



December 31, 2008

Cargill Deicing Technology  
Cayuga Mine  
P.O. Box B 191 Portland Point Road  
Lansing, NY 14882



Mr. Matthew Podniesinski  
Chief, Resource Development Section  
Bureau of Resource Management & Development  
Division of Mineral Resources  
New York State Department of Environmental Conservation  
625 Broadway, Third Floor  
Albany, New York 12233-6500

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. Podniesinski:

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 are 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.

A second copy of the report is included here for you to distribute to the Region 7 office, or as you see fit.

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

With Best Regards,

Steve Horne  
Mine Manager – Cargill Deicing Technology

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## 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 1, 2008 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: 12/30/08

### 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. A floor rock roll was encountered in the U-58 panel and it was successfully mined over.

### 7c. 3 Year Mining Plan

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

The Cayuga Mine is currently operating in two different sections of the mine. There is one development crew that is mining south (S-3) along the west shoreline of Cayuga Lake and east (E-4) from S-3 toward the east shore. The rest of the mining is located in the northern region of the mine where production crews continue to mine panels (U-54, U-56, U-58) to the west. Upon completion of U-56, panel U-61 will be started. When U-54 mining is completed panel U-60 will be started.

### 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 160 quarterly and 420 annual convergence stations being monitored. In addition, about 30 closure stations in the abandoned "east workings" are read about every 2 – 5 years. Those were read in October of this year. 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 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 previously 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, however those rates are higher than desired. Monitoring of this area continues at an increased frequency. The salt "fines" backfilling operation was relocated to U-40B to help further stabilize this region. The purpose of the backfill is to limit the total amount of closure that is possible, thus reducing the total possible surface subsidence. That panel is about 70% backfilled at this time and connecting panels are being backfilled as well.

7e. Summary of Subsidence Monitoring:

Surface subsidence measurements continue to be performed in accordance with the Mined Land Use Plan. Surveys of the east shore of Cayuga Lake and the Lansing area were completed during the past 1 ½ years. The results were evaluated by RMA and have been presented to John T. Boyd's Vince Scovazzo for his review. The measurements indicate that the mine is behaving as expected with no anomalous subsidence zones.

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) – 16 gallons per minute
- Ventilation Shaft (#2 shaft) – 4 gallons per minute
- ED Plant Concentrate discharge – 7 gallons per minute
- Storm Water Run-off – 0 gallons per minute (3 ED stacks now operational)
- Total Water Inflow = 27 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 (about 11,000,000 gallons per year) we have approximately 24 years of disposal life remaining on 4-level. The underground storage pond levels have not been checked this year, so the pond limits are estimated based on the measured flow rates. See the attached water inflow table and the pond map.

Action plans are in place to continue to reduce the inflow into the mine over the next year. A system for collecting the #1 shaft water inflow and for pumping it to surface for processing has been designed and funds have been allocated. Construction is under way with an April 2009 completion date. This should result in a reduction of an additional 8 gpm requiring storage (about 4,000,000 gpy).

7g. Summary of SPDES Monitoring Data:

The following is a summary of the past year's outfall results (December 2007 – November 2008) and waste water treatment plant results (December 2007 – November 2008). All outfall exceedances are reported to the DEC in two ways. Once an exceedance 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. Several years ago, outfalls 004 and 005 were physically routed into outfall 003 so there is no longer any data from them.



Outfall results:

Exceedances are noted in red

**CHLORIDE**

Limit	40K	10K	10K	5K	5K	5K	5K	5K	5K
Outfall Number	001	002	003	004	005	006	007	008	012
Month/Year									
Dec 2007	12,000	3,500	3,100			1,300	340	Eliminated	1,900
Jan 2008	18,000	6,000	4,000			2,300	730	Eliminated	1,200
Feb	22,000	7,100	1,400			1,200	610	Eliminated	NF
March	12,000	3,100	1,600			1,900	430	Eliminated	780
April	15,000	920	960			743	260	Eliminated	1,100
May	15,000	920	960			743	260	Eliminated	1,100
June	15,000	920	960			743	260	Eliminated	1,100
July	7,000NF	NF	1,000			NF	290	Eliminated	NF
August	23,000	NF	1,100			NF	NF	Eliminated	NF
Sept	37,000	NF	1,900			NF	NF	Eliminated	NF
Oct	13,000	NF	1,400			3,600	1,400	Eliminated	NF
Nov	22,000	NF	1,000			2,100	870	Eliminated	NF

**CYANIDE**

Limit	1.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Outfall Number	001	002	003	004	005	006	007	008	012
Month/Year									
Dec 2007	<.01	<.01	<.01			<.01	<.01	Eliminated	<.01
Jan 2008	<.01	<.01	<.01			<.01	<.01	Eliminated	<.01
Feb	0.09	<.01	<.01			<.01	<.01	Eliminated	<.01
March	0.043	0.022	<.01			<.01	<.01	Eliminated	NF
April	0.14	<.01	<.01			<.01	<.01	Eliminated	<.01
May	0.14	<.01	<.01			<.01	<.01	Eliminated	<.01
June	0.14	<.01	<.01			<.01	<.01	Eliminated	<.01
July	0.094	NF	<.01			NF	<.01	Eliminated	<.01
August	0.01	NF	<.01			NF	NF	Eliminated	NF
Sept	0.092	NF	<.01			NF	NF	Eliminated	NF
Oct	0.19	NF	<.01			<.01	<.01	Eliminated	NF
Nov	0.13	NF	0.025			0.015	<.01	Eliminated	NF



# Outfall Results Continued:

## TOTAL DISSOLVED SOLIDS

Limit	80K	40K	40K	10K	10K	10K	10K	10K	10K
Outfall Number	001	002	003	004	005	006	007	008	012
Month/Year									
Dec 2007	22,000	6,500	5,700			2,800	870	Eliminated	3,700
Jan 2008	42,000	10,000	7,200			4,400	1,600	Eliminated	2,600
Feb	37,000	12,000	3,100			2,400	1,500	Eliminated	NF
March	22,000	5,800	3,300			3,900	1,100	Eliminated	1,700
April	36,000	2,500	2,700			1,900	980	Eliminated	2,600
May	36,000	2,500	2,700			1,900	980	Eliminated	2,600
June	36,000	2,500	2,700			1,900	980	Eliminated	2,600
July	14,000	NF	2,900			NF	1,300	Eliminated	NF
August	38,000	NF	3,000			NF	NF	Eliminated	NF
Sept	62,000	NF	4,000			NF	NF	Eliminated	NF
Oct	21,000	NF	3,500			5,700	2,800	Eliminated	NF
Nov	39,000	NF	2,800			4,500	2,200	Eliminated	NF

## ZINC

## Outfall #001

Limit	20 mg/l
Month/Year	001
Dec 2007	0.19
Jan 2008	0.21
Feb.	0.79
March	0.84
April	<.01
May	<.01
June	<.01
July	0.034
August	0.13
Sept	1.4
Oct	0.016
Nov	0.03



## Outfall Results Continued:

### NON-CONTACT COOLING WATER Outfall #014

Limit	NA	75 deg. Max	500 GPM Max
Month/Year	Min/Max Intake Water Temp. deg. F.	Min/75 Max Effluent Water Temp. deg. F.	500 Max Gpm. Flow Rate Effluent Gross
Dec 2007	43/45	43/49	210
Jan 2008	39/40	41/44	260
Feb.	38/38	40/40	160
March	37/38	40/41	400
April	53/53	54/54	325
May	53/53	54/54	325
June	53/53	54/54	325
July	72/73	73/73	350
August	71/72	72/73	380
Sept	70/72	72/74	350
Oct	65/67	65/68	300
Nov	60/65	60/65	300

### Waste Water Treatment Plant Outfall #009

	Flow Rate	BOD		PH.		Tot. Susp. Solids		Settleable	Total Resid.	Fecal Coliform	
		Ave.	Max.	Min.	Max.	Ave.	Max.	Solids	Chlorine	# Per 100 ml	
										Ave.	Max.
Permit Limit		30 Day	7 Day Ave			30 Day	7 Day Ave	Daily Max.	Daily Ave.	30 Day	7 Day Ave
		30	45	6.0	9.0	30	45	0.3 mg/l	1.0 mg/l	Report	Report
Nov. '07	1025	16.2	16.2	6.5	7.5	9.0	9.0	<0.1	1.0	195.0	195.0
Dec	1026	17.1	17.1	7.5	8.2	30.0	30.0	<0.1	0.5	60.0	60.0
Jan.'08	1215	10.5	10.5	6.9	7.7	42.5	42.5	<0.1	0.4	72.0	72.0
Feb.	1549	9.9	9.9	6.5	7.1	31.5	31.5	<0.1	1.0	76.0	76.0
March	1165	5.4	5.4	6.7	7.6	26.0	26.0	<0.1	0.8	2.0	2.0
April	951	4.8	4.8	6.5	6.9	16.0	16.0	<0.1	0.6	30.0	30.0
May	831	6.9	6.9	6.5	6.8	15.0	15.0	<0.1	1.0	1.0	1.0
June	965	1.0	1.0	6.5	7.2	2.0	2.0	<0.1	0.9	10.0	10.0
July	787	3.6	3.6	6.6	6.9	12.0	12.0	<0.1	1.0	49.0	49.0
August	1108	12.9	12.9	6.5	7.2	15.0	15.0	<0.1	1.5	20.0	20.0
Sept	1198	9.0	9.0	6.5	7.0	28.0	28.0	<0.1	0.9	1.0	1.0
Oct	1058	3.0	3.0	6.5	7.4	28.0	28.0	<0.1	0.9	1.0	1.0
Nov	1163	3.0	3.0	6.5	7.5	30.0	30.0	<0.1	0.5	120.0	120.0

## 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 no changes to the Cayuga Mine layout in the past year.

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>1-Jan-09</b>						
Area	Total Area	Pillar Area	Fillable Area Ft2	Roof Height	Volume	Gallons
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	128,409	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 Jan 2005)						80,592,000
Water added during 2005 (measured)						16,030,800
Water added during 2006 (measured)						18,272,329
Water added during 2007 (measured)						13,507,200
<b>Water added during 2008 (measured)</b>						<b>10,886,400</b>
Volume remaining						262,961,877
Remaining Pond Life @ 10,886,400 gal/yr.						24.2

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.





January 7, 2009

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RECEIVED

JAN 12 2009

DIVISION OF  
MINERAL RESOURCES

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Chief, Resource Development Section  
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New York State Department of Environmental Conservation  
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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. Podniesinski:

Enclosed is a third set of the maps submitted with the above referenced report for your use. If there is anything else you need, please don't hesitate to let me know.

With Best Regards,

David B. Plumeau, P.E.  
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Cargill Deicing Technology  
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