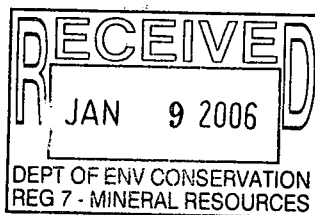




January 5, 2006

Cayuga Mine  
191 Portland Point Road  
Lansing, NY 14882  
Phone: (607) 533-4221  
Fax: (607) 533-4501



Mr. Joseph S. Moskiewicz, Jr. – Mineral Resources Program Manager  
New York State Department of Environmental Conservation  
Division of Mineral Resources, Region 7  
615 Erie Boulevard West, Syracuse, New York 13204-2400  
Phone: (315) 426-7461; Fax (315) 426-7459

RE: Annual Report for Mine File #709-3-29-0052; Cayuga Salt Mine  
Application ID#0-9999-00075-00001  
Towns of Lansing and Ulysses, County of Tompkins  
Town of Covert, County of Seneca

Dear Mr. Moskiewicz:

Enclosed is an annual report required in accordance with the Special Conditions section (item numbers 7-13) of DEC permit number 0-9999-00075/00001. This report will address each reporting requirement separately (7a, 7b, etc.) and drawings will be attached as required. As requested, all technical data associated with monitoring of mine stability will be sent to J.T. Boyd and Associates with attention to Dr. Vincent Scovazzo.

If any questions arise please bring them to my attention at your earliest convenience.

Regards,

Steve Horne  
Mine Manager – Cargill Deicing Technology

## **Reporting, Monitoring, and Notifications**

### **7a. Cargill Cayuga Mine Manager Certification:**

I, Steven J. Horne, Mine Manager – Cargill Deicing Technology, certify that all mining activities, to the best of my knowledge, conducted during the reporting period from January 6, 2005 to present were in conformance with the DEC Permit # 0-9999-00075/00001 and the approved plans. No variances occurred and none were reported.

Signed: Steven J. Horne Date: 1/6/2006

### **7b. Summary of all non-routine mining incidents:**

The 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 any of the following;

- Mine stability
- Ground and surface water
- Natural resources
- Health, safety, welfare or property of the general public

On occasion, the underground production crews encounter rock structures that delay or hinder our mining plan. An area of weak rock in the immediate roof was encountered in the U52 mining panel and this panel was temporarily abandoned. The remaining reserves of the U-52 panel will likely be mined from the U-54 panel in the future. Two small floor rock rolls were encountered in the U-101 and the E-3 panels during the year. Both of these have been or are being mined through as those panels advance.

### **7c. 3 Year Mining Plan**

Attached are maps depicting the current and proposed mining for the next three years.

- Attachment 1A – 3 Year Mine Plan for the Northern Region
- Attachment 1B – 3 Year Mine Plan for the Southern Region
- Attachment 1C – Large Mine map showing current extent of mining and three year mining plan

The Cayuga Mine is currently operating in two different sections of the mine. There is one development crew that is mining east (E-3) from the west shoreline of Cayuga Lake. The rest of the mining is located in the northern region of the mine where development crews will continue to mine north (NW-2) and production crews will mine panels (U-55, U-57, U-54) to the east and west.

### **7d. Summary of In-situ Measurements of Rock Mechanics:**

The Cayuga Mine continues to collect mine convergence data in accordance with the guidelines previously established in the Mined Land Use Plan. Convergence stations are typically installed at the “face” of active tunnels in mining panels with a profile of three stations located in the center and edges of the panel. The convergence stations are usually read daily during the first

week and then dropped to a weekly schedule until the next profile is installed. The initial profile will then be monitored on a monthly or quarterly schedule for the duration of mining of the panel. After abandonment of the panel, the convergence stations are monitored quarterly and annually. Currently, there are approximately 135 quarterly and 375 annual convergence stations being monitored. Once all of the data from the annual convergence stations have been collected it is evaluated both internally and externally for trends to ensure that the each panel and the mine is behaving properly.

Evaluation of weekly, quarterly, and annual convergence data indicate that no unusual trends have been identified and the mine is behaving as expected, with the exception of the U-40B area. It has been noted that this area is squeezing faster than other areas of the mine of similar layout and age. The closure data indicates that the area is stable, in that the closure rates continue to decrease, however those rates are higher than desired. Monitoring of this area has increased in frequency to twice per month. Additionally, an electronic monitoring system has been ordered to allow measuring movement on a daily basis. This should be in place and functioning by April 30. Plans are in place to begin backfilling the area with waste salt and rock within the coming 16 months. The purpose of the backfill is to limit the total amount of closure that is possible, thus reducing the total possible surface subsidence.

The most recent contour maps of total closure and closure rate are attached for your information. All applicable electronic data and maps will be forwarded to J.T. Boyd for review by January 31<sup>st</sup>, 2006.

#### 7e. Summary of Subsidence Monitoring:

Surface subsidence measurements continue to be performed in accordance with the Mined Land Use Plan. No subsidence surveys were run during 2005. Surveys are planned for the spring of 2006, and the eastern area survey benchmarks (near the South Lansing town site) are being reworked to improve their reliability and position to enhance the quality of the future surveys.

#### 7f. Source and Volume of Water Inflow Into the Mine and Disposition of Such Water:

The following is a list of sources and associated flow rates of water into the Cayuga Mine:

- Production Shaft (#1 shaft) – 11 gallons per minute
- Ventilation Shaft (#2 shaft) – 6 gallons per minute
- ED Plant Concentrate discharge – 2 gallons per minute
- Storm Water Run-off – 18 gallons per minute
- Total Water Inflow = 37 gallons per minute

All of the water is directed to a settling pond located on the 4-level of the mine. The water is then pumped from the settling pond to abandoned areas on 4-level. Recent volume calculations indicated that at our current rate we have approximately 19 years of disposal life remaining on 4-level. See the attached water inflow table and the pond map. Action plans are in place to significantly reduce the inflow into the mine over the next 3 years. The second expansion of the storm water ED treatment plant has been constructed and is being commissioned at this writing. This should reduce the storm water run-off that is entering the mine from about 18 gpm to about 6 gpm. The underground storage pond levels will be checked by March 31 to verify the predictions of remaining storage life.

**7g. Summary of SPDES Monitoring Data:**

The following is a summary of the past year's outfall results (November 2004-2005) and waste water treatment plant results (November 2004-2005). All outfall exceedances are reported to the DEC in two ways. Once an exceedance event has been identified the DEC is informed via telephone of the occurrence. Each event is also captured in the monthly Report of Non-Compliance, which also lists corrective action taken.

**Outfall Results for Nov. 2004 - Nov. 2005**

Note: All Permit Exceedances are Highlighted In Red

**CHLORIDES**

**OUTFALLS**

	#001	#002	#003	#004	#005	#006	#007	#008	#012
Permit Limit	40,000 mg/l	10,000 mg/l	10,000 mg/l	5,000 mg/l	5,000 mg/l	5,000 mg/l	5,000 mg/l	5,000 mg/l	5,000 mg/l
Month/Year									
Nov 2004	28,000	2,500	1500			1,000	480	NF	810
Dec	34,000	1,200	990	NF	NF	900	370	NF	620
Jan 2005	21,000	9,500	5,600			2,687	1,500	NF	1,900
Feb.	32,000	3,200	2,300			2,100	NF	NF	4300
March	28,000	2,000	2,200	NF	NF	2,400		NF	1,300
April	9,300	330	920			990		920	770
May	18,000	1,300	1,000			1,200		NF	740
June	11,000	9,500	2,400	NF	NF	3,550		NF	3,200
July	10,000	3,700	2,800			2,600	NF	NF	NF
August	30,000	NF	1,300			NF	NF	NF	NF
Sept	12,000	1,400	1,300	7,100	NF	1,700		NF	1,400
Oct	16,000	NF	980			1,100		NF	NF
Nov	5,600	2,800	1,100			1,700	NF	NF	800

NF = NO  
FLOW

# Outfall Results Continued:

## **Total Dissolved**

## **Solids**

## **OUTFALLS**

	#001	#002	#003	#004	#005	#006	#007	#008	#012
<b>Permit Limit</b>	80,000 mg/l	40,000 mg/l	40,000 mg/l	10,000 mg/l	10,000 mg/l	10,000 mg/l	10,000 mg/l	10,000 mg/l	10,000 mg/l
<b>Month/Year</b>									
Nov 2004	49,000	4,400	3,800			2,300	1,300	NF	2,200
Dec	56,000	3,400	3,000	NF	NF	2,200	1,200	NF	1,700
Jan. 2004	35,000	18,000	10,000			4,927	2,900	NF	3,800
Feb.	55,000	14,000	5,400			4,300	NF	NF	4,300
March	46,000	4,600	5,200	NF	NF	4,800	1,800	NF	3,100
April	17,000	1,300	2,800			3,800	970	2,600	2,600
May	28,000	3,000	2,700			2,400	1,200	NF	1,700
June	19,000	17,000	4,500	NF	NF	8,700	2,700	NF	10,000
July	18,000	4,800	3,200			2,400	NF	NF	NF
August	54,000	NF	3,500			NF	NF	NF	NF
Sept	21,000	3,900	3,700	12,000	NF	4,000	2,200	NF	3,300
Oct	29,000	NF	3,000			2,700	NF	NF	NF
Nov	9,800	5,300	2,700			3,700	1,000	NF	1,900

NF = NO  
FLOW

## **Waste Water Treatment Plant. Outfall #009**

Nov. '04 - Nov. '05

	<u>Flow Rate</u> Ave.	<u>BOD</u>		<u>PH.</u>		<u>Tot. Susp. Solids</u>		<u>Settleable Solids</u> Daily Max.	<u>Total Resid.</u>	<u>Fecal Coliform</u>	
		Ave.	Max.	Min.	Max.	Ave.	Max.		<u>Chlorine</u>	<u># Per 100 ml</u>	
		30 Day	7 Day Ave			30 Day	7 Day Ave		Max.	Ave.	Max.
		30 Day	7 Day Ave			30 Day	7 Day Ave		Daily Ave.	30 Day	7 Day Ave
<b>Permit Limit</b>		30	45	6.0	9.0	30	45	0.3 mg/l	1.0 mg/l	Report	Report
Nov	983	2.4	2.4	6.5	6.7	11.0	11.0	<0.1	0.7	180.0	180.0
Dec	1056	10.0	10.0	6.6	6.8	6.0	6.0	<0.1	0.9	56.0	56.0
Jan.	1255	5.4	5.4	6.7	7.0	13.5	13.5	<0.1	0.7	1.0	1.0
Feb.	1270	14.4	14.4	7.0	7.2	12.0	12.0	<0.1	0.7	1.0	1.0
March	894	1.2	1.2	6.8	7.3	23.0	23.0	<0.1	1.2	14.0	14.0
April	1129	1.2	1.2	6.9	7.7	23.0	23.0	<0.1	1.1	14.0	14.0
May	1129	1.2	1.2	6.9	7.7	23.0	23.0	<0.1	1.1	14.0	14.0
June	919	8.4	8.4	6.7	7.1	12.5	12.5	<0.1	1.0	4.0	4.0
July	840	7.8	7.8	6.8	7.0	10.3	10.3	<0.1	1.0	215	215
August	954	5.1	5.1	6.5	6.9	2.0	2.0	<0.1	1.0	84.0	84.0
Sept	1333	3.0	3.0	6.5	6.8	3.0	3.0	<0.1	0.9	1.0	1.0
Oct	1321	1.0	1.0	6.6	7.3	2.0	2.0	<0.1	1.1	1.0	1.0
Nov	1223	4.2	4.2	6.7	7	9.0	9.0	<0.1	1.0	1.0	1.0

**8. Notification of Non-routine Mining Incidents:**

See section 7b.

**9. MSHA Correspondence Involving Non-routine Mining Incidents:**

The Cayuga Mine has not received any citations from MSHA regarding non-routine mining Incidents.

**10. Changes in Mining Method:**

There have been two changes to the Cayuga Mine layout in the past year. The first is shown on the plan maps and consists of a reduction in width of the opening of new panels from the mains. Instead of opening new panels a full 7 tunnels wide, they will be opened only 5 tunnels wide for the first 250 feet. Beyond that point the production panels will be widened to 7 tunnels. This change will reduce the total closure experienced by the main drifts. The second change is a narrowing of the crosscuts between the tunnels of the mains from 42 feet back to 32 feet. This should improve the stability of the immediate roof when weak roof rock is encountered.

**11. Surface Subsidence:**

Surface subsidence surveys continue to be done in accordance with the Mined Land Use Plan. See section 7e of this report.

**12. In-situ Rock Mechanics Measurements:**


See section 7d of this report.

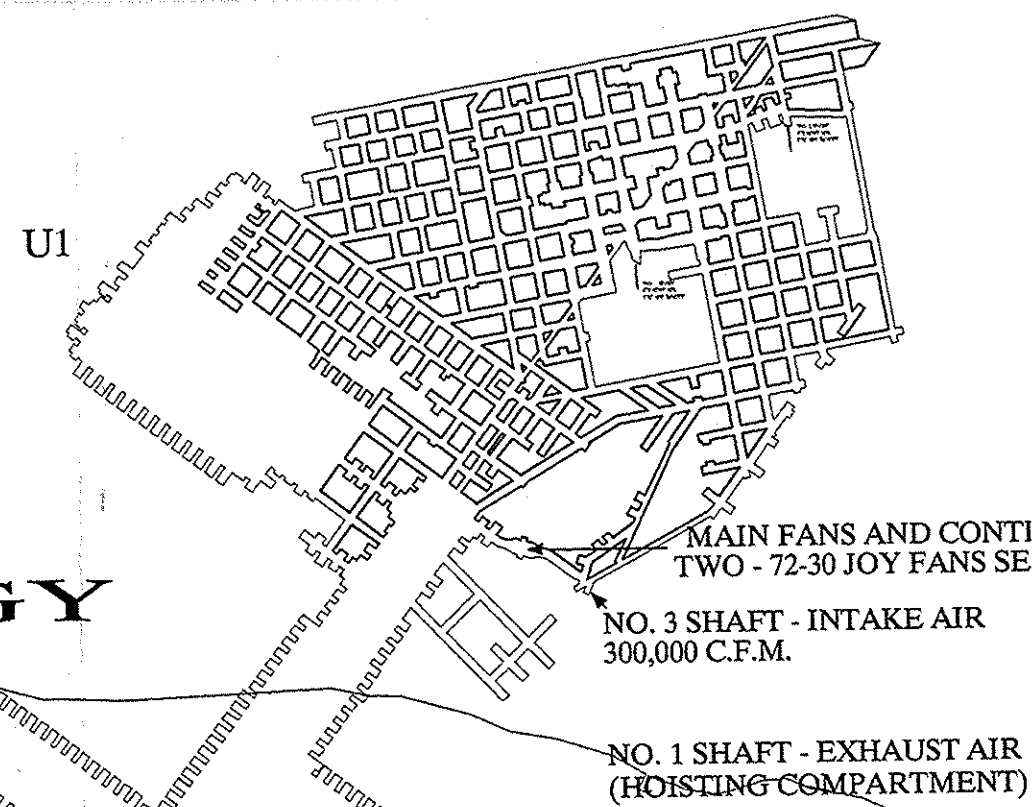
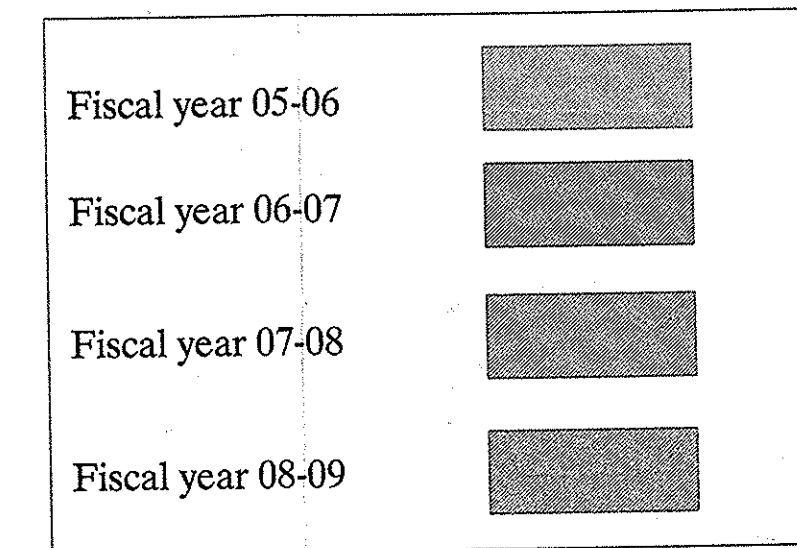
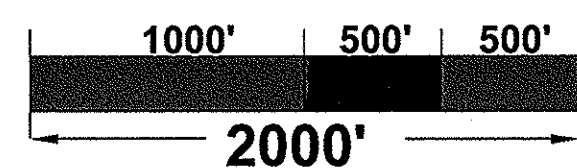
**13. Written Citizen Complaints:**

There have been no written citizen complaints received by Cargill concerning the Cayuga Mine.

<b>Water Volume Calculation</b> <b>Ultimate Pond Potential Volume</b> <b>4-Jan-06</b>						
<b>Area</b>	<b>Total Area</b>	<b>Pillar Area</b>	<b>Fillable Area Ft2</b>	<b>Roof Height</b>	<b>Volume</b>	<b>Gallons</b>
Far East Pond	6,598,278	2,831,750	3,766,528	12	45,198,336	338,083,553
Overflow Basin	832,750	64,788	767,962	10	7,679,620	57,443,558
Small Pond #2	128409	0	128,409	7	898,863	6,723,495
Bowl Edge Pond	Not planned					
Small Pond #1	Not planned					
Southern Pond	Not planned					
Total Gallons						402,250,606
Incoming gallons per year @ 40gpm						21,021,000
Ultimate Pond Life (yrs) as of 6 Feb2001						19
Water added = (46 months / 12 mo.) X 21,024,000 = (6 Feb 2001 - 1 Feb 05)						80,592,000
Water Added during 2005 (measured)						16,030,800
Volume remaining						305,627,806
Remaining Pond Life @ 16,030,800 gal/yr.						19

Pond volumes are calculated by using the "area" function of Auto Cad. A polygon is drawn around the perimeter of the entire pond and Auto Cad is used to calculate the area of the polygon (in square feet). A polygon is drawn around each individual pillar within the pond limits and an area is calculated using Auto Cad. The pillar area's are subtracted from the total area to give the total pond area. Roof heights are determined by visual inspection, historical information where available, and the use of raw estimates.

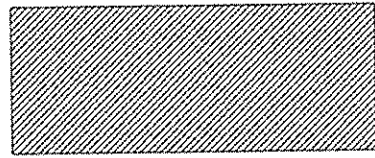
	
<h1>CAYUGA MINE</h1> <h2>MINE PLANNING MAP</h2> <h1>2005/2006 Fiscal Year</h1>	
TITLE.DWG: 6 Level Planning.dwg	MBD
DATE: DEC 2005	1" = 700'



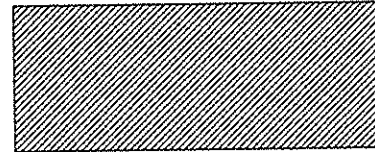


U8

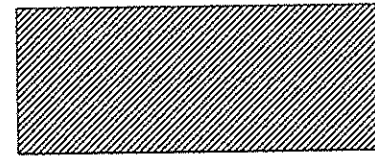
Fiscal year 05-06



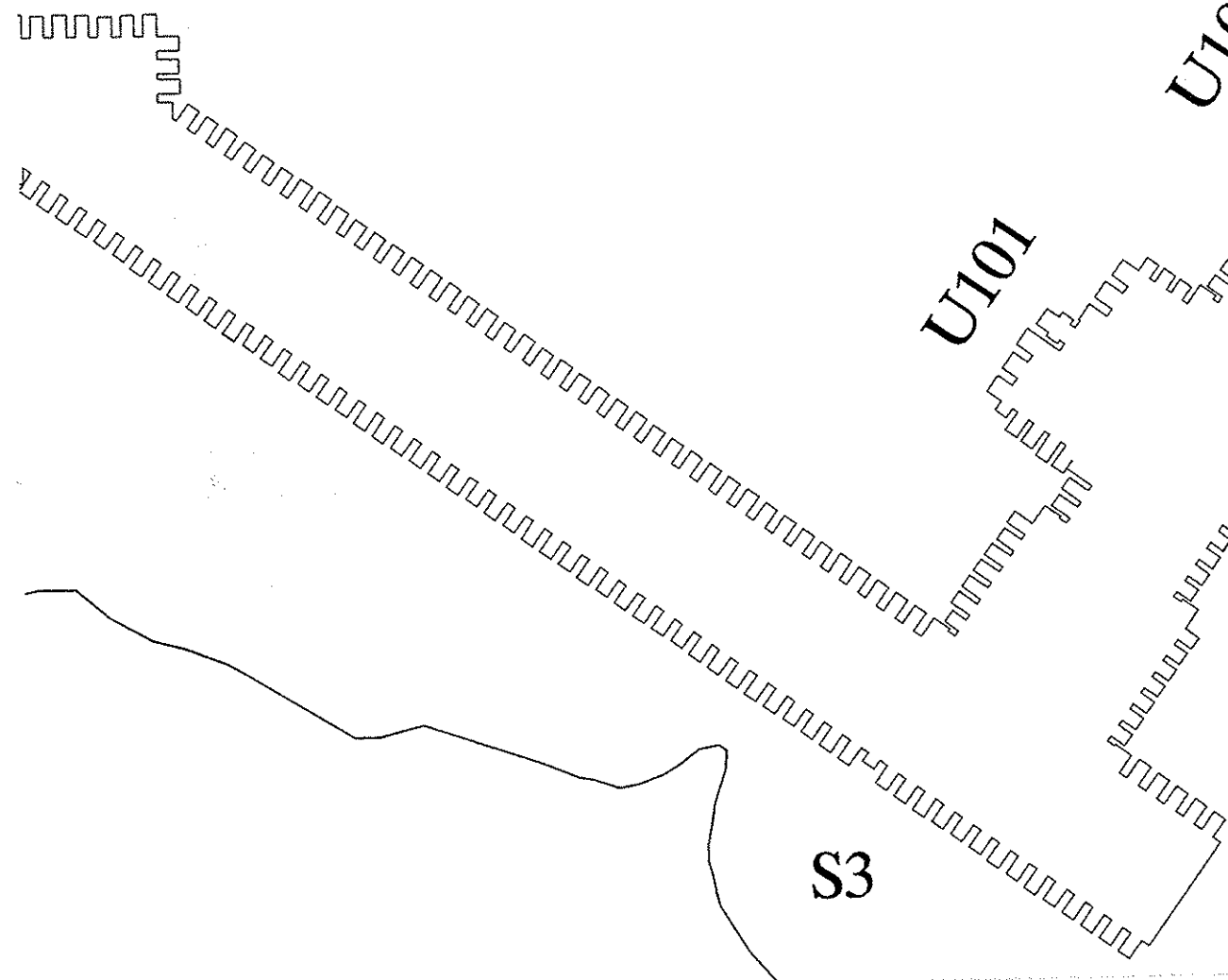
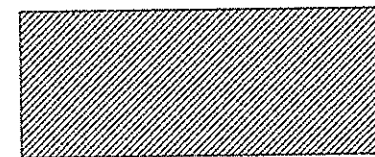
Fiscal year 06-07



Fiscal year 07-08



Fiscal year 08-09



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Deicing Technology

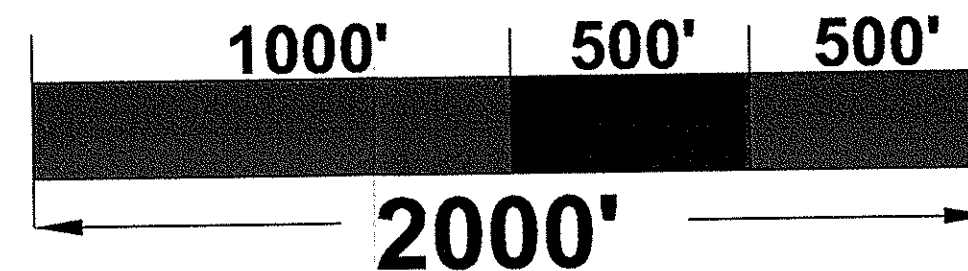
# CAYUGA MINE MINE PLANNING MAP 2005/2006 Fiscal Yr

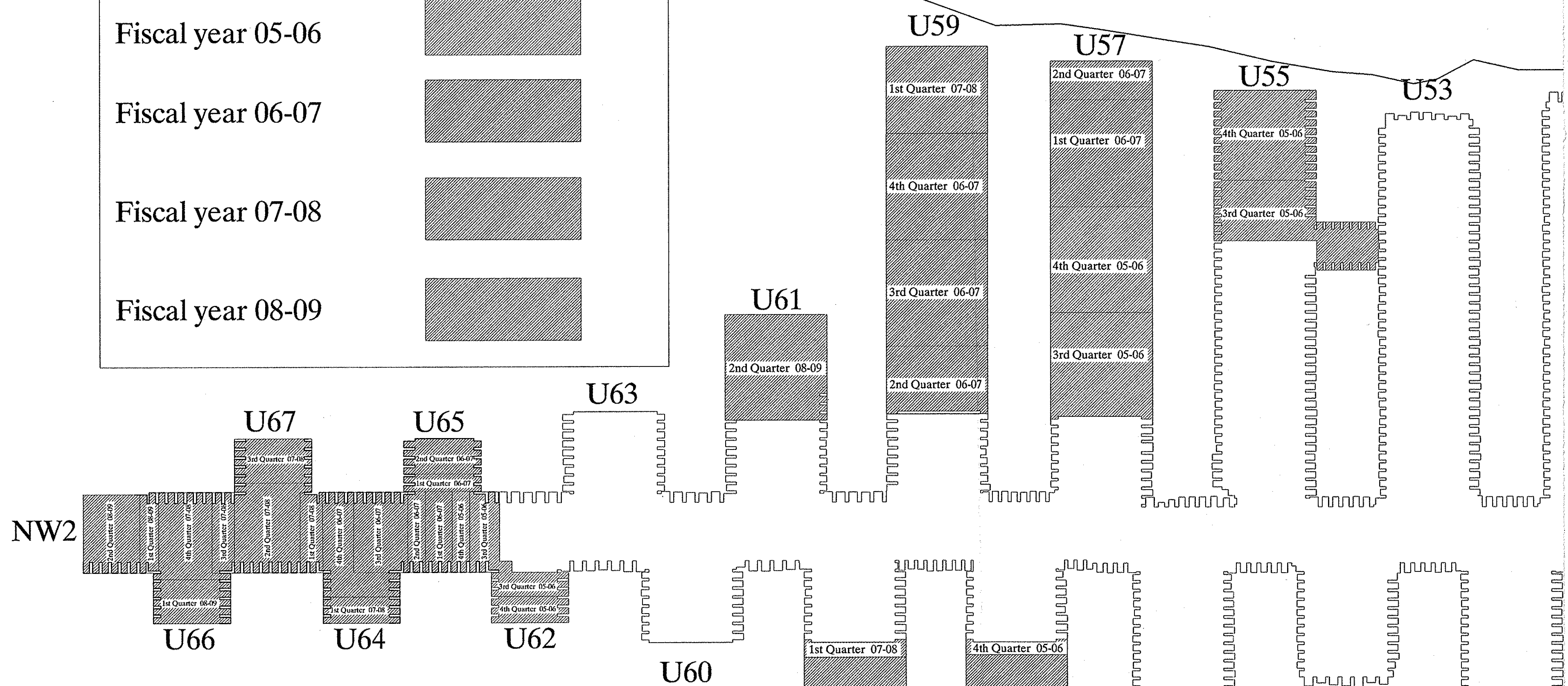
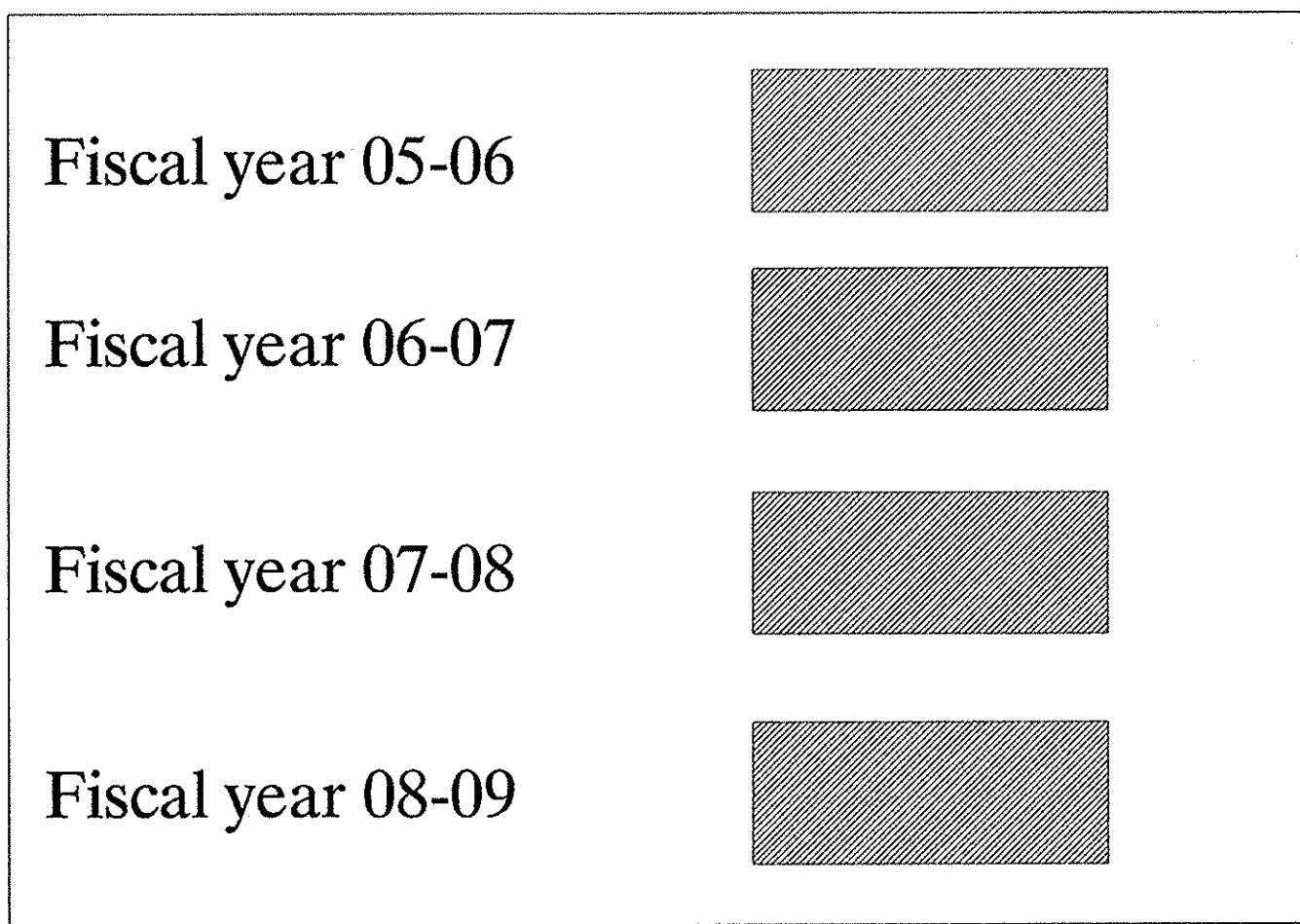
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MBD

DATE: DEC 2005

1" = 400'





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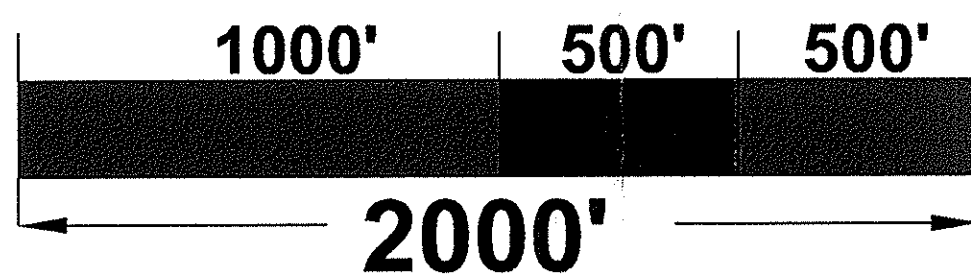
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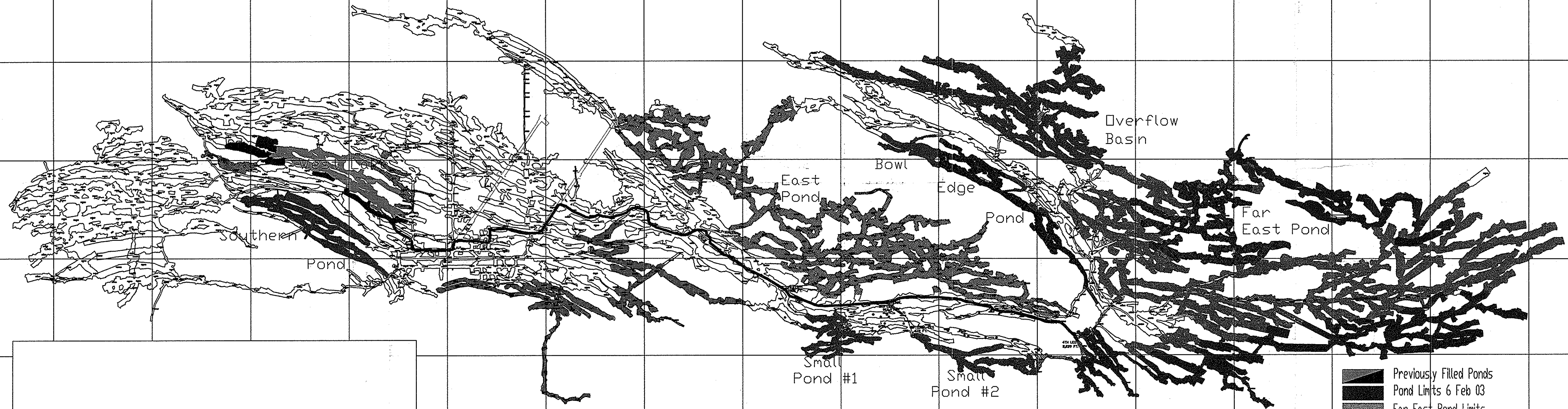
MBD








DATE: DEC 2005

1" = 400'







-  Previously Filled Ponds
-  Pond Limits 6 Feb 03
-  Far East Pond Limits
-  Pond Limits 20 Feb 04
-  Potential Ponds 95.4 MM Gallons
-  Projected Pond Limits 20 Feb 2005
-  Projected Pond Limits 1 Jan 2006

# CAYUGA MINE

## 4 Level Pond Map

### Updated: 5 Jan 2006

TITLE.DWG: 4 Level Pond Map.dwg

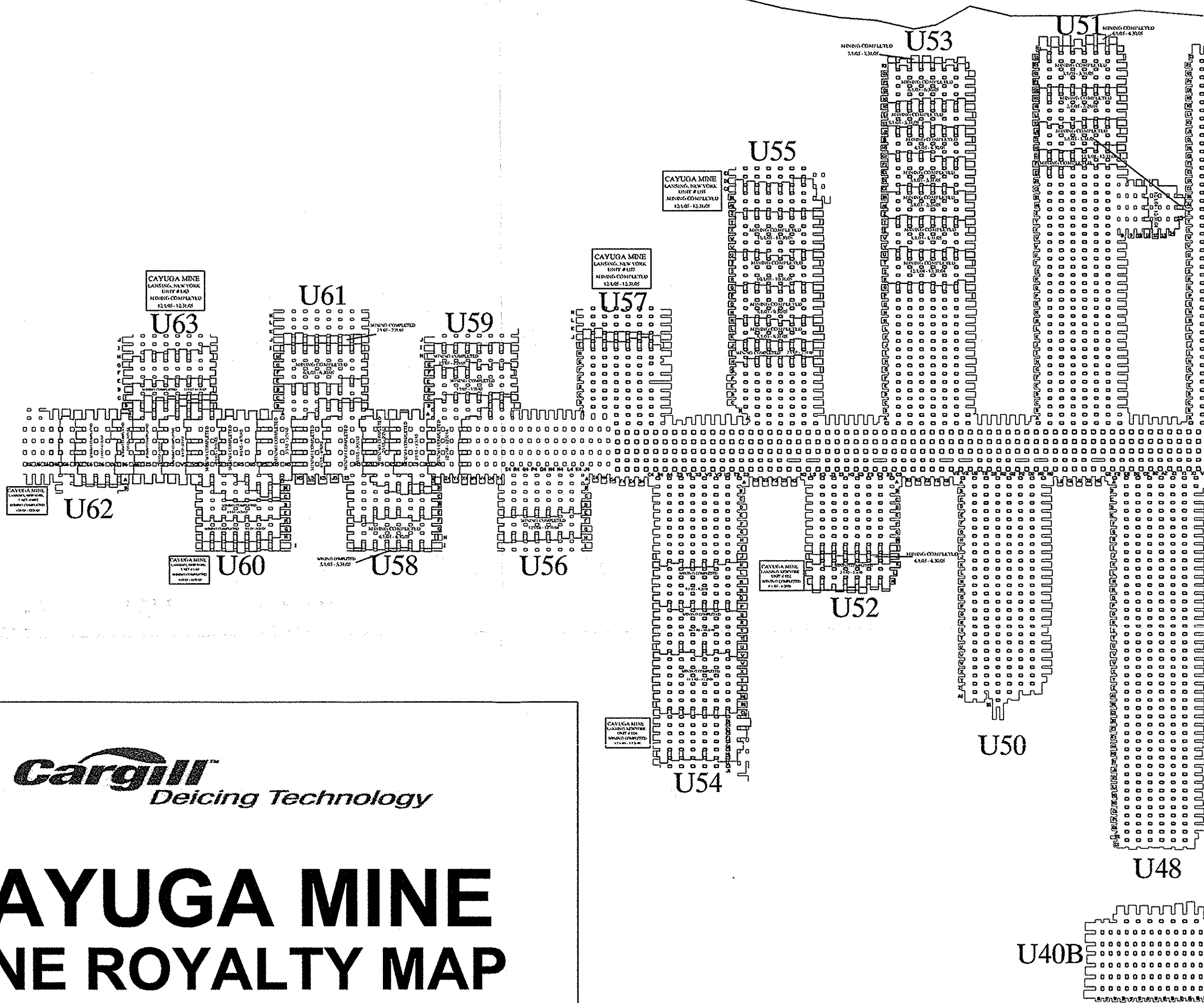
MDC

DATE: Jan 2006

1" = 600'

Grid Spacing = 1000 ft.





**Cargill**  
Deicing Technology

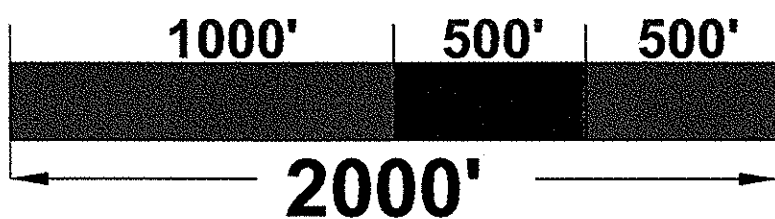
# CAYUGA MINE MINE ROYALTY MAP 2005/2006 Fiscal Yr

TITLE.DWG: ROYALTY.dwg

MBD

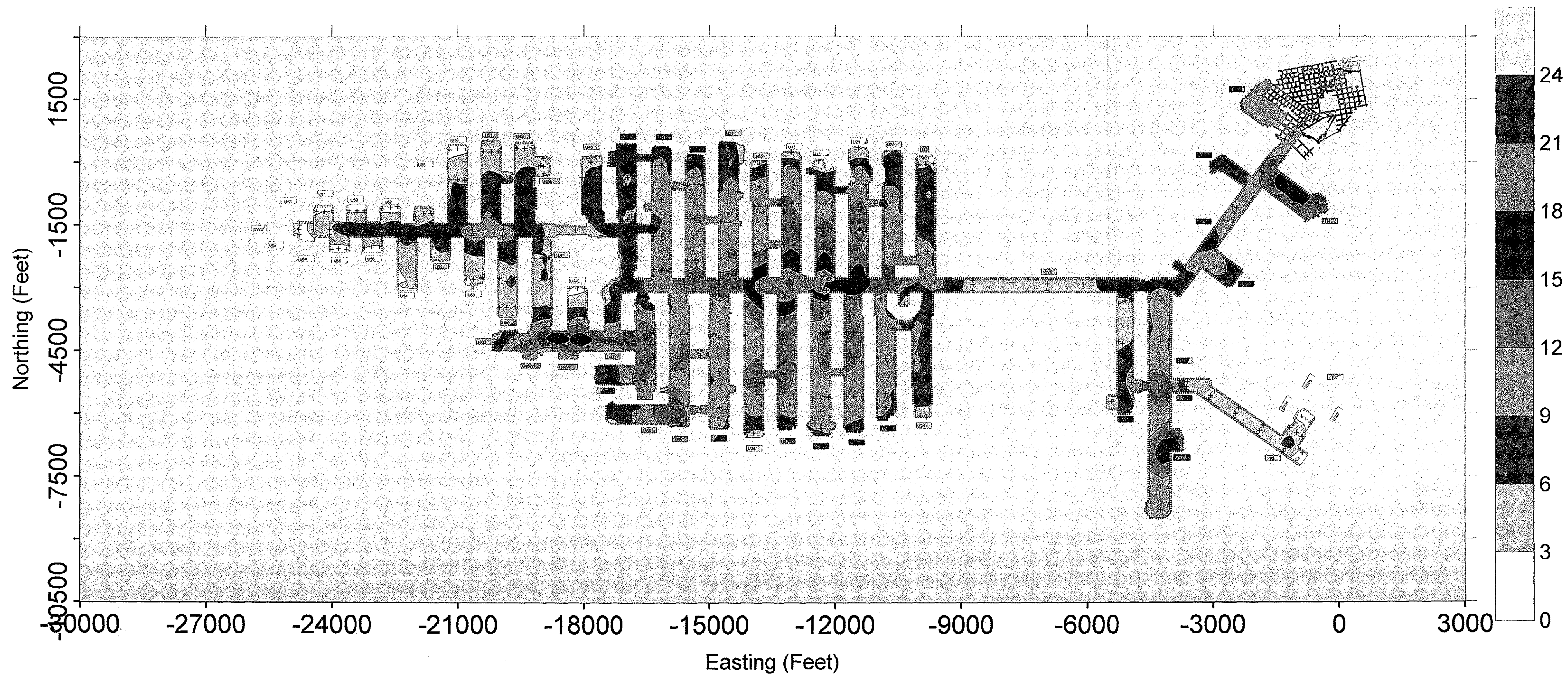
DATE: DEC 2005

1" = 500'





# Cayuga Mine Closure (Inches) Jul-2005





# Cayuga Mine Closure Rate (Inches/Year) Jul-2005

