

State Department of Environmental Conservation (NYSDEC), requested that BOYD review all documents, digital data, and annual reports received by BOYD starting with the 2006 Annual Report.

The recently received documents were reviewed for their adherence to conditions of the Permit⁵. The Cargill 2011 Annual Report is accepted; however, the report does not include the following maps as Mr. Plumeau¹ noted that these "... maps are not ready yet.":

- Cayuga Mine Closure (Inches) showing closure of the 6 Level.
- Cayuga Mine Closure Rate (Inches/Year) showing closure of the 6 Level.

Also, the AutoCAD file, 20 Belt Area.dwg, which contains a map of B-20 Belt Drift with extensometer locations, was not included with the supplied documents. Previous reports also included information on roof extensometers on Level 6 in the B-20 Belt Drift and Level 4 in Pamel Pass.

Discussion of Annual Report

The Permit has several conditions that affect the Annual Report and its review including:

Condition 4—Requires all reports required by the permit to be submitted to Region 7.

Condition 10.a.—Requires investigation into the disturbed salt zone and this investigation to be completed and submitted before mining proceeds into the area.

Condition 13.a.—Requires the Annual Report submitted by Cargill and response to 13.a. sub-conditions 1 through 8 and Condition 13.b through g. These conditions and Cargill's responses are summarized below:

Condition 13.a.1.—Requires the inclusion of the Mine Manager's signed certification that "all mining related activities...were in conformance with this permit and the approved plans, or that variances have been reported and managed."

A certification was included on page 2 §13.a.1 and the certification sent to NYDEC was signed by Mr. Givens, Mine Manager, on December 3, 2012. This certification

⁵ New York State Department of Environmental Conservation, Region 7, 2007, "Permit" DEC ID 0-9999-00075, expiration December 31, 2012, December 31.

notes "... that all mining activities, to the best of my knowledge, conducted during the reporting period from January 1, 2012 to present were in conformance with the DEC Permit # 0-9999-00075/00001 and the approved plans. No variances occurred and none were reported."

Condition 13.a.2.—Requires "A summary of all non-routine mining incidents as defined in Special Conditions Part b. ..." Condition 13.b. defines non-routine as "incidents during mining, processing, or other mine related activities that may adversely affect mine stability, ground and surface water or other natural resources, or the health, safety, welfare or property of the general public." During a meeting held on August 17, 2004, with Cargill, NYDEC, and BOYD, it was agreed that statements will be included in the Annual Report "to point out known, encountered, or discovered geologic and geotechnical anomalies and mine action to address such anomalies."

Cargill included a statement in the Annual Report page 2, Section 13.a.2 that "[t]he Cayuga Mine is not aware of any non-routine incidents associated with the mining, processing, or other mine related activities that would have adversely affected ... Mine stability, Ground and surface water, Natural resources, Health, safety, welfare or property of the general public." And "... mining has been temporarily suspended in the southern workings pending evaluation of atypical microseismic noises heard there during July of 2011. Mining will resume there when Cargill has deemed it prudent to do so."

Condition 13.a.3.—Requires "[a]n updated Mining Plan Map depicting the current extent of mining activities, and the proposed advancement of the working face for the subsequent three years." At the August 2004 meeting, it was agreed that in addition "[a] mine map showing instrumentation location and type and shore line..." will be included in the Annual Report.

Cargill included a statement in the Annual Report, page 2, Section 13.a.3 that "The Cayuga Mine is currently operating in the northern region of the mine. Active mining is located in panels U-62 to the west, U-63 to the east and NW-3 to the north. As can be seen on the map, mining is proposed to continue east from U-63 under the land, pending acquisition of mineral rights there."

Mine maps as AutoCAD files were supplied by Cargill to fulfill this condition. All AutoCAD maps supplied were overlays and a base map. The base map was included as basemap with rock layer roof rock floor rock rolls(updated11-14-12).dwg, which was created on July 11, 2006, last modified January 15, 2013, and includes a map entitled

"Cayuga Mine, 6 Level Workings," by Cargill Deicing Technology. Also included on this map are roof and floor rolls as of December 17, 2012. Other maps provided are:

- The AutoCAD file, COMPLETE MINE OVERLAY W SURFACE SUBSIDENCE.DWG, created December 06, 2000, modified January 15, 2013, and containing "Cayuga Mine, 6 Level Workings," by Cargill Deicing Technology, which shows subsidence monument locations, shore line, and the 1st, 4th and 6th Level workings.
- The AutoCAD file, ROYALTY.DWG, created February 28, 1996, modified January 15, 2013, and containing the Cargill Deicing Technology, 2013, "Cayuga Mine, Mine Royalty Map, 2012/2013 Fiscal Yr." January. Map shows fiscal year production areas from June 1, 1984 through November 30, 2012.
- The AutoCAD file, U38-36 DUST FILL MAP.DWG, created January 19, 2012, modified January 15, 2013, containing an untitled, undated map shows areas filled and to be filled for U38.
- The AutoCAD file, BASEMAP PLANNING FOR MLRP.DWG, created January 11, 2011, modified January 15, 2013, and containing the map Cargill Deicing Technology, 2012, "Cayuga Mine, 3 YR Mine Plan, 2012/2013 Fiscal Yr.", November. This map shows planned expansion through fiscal year 2013 to 2016.
- The AutoCAD file, 4 LEVEL POND MAP MLRP VERSION 28 NOV 11.DWG, created January 31, 2000, modified January 15, 2013, and containing the map, 2013, "Cayuga Mine, 4 Level Pond Map, Updated: 14 Nov 2012," January. This map shows filled levels to January 1, 2013, and remaining potential pond area.
- AutoCAD file, 4 LEVEL CONVERGENCE MAP.DWG, created January 31, 2000, modified January 15, 2013 and contains an untitled and undated map showing closure station locations.
- The AutoCAD file, 4A LEVEL FOR JT BOYD.DWG, created January 31, 2000, modified January 15, 2013 containing undated, "4A Level Instrumentation Map." This map shows closure stations locations.
- The AutoCAD file, W1 1 TUNNEL 8 DOOR INSP TO JT BOYD.DWG, created March 02, 2001, modified January 15, 2013, and containing undated and untitled map. This map shows extensometer locations.
- A hard copy map, undated and untitled, scale 1" = 50' and AutoCAD file, PAMELPASS.DWG, created June 27, 1997, modified January 15, 2013, and contains the map "4 Level, Pamel Pass – 13 Belt." This map shows locations of extensometers along 13 belt.

- An untitled AutoCAD file, SCREEN PLANT HORIZONTAL ROOF EXT.DWG, created October 15, 2001, modified January 15, 2013, and showing map and cross-section view of installation locations of near horizontal extensometers in the roof of the screen plant gallery.
- The AutoCAD file, SCREEN PLANT INSTRUMENTATION.DWG, created March 6, 2009, modified January 15, 2013, and containing map undated, "Unit # 5 Screenplant," showing instrument locations in and around the screen plant gallery.
- The AutoCAD file, U31 POWDER MAG 2009.DWG, created June 7, 2001, modified January 15, 2013, and containing an untitled and undated map showing instrument locations in and around the powder magazine.
- The AutoCAD file, undated, "Current Surge Bin Instrumentation Map as of 9-09" and AutoCAD file, SURGE BIN INSTRUMENT MAP TO JT BOYD.DWG, created April 09, 2002, modified January 15, 2013, and containing undated, "Current Surge Bin Instrumentation Map as of 9-09," showing instrument locations in and around the screen plant gallery.
- AutoCAD file, CONVERGENCE MAP WITH BASEMAP 2012.DWG, created July 11, 2006, modified January 15, 2013, and containing the map Cargill Deicing Technology, undated, "Cayuga Mine, 6 Level Workings, Convergence Stations" This map shows the locations of convergence stations.

The supplied maps show the extent of mining, proposed mine plan, subsidence monument locations, shorelines of both the 4 Level flooding and of Cayuga Lake, and instrument locations. However, maps illustrating recorded mine closure for the reporting period were not provided. Mr. Plumeau¹ noted that "The total closure and closure rate maps are not ready yet – the data needs to be adapted into the Surfer program. As soon as we have those maps finished, we'll send them to you." Similar type maps received in the past were:

- Cargill Deicing Technology, 2008, "Cayuga Mine Closure (Inches) Sep-2009," showing closure of the 6 Level as file; "Cayuga Mine Contour2009 Closure Sep-2009."
- Cargill Deicing Technology, 2008, "Cayuga Mine Closure Rate (Inches/Year) Sep-2009," showing closure of the 6 Level as file; "Cayuga Mine Contour2009 Rate Sep-2009."

Condition 13.a.4.—Requires the annual report to include a "summary of in situ measurements of rock mechanics required by Part f. of this Special Condition."

Condition 13.f. requires the measurement and collection of in situ rock mechanics data "in accordance with the approved Mined Land Use Plan." The data is to include "plots of

relevant graphs. ..." Furthermore, "[e]xceptions to anticipated trends in rock behavior shall be noted and explained. ..."

At the August 2004 meeting, it was agreed that "[a]ll rock mechanics data" would be incorporated in the Annual Report, "including, but not limited to, all instrumentation readings and observations from the initial readings to present. Data for subsidence, closure, and extensometers are to be provided electronically. These electronic files are to include raw and processed data, graphs, and explanations of any inconsistencies and anomalous readings including reasons for abandonment, reinstallation, etc., along with applicable observation in the vicinity of the instrument such as floor heave, water inflow, etc. Future reports are to contain comment on whether, in the opinion of Cargill, the instrument readings support or conflict with prior stability models especially in areas employing new mine, panel, or main configurations."

Cargill included a statement in the Annual Report on page 2 and 3, Section 13.a.4 that "Evaluations of weekly and quarterly convergence data indicate that no unusual trends have been identified and the mine is behaving as expected, with the exception of the U-40B and U-12 areas. Since backfill placement in the U-40B area has been completed, the convergence rates have slowed and are trending back toward historical rates. The U-12 panel also shows higher than normal closure near the breakthrough with SW-2 and near the U-12A sub-panel. These areas are being monitored more frequently as we try to understand why the rates are increased. Both of these areas in U-12 were backfilled during the 1990's."

Closure measurements can be evaluated to indicate possible instability in three ways:

1. By studying the graphs of the rate of closure over time. The shape of these graphs indicates areas of instability, areas of concern, and areas of stability. Mr. Petersen of RMA (Cargill geotechnical consultant) evaluated the closure in this manner.
2. By establishing trigger values for total closure. This method is applicable in harder, less viscous rock but is not applicable for the Cayuga Mine, as stable closure in salt will continue until the openings are closed.
3. By establishing trigger values for long-term closure rates. Since this is not being completed by the other investigators, BOYD applied such trigger rates in its evaluation of the closure readings.

Closure rate data are significant because they offered insight into the collapses and the inundation of the Retsof Mine. Sustained closure rates of 15 in. per year or less were measured in stable areas of the Retsof Mine, while in the failure areas, closure was

regularly measured with sustained rates over 230 in. per year with onset of failure around 600 in. per year. Although Retsof and Cayuga mines have different overburden and material properties, in the general sense, a comparison seems warranted for a relative indicator of stability.

Mr. Plumeau¹ noted that "... all active stations are being read quarterly." It was also noted that, " Closure in the abandoned #6 level east workings was last read in October 2008 so that data is not included. It is unlikely that these stations will ever be read again due to deteriorating ground conditions."

BOYD reviewed the 365 closure stations read in 2012 of which 155 (42%) had the highest closure rate of the year on the last calculated rate of the year. A similar trend was noted over several years by BOYD. Reviewing in-mine humidity data, it can be seen that the highest humidity in the mine occurred between late May and early November which accounts for this trend. **Note that the temperature-humidity gauge at U40APIN#5 is producing erroneous results.**

None of these 365 closure stations showed readings that exceeded 230 in. per year. Below is a list of the 10 highest measured closure rates in 2012 for areas of recent mining defined as areas within 1,000 ft of mining that occurred in 2011 or 2012.

Top 10 Closure Rates in Areas of Recent Mining

Closure Station	Rate of Closure (in./yr)	Last Recorded Rate of Closure (in./yr)	Notes
U63PIN#6	90.7633	5.7879	Initial Rate
U60PIN#41	69.9888	1.6975	2nd Rate
U63PIN#4	68.9850	5.8921	Initial Rate
U63PIN#5	65.6088	3.6500	2nd Rate
U60PIN#40	58.9214	1.5585	3rd Rate
U60PIN#38	57.1225	1.7207	Initial Rate
U63PIN#8	48.5971	6.5700	3rd Rate
U62PIN#25	47.3588	5.6054	2nd Rate
U62PIN#26	42.3400	10.1157	3rd Rate
U63PIN#9	38.8117	7.8678	Mining in U63A

All of these rates substantially dropped over time showing that the ground is stable or stabilizing. All 10 of these stations are located in the most northern part of the mine with 5 stations located in U-63 likely because the panel is wider width than most and these closure station are located at or near the intersection with U-63A resulting in an even wider mining area. Three of these closure stations are located at the end of U-60 and

two are located in U-62 at the intersection of U-62B. Also determined are the top 10 closure rates away from recent mining activity as shown below:

Top 10 Closure Rates Away from Recent Mining			
Closure Station	Rate of Closure (in./yr)	Last Recorded Rate of Closure (in./yr)	Notes
U12PIN#28	1.2442	1.1631	checked with standard rod
U12PIN#32	1.2091	1.1816	
U12PIN#107	1.1546	1.1136	
U40BPIN#8	1.0715	0.8738	72.1° F 68%H
U40BDIG#2B	1.0361	0.9070	
U40BPIN#14	0.9255	0.8185	
U56PIN#26	0.9013	0.7572	78°F, 31%H, last reading
U56PIN#32	0.8753	0.7494	
U56PIN#23	0.8380	0.6989	
W1PIN#2	0.8014	0.8014	

All of these rates dropped over time, except W1PIN#2, showing that the ground is stable. These high-rate stations are clustered in 40-B (three stations) and U-12 areas (three stations) near the U-12A sub-panel, which is the same as last year, three stations in or close to U-56 near mining in U-60, one station in Mains W1 at a time of high humidity, and in an area of odd shaped and small pillars. All three of these areas have been frequently visited in the past by BOYD and NYDEC to observe conditions and each time the area appears globally stable.

Mr. Plumeau¹ notes that "The U-40B and U-24 area convergence continues to trend in a positive fashion with decreasing rates. The U-12 and U-12A convergence rates appear to be stabilizing as well. All of these areas have been backfilled."

In discussing U-40B, RMA³ also notes that "Although we do not fully understand what caused the increase and decreasing trends, we are no longer concerned with excessive closure occurring in this area. The area has been backfilled tightly to the roof and the rates are in a favorable declining trend." RMA also notes the high closure rates in U-12, "There are two areas in Panel 12, which are showing higher than expected closure rates as ... [b]oth areas involve intersecting panels, one at U12/SW2 and the other at U12/U12A. SW2 intersected U12 in 2001, at which time the rates spiked The rates were in a decline as SW2 advanced away from the U12 panel until around 2008 when rates began to increase. There was an odd spike in the rates in early 2009 and the rates have been steadily decreasing since, which is encouraging to see. Still no explanation for the increase in rate in 2009. The rates in the U12/U12A intersection jumped in 2009 for no apparent reason as well, ..." closure data "... showed that the increase is pretty

much limited to the intersection of U12/U12A ... The rates appear to have peaked in 2010 and are now leveled off at just under 1.25 inches per year. This area was backfilled around 1993"

RMA³ point out one other area of concern not noted in the top ten list that is U24. Noting that Closure rates jumped in U24 the summer of 2006 ... "The rates have been on the decline ever since. It was first thought that the increase was due to wash water from the shop being stored down there raising the humidity. At the time it was the most logical explanation. Since then there has been the U40B and U12 unexplainable jump in rates and this could be a similar phenomenon, however humidity readings have been declining as well. The good news is the rates are decreasing and the panel has been backfilled ... It was backfilled long before the increase in rate took place."

Three closure stations were monitored on 4 Level and have closure rates of 0.2665 to 0.5534 in. per year. Four closure stations were monitored on 4A Level and ranged from 0.1413 to 0.3422 in. per year. All rates from levels 4 and 4A are comparable to last year.

Extensometer data was also evaluated. Extensometers were installed in various manners including vertically into the roof, at low angle (near horizontal) into the roof, and into pillars. In addition, extensometers were installed in Levels 4 and 6. Thus, four populations exist. This data is further complicated by the varying rod lengths between extensometers. Still, BOYD attempted to ascertain anomalies within this data. In many instances the rate of extension was not calculated, thus BOYD completed these calculations.

Extensometer Rates (anomalous rates are highlighted)					
Extensometer Location	Station	1 st , in/day	2 nd , in/day	3 rd , in/day	Overall
Roof Horizontal – Level 6					
Screen Plant	1A	0.0019	0.0992	0.0037	0.0972
	1B	0.0074	0.0060	0.0793	0.0540
	2A	0.0019	0.0484	0.1250	0.1270
	2B	0.0019	0.0484	0.1508	0.1488
	3A	0.0519	0.0011	0.0658	0.0500
	3B	0.0482	0.0080	0.0379	0.0445
	4A	0.0186	0.3114	0.000	0.0186
	4B	0.0074	0.0223	0.1099	0.1397
Pillar – Level 6					
Screen Plant	G Pillar, Hole B	0.0555	0.0992	0.1646	0.3194
	H Pillar Hole A	0.1607	0.0655	0.1329	0.3590

Extensometer Rates (anomalous rates are highlighted)				
Extensometer Location	Station	1 st , in/day	2 nd , in/day	3 rd , in/day Overall
Pillar – Level 4				
Surge Bin	#10			0.0708
	#20			0.0835
	#22			0.1969
	#25			0.5345
	#50			0.1579
	#60			0.0694
	#80			0.0032

A measurement of 0.0030 in. per day is often accepted as a convenient point in examining vertical extensometer data, as this value is close to, but normally less than, the value required for bed separation (opening of bedding planes). Horizontal roof extensometers are installed at 5° to 15° from the horizontal as measured in the AutoCAD drawings. This angle would multiply any bed separation, thus the trigger used for horizontal extensometers is 0.2 in. per day. Thus, only one (4A in the roof of the screen plant on Level 6) of the extensometer readings was alarming. However, this reading may be erroneous as it is nestled between two other readings that are acceptable.

Previous reports included information on roof extensometers on Level 6 in the B-20 Belt Drift and Level 4 in Pamel Pass.

In the 2012 Annual Report, a series of reports as ESG Canada Inc., 2012, " Remote Data Processing, Seismicity & System Health Analysis Report," for Cayuga Mine, Cargill Salt Division," Kingston, Ontario, included:

- January 1 – 31, February 13
- February 1 – 29, March 13
- March 1 – 31, April 9
- April 1 – 30, May 10
- May 1 – 31, June 8
- June 1 – 30, July 6
- July 1 – 31, August 13
- August 1 – 31, September 10
- September 1 – 30, October 26
- October 1 – 31, November 13
- November 1 – 30, December 13

According to a slide presentation⁴ "Cayuga Mine – Full Event Mechanism Analysis (Phase 5)" by ESG Canada Inc., ESG defined two planar features;

Designation	Orientation, Strike/Dip	Location	Number of Microseismic Events
f1	Vertical, 328/88NE	U54	140
f5	Horizontal, 345/1NE	U40B	86

ESG notes that "... the two planar features are located directly above an unmined area of the mine. Therefore, the geology and velocity structure may be different than USGS1, and the high velocity contrast interface may not exist at this depth of -800ft." A presentation of ESG's finding should be made at the next planned meeting among Cargill, NYDEC, and BOYD.

Condition 13.a.5.—Requires the Annual Report include a "summary of subsidence monitoring data required by Part e. of this Special Condition." Condition 13.e. requires "[s]ubsidence monitoring shall be conducted in accordance with the approved subsidence monitoring plan contained within the approved Mine Land Use Plan." Furthermore, "[e]xceptions to the trends shall be noted and explained..." Points applicable to this condition were agreed upon at the August 2004 meeting and are noted above under Condition 13.a.4.

Cargill included a statement in the Annual Report page 3, Section 13.a.5 that " A survey of the west shore of Cayuga lake was performed this year and the data is being evaluated now. Plans are being made to conduct subsidence surveys of the east shore line in the 2013 calendar year. Past measurements indicate that the mine is behaving as expected with no anomalous subsidence zones."

Mr. Plumeau¹ notes that "Subsidence data has been taken along the west shore during December 2011 and has been analyzed. No unusual trends were noted." Gary Petersen's analysis is included in his trip report from June.

RMA³, in discussion of the west shore subsidence which was measured from December 1999 to May 2011, noted that "The results are preliminary because there is some question on the location of the subsidence stations. The map appears to be mislabeled for the stations north of Taughannock Point." "The map locations will be verified with the stations in the field sometime in the near future." "An interesting and somewhat peculiar phenomenon is the uplift over the base of the Taughannock Delta." "If uplift is a cantilever effect due to subsidence, why don't we see it in other places adjacent to mining as suggested ..." "The subsidence effect of mining U54-U60 is understandable

as the end of those panels come very close to the subsidence stations ..." "The total subsidence is 0.3 feet which is similar to the amount of subsidence beneath Unit 12. Subsidence in this area will most likely increase as mining continues to expand to the north. The subsidence profile adjacent to S-3 mining is irregular, which does not appear to be related to mining. It lends suspicion to less than adequate subsidence stations ..."

BOYD's opinion developed during the review of this subsidence data is that the mine is likely stable.

Condition 13.a.6.—requires the inclusion of "[i]nformation regarding the source and volume of any water inflow into the mine, and the disposition of such water." At the August 2004 meeting, it was agreed that a discussion about water disposal in 4 Level would be included in the Annual Report, noting: "Updates of Level 4 filling including data on shore line advance."

Mr. Plumeau¹ notes that "Access to view the pond is not possible due to ground conditions. A pumping system is being installed to bring the production shaft water to the ED plant for processing. This will reduce 16 gpm of shaft water inflow to about 7 gpm (at higher concentration) for mine storage, further extending the life of the ponds. It will come on line when the shaft piping is installed."

Cargill included a statement in the Annual Report page 3, Section 13.a.6 that " The following is a list of sources and associated flow rates of water into the Cayuga Mine:

- Production Shaft (#1 shaft) – 16 gallons per minute
- Ventilation Shaft (#2 shaft) – 4 gallons per minute
- ED Plant Concentrate discharge – 7 gallons per minute
- Total Water Inflow = 27 gallons per minute"

Cargill reported the total water inflow to 4 Level was about 13,000,000 gallons per year, the third increase in a row from 10,669,680 last year and 8,894,769 in 2010, which was the first increase in six years. As a result of this inflow, Cargill estimates that 13 years of storage remains down from 16.6 years last year and 21.1 years in 2010. Cargill included a 4 Level pond map, as noted above, and an Excel file, UG Pond Volume Calculation 28Nov12.xls, which was created on December 1, 2003 and last modified November 14, 2012. This spread sheet reports the inflow in 2012 at 11,861,287 with 13.9 years of storage remaining.

Condition 13.a.7.—Requires the inclusion of "[a] summary of all other monitoring data required under the terms of this permit or Department SPDES permit issued to Cargill."

Cargill included a statement in the Annual Report page 3, Section 13.a.7 that "There were no exceedances of the SPDES limits to report during the time of this report." And included a spreadsheet MLRP outfall summary of DMRs.xlsx created and last modified November 27, 2012, and includes information on outfall water quality including cyanide, chloride, zinc, total dissolved solids, and cooling and treatment water.

SPDES data and a discussion of this data are included in the Annual Report. This data is to be reviewed by NYSDEC.

Condition 13.c.—Addresses Mine Safety and Health Administration (MSHA) reporting involving non-routine mining incidents as defined in Condition 13.b. Condition 13.c. requires Cargill to submit "all correspondence with the Mine Safety and Health Administration involving non-routine mining incidents..."

Cargill includes a statement on page 3 section 13.b. of the Annual Report that, "[t]here were no incidents meeting the guidelines for notification as identified in section 13.a.2 and section 13.c. of the Annual Report that..." "[t]he The Cayuga Mine has not received any citations or correspondence from MSHA regarding non-routine mining incidents.." The Annual Report does not note reports or letters from MSHA concerning any non-routine mining incidents.

Condition 13.d.—Addresses reporting requirements "Prior to undertaking any material change in the approved mining methods or techniques ... Cargill shall submit to the Department a description of such modification ..." This condition does not require the reporting to occur in the Annual Report.

Cargill notes on page 4 in section 13.d. that, "There have been no changes to the Cayuga Mine layout in the past year."

Condition 13.g.—Addresses the reporting and recording of citizen complaints.

Cargill includes a statement on page 4 section 13.g. of the Annual Report that "[n]o written complaints from citizens were received since the last report (December 2011)."

Site Visit

A site visit to discuss these findings with NYSDEC, Cargill, and BOYD should be arranged. A suggested area to visit in the mine is U12 at the U12A intersection.

Discussions at this meeting should include the water inflow into, and storage in, 4 Level.

Please contact us if you require additional information or if we may be of further service.

Respectfully submitted,

JOHN T. BOYD COMPANY

By:

A handwritten signature in black ink, appearing to read "V.A. Scovazzo", written over a horizontal line.

Vincent A. Scovazzo
Director of Geotechnical Services

M:\ENG_WP\2499.004\LETTERS\Annual Review 2012.doc