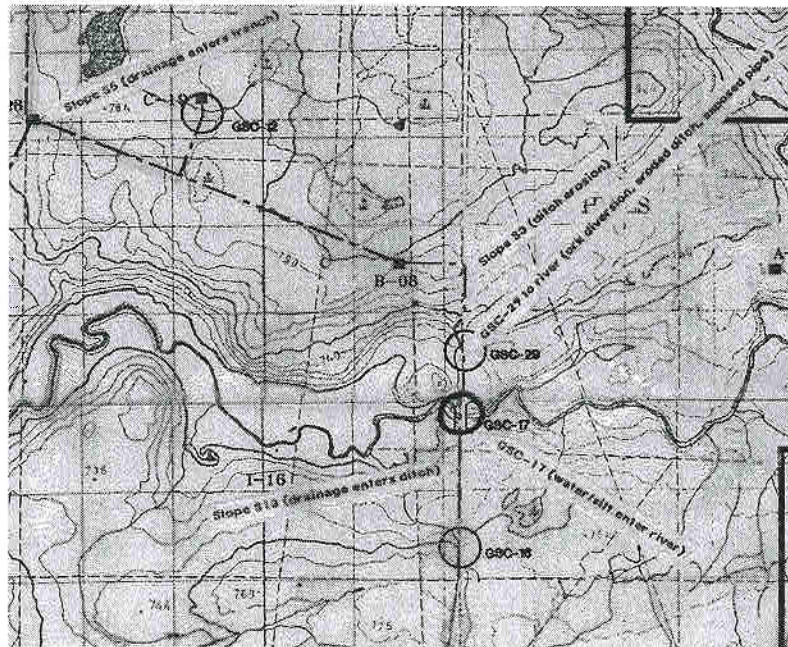
Slope S15

Observations:

There appears to be some erosion along the ditch on the long gentle slope leading to the battery site from the south. I did not inspect this site on the ground therefore have not observed the extent of erosion but it is evident from the air.

Requirements:

1. Take steps to permanently prevent water from moving along the roach.
2. Repair the eroded ditch.



Locations shown: Slope S13 & Creek Crossing GSC-16; Cameron River Crossing GSC-17; Creek Crossing GSC-29 & the R-O-W to the Cameron River; Slope S3; Slope S5.

Slope S13 & Creek Crossing GSC-16

Slope S13 refers to the r-o-w from the Cameron River vehicle bridge (GSC-17) south for approximately 1.5 km and includes creek crossing GSC-16 and the small hill to the south of it.

Observations:

Near the top of the small hill located immediately south of GSC-16 a small drainage enters the r-o-w from the east, follows the east side of the r-o-w for approx 20 metres and then diverts east into the bush following what appears to be it's natural path. No erosion was observed and I could not tell if this poses a threat to the ditch or not.

The north slope of the small hill appeared stable with no significant sign of water movement. However at the base of the hill the creek GSC-16, which flows from east to west, had entered the ditch and caused extensive erosion to the north for approx. 200 meters. Paramount has installed a temporary diversion to put the creek back on course and this looks to be working. It appears that when the creek was flowing down the ditch, the majority of the water surfaced about 200 meters down slope and moved west into the bush. The 1 km of r-o-w from this point north to the Cameron River shows signs that there was water movement under the roach for part of the way and possibly all of the way. A small quantity of water is still flowing from the roach where the pipe exits the ditch to cross the GSC-17 vehicle bridge. It appears to me that in addition to the threat from GSC-16 water is entering the ditch from the muskeg to the east and may remain a problem.

Requirements:

1. Take steps to ensure that water no longer has the opportunity to leave the creek bed at the GSC-16 creek crossing and therefore can not re-enter the ditch.
2. Repair the eroded ditch.
3. Determine whether or not water is entering the ditch from the muskeg and migrating to the river. If this is the case take permanent measures to ensure that this stops.

Cameron River Crossing GSC-17 (South Bank)

Observations:

It is evident that during spring runoff, water ran northward along the east side of the roach and entered directly into the Cameron River to the east side of the vehicle bridge approach causing some erosion. It also appears that water was moving through the ditch and entering the river at the same point. There is some silt deposited along the bank which suggests that some did enter the water course. Also, water had crossed the roach via a diversion ditch approximately 30 meters south of the bridge and followed the west side of the roach toward the river. There were no signs of silt near the river on the west side of the bridge.

As a short term measure Paramount has installed several diversion fences to prevent silt from reaching the river again this summer. A small amount of water is still reaching the river on the east side of the bridge however Paramount has installed a fabric lined ditch for it to follow so that no additional erosion will occur. If extended heavy rains happen this summer the band-aid fix may or may not work to prevent further erosion of the bank.

The rip-rap on the bank appears satisfactory as does the approach to the bridge.

Requirements:

1. Repair the surface erosion located to the east of the vehicle bridge approach.
2. Ensure that the approach to the river and the bridge approach are well seeded and a grass catch established as soon as physically possible.
3. Take steps to permanently prevent water and silt from the ditch and right-of-way from reaching the river in the future.

Cameron River Crossing GSC-17 (North Bank)**Observations:**

The north bank of the river appears stable with no signs of erosion or siltation. The rip-rap and the approach to the bridge both seem satisfactory although it is too early in the season to tell if the seeding of the approach is adequate.

Requirements:

1. Ensure that the seeding of the bridge approach is adequate.

Creek Crossing GSC-29 and the r-o-w to the Cameron River**Observations:**

Creek Crossing GSC-29 is located approximately 700 meters north of the Cameron River vehicle bridge. It appears that during spring runoff, water overflowed the left bank of the creek approx. 10 meters up slope of the right-of-way causing a considerable amount of water to enter and follow the west side of the r-o-w the 700 meters to the river. This does not appear to have caused any significant erosion on the north half of the r-o-w since most of the surface consists of undisturbed organics. However some of the water was diverted into the ditch approximately 30 meters from GSC-29 via an old access road diversion ditch and this has resulted in approx. 150 meters of severely eroded ditch complete with some sections of exposed pipe.

More problems were observed closer to the Cameron River. It appears that silt from the eroded ditch followed the r-o-w to within 100 meters of the bridge where it then entered the creek (GSC-29) and diverted west to the river. To complicate matters further the creek, which flows southward from the GSC-29 crossing and runs parallel to the r-o-w, overflowed its banks again approximately 200 meters from the bridge. The water entered the r-o-w joining with the water flowing down the west side of the roach and then re-entered its natural drainage and traveled to the river. A considerable amount of silt has been deposited along the 100 meters of creek drainage that runs from the r-o-w westward to the river and it appears that some silt may have entered the river. Paramount has installed several silt fences as a short term solution. This entire situation has the potential for serious ongoing problems unless a permanent solution is devised and implemented.

Requirements:

1. Repair the eroded ditch.
2. Take steps to prevent the creek from overflowing its bank upstream of GSC-29.
3. Remove the old diversion ditch that helped the water to enter the ditch.

4. Take steps to prevent the creek from overflowing it's bank and entering the right-of-way approx. 200 meters from the bridge.
5. Take steps to prevent the silt, that has accumulated in the creek bed from the r-o-w to the river, from entering the river. This may include establishing vegetation as well as other erosion control measures.

Slope S3

Slope S3 starts approximately 1.7 km north of GSC-17 where the northbound right-of-way turns west toward wellsite B-08. From there it goes south to GSC-29. This slope is approximately 1 km long and the bottom half is very steep and susceptible to erosion.

Observations:

At the top of the slope where the r-o-w turns west toward B-08, the ditch has eroded for approx. 20 meters. At first glance this situation appears minor, however upon further observation I am not so sure. Water can be seen coming out of the roach and trickling along the bottom of the ditch for the 20 meters where it disappears and no further ditch erosion on the slope is evident. I walked the entire length of S3 looking for signs of water surfacing and leaving the ditch which I finally observed coming from a diversion ditch near the bottom of the steep portion of the slope approx. 100 meters from GSC-29. I am not sure if this is the same water that enters the ditch at the top of the slope or if it enters elsewhere from under-ground. Regardless, I suggest that the slope be treated as if there has been water movement along the bottom of the ditch for it's entire length. Paramount constructed a small hand dug temporary diversion ditch near the top of the slope to prevent water from continuing down the slope.

Requirements:

1. Repair the eroded ditch.
2. Take steps to prevent the water from entering the ditch at the top end of the slope.
3. Ensure that vegetation is established as per permit conditions number 65 and 66.
4. Determine if water has been (or still is) moving along the bottom of the ditch for most of the length of the slope. If it is rectify the matter.

Slope S5

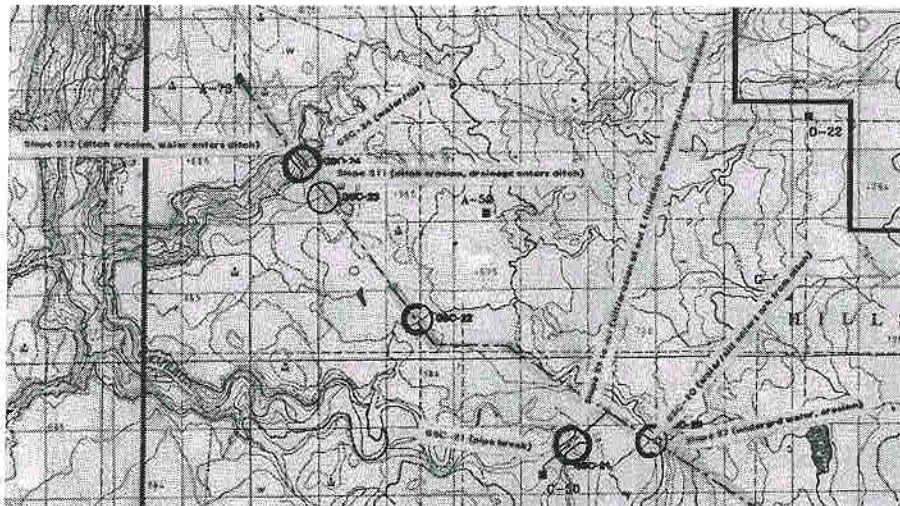
Slope S5 refers to the gentle slope on the right-of-way that leads to wellsite N-28 from the east.

Observations:

Approximately 50 meters east of N-28 a small intermittent drainage enters the right-of-way from the north and runs directly into the ditch. It appears that during spring runoff, a considerable amount of water flowed from the drainage into the ditch and along it to the N-28 wellsite. This movement of water has resulted in erosion to the ditch for approx. 50 meters. At the time of my inspection there was still a slight quantity of water trickling into the ditch and flowing onto the wellsite.

Requirements:

1. Repair the eroded ditch.
2. Take steps to permanently prevent the drainage from entering the ditch.



Locations shown: Slope S7; GSC-20; GSC-21; Slope S9; Slope S11; GSC-24; Slope S12.

Slope S7 and Creek Crossing GSC-20

This site includes the GSC-20 creek crossing and the slope situated to the east of it. During the winter when the ditch was open, water was seen entering the ditch at the bottom of the steep portion of slope S7 from what appeared to be an underground spring. The flow was steady and fairly heavy. Drain plugs and diversion ditches were put in place with the intent of diverting the water from the ditch off of the right-of-way into the bush.

Observations:

Water was observed coming from under the ditch roach and entering the creek at GSC-29. There were sporadic signs of ditch erosion from the creek to within 15 meters of where the underground spring had been seen last winter. Exposed pipe could be seen through one of the depressions. Approx 20 meters from the underground spring, the water surfaces and runs along the ditch to the first diversion ditch where some of it is diverted and the rest continues downslope. It appears that the underground water is following the ditch all the way to the creek which is approximately 100 meters in distance. Some silt was observed entering the creek on June 11th but Paramount installed several silt fences on the 12th as a short term method of preventing more silt from entering the creek.

Located near the top of the S7 slope I observed a diversion ditch that appears to have allowed water to enter the ditch during runoff. Although there was no water at this site during my inspection, rain water will have no problem gaining access to the ditch at this point. I mentioned my concern regarding this site to Darren Unrau while we were conducting a joint inspection of this slope.

Requirements:

1. Repair the eroded ditch.
2. Take steps to stop the underground water source from following the ditch downslope to GSC-20.
3. Ensure that vegetation is established as per permit conditions number 65 and 66.
4. Repair the diversion ditch located near the top of slope S7 to prevent any further entry of water into the ditch.

Cameron River Crossing GSC-21

Observations:

The Cameron River quad bridge crossing GSC-21 appears satisfactory on both sides of the river. This includes the rip-rap and river bank integrity. The bridge approach on the north side of the river has settled and eroded slightly and may become a problem if not fixed. The pipe break which occurred approximately 20 meters from the south side of the quad bridge was under repair at the time of my inspection. I was informed that the dirt which was excavated from around the pipe would be tested and properly disposed of. I did not see any evidence to suggest that there had been any contamination of the river from this break.

Requirements:

1. Test the soil excavated from around the break in the pipe and properly dispose of it.
2. Repair the approach to the north end of the quad bridge.
3. Ensure that vegetation is properly established on the bridge approaches as per permit conditions number 65 and 66.

Slope S9 and the Right-of-Way to the 8" line

Observations:

The quad bridge that crosses the Cameron River along the right-of-way to C-50 is approximately 800 meters south of the junction with the 8 inch pipe line. Approx 120 meters NE of the bridge there is a cut and fill in the right-of-way that has been badly eroded during the spring run off. It appears that this is the result of a small 'east to west' drainage located 400 meters to the north that was diverted onto the right-of-way. The water then proceeded to follow the r-o-w to the base of the cut and fill where it entered another east to west drainage. It followed this drainage for roughly 120 meters to the Cameron River depositing silt along the entire length. There is no clear indication that much, if any, of the silt actually entered the river. Paramount constructed several silt fences across the drainage during the runoff and these appear to have collected a great deal of the silt. Paramount also installed a silt fence on the right-of-way just south of the point where the drainage enters onto the right-of-way and this has diverted the majority of the present flow back onto it's original westward course.

Requirements:

1. Repair the eroded cut and fill and any erosion to the ditch.
2. Take appropriate measures to ensure that the drainage follows it's natural course and no longer diverts onto and along the right-of-way.
3. Take measures to ensure that the silt, which has been deposited into the drainage below the cut and fill, does not and can not enter the Cameron River.
4. Ensure that vegetation is established as per permit conditions number 65 and 66.

Slope S11 & the South Side of GSC-24

Observations:

It appears that during the spring runoff, water entered the ditch from a natural drainage located

approximately 110 meters up slope from the quad bridge crossing of a major tributary to the Cameron River that I will refer to as Herbal Creek. The water traveled underground to the point where the pipe surfaces to cross the bridge. The water exited the ground from under the pipe and proceeded to the river. I observed some silt on the creek bank which suggests that some did enter the creek during the runoff. During my inspection I could see a small flow of water both enter and exit the ditch. Paramount had installed a diversion fence immediately below the exit point and it was moving the water off to the east into the bush. The entry point of the water to the ditch occurred and was still occurring where a diversion ditch had been constructed across the full width of the right-of-way to accommodate a small natural intermittent drainage. Construction of the diversion ditch appears satisfactory however the water seems to go only as far as the pipeline ditch where it immediately goes to ground. I mentioned this to Paramount representative Darren Unrau who said he would do a band-aid fix later the same day. I did not observe any noteworthy surface erosion on the entire length of slope S11. All of the water movement that has caused concern appears to have traveled underground along the pipeline ditch. However, I suspect that excessive settling of the ditch may occur this summer as a result of the underground erosion.

Although not serious, the dirt approach to the south end of the quad bridge has settled close to 2 feet where it abuts the bridge but there was no sign of erosion.

Requirements:

1. Repair the eroded portion of the ditch and right-of way.
2. Take steps to ensure that the water coming from the drainage follows it's natural course and can no longer enter the pipeline ditch.
3. Ensure that vegetation is established as per permit conditions number 65 and 66.
4. Repair the approach to the south end of the quad bride.
5. I suggest that a permanent diversion berm be constructed at the top of the creek bank just below where the pipe exits the ground to cross the creek.

Slope S12 & the North Side of Creek Crossing GSC-24

Observations:

It appears that a substantial quantity of water entered the right-of-way and ditch from the adjacent muskeg during spring runoff and traveled approximately 230 meters southward before going down the steep slope toward the quad bridge crossing of Herbal Creek. The most noticeable erosion starts at the top of the steep slope which is about 300 meters from the creek and runs downslope for 140 meters or so before the water and silt turned eastward to following a natural depression into the bush. At approximately 200 meters from the creek, a considerable amount of erosion occurred to the ditch including the destruction of one of the foam ditch plugs and a brief exposure of the pipe. The silt deposit from the erosion is mostly located on the right-of-way approximately 140 meters from the creek crossing and I saw no evidence to indicate that any of it had reached the creek. Although spring runoff is over, there was still a small but steady flow of water coming from the muskeg via the ditch. Paramount has installed a diversion fence at the top of the hill to prevent the surface water from going downslope, however there is still a small amount of water traveling down slope along the bottom of the ditch. If heavy persistent rains occur this summer more erosion is likely to occur. Toward the top of the slope there was evidence of some minor erosion to the right-of-way itself.

The north bank of Herbal Creek appears undisturbed and the bridge's approach and rip-rap seem

satisfactory. There was evidence which suggests that during runoff, a small stream of water did flow down the bank under the above ground section of the pipe next to the bridge. Although no erosion was evident there was a small deposit of silt that suggests that heavy rains could cause silt to reach the creek by this route.

Requirements:

1. Repair the eroded portion of the ditch and right-of way.
2. Take steps to ensure that the water coming from the muskeg at the top of the slope no longer has the opportunity to travel downslope via the right-of-way and ditch.
3. Ensure that vegetation is established as per permit conditions number 65 and 66.
4. Install a silt fence by the above ground section of the pipe by the bridge to prevent heavy rains from depositing silt into the creek.

Additional Items of Concern

1. Although my inspection was conducted too early in the season to determine the success of establishing re-vegetation on applicable areas, I suggest that a concentration of seed heavier than the 10 kg per ha that apparently was laid in March be applied as soon as possible. I also suggest that the use of an adequate amount of fertilizer be considered. Please refer to permit condition number 65 which calls for 70% ground cover within one year. Due to the nature of the soil along the Cameron River I feel that establishing vegetation on the slopes as soon as possible is very important and should be done aggressively.
2. It seems probable to me that some of the locations that received ditch erosion this spring will experience some degradation of perma frost during the summer. Please consider this possibility when planning reclamation.
3. The ditch erosion problems which occurred at Km 0.5, Slope S13, Slope S5, Slope S9 and Slope S11 seem to be the result of a similar problem. Water from creeks and intermittent drainages appears to be entering the pipeline ditch when it is traveling across the right-of-way along diversion ditches constructed for that purpose. The ditch backfill, which is not compacted, allows for a path of least resistance which is into the trench and/or along the right-of-way. These existing problems must be rectified this winter and a better method of providing creek/drainage right-of-way crossings must be devised and used for any future pipeline construction.

Direction to Permittee

The permittee is required to formulate plans for rectifying the above requirements and implementing these plans at the first possible opportunity. These plans are to be submit to this Land Use Inspector by August 31, 2002 complete with the intended time frame.

Hay River Subdistrict
South Mackenzie District, DIAND
41 Capital Drive, #203
Hay River, NT X0E 1G2
Ph: (867)874-6994, Fax: (867)874-2460
dianddf@cancom.net

June 26, 2002

Paramount Resources Ltd.
4700 Bankers Hall West
888 3rd Street SW
Calgary, AB T2P 5C5

Attn: Ms. Shirley Maaskant

RE: Land Use Permit MV2000P0055

Dear Ms. Maaskant:

Enclosed, find your copy of my June 11 & 12, 2002 environmental inspection report for the land use operation covered under permit number MV2000P0055.

I appreciate Paramount Resource's quick response to the pipe break and the erosion concerns. The short term solutions that have been taken to date appear adequate. I realize that only short term or band-aid solutions (other than seeding) can be implemented during the summer months without the use of heavy equipment, however permanent measures must be implemented this winter so that these problems do not reoccur next spring or at anytime in the future. **This should be a priority early in the season before the frost gets too well established.**

As mentioned in my report I am asking that Paramount Resources formulate plans for rectifying the requirements that I have identified and that these plans be implemented at the first possible opportunity. Please have these plans submitted to me by August 31, 2002 complete with your intended time frame.

If you have any questions or concerns regarding the inspection report I can be reached at (867)874-6995 or (867)874-1270 (cell).

Sincerely

Andrew Forbes
Resource Management Officer

cc: MVLWB
NEB

