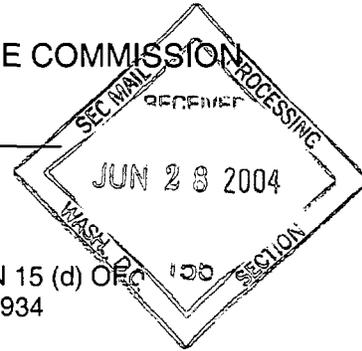




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UNITED STATES SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D. C. 20549



FORM 11-K

ANNUAL REPORT PURSUANT TO SECTION 15 (d) OF
THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2003

OR

TRANSITION REPORT PURSUANT TO SECTION 15(d) OF
THE SECURITIES EXCHANGE ACT OF 1934

For the Transition Period From ___ to ___

GREAT LAKES SAVINGS PLAN
ONE GREAT LAKES BOULEVARD
P.O. BOX 2200
WEST LAFAYETTE, IN 47906

PROCESSED

JUL 02 2004

**THOMSON
FINANCIAL**

GREAT LAKES CHEMICAL CORPORATION

(Exact name of registrant as specified in its charter)

DELAWARE

(State or other jurisdiction of
incorporation or organization)

95-1765035

(IRS Employer
Identification No.)

9025 N. RIVER ROAD, SUITE 400

INDIANAPOLIS, INDIANA 46240

(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code **317-715-3000**

ANNUAL REPORT ON FORM 11-K - ITEM (A)
LIST OF FINANCIAL STATEMENTS - EXHIBIT 23

GREAT LAKES SAVINGS PLAN

December 31, 2003

GREAT LAKES SAVINGS PLAN

FINANCIAL STATEMENTS

The following financial statements and schedules of the Plan are submitted herewith:

Statements of Net Assets Available for Benefits - December 31, 2003 and 2002

Statements of Changes in Net Assets Available for Benefits - Years Ended

December 31, 2003 and 2002

Notes to Financial Statements

ERISA Schedules

Schedules--Schedules I, II and III for which provision is made in the applicable accounting regulation of the Securities and Exchange Commission have been omitted for the reason that they are not required or are not applicable, or the required information is shown in the financial statements or notes thereto.

Report of Independent Registered Public Accounting Firm

Plan Administrator
Great Lakes Savings Plan

We have audited the accompanying statements of net assets available for benefits of Great Lakes Savings Plan as of December 31, 2003 and 2002, and the related statements of changes in net assets available for benefits for the years then ended. These financial statements are the responsibility of the Plan's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the net assets available for benefits of the Plan at December 31, 2003 and 2002, and the changes in its net assets available for benefits for the years then ended, in conformity with U.S. generally accepted accounting principles.

Our audits were performed for the purpose of forming an opinion on the financial statements taken as a whole. The accompanying supplemental schedules of assets (held at end of year) as of December 31, 2003 and reportable transactions for the year then ended, are presented for the purpose of additional analysis and are not a required part of the financial statements but are supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974. These supplemental schedules are the responsibility of the Plan's management. The supplemental schedules have been subjected to the auditing procedures applied in our audits of the financial statements and, in our opinion, are fairly stated in all material respects in relation to the financial statements taken as a whole.

June 17, 2004



Great Lakes Savings Plan

Statements of Net Assets Available for Benefits

	December 31	
	2003	2002
Assets		
Investments, at fair value	\$ 107,710,157	\$ 90,862,053
Net assets available for benefits	<u>\$ 107,710,157</u>	<u>\$ 90,862,053</u>

See accompanying notes to financial statements.

Great Lakes Savings Plan

Statements of Changes in Net Assets Available for Benefits

	Year ended December 31	
	2003	2002
Additions to net assets attributed to:		
Participant contributions	\$ 7,798,061	\$ 7,735,813
Employer cash contributions	450,428	2,535,475
Employer stock contributions	2,255,759	-
Rollover contributions	540,004	325,001
Investment income:		
Dividends	1,249,134	1,191,595
Interest	894,499	1,029,972
Total additions	13,187,885	12,817,856
Deductions from net assets attributed to:		
Benefits paid to participants	12,553,812	8,863,772
Administrative fees	144,922	153,145
Total deductions	12,698,734	9,016,917
Net appreciation (depreciation) in fair value of investments	16,358,953	(13,305,347)
Net increase (decrease)	16,848,104	(9,504,408)
Net assets available for benefits		
at beginning of year	90,862,053	100,366,461
Net assets available for benefits		
at end of year	\$107,710,157	\$ 90,862,053

See accompanying notes to financial statements.

Great Lakes Savings Plan

Notes to Financial Statements

December 31, 2003

1. Description of the Plan

The following description of Great Lakes Savings Plan (the Plan) provides only general information. More detailed information concerning the Plan may be found by consulting the Summary Plan Description, which is available from the plan administrator.

The Plan is a defined contribution plan. Eligible employees of Great Lakes Chemical Corporation (the Company) may participate in the Plan the first of the quarter following their date of employment. The Plan is subject to the provisions of the Employee Retirement Income Security Act of 1974 (ERISA).

Contributions

Voluntary employee contributions to the Plan are made through periodic payroll deductions at the rate of 1% to 50% of the participants' eligible earnings. Except for Adrian Union employees, the Company contributes an amount equal to 50% of the participants' basic contribution, up to the first 6% of the participants' eligible earnings. Adrian Union employees receive a matching contribution equal to 50% of the participants' basic contribution up to the first 4% with an additional 2% being earned if the Company's financial goals are met. All the Company's matching contributions are made in Great Lakes Chemical Corporation Common Stock, acquired through purchase on the open market or through the use of treasury shares, except Adrian's first 2% which is paid in cash.

Payment of Benefits

Participants who terminate employment for any reason are eligible to receive an immediate lump sum distribution of their vested account balance.

Participants who are actively employed who have attained the age of 59 1/2 may make one withdrawal per calendar year from the participant account. Such withdrawals must not exceed the balance of the participant account.

A participant who is actively employed may request a partial withdrawal of the amounts held in the participant account (which reflects all vested contributions to the Plan) at any time and will be paid the current value of the account as a result of a financial hardship. However, the withdrawal must be necessary to meet an immediate and heavy financial need of the participant and must not exceed the value of the participant account or the amount required to meet the need created by the financial hardship.

Great Lakes Savings Plan

Notes to Financial Statements (continued)

1. Description of the Plan (continued)

Participant Loans

A participant may borrow against the vested balance in his account. Such a loan must exceed a minimum amount of \$1,000, but may not exceed the lesser of 50% of the account balance or \$50,000, reduced by the excess, if any, of the highest outstanding loan balance from the Plan in the previous 12 months. A participant is allowed one loan at a time with the interest rate being one percent above the prime lending rate on the first day of the month in which the loan was made. Loans are repaid through payroll deductions over no more than 4 years (15 years if the loan was made for the purchase of a primary residence). The employers' matching contributions are not available for participant loans.

Vesting

A participant who terminates employment is able to receive the full value of his participant account. Participants with 6 or more years of service are 100% vested in the Company's matching contributions. Participants with less than two years, at least two, three, four or five years of service are zero, 20%, 40%, 60% or 80% vested, respectively. After a five year period of severance, the nonvested portion of the employer's contribution will be forfeited and applied to reduce the employer's future contributions or administrative expenses. Amounts forfeited during 2003 and 2002 were \$151,478 and \$146,715, respectively.

2. Summary of Accounting Policies

Investments Valuation and Income Recognition

Common stock and shares in registered investment companies and common/collective trust funds are carried at aggregate current value with the difference between cost and current value reflected in the statements of changes in net assets available for benefits as unrealized appreciation or depreciation of investments. Market value of common stock is based upon the last sales price as reported by the New York Stock Exchange on the last business day of the year. The shares in registered investment companies and common/collective trust funds are valued on the quoted market prices, which represent the net asset values of shares held by the Plan at year end. The participant notes are valued at cost, which approximates fair value.

Dividends are recorded as income on the dividend receipt date. Purchases and sales are recorded on a trade-date basis. Realized gains or losses on investment securities sold are determined using the average historical cost method.

Great Lakes Savings Plan

Notes to Financial Statements (continued)

2. Summary of Accounting Policies (continued)

Use of Estimates

Preparation of the financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates that affect the amounts reported in the financial statements and accompanying notes. Actual results could differ from those estimates.

3. Investments

During 2003 and 2002, the Plan's investments (including investments purchased, sold, as well as held during the year) appreciated (depreciated) in fair value as follows.

	Net Appreciation (Depreciation) in Fair Value During Year	
	2003	2002
Common stock	\$ 2,412,744	\$ (369,363)
Shares of registered investment companies	<u>3,946,209</u>	<u>(12,935,984)</u>
	<u>\$ 6,358,953</u>	<u>\$ (13,305,347)</u>

Individual investments that represent 5 percent or more of the Plan's net assets are presented in the following table.

	2003	2002
Common stock:		
Great Lakes Chemical Corporation *	\$ 9,012,050	\$ 15,506,282
Registered investment companies:		
Vanguard Windsor Fund	21,722,943	17,019,882
Vanguard Index 500 Portfolio Fund	20,064,801	15,138,847
Vanguard Explorer Fund	8,849,791	6,043,707
VMMR Prime Portfolio Fund	-	4,880,325
Vanguard Wellesley Fund	5,482,253	4,764,160
Common collective trust fund:		
Vanguard Retirement Savings Trust	15,252,925	17,708,056

* Nonparticipant-directed

Great Lakes Savings Plan

Notes to Financial Statements (continued)

4. Nonparticipant –Directed Investments

Information about the net assets and the significant components of the changes in net assets relating to the nonparticipant-directed investments is as follows:

	December 31	
	2003	2002
Net assets:		
Great Lakes Chemical Corporation Common Stock	\$ 19,012,050	\$ 15,506,282
	Year ended December 31,	
	2003	2002
Changes in net assets:		
Contributions	\$ 3,625,137	\$ 3,434,180
Interest and dividends	250,418	207,833
Net realized and unrealized appreciation (depreciation) in fair value	2,412,744	(316,253)
Transfers to participant directed funds	(1,227,720)	(315,279)
Distributions to participants	(1,552,459)	(1,316,734)
Administrative expenses	(2,352)	(300)
	\$ 3,505,768	\$ 1,693,447

A portion of the Great Lakes Chemical Corporation Common Stock Fund is participant directed as participants may elect to invest their employee contributions in the Company's Common Stock.

5. Plan Termination

Although it has not expressed the intent to do so, the Company has the right to terminate the Plan. In the event the Plan is terminated, each participant's account shall be nonforfeitable with respect to both the participant's and the Company's contributions (vested and nonvested portions), and the net assets are to be set aside for the payment of withdrawals to the participants.

Great Lakes Savings Plan

Notes to Financial Statements (continued)

6. Related Party Transactions

During 2003 and 2002, the Plan received \$250,418 and \$207,833, respectively, in common stock dividends from the Company. A majority of the fees paid for legal, accounting and other services rendered by parties-in-interest were paid by the Company.

7. Income Tax Status

The Plan has received a determination letter from the Internal Revenue Service dated October 10, 2003, stating that the Plan is qualified under Section 401(a) of the Internal Revenue Code (the Code) and, therefore, the related trust is exempt from taxation. Subsequent to the issuance of the favorable determination letter by the Internal Revenue Service, the Plan was amended and restated. Once qualified, the Plan is required to operate in conformity with the Code to maintain its qualification. The plan administrator believes the Plan is being operated in compliance with the applicable requirements of the Code and, therefore, believes that the Plan, as amended and restated, is qualified and the related trust is tax exempt.

8. Plan Merger

During 2003, the Company acquired Lime-O-Sol Company and A&M Cleaning Products. The Great Lakes Savings Plan has been amended to allow the employees of these companies to participate in the Plan. On April 5, 2004, assets of the Lime-O-Sol 401(k) Plan of approximately \$1.1 million were merged into the Great Lakes Savings Plan. No plan existed for the employees of A&M Cleaning Products prior to its acquisition by Great Lakes.

Great Lakes Savings Plan

Schedule H, Line 4i - Schedule of Assets (Held At End of Year)

December 31, 2003

EIN: 95-1765035

Plan # : 004

(b) Identity of Issue, Borrower, Lessor or Similar Party	(c) Description of Investment, Including Maturity Date, Rate of Interest, Par or Maturity Value	(d) Cost	(e) Current Value
Common stock:			
* Great Lakes Chemical Corporation	699,230 shares	\$ 21,097,396	\$ 19,012,050
Registered investment companies:			
* VMMR Prime Portfolio Fund	4,826,923 units	4,826,923	4,826,923
* Vanguard Windsor Fund	1,335,974 units	19,973,722	21,722,943
* Vanguard Explorer Fund	134,864 units	7,681,014	8,849,791
* Vanguard Index 500 Fund	195,430 units	18,224,329	20,064,801
* Vanguard Wellesley Income Fund	262,183 units	5,336,481	5,482,253
* Vanguard Bond Index Fund	383,415 units	3,907,789	3,953,014
* Vanguard Int'l Growth Fund	124,958 units	2,067,905	2,015,567
* Vanguard U.S. Growth	96,274 units	1,895,309	1,459,518
* Vanguard Small-Cap Fund	42,582 units	824,372	962,348
* Vanguard Extend Mkt Index Fund	47,289 units	1,106,919	1,260,728
Common collective trust fund:			
* Vanguard Retirement Savings Trust	15,252,925 units	15,252,925	15,252,925
Participant notes	Interest rates ranging from 5.0% to 10.5 %		2,847,296
		<u>\$ 102,195,084</u>	<u>\$ 107,710,157</u>

* Indicates party-in-interest to the Plan.

Schedules



Great Lakes Savings Plan

Schedule H, Line 4j - Schedule of Reportable Transactions

Year ended December 31, 2003

EIN: 95-1765035
Plan #: 004

(a)	(b)	(c)	(d)	(g)	(h)	(i)
Identity of Party Involved	Description of Asset	Purchase Price	Selling Price	Cost of Asset	Current Value of Asset on Transaction Date	Net Gain (Loss)
Great Lakes Chemical Corporation Common Stock Fund	Common Stock Purchases Sales	\$ 4,380,318 - -	\$ - 3,287,294 -	\$ - 4,300,274 -	\$ 4,380,318 3,287,294 -	\$ - (1,012,980) -

Category (iii) - A series of transactions in excess of 5% of plan assets:

Category:

- (i) Single transactions in excess of 5% of plan assets
- (ii) Series of transactions other than securities transactions
- (iii) Series of securities transactions in excess of 5% of plan assets
- (iv) Transactions with or in conjunction with a person if any single transaction with that person was in excess of 5%

Notes: There were no category (i), (ii) or (iv) reportable transactions during 2003.

Great Lakes Savings Plan

Pursuant to the requirements of the Securities Exchange Act of 1934, the Administration Committee of this employee benefit plan has duly caused this annual report to be signed on its behalf by the undersigned hereunto duly authorized

Date: June 25, 2004

Great Lakes Savings Plan
(Name of Plan)



William L. Sherwood
Vice President and Corporate Controller

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statement (Form S-8 No. 333-101719, 333-111346, 333-103715, and 333-49127) pertaining to the Great Lakes Savings Plan of Great Lakes Chemical Corporation of our report dated June 17, 2004, with respect to the financial statements and supplemental schedules of the Great Lakes Savings Plan included in this Annual Report (Form 11-K) for the year ended December 31, 2003.

Indianapolis, Indiana
June 23, 2004

Ernst & Young LLP