MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES

MT. POLLEY MINE

N. ROSE GEOTECHNICAL INSPECTION OF OPEN PIT,

WASTE DUMPS AND TAILINGS DAMS

AUGUST 30, 2006

FIELD NOTES AND PHOTOS

PROJECT 2715

AUGUST 2006

PITEAU ASSOCIATES ENGINEERING LTD.

GEOTECHNICAL INSPECTION OF MOUNT POLLEY MINE - AUGUST 29, 2006

Conducted by: Nick Rose, P.Eng. – Piteau Associates Engineering Ltd. (Contract to MEMPR)
Accompanied by: Bruce Milligan – MEMPR Prince George District Health and Safety Inspector

Pre-Inspection Meeting

Prior to the inspection, general discussions were held with Tim Fisch (General Manager) and Art Frye (Mine Operations Manager) to discuss the status of the mine plan, TSF and areas of instability. An updated operation, maintenance and surveillance (OMS) manual was provided by Ron Martel, dated August 28, 2006. The manual includes the updated management names for Mount Polley. A Golder draft technical memorandum entitled "Bell Pit – West and East Instabilities," dated August 29, 2006 was provided. The memorandum included remedial design recommendations from Golder for Bell Pit.

Meeting with Art Frye (11:45 am – between inspection of TSF and pits/dumps)

- Discussed design for Wight Pit till slopes – southeast 2:1 or reinforced wall (design still being contemplated). Looking at possibly going closer than 40m to Bootjack Lake.
- Four wells from 15 to 30 hp (too big). Pumps to be swapped between wells based on flow.
- Bell Pit:
  - Crack on west wall; 45° fault; prisms placed on slope.
  - Toppling instability on east wall; remedial design to require stepout such that 42° from crest to crest of stepout. Interramp design was 51° - now at 44°; prisms being monitored on slope.

Inspection Notes Corresponding to Station Locations Shown on attached Figs. 1 to 4

Station 1: Mill Site sump – erosion on outlet spillway. Requires remediation (e.g., rip rap).
Station 2: Photo of TSF from road leading to barge. Notice beaches developed since last visit.
Station 3: Photo from corner of Perimeter and Main embankments; notice good beach development. Filter at 947m and till core at 948.2m el. Bruce Milligan informed Ron Martel that signage is required for single lane haulage.
Station 4: Inclinometer #3 near toe of Main Embankment; newly installed to 41m depth; pinned to bedrock. Photo of main seepage pond and downstream toe of Main Embankment.
- Seepage waters monitored weekly.
- KP lightened up on inclinometer reading frequency; were using poor-boy probes; permit requires inclinometer probe during construction.
- MPMC having difficulty acquiring probe – don't want to buy for use once per year.
- Met KP representative Jim McDonald – Les Galbraith was on site mid July; Ken Brower was on site in mid-May.
- Met Mathew Silbernagel – project coordinator for MPMC.
- No indicated issues with material specifications or borrow sources.

Station 5: Photo from Perimeter Embankment. Berm was placed along low point leading to South Embankment to raise the tailings pipeline such that a low point was prevented from forming in the tailings line. This has resulted in the ability to spigot across the full length of the impoundment. Spigotting was active along the South embankment to increase the beach widths in this area.
Station 6: Steel pipe and perforated pipe stockpiled. Steel pipe will be encased in concrete in the Perimeter Embankment to collect seepage flows from the upstream toe drains.

Station 7: Tension crack on west wall of Bell Pit. Maximum aperture 15cm, but generally 3 to 4 cm wide (see Fig. 2 plan map for estimated location). Continue to monitor prisms and visually inspect and mark crack locations on regular basis. Operations currently keeping equipment away from toe and inspecting while active in pit.
View of east side of pit.

Station 8: Bell dump – swampy area contained by dump. Notice back tilting trees indicating local toe shearing in foundation. Dump on essentially flat ground. Important to dump and doze and limit crest advance rate to allow dissipation of pore pressures.

Station 9: Photo of east wall from north haulroad and photo of west wall.

Station 10: Photo of fault on southwest wall dipping at approximately 45°. Need to maintain keepout at toe when mining not active.
Photo of northeast wall. Notice talus material above haulroad.

Station 11: Photo of east wall of Bell Pit. Notice raveled material above haulroad. Indicated that toppling is mechanism of instability. Golder has issued remedial design.
Photo of west wall.

Station 12: Construction of foundation for heap leach site. Art Frye reported that verbal approval was provided by Chris Carr. Only seven metres deep and small trial. Permit application to follow.

Station 13: Northeast Zone Dump. Golder till design slightly steeper than if waste rock (no boulders in till to roll), but MPMC using the 20° rule to limit the potential for boulder roll-out.

Station 14: Photo of west wall of Wight Pit.

- Benches appear to be scaled adequately with shovel bucket.
- Crest stakes in place on bench above shovel operating at 960m Level.
- Local breakback and loss of bench crests.
- Change to i-kon electronic detonators is indicated to have improved wall conditions.
- Inspect crest on regular basis; visual monitoring; install prisms for baseline.
- Golder doing quarterly inspections.
- Blasting – no longer stemming back row of trim and buffer. Orica to recommend blast designs.

Station 15: Photo of pit bottom. Notice till slope in area of lower ramp. One more bench to go at pit bottom, then final cut will continue down.

Station 16: Photo of west wall. Local narrow catchment, but wall adequately scaled and no signs of rockfall at working level.

Station 17: Entrance to TSF haulroad. Much improvement since last inspection.

Station 18: Photo of NE dump looking north. Toe stakes are used to maintain overall slopes less than 20°. Notice portion overbuilt above road – no stability concerns noted.

Close-out Meeting

Attendees: Tim Fisch, Art Frye, Bruce Milligan (MEMPR District Inspector).

Tailings Storage Facility

- Inclinometer shall be read with inclinometer probe during construction. Geotechnical consultant to specify frequency of readings.
- Minimum operating beach width to be specified by design consultant.
- Dam safety review in 2006.

Bell Pit

- Daily prism monitoring and assessment of monitoring data on west and east wall instability areas in the Bell Pit.
- Manual wireline extensometer and manual crack monitoring devices (e.g., rebar pins) could be used for manual monitoring in addition to prism surveys.
- A suitably sized rockfall impact barrier shall be placed on the north haulroad below the area of active instability if raveling or rockfall hazards develop on the haulroad
- Threshold monitoring movement rate and operational response criteria shall be developed for the west and east walls of the Bell Pit and submitted to the Ministry within 15 days of the receipt of this report.
- The recommendations made by the design consultant for remedial design changes shall be followed.

Bell North Dump

- Active dumping on the Bell North Dump is occurring on relatively flat ground, but in marsh materials.
- Tilting trees at the toe of the dump indicates that some shearing may be occurring in the foundation, at the toe of the dump. Crest advance rates shall be controlled to allow pore pressures to dissipate.
- Mount Polley's Standard Dump Procedure, dated February 16, 2006 shall be followed. If unusual cracking, settlements overhangs or toe movement has occurred, the pit supervisor shall decide to dump extra short and push, or block off the area and re-assign the trucks to other dump or stockpile areas. The supervisor shall follow the Mine Operations Dump Monitor procedures, dated February 16, 2006, if potential dump instability is observed.
- The inactive northern portion of the Bell North Dump shall be blocked off and limited to light vehicle access only while not in use.

Northeast Zone Dump

- Operation of the East Rock Disposal Site (RDS) and TSF Haulage Road shall follow the M200 permit and variance conditions variance granted by the Chief Inspector. No geotechnical concerns were noted with respect to the Northeast Zone Dump.

Wight Pit

- Structural breakback of bench crests noticed in upper benches, but recent change to i-kon electronic detonators is understood to be improving wall conditions.
- Walls look generally well scaled with shovel bucket during excavation.
- Prism monitoring shall be implemented starting with baseline prisms at the pit crest.
- Visual inspection of the pit crest shall be conducted on a regular basis.

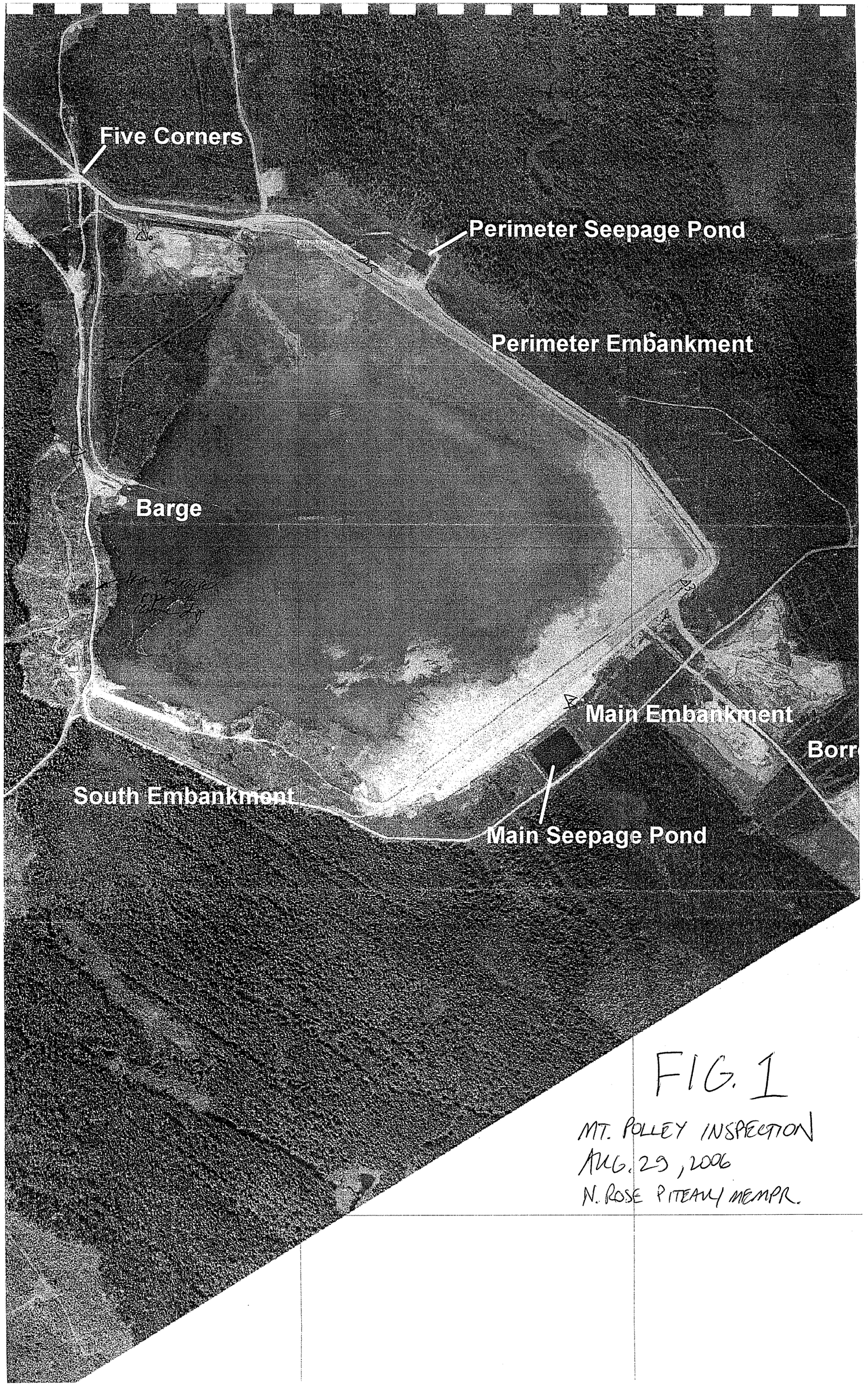
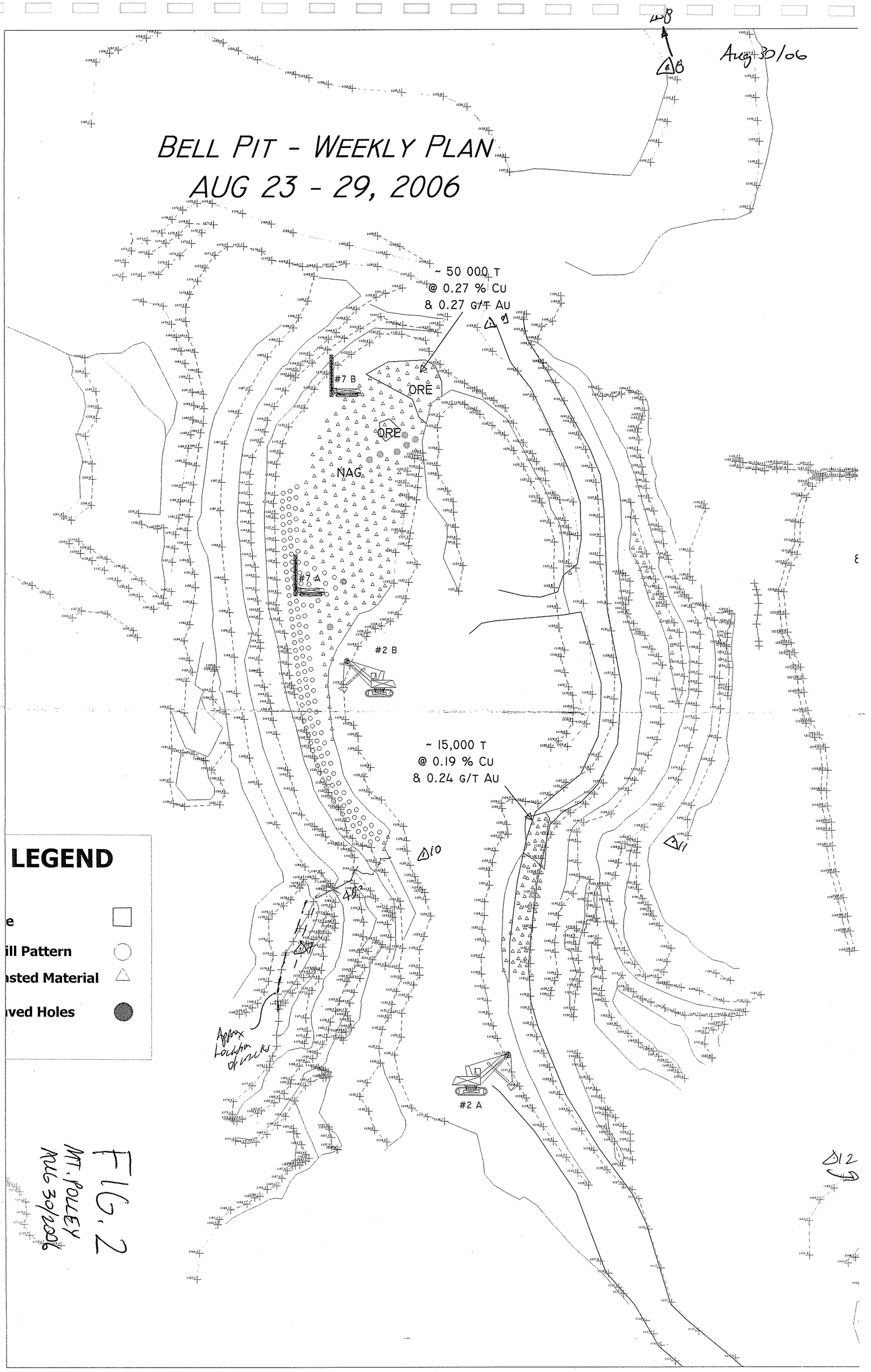


FIG. 1

MT. POLLEY INSPECTION
AUG. 29, 2006
N. ROSE PITEAU MEMPR.


Aug 30/06
BELL PIT - WEEKLY PLAN
AUG 23 - 29, 2006
~ 50 000 T
@ 0.27 % CU
& 0.27 G/T AU
#7 B
ORE
ORE
NAG
#7 A
#2 B
~ 15,000 T
@ 0.19 % CU
& 0.24 G/T AU
LEGEND
#2 A
FIG. 2
MT. POLLEY
AUG 30/2006

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/IRONMENTAL DITCH AND SUMP
DO NOT DISTURB!!

WIGHT PIT - WEEKLY PLAN
AUG 23 - 29, 2006

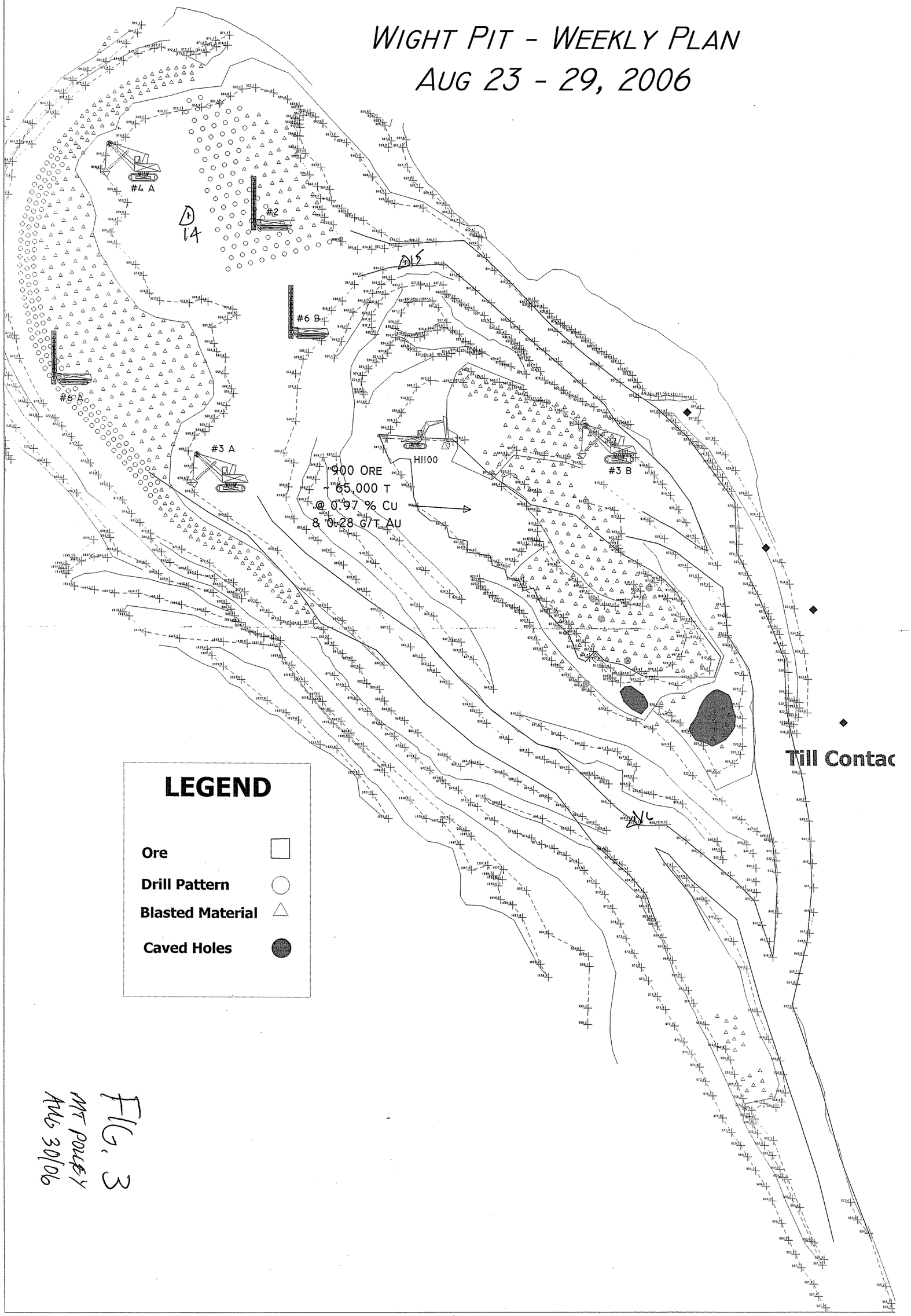
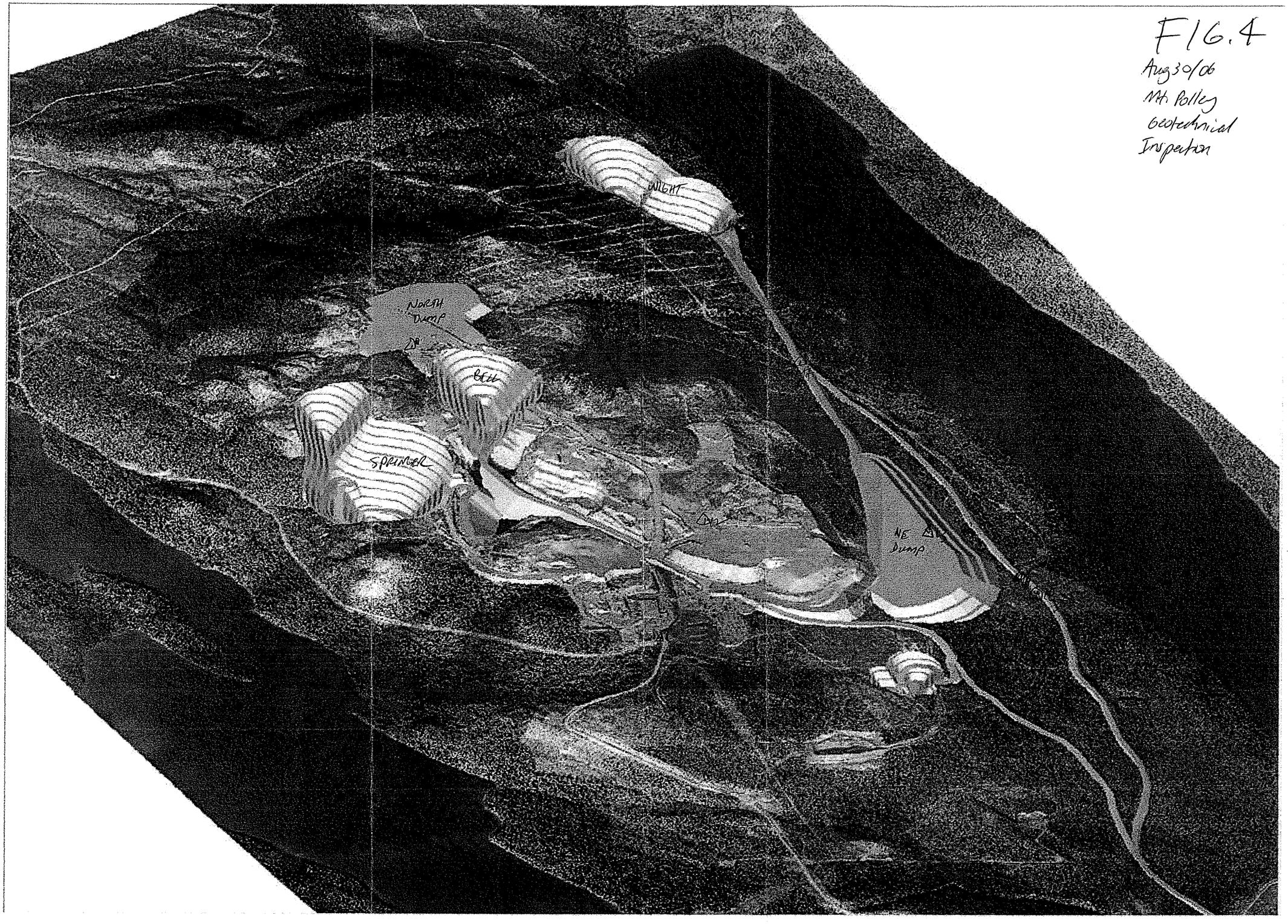
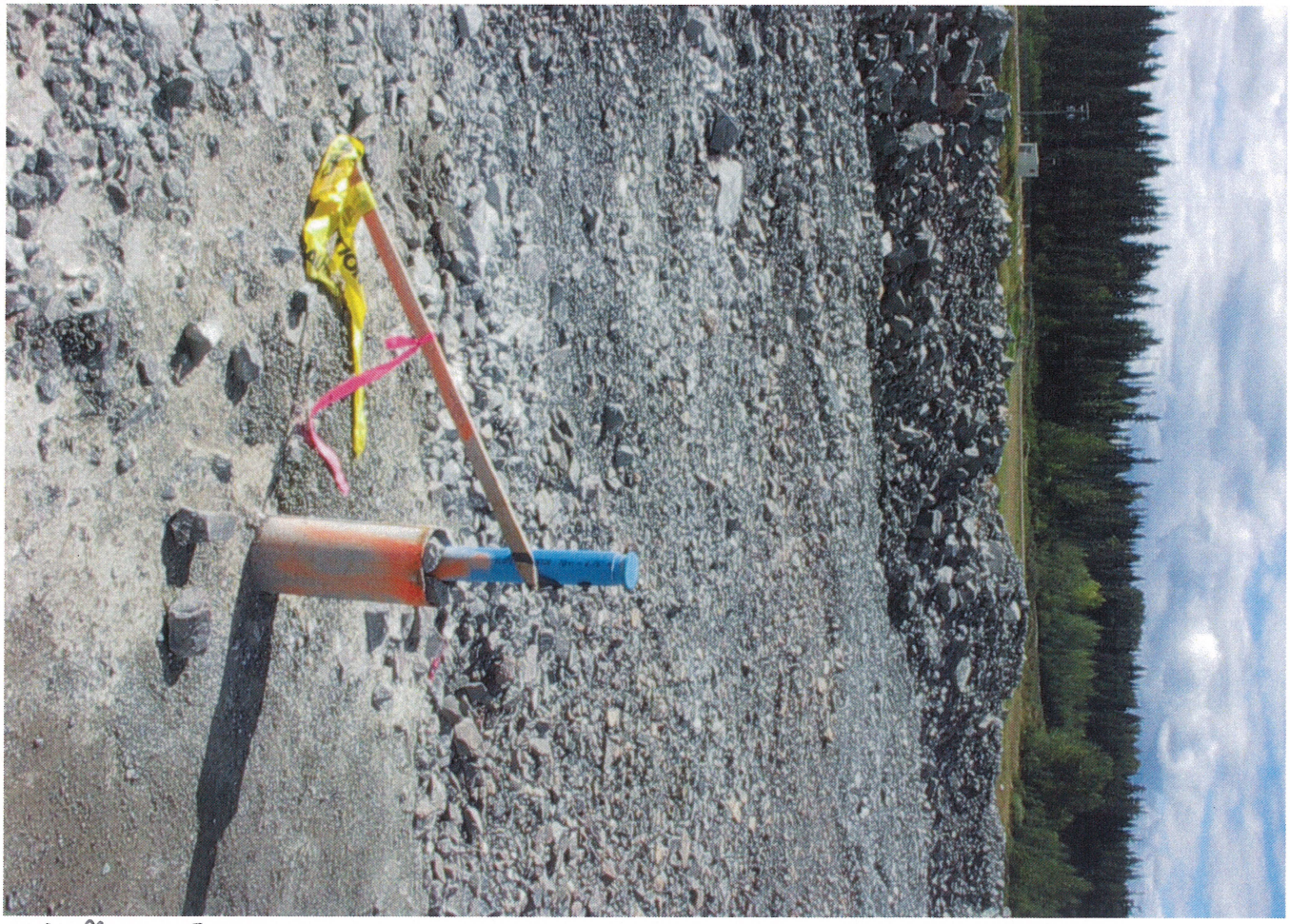


FIG. 3
MT POLLEY
AUG 30/06



F16.4
Aug 30/06
Mt Polley
Geotechnical
Inspection

△1 Photo 3904



△4 Photo 3917

△2 Photos 3905-09

03 Photos 3910-16

△4 Photos 3918-21

△5 Photos 3923-28

△5 Photo 3922

△6 Photo 3929

△6 Photo 3930

△7 Photo 3938

△7 Photos 3931-37

△7 Photo 3939

△8 Photo 3940

△8 Photo 3941

△8 Photo 3942

△9 Photo 3943-44

△9 Photo 3945-46

△10 Photo 3947

△10 Photo 3948

△11 photos 3949-50

△11 Photos 3951-53

D12 Photo 3954

D13 Photo 3955

△13 Photo 3956

△16 Photo 3967

△14 Photos 3957-63

△15 Photos 3964-66

△16 Photo 3968

△17 Photo 3969

△18 Photos 3970-71

Aug 30/06

Mt Polley Geotechnical Inspection

Don Fysh - Senior Mgr
Art Frye - Manager of Operations

- Northeast Zone Dump - check monitoring
  - extensometers
  - Visual monitoring

Notes prior to inspection

- TSF - inclinometer to be used during construction
  - no piezometer data - Sept/05 to April/06 - leads & readout box need to be fixed
  - thresholds for piezometers 914 to 924.8m el.
  - Millsite sump spillway to be repaired
  - * - beach requirements?
  - monitoring as per frequency & ons -
  - tailings deposition plan - discharge perimeter, Main & south Embankment
    - tailings pipeline extend to South Embankment
  - Relocate radon boxes
  - Review condition of existing pipeline - complete design review to ensure transport around entire TSF
  - Southeast ditch on West side of TSF needs to be relocated to virgin ground
  - review water Management plan

Southeast Zone 26 (not being mined yet & small)

- pit slope monitoring manual to be submitted to Chief Inspector within 6 months
- pit wall mapping - design updated annually - regular stability performance investigations qualified geotech. engr.
- Dumps - Submit plan & sections of East Waste Rock Dump to District & Geotechnical Inspector for approval.
- Dump operating manual.

Wight Pit

- report on overburden soils
- geotechnical review

Met with Don Fysh & Art Frye 9:30-10am -

Tour of Tailings Dam with Ron Morfet.

D1 Mill site sump - rip rap required - erosion, - needs remediation
Steep 5:1 & 6:1 - 2006 47 7 million - 4m NAD face -
Jim McDonald & Gr2 Coffin - KP representatives on 4 in 4 out

D2 TSF from near barge
liner with basin - 2m minimum liner - test pits - backfill with bentonite
- bathymetric survey
- till core to 95% this year -

Aug 30/06

Bob McGaw

- Water balance → need to be @ 955.4 after spring runoff
- 1.33 total

△3 Filter @ 947 — Photo from Perimeter of Main embankments - notice well developed beach
Till Core 940.2 - Brown till - & Grey Till - winter.
U Zone
- need single bore signage

△4 Inclinometer #3 near toe of Main embankment - newly installed 41m depth pinned into bedrock

~~△5~~ Toe drain house - monitored weekly - photo of pond & downstream toe
- KP lightened up on inclinometer reading frequency - were using poor-boy probes - Permit requires inclinometer
- MPMC having difficulty acquiring probe - don't want to buy for one/year sites.

KP representative — Jim McDonald - Les Galbraith - mid July
Ken Brower - Mid. May
Matthew Silbernagel - project coordinator ~~MPMC~~ MPMC
- no indicated issues with specifications

△5 Photo from perimeter Embankment - white foam placed to keep gradient on pipeline.

△6 Steel pipe for seepage water - to be concreted in end of perimeter embankment.
perf pipe in

Meeting with Art Frye 11:45 am

- mine plan -
- Wright pit till - southeast - 2:1 till or reinforced wall.
  - upper 2:1 down to 40m within Lake level.
  - working on final design Art Frye
  - looking at possibly going closer to Lake
  - 40m from forestry - setback
  - old rotten cedars - tendency to fall down.
  - ramp has to be dropped 20m.

Wells - 15hp north — 4 wells - 100 b.g. -
30hp south
- 7hp to be installed
- piezometers to go in
- down to bedrock interface
- possibly up to 35m below lake level.

Ron Meisker - test pits

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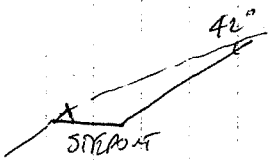
- Bell Pit - crack on west wall
  - toppling on east wall -
  - 42° crest to toe - stepout
  - was 51° → went to 44° IRT

12m single
70/72° - 8m berm
44.1/45.2



- prisms on west & east crests
- 45° fault on west.

Pit/Dumps 12:50pm

△7 West wall crack - opened up 15 cm - place pins for manual monitoring
- Map cracks & place on plan.

View of east wall movement area on east wall
- west wall - continue to monitor & visually inspect - mark cracks on regular basis
- prisms being ~~plot~~ monitored daily - plotting
  - operators - usually inspecting & keeping equipment away from toe

△8 Bell Dump - Contain swampy area - some trees tilting back near toe -
- essentially flat ground
- overbank dumping with dozer Generally.

△9 NE Bell Looking south - instability on east - blasting considered to have affected

△10 Fault on south wall -
NW wall - some rock material raveled above slope

△11 East wall Bell Pit - Block toppling above ramp - Golder issued remedial recommendations in report.
- if raveling / rockfall develops geology has not - may need input from

△12 Preparation for deep leach - verbal approval from Chris Carr
7m deep

△13 NE Zone Dump - toll on NE - Golder design slightly steeper, but (no rail-out)
MPMC using 28° angle for development

△14 Photo of West wall of Wright pit - looks like benches being scaled adequately with bucket - change to Items indicated to have improved wall conditions
- crest stakes on bench above shovel ~~on~~
operating on 980m bench
- loud breakback & loss of bench crests
  - inspect crest on regular basis - visual monitoring - prisms.
- Golder doing quarterly inspections - monitoring recommended when needed
- no longer stemming back row - ORICA to recommend blast designs.

△15 Till on SR & pit bottom - temporary wall - overmixed at top - undermined @ bottom
- one more bench, then take down

Aug 30/06
Matt Rocky

① 16 West wall - local narrow catchment, but wall adequately sealed

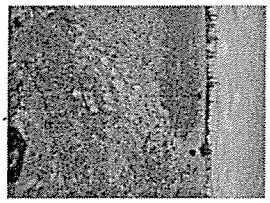
② 17 - TSF road - road built up - need access go around & above

③ 18 Photo of NE dump looking north - toe stakes placed on ~~the~~ left below notice position overburden above road - coarse rock - doesn't appear to be common.

Close-out

- TSF - inclinometers read with probe deems construction - not just pool boy
  - dam safety review
- Bell Pit - monitoring west & east walls - extensometer across cracks would provide ongoing monitoring - piles
  - east wall - if cracking persists - may need input here
- West Pit - adequate catch berms
  - blasting
- NE dumps - follow procedures
- beach width distribution - from KP.
- Golder report provided - west & east wall instability.
- extensometers - across cracks - mark cracks
  - beacon on ramp if cracking continues.
- Wright Pit - prisms behind crest - baseline
  - berms - scaling with excl & chain - discuss with KI chance.
  - inspection reports from Golder
  - slope performance & bench performance
- threshold response criteria.

27151 Mt Rolley Aug 30/06 Photos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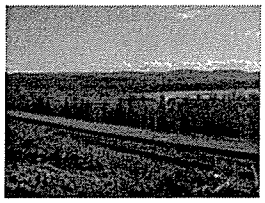
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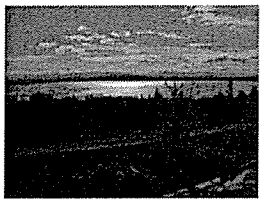
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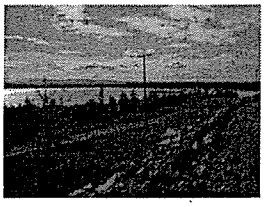
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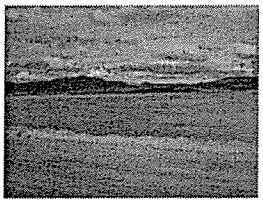
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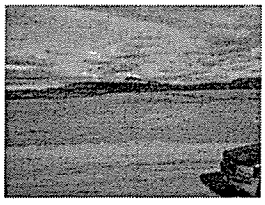
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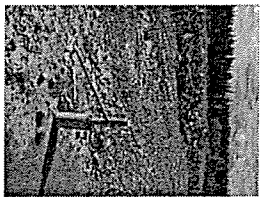
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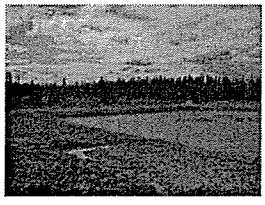
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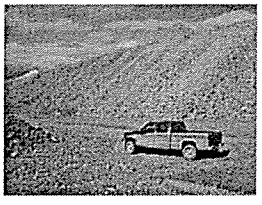
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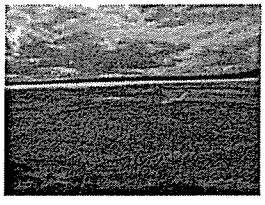
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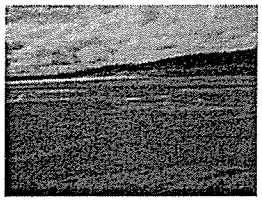
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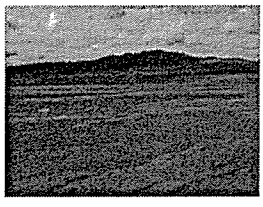
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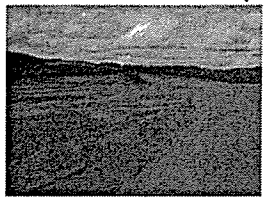
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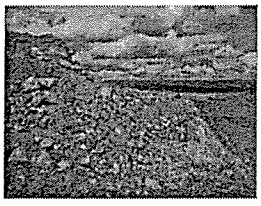
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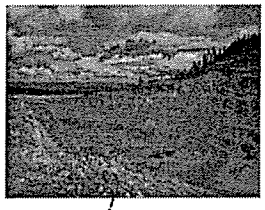
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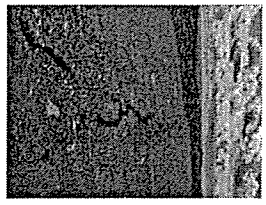
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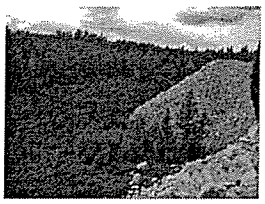

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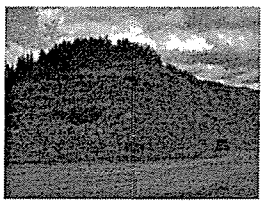

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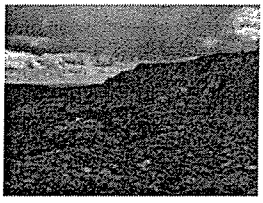

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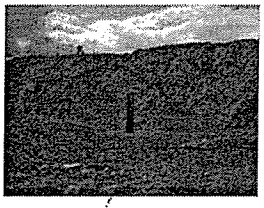

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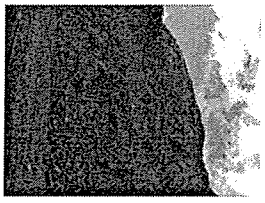

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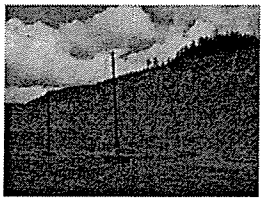

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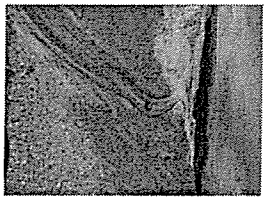

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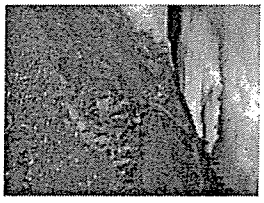
3949-50



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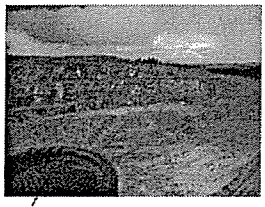
3951-53



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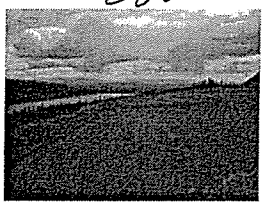

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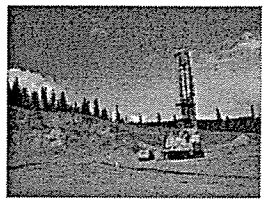

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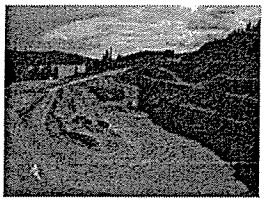

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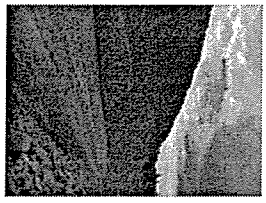

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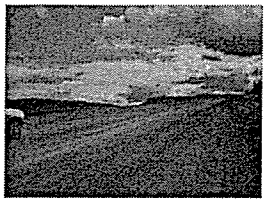
3964-66



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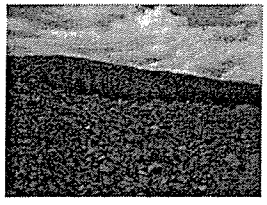

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