Memorandum

U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration **Central Region Office** **Office of Pipeline Safety**

Date: September 30, 2010

Subject: Summary Incident Report
Enbridge Energy Partners L.P. (Op ID 11169)
Deer River, MN to Floodwood, MN (Unit 3083)
Line 2 Crude Oil Leak
February 19, 2004
SMART Activity 110735

From: James Bunn, Staff Engineer *original signed*

To: David Barrett, Director – Central Region, PHP-300 *original signed*

1.0 SUMMARY

At approximately 12:52 p.m. on February, 19 2004, Enbridge Energy Partners L.P. ("Enbridge") discovered a crude oil leak on their Line 2 Pipeline in Itasca County, Grand Rapids, MN (the "Incident"). An estimated 1003 barrels (bbls) of crude oil was released from the pipeline. The Incident occurred on the pipeline right of way (ROW) near milepost number 1007 (MP 1007), northwest of the City of Grand Rapids, MN. No fatalities or injuries occurred as a result of the Incident. The Incident did occur in a high consequence area (HCA), drinking water (DW) and other populated area (OPA) was impacted. The total cost of the Incident, pipeline repair and environmental cleanup, is estimated at $1,100,000. There were no service interruptions or supply impacts as a result of the Incident.

2.0 PIPELINE SYSTEM

Enbridge's Line 2 is a 26-inch diameter crude oil pipeline that runs from Gretna, Manitoba, Canada to Superior, WI. At the Incident location, the pipeline is constructed of API 5L X-52 line pipe manufactured by A.O. Smith in 1956. The pipeline is 26-inch diameter by 0.281-inch wall thickness, electric flash welded (EFW) type pipe, coated with a coal tar enamel system.

The Line 2 maximum operating pressure (MOP) is 809 psig.

3.0 DISCUSSION

An Enbridge maintenance crew excavating an in-line inspection (ILI) indication discovered the crude oil leak. At 12:52 p.m. Enbridge Notified the Minnesota Office of Pipeline Safety (MNOPS) Duty Officer that a leak had occurred. Brian Pierzina, MNOPS Senior inspector, conducted an on-site investigation of the Incident.

In September 2003, Enbridge ran an in-line inspection (ILI) magnetic flux leakage (MFL) and geometry tool through this portion of Line 2. The ILI tool identified a potential dent with metal loss at MP 1007. Enbridge scheduled excavation of the MP 1007 indication for February of 2004. During the indication excavation, oily soil was discovered. As the excavation continued, signs of fresh product were encountered. Once it was determined that the pipeline was most likely leaking at MP 1007, the pipeline was shut down.

In situ visual inspection of the damaged pipe joint revealed a 2-inch long through wall crack in the pipe body. A small amount of oil was leaking through the crack. The crack was located in a dent on the bottom of the pipe. A rock was identified in the backfill under the pipe. The rock location was coincident with the dent.

The rock was eventually removed from under the pipeline.

4.0 EMERGENCY RESPONSE

Enbridge employees were dispatched to the Incident site. Once the repair was completed and inspected the contaminated soil and ground water was remediated.

5.0 RETURN TO SERVICE

The pipeline was shut down at approximately 11:30 a.m. on February 20, 2004.

After the field investigation was complete, a one foot long Type B, tight fitting repair sleeve was installed in the area where the Incident occurred.

At the time of the Incident, Line 2 operating pressure was approximately 750 psig. No reduction in operating pressure was required as a result of this incident.

The pipeline was returned to service at approximately 10:30 p.m. on February 20, 2004.

6.0 FINDINGS

The Enbridge Line 2 MP 1007 Incident was caused by a crack located within a dent that initiated on the pipe external surface. The crack was apparently caused by a rock found in the backfill at the location of the dent.

EXHIBITS

Information regarding the Incident was reported by Enbridge to the National Response Center (NRC) on March 2, 2004 in NRC Report No. 714880 (Exhibit A), and to the Pipeline and Hazardous Materials Safety Administration (PHMSA) in Accident Report No. 20040063 dated March 16, 2004 (Exhibit B).

Exhibit A NRC Report No.714880
Exhibit B Accident Report No. 20040063

EXHIBIT A
NRC REPORT No. 714880

NATIONAL RESPONSE CENTER 1-800-424-8802
*** For Public Use ***
Information released to a third party shall comply with any
applicable federal and/or state Freedom of Information and Privacy Laws

Incident Report # 714880

INCIDENT DESCRIPTION

*Report taken at 12:28 on 02-MAR-04
Incident Type: PIPELINE
Incident Cause: EQUIPMENT FAILURE
Affected Area:
The incident occurred on 19-FEB-04 at 11:30 local time.
Affected Medium: SOIL

SUSPECTED RESPONSIBLE PARTY

Organization: ENBRIDGE ENERGY CO.
SUPERIOR, WI 54880

Type of Organization: PRIVATE ENTERPRISE

INCIDENT LOCATION

County: ITASCA
City: GRAND RAPIDS State: MN
Distance from City:
Direction from City: N

MILEPOST 1007.33 NEAR 20TH ST. NW AND 8TH AVE

RELEASED MATERIAL(S)

CHRIS Code: OIL Official Material Name: OIL: CRUDE
Also Known As:
Qty Released: 10 BARREL(S)

DESCRIPTION OF INCIDENT

MATERIAL RELEASED FROM A 26" PIPELINE DUE TO A DENT WITH A CRACK IN THE LINE.

INCIDENT DETAILS

Pipeline Type: TRANSMISSION
DOT Regulated: YES
Pipeline Above/Below Ground: BELOW
Exposed or Under Water: NO
Pipeline Covered: UNKNOWN

DAMAGES

Fire Involved: NO Fire Extinguished: UNKNOWN

INJURIES:	NO	Hospitalized:	Empl/Crew:	Passenger:
FATALITIES:	NO	Empl/Crew:	Passenger:	Occupant:
EVACUATIONS:	NO	Who Evacuated:	Radius/Area:	

Damages: YES $55000

Closure Type		Description of Closure	Length of Closure	Direction of Closure
Air:	N			
Road:	N			Major Artery: N
Waterway:	N			
Track:	N			

Passengers Transferred: UNKNOWN
Environmental Impact: UNKNOWN
Media Interest: NONE Community Impact due to Material: NO

REMEDIAL ACTIONS

EXCAVATED SOIL, CLEANUP COMPLETED
Release Secured: YES
Release Rate:
Estimated Release Duration:

WEATHER

Weather: CLEAR, ºF

ADDITIONAL AGENCIES NOTIFIED

Federal:
State/Local: MN DUTY OFFICER, MN PCA, MN OPS
State/Local On Scene:
State Agency Number: 57773

NOTIFICATIONS BY NRC

ATSDR MN (PRIMARY)
02-MAR-04 12:35
U.S. EPA V (PRIMARY)
02-MAR-04 12:37
NOAA 1ST CLASS BB RPTS FOR MN (PRIMARY)
02-MAR-04 12:35
RSPA OFFICE OF PIPELINE SAFETY (PRIMARY)
02-MAR-04 12:42
MN DEM ATTN: MS. GOELZ (PRIMARY)
02-MAR-04 12:35

ADDITIONAL INFORMATION

CALLER HAD NO ADDITIONAL INFORMATION.

***** END INCIDENT REPORT # 714880 *****

EXHIBIT B
ACCIDENT REPORT No. 20040063

NOTICE: This report is required by 49 CFR Part 195. Failure to report can result in a civil penalty not to exceed $25,000 for each violation for each day that such violation persists except that the maximum civil penalty shall not exceed $500,000 as provided in 49 USC 60122

Form Approved
OMB No. 2137-0047

Print

U.S. Department of Transportation
Research and Special Programs Administration

ACCIDENT REPORT – HAZARDOUS LIQUID PIPELINE SYSTEMS

Report Date mar 16,2004

No. 20040063 -- 12566
(DOT Use Only)

INSTRUCTIONS

Important: *Please read the separate instructions for completing this form before you begin. They clarify the information requested and provide specific examples. If you do not have a copy of the instructions, you can obtain one from the Office Of Pipeline Safety Web Page at http://ops.dot.gov.*

PART A – GENERAL REPORT INFORMATION

Check one or more boxes as appropriate:
☐ Original Report ☒ Supplemental Report ☐ Final Report

1. a. Operator's OPS 5-digit Identification Number (if known) / 11169 /
2. b. If Operator does not own the pipeline, enter Owner's OPS 5-digit Identification Number (if known) /_____/
   c. Name of Operator ENBRIDGE ENERGY, LIMITED PARTNERSHIP
   d. Operator street address 119 N 25TH STREET E
   e. Operator address SUPERIOR DOUGLAS WI 54880
   City, County, State and Zip Code

IMPORTANT: IF THE SPILL IS SMALL, THAT IS, THE AMOUNT IS AT LEAST 5 GALLONS BUT IS LESS THAN 5 BARRELS, COMPLETE THIS PAGE ONLY, UNLESS THE SPILL IS TO WATER AS DESCRIBED IN 49 CFR §195.52(A)(4) OR IS OTHERWISE REPORTABLE UNDER §195.50 AS REVISED IN CY 2001.

2. Time and date of the accident

/ 1032 /	/ 02 /	/ 19 /	/ 2004 /
hr.	month	day	year

3. Location of accident
(If offshore, do not complete a through d. See Part C.1)

a. Latitude: 47° 15' 10 Longitude: -93° 33' 04
(if not available, see instructions for how to provide specific location)

b. GRAND RAPIDS ITASCA
City, and County or Parish

c. MN 55744
State and Zip Code

d. Mile post/valve station ● or survey station no. ○
(whichever gives more accurate location)

1007.33

4. Telephone report

/ 714880 /	/ 03 /	/ 02 /	/ 2004 /
NRC Report Number	month	day	year

5. Losses *(Estimated)*

Public/Community Losses reimbursed by operator:

Public/private property damage	$ 0
Cost of emergency response phase	$ 27500
Cost of environmental remediation	$ 27500
Other Costs	$ 0
(describe)	

Operator Losses:

Value of product lost	$ 34790
Value of operator property damage	$ 0
Other Costs	$ 1000000
(describe) ENVIRONMENTAL REMEDIATION	
Total Costs	$ 1089790

6. Commodity Spilled ●Yes ○No
(If Yes, complete Parts a through c where applicable)

a. Name of commodity spilled CRUDE OIL

b. Classification of commodity spilled:
○ HVLs /other flammable or toxic fluid which is a gas at ambient conditions
○ CO_2 or other non-flammable, non-toxic fluid which is a gas at ambient conditions
○ Gasoline, diesel, fuel oil or other petroleum product which is a liquid at ambient conditions
● Crude oil

c. Estimated amount of commodity involved :
● **Barrels**
○ **Gallons (check only if spill is less than one barrel)**

Amounts:
Spilled : 1003
Recovered: 9

CAUSES FOR SMALL SPILLS ONLY (5 gallons to under 5 barrels) : ***(For large spills [5 barrels or greater] see Part H)***

○ **Corrosion** ○ **Natural Forces** ○ **Excavation Damage** ○ **Other Outside Force Damage**
○ **Material and/or Weld Failures** ○ **Equipment** ○ **Incorrect Operation** ○ **Other**

PART B – PREPARER AND AUTHORIZED SIGNATURE

THERESA PICTON
(type or print) Preparer's Name and Title

(715) 394-1468
Area Code and Telephone Number

THERESA.PICTON@ENBRIDGE.COM
Preparer's E-mail Address

(832) 325-5477
Area Code and Facsimile Number

Authorized Signature | (type or print) Name and Title | Date | Area Code and Telephone Number

OPS Data Facsimile

PART C – ORIGIN OF THE ACCIDENT (Check all that apply)

1. Additional location information
   a. Line segment name or ID 2
   b. Accident on Federal land other than Outer Continental Shelf ◡ Yes ● No
   c. Is pipeline interstate? ● Yes ◡ No

Offshore: ◡ Yes ● No *(complete d if offshore)*
d. Area _____ Block # _____
State /_____/ or Outer Continental Shelf ☐

2. Location of system involved (*check all that apply*)
   ☐ Operator's Property
   ☒ Pipeline Right of Way
   ☒ High Consequence Area (HCA)?
   Describe HCA DW & OPA

3. Part of system involved in accident
   ◡ Above Ground Storage Tank
   ◡ Cavern or other below ground storage facility
   ◡ Pump/meter station; terminal/tank farm piping and equipment, including sumps
   ◡ Other *Specify:* _____
   ● Onshore **pipeline**, including valve sites
   ◡ Offshore **pipeline**, including platforms

*If failure occurred on **Pipeline**, complete items a - g:*

4. Failure occurred on
   ● Body of Pipe ◡ Pipe Seam ◡ Scraper Trap
   ◡ Pump ◡ Sump ◡ Joint
   ◡ Component ◡ Valve ◡ Metering Facility
   ◡ Repair Sleeve ◡ Welded Fitting ◡ Bolted Fitting
   ◡ Girth Weld
   ◡ Other *(specify)* _____

Year the component that failed was installed: /1957/

5. Maximum operating pressure *(MOP)*
   a. Estimated pressure at point and time of accident: _____ *PSIG*
   b. MOP at time of accident: 809 *PSIG*
   c. Did an overpressurization occur relating to the accident? ◡ Yes ● No

a. Type of leak or rupture
   ● Leak: ● Pinhole ◡ Connection Failure *(complete sec. H5)*
   ◡ Puncture, diameter *(inches)* _____
   ◡ Rupture: ◡ Circumferential – Separation
   ◡ Longitudinal – Tear/Crack, length *(inches)* _____
   Propagation Length, total, both sides *(feet)* _____
   ◡ N/A
   ◡ Other _____

b. Type of block valve used for isolation of immediate section:
Upstream: ☐ Manual ☐ Automatic ☒ Remote Control ☐ Check Valve
Downstream: ☐ Manual ☐ Automatic ☒ Remote Control ☐ Check Valve

c. Length of segment isolated 15 ft
d. Distance between valves 15 ft
e. Is segment configured for internal inspection tools? ● Yes ◡ No
f. Had there been an in-line inspection device run at the point of failure? ● Yes ◡ No ◡ Don't Know
   ◡ Not Possible due to physical constraints in the system
g. If *Yes*, type of device run (*check all that apply*)

☒	High Resolution Magnetic Flux tool	Year run: 2003
☐	Low Resolution Magnetic Flux tool	Year run:
☐	UT tool	Year run:
☐	Geometry tool	Year run:
☒	Caliper tool	Year run: 2003
☒	Crack tool	Year run: 2002
☐	Hard Spot tool	Year run:
☐	Other tool	Year run:

PART D – MATERIAL SPECIFICATION

1. Nominal pipe size *(NPS)* /26/ in.
2. Wall thickness /.28/ in.
3. Specification API5LX SMYS /52000/
4. Seam type FLASH WELDED
5. Valve type _____
6. Manufactured by AO SMITH in year /1956/

PART E – ENVIRONMENT

1. Area of accident
   ◡ In open ditch
   ◡ Under pavement ◡ Above ground
   ● Underground ◡ Under water
   ◡ Inside/under building ◡ Other _____

2. Depth of cover: 36 inches

PART F – CONSEQUENCES

1. Consequences *(check and complete all that apply)*

a.	Fatalities	Injuries
Number of operator employees:	0	0
Contractor employees working for operator:	0	0
General public:	0	0
Totals:	0	0

b. Was pipeline/segment shutdown due to leak? ◡Yes ◡No
If Yes, how long? _____ days _____ hours _____ minutes

c. Product ignited ◡ Yes ● No d. Explosion ◡ Yes ● No
e. ☐ Evacuation *(general public only)* /_____/ people
Reason for Evacuation:
◡ Precautionary by company
◡ Evacuation required or initiated by public official

f. Elapsed time until area was made safe:
/_____/ hr. /_____/ min.

2. Environmental Impact

a. Wildlife Impact: Fish/aquatic ◡Yes ● No; Birds ◡Yes ● No; Terrestrial ◡Yes ● No
b. Soil Contamination ● Yes ◡ No
If Yes, estimated number of cubic yards: 800
c. Long term impact assessment performed: ● Yes ◡ No
d. Anticipated remediation ● Yes ◡ No
If Yes, check all that apply: ☐ Surface water ☒ Groundwater ☒ Soil ☐ Vegetation ☐ Wildlife

e. Water Contamination: ● Yes ◡No (*If Yes, provide the following*)
Amount in water 994 barrels
Ocean/Seawater ◡ No ◡ Yes
Surface ◡ No ◡ Yes
Groundwater ◡ No ● Yes
Drinking water ◡ No ◡ Yes (*If Yes, check below.*)
◡Private well ◡Public water intake

OPS Data Facsimile

PART G – LEAK DETECTION INFORMATION

1. Computer based leak detection capability in place? ●Yes ○No

2. Was the release initially detected by? (check one):
○ CPM/SCADA-based system with leak detection
○ Static shut-in test or other pressure or leak test
● Local operating personnel, procedures or equipment
○ Remote operating personnel, including controllers
○ Air patrol or ground surveillance
○ A third party ○Other (specify) _____

3. Estimated leak duration days 0 hours 0

PART H – APPARENT CAUSE

Important: *There are 25 numbered causes in this Part H. Check the box corresponding to the primary cause of the accident. Check one circle in each of the supplemental categories corresponding to the cause you indicate. See the instructions for guidance.*

H1 – CORROSION

1. ○External Corrosion
2. ○Internal Corrosion

(Complete items a – e where applicable.)

a. Pipe Coating
○Bare
○Coated

b. Visual Examination
○Localized Pitting
○General Corrosion
○Other _____

c. Cause of Corrosion
○Galvanic ○Atmospheric
○Stray Current ○Microbiological
○Cathodic Protection Disrupted
○Stress Corrosion Cracking
○Selective Seam Corrosion
○Other _____

d. Was corroded part of pipeline considered to be under cathodic protection prior to discovering accident?
○No ○Yes, Year Protection Started: /_____/

e. Was pipe previously damaged in the area of corrosion?
○No ○Yes **=>** Estimated time prior to accident: /_____/ *years* /_____/ *months* *Unknown* ☐

H2 – NATURAL FORCES

3. ● Earth Movement => ○Earthquake ● Subsidence ○ Landslide ○Other _____
4. ○ Lightning
5. ○ Heavy Rains/Floods => ○ Washouts ○ Flotation ○ Mudslide ○Scouring ○ Other _____
6. ○ Temperature => ○Thermal stress ○ Frost heave ○ Frozen components ○Other _____
7. ○ High Winds

H3 — EXCAVATION DAMAGE

8. ○ Operator Excavation Damage (including their contractors/Not Third Party)
9. ○ Third Party *(complete a-f)*

a. Excavator group
○ General Public ○ Government ○Excavator other than Operator/subcontractor

b. Type: ○Road Work ○Pipeline ○Water ○Electric ○Sewer ○Phone/Cable
○Landowner-not farming related ○Farming ○Railroad
○Other liquid or gas transmission pipeline operator or their contractor
○Nautical Operations ○Other _____

c. Excavation was: ○Open Trench ○ Sub-strata (boring, directional drilling, etc…)

d. Excavation was an ongoing activity (Month or longer) ○Yes ○No If Yes, Date of last contact /_____/

e. Did operator get prior notification of excavation activity?
○ Yes; Date received: /_____/ mo. /_____/ day /_____/ yr. ○No
Notification received from: ○One Call System ○ Excavator ○Contractor ○Landowner

f. Was pipeline marked as result of location request for excavation? ○ No ○Yes *(If Yes, check applicable items i - iv)*
i. Temporary markings: ○ Flags ○Stakes ○Paint
ii. Permanent markings: ○
iii. Marks were (check one) : ○ Accurate ○ Not Accurate
iv. Were marks made within required time? ○Yes ○No

H4 – OTHER OUTSIDE FORCE DAMAGE

10. ○ Fire/Explosion as primary cause of failure => Fire/Explosion cause: ○Man made ○Natural
11. ○ Car, truck or other vehicle not relating to excavation activity damaging pipe
12. ○ Rupture of Previously Damaged Pipe
13. ○ Vandalism

H5 – MATERIAL AND/OR WELD FAILURES

Material

14. ○ Body of Pipe => ○ Dent ○ Gouge ○ Bend ○ Arc Burn ○ Other _____

15. ○ Component => ○ Valve ○ Fitting ○ Vessel ○ Extruded Outlet ○ Other _____

16. ○ Joint => ○ Gasket ○ O-Ring ○ Threads ○ Other _____

Weld

17. ○ Butt => ○ Pipe ○ Fabrication ○ Other _____

18. ○ Fillet => ○ Branch ○ Hot Tap ○ Fitting ○ Repair Sleeve ○ Other _____

19. ○ Pipe Seam => ○ LF ERW ○ DSAW ○ Seamless ○ Flash Weld ○ HF ERW ○ SAW ○ Spiral ○ Other _____

*Complete a-g if you indicate **any** cause in part H5.*

a. Type of failure:
○ Construction Defect => ○ Poor Workmanship ○ Procedure not followed ○ Poor Construction Procedures ○ Material Defect

b. Was failure due to pipe damage sustained in transportation to the construction or fabrication site? ○ Yes ○ No

c. Was part which leaked pressure tested before accident occurred? ○ Yes, *complete d-g* ○ No

d. Date of test: /_____/ yr. /_____/ mo. /_____/ day

e. Test medium: ○ Water ○ Inert Gas ○ Other _____

f. Time held at test pressure: /_____/ hr.

g. Estimated test pressure at point of accident: _____ *PSIG*

H6 – EQUIPMENT

20. ○ Malfunction of Control/Relief Equipment => ○ Control valve ○ Instrumentation ○ SCADA ○ Communications ○ Block valve ○ Relief valve ○ Power failure ○ Other _____

21. ○ Threads Stripped, Broken Pipe Coupling => ○ Nipples ○ Valve Threads ○ Dresser Couplings ○ Other _____

22. ○ Seal Failure => ○ Gasket ○ O-Ring ○ Seal/Pump Packing ○ Other _____

H7 – INCORRECT OPERATION

23. ○ Incorrect Operation

a. Type: ○ Inadequate Procedures ○ Inadequate Safety Practices ○ Failure to Follow Procedures ○ Other _____

b. Number of employees involved who failed a post-accident test: drug test: /_____/ alcohol test /_____/

H8 – OTHER

24. ○ Miscellaneous, *describe:* _____

25. ○ Unknown
○ Investigation Complete ○ Still Under Investigation *(submit a supplemental report when investigation is complete)*

PART I – NARRATIVE DESCRIPTION OF FACTORS CONTRIBUTING TO THE EVENT *(Attach additional sheets as necessary)*

A CONTRACT CREW UNDER DIRECTION OF AN ENBRIDGE PROJECT COORDINATOR WAS BEGINNING TO DIG AN INDICATION (DENT WITH METAL LOSS) AT MP 1007.33 NEAR THE TOWN OF GRAND RAPIDS, MN. ALTHOUGH NO OIL WAS SEEN ON THE TOP OF THE GROUND,FRESHLY CONTAMINATED SOIL WAS ENCOUNTERED ONCE DIGGING COMMENCED. THE SOURCE OF THE LEAK WAS DETERMINED TO BE A SLOW, WEEPING CRACK ON OUR 26" LINE 2 PIPE. UPON EXCAVATION, A ROCK WAS REMOVED FROM THE DENT AND WAS DETERMINED TO BE THE ROOT CAUSE OF THE LEAK. A ONE-FOT TIGHT-FITTING SLEEVE, PLACED OVER A RUBBER PATCH, WAS WELDED OVER THE DENT. DISOCVERY, EVALUATION AND REPAIR OF CRACK WAS ALL COMPLETED WITHIN 12 HOURS.
UPDATE 8/11/2004 - AN ENVIRONMENTAL ASSESSMENT HAS DETERMINED THAT THE GROUNDWATER DIRECTLY BELOW THE AREA OF THE LEAK WAS AFFECTED. ADDITIONAL MONITORING WELLS MUST BE INSTALLED TO DETERMINE THE EXTENT OF THE GROUNDWATER CONTAMINATION. ONCE THE WELLS ARE INSTALLED AND MONITORED, A BETTER ESTIMATE OF VOLUME AND COST OF ENVIRONMENTAL REMEDIATION CAN BE ESTABLISHED.

FOLLOWING THE INSTALLATION AND DEVELOPMENT OF A MONITORING WELL, APPROXIMATELY 1 FOOT OF OIL WAS OBSERVED IN EARLY AUGUST 2004. THE MINNESOTA POLLUTION CONTROL AGENCY WAS NOTIFIED OF THIS FINDING AT THAT TIME. ADDITIONAL INVESTIGATION WAS NECESSARY TO DEFINE THE OIL LOST AND THE ASSOCIATED IMPACTS TO GROUNDWATER, WHICH TOOK SOME TIME DUE TO DIFFICULT SITE ACCESS, REQUIRED PERMITS, CHANGE IN LAND OWNERSHIP AND DIFFICULT DRILLING CONDITIONS (LARGE BOULDERS). DRILLING BEGAN IN EARLY SEPTEMBER AND CONTINUED THROUGH NOVEMBER UNTIL SNOWFALL RESTRICTED ACCESS. ALL MONITORING WELLS WERE SUBSEQUENTLY DEVELOPED AND SURVEYED. THE INITIAL MONITORING EVENT WAS COMPLETED IN MID-DECEMBER AND A CONFIRMATORY SAMPLING EVENT WAS CONDUCTED IN LATE JANUARY TO DETERMINE WHETHER THE INITIAL OBSERVATIONS WERE VALID AND THE OIL THICKNESSES OBSERVED IN THE WELLS HAD STABILIZED. FOLLOWING THE COLLECTION OF THE DATA FROM THE LATE JANUARY SAMPLING EVENT, THE OIL LOST VOLUME WAS SUBSEQUENTLY CALCULATED BASED ON THE OBSERVED OIL THICKNESSES IN THE MONITORING WELLS AND REPORTED TO THE APPLICABLE AGENCIES INVOLVED.