

As filed with the Securities and Exchange Commission  
on October 21, 1999

Registration No. 333-43149

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SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549

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AMENDMENT NO. 5  
TO  
FORM S-3  
REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

\_\_\_\_\_

PERMA-FIX ENVIRONMENTAL SERVICES, INC.  
(Exact name of registrant as specified in charter)

DELAWARE	58-1954497
(State or other	(I.R.S. Employer
jurisdiction of	Identification
incorporation)	Number)

1940 Northwest 67th Place  
Gainesville, Florida 32653  
(352) 373-4200  
(Address, including zip code, and telephone number,  
including area code, of registrant's principal  
executive office)

\_\_\_\_\_

DR. LOUIS F. CENTOFANTI  
Chairman of the Board  
Perma-Fix Environmental Services, Inc.  
1940 Northwest 67th Place  
Gainesville, Florida 32653  
(352) 373-4200  
(Address, including zip code, and telephone number,  
including area code, of agent for service)

Copy to:  
IRWIN H. STEINHORN, ESQUIRE  
Conner & Winters, A Professional Corporation  
One Leadership Square, Suite 1700  
211 North Robinson  
Oklahoma City, Oklahoma 73102  
(405) 272-5711

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Approximate date of commencement of proposed sale to the  
public: As soon as practicable after this Registration Statement  
becomes effective.

If the only securities being registered on this form are being  
offered pursuant to a dividend or interest reinvestment plans,  
please check the following box: [ ]

If any of the securities being registered on this Form are to  
be offered on a delayed or continuous basis pursuant to Rule 415  
under the Securities Act of 1933, other than securities offered  
only in connection with dividend or interest reinvestment plans,  
check the following box: [X]

If this Form is filed to register additional securities for an

offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering: [ ]

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering:

If delivery of the prospectus is expected to be made pursuant to Rule 434, check the following box: [ ]

The registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which

specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until this registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

<TABLE>

<CAPTION>

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Number of Shares to be Registered	Proposed Maximum Offering Price Per Share	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee (5)
<S>	<C>	<C>	<C>	<C>
Common Stock, \$.001 par value	5,754,309 (1)	\$1.4375 (2)	\$8,271,819	\$2,299.57
Common Stock, \$.001 par value	2,536,763 (3)	\$1.50 - \$3.00 (4)	\$5,188,907	\$1,442.52

<FN>

- (1) Includes (a) 2,172,762 shares issued or to be issued upon conversion of the Company's Series 10 Class J Convertible Preferred Stock ("Series 10 Preferred"), Series 13 Class M Convertible Preferred Stock ("Series 13 Preferred"), Series 16 Class P Convertible Preferred Stock ("Series 16 Preferred"); (b) 208,757 shares which have been or may be issued by the Company in payment of dividends accrued on the Series 10 Preferred, the Series 13 Preferred, which Series 13 Preferred was exchanged for all of the Series 10 Preferred, the Series 16 Preferred, which Series 16 Preferred was exchanged for all of the Series 13 Preferred; (c) 2,467,810 shares issued or to be issued upon conversion of the Company's Series 8 Class H Convertible Preferred Stock ("Series 8 Preferred"), Series 12 Class L Convertible Preferred Stock ("Series 12 Preferred"), Series 15 Class O Convertible Preferred Stock ("Series 15 Preferred"); (d) 147,353 shares which have been or may be issued by the Company in payment of dividends accrued on the Series 4 Class D Convertible Preferred Stock ("Series 4 Preferred"), the Series 6 Class F Convertible Preferred Stock ("Series 6 Preferred"), which Series 6 Preferred was exchanged for all of the Series 4 Preferred, the Series 8 Preferred, which Series 8 Preferred was exchanged for all of the Series 6 Preferred, the Series 12 Preferred, which Series 12

Preferred was exchanged for all of the Series 8 Preferred, the Series 15 Preferred, which Series 15 Preferred was exchanged for all of the Series 12 Preferred; (e) 310,000 shares to be issued upon conversion of the Company's Series 9 Class I Convertible Preferred Stock; (f) 44,453 shares which may be issued by the Company in payment of dividends accrued on the Series 5 Class E Convertible Preferred Stock ("Series 5 Preferred"), the Series 7 Class G Convertible Preferred Stock ("Series 7 Preferred"), which Series 7 Preferred was exchanged for all of the Series 5 Preferred and the Series 9 Class I Convertible Preferred Stock ("Series 9 Preferred"), which Series 9 Preferred was exchanged for all of the Series 7 Preferred; (g) 200,000 shares which have been issued by the Company in connection with an Exchange Agreement; and (h) 203,174 shares which have been issued by the Company in connection with an Asset Purchase Agreement.

- (2) Estimated solely for the purposes of calculating the registration fee in accordance with Rule 457(c) on the basis of the average of the high and low price as quoted on the NASDAQ Small Cap Market on October 14, 1999.
- (3) Includes (a) 100,000 shares to be issued upon exercise of one warrant at an exercise price of \$1.50 per share; (b) 100,000 shares to be issued upon exercise of one warrant at an exercise price of \$1.70 per share; (c) 375,000 shares to be issued upon exercise of two warrants at an exercise price of \$1.8125; (d) 35,000 shares to be issued upon exercise of two warrants at an exercise price of \$1.8125; (e) 200,000 shares to be issued upon exercise of one warrant at an exercise price of \$1.875; (f) 150,000 shares to be issued upon exercise of one warrant at an exercise price of \$1.875; (g) 350,000 shares to be issued upon exercise of one warrant at an exercise price of \$1.875; (h) 200,000 shares to be issued upon exercise of one warrant at an exercise price of \$2.00 per share; (i) 175,000 shares to be issued upon exercise of one warrant at an exercise price of \$2.00 per share; (j) 75,000 shares to be issued upon exercise of one warrant at an exercise price of \$2.00 per share; (k) 281,250 shares to be issued upon exercise of one warrant at an exercise price of \$2.125 per share; (l) 75,000 shares to be issued upon exercise of five warrants at an exercise price of \$2.375 per share; (m) 20,513 shares to be issued upon exercise of one warrant at an exercise price of \$2.4375 per share; (n) 150,000 shares to be issued upon exercise of one warrant at an exercise price of \$2.50 per share; (o) 75,000 shares to be issued upon exercise of one warrant at an exercise price of \$2.50 per share; and (p) 175,000 shares to be issued upon exercise of one warrant at an exercise price of \$3.00 per share.
- (4) Estimated in accordance with Rule 457(g) for the purpose of calculating the registration fee.

(5) A registration fee of \$4,961.37 was previously paid.

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</TABLE>

Subject to Completion: Dated October 21, 1999

PROSPECTUS

PERMA-FIX ENVIRONMENTAL SERVICES, INC.

8,291,072 Issued Shares of Common Stock

This prospectus ("Prospectus") covers 8,291,072 shares (the "Shares") of the common stock, par value \$.001 per share ("Common Stock"), of Perma-Fix Environmental Services, Inc., a Delaware corporation (the "Company"), for reoffer or resale from time to time by the Selling Shareholders (as listed on page 45). This includes (i) 2,536,763 shares of Common Stock issuable upon the exercise of certain Common Stock purchase warrants ("Warrants") held by certain of the Selling Shareholders, (ii) 2,467,810 shares of Common Stock issued or issuable upon the conversion of the Company's Series 8 Class H Convertible Preferred Stock ("Series 8 Preferred") (which was exchanged for the Series 12 Preferred), Series 12 Class L Convertible Preferred Stock ("Series 12 Preferred") (which was exchanged for the Series 15 Preferred) and Series 15 Class O Convertible Preferred Stock ("Series 15 Preferred"), held by certain of the Selling Shareholders, (iii) 310,000 shares of Common Stock issuable upon the conversion of the Company's Series 9 Class I Convertible Preferred Stock ("Series 9 Preferred"), (iv) 2,172,762 shares of Common Stock issued or issuable upon conversion of the Company's Series 10 Class J Convertible Preferred Stock ("Series 10 Preferred") (which has been exchanged for Series 13 Preferred), Series 13 Class M Convertible Preferred Stock ("Series 13 Preferred") (which has been exchanged for Series 16 Preferred), and Series 16 Class P Convertible Preferred Stock ("Series 16 Preferred") held by certain of the Selling Shareholders, (v) 400,563 shares of Common Stock issued or issuable in payment of accrued dividends on the Series 9 Preferred, Series 15 Preferred, and Series 16 Preferred currently held by certain of the Selling Shareholders and previously issued in payment of accrued dividends on the Company's Series 4 Preferred (which was exchanged for the Series 6 Preferred), Series 6 Preferred (which was exchanged for the Series 8 Preferred), Series 8 Preferred (which was exchanged for the Series 12 Preferred), Series 12 Preferred (which was exchanged for the Series 15 Preferred), Series 15 Preferred, Series 5 Preferred (which was exchanged for the Series 7 Preferred), Series 7 Preferred (which was exchanged for the Series 9 Preferred), Series 9 Preferred and Series 10 Preferred (which was exchanged for the Series 13 Preferred), Series 13 Preferred (which was exchanged for the Series 16 Preferred), and Series 16 Preferred, as such terms are defined in "Private Placements and Exchange Agreements" (vi) 203,174 shares of Common Stock issued in connection with a certain Asset Purchase Agreement, and (vii) 200,000 shares of Common Stock issued in connection with a certain Exchange Agreement. In order for each Selling Shareholder to be legally permitted to sell Shares when such Selling Shareholder deems it appropriate, the Company has filed with the Securities and Exchange Commission ("Commission") a registration statement (together with any amendments thereto, the "Registration Statement"), which contains this Prospectus as a portion thereof, with respect to the sale of the Shares from time to time. See "Plan of Distribution," "Summary of Securities Being Offered" and "Private Placements and Exchange Agreements."

The Company will not receive any of the proceeds from the conversion of the Preferred Stock or from the resale of Shares by the Selling Shareholders. However, the Company will receive the exercise price upon the exercise of the various warrants described herein. See "Use of Proceeds."

The Company's Common Stock is traded under the symbol "PES" on the Boston Stock Exchange ("BSE") and under the symbol "PESI" on

the National Association of Securities Dealers Automated Quotation System SmallCap Market ("NASDAQ"). The Shares may be offered for sale from time to time in one or more transactions, including block trades, in the over the counter market, on the BSE and the NASDAQ, in privately negotiated transactions, or in a combination of any such methods of sale. On October 13, 1999, the closing bid price of the Company's Common Stock as quoted by the NASDAQ was \$1.4375 per share.

The Selling Shareholders and any broker-dealer or agents that participate with the Selling Shareholders in the distribution of the Shares may be deemed to be "underwriters" within the meaning of Section 2(11) of the Securities Act of 1933, as amended (the "Securities Act").

The Company has agreed to pay all the costs and fees relating to the registration of the Shares covered by this Prospectus. However, the Company will not pay any discounts, concessions or commissions payable to underwriters, dealers or agents incident to the offering of the Shares or fees and expenses incurred by counsel for the Selling Shareholders.

The mailing address, including zip code, and the telephone number of the principal executive office of the Company is: 1940 Northwest 67th Place, Gainesville, Florida 32653, and the telephone number is (352) 373-4200.

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Investment in these securities involves a high degree of risk. See "risk factors" on page 5 of this prospectus for a discussion of certain factors that prospective investors should consider prior to an investment in these securities.

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The Securities and Exchange Commission has not approved or disapproved these securities or passed upon the adequacy of this prospectus. Any representation to the contrary is a criminal offense.

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The date of this Prospectus is October \_\_\_\_, 1999.

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SPECIAL NOTE REGARDING  
FORWARD-LOOKING STATEMENTS

Certain statements contained within this Prospectus may be deemed "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (collectively, the "Private Securities Litigation Reform Act of 1995"). All statements in this Prospectus other than statements of historical fact are forward-looking statements that are subject to known and unknown risks, uncertainties and other factors which could cause actual results and performance of the Company to differ materially from such statements. The words "believe," "expect," "anticipate,"

"intend," "will," and similar expressions identify forward-looking statements. Forward-looking statements contained herein relate to, among other things, (i) ability or inability to improve operations and become profitable on an annualized basis and continue its operations, (ii) the Company's ability to develop or adopt new and existing technologies, including the Selenium Process (as defined), in the conduct of its operations, (iii) anticipated financial performance, (iv) ability to utilize net operating loss carry forwards against future federal income tax liabilities; (v) ability to comply with the Company's general working capital requirements, (vi) ability to retain or receive certain permits or patents, (vii) ability to be able to continue to borrow under the Company's revolving line of credit, (viii) ability to generate sufficient cash flow from operations to fund all costs of operations and remediation of certain formerly leased property in Dayton, Ohio, and the Company's facility in Memphis, Tennessee, (ix) ability to remediate certain contaminated sites for projected amounts, (x) ability of others to enter into markets serviced by the Company, (xi) "Year 2000" computer issues, (xii) integration of Chem-Met, Chemical Florida and Chemical Georgia (as such terms are defined) into the Company, (xiii) ability to pay the Promissory Notes issued in connection with the acquisition of Chem-Met, Chemical Florida and Chemical Georgia from working capital and/or borrowings under the Company's revolving credit facility, (xiv) the adoption of moratoriums or limitations by federal or state governments regarding the creation of new hazardous waste regulations, and (xv) all other statements which are not statements of historical fact. While the Company believes the expectations reflected in such forward-looking statements are reasonable, it can give no assurance such expectations will prove to have been correct. There are a variety of factors which could cause future outcomes to differ materially from those described in this Prospectus, including, but not limited to, (i) general economic conditions, (ii) material reduction in revenues, (iii) inability to collect in a timely manner a material amount of receivables, (iv) increased competitive pressures, (v) the inability to maintain and obtain required permits and approvals to conduct operations, (vi) reduction in revenues and profitability of services provided by the Company due to increased competition, (vii) lack of resources to develop new technologies relating to the waste management business, (viii) future federal tax audit or audits which could reduce the Company's loss carry forwards, (ix) limitations imposed by the Internal Revenue Code or the Company's inability to utilize its loss carry forwards, (x) the inability to develop new and existing technologies, including the Selenium Process, in the conduct of operations or to develop such for commercial use, (xi) overcapacity in the environmental industry, (xii) inability or failure to convert the computer systems of the Company's key suppliers, customers, creditors, and financial service organizations, in order to be "Year 2000" compliant, (xiii) discovery of additional contamination or expanded contamination at a certain Dayton, Ohio, property formerly leased by PFD (as defined), at PFM's (as defined) facility at Memphis, Tennessee, or at certain properties acquired in the purchase of Chemical Georgia and Chem-Met which would result in a material increase in remediation expenditures, (xiv) determination that PFM is the source of chlorinated compounds at the Allen Well Field, (xv) changes in federal, state and local laws and regulations, especially environmental regulations, or in interpretation of such, (xvi) potential increases in equipment, maintenance, operating or labor costs, (xvii) management retention and development, (xviii) the requirement to use internally generated funds for purposes not presently anticipated, (xix) inability to become profitable, and, if unable to become profitable, the inability to secure additional liquidity in the

form of additional equity or debt, (xx) the inability of the Company to obtain under certain circumstances shareholder approval of the transaction in which the Series 10 Preferred (which has been

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exchanged for the Series 13 Preferred, which, in turn, was exchanged for the Series 16 Preferred) and certain warrants were issued, (xxi) the inability of the Company to maintain the listing of its Common Stock on the NASDAQ, (xxii) the discovery of additional contamination or expanded contamination at the Chemical Georgia or Chem-Met facilities, (xxiii) the inability of the Company to continue its operation of Chem-Met under the Consent Decree (as defined), (xxiv) the validity and accuracy of the assumptions used in calculating the Company's estimated remediation costs regarding certain properties in Georgia and Michigan and (xxv) the factors set forth under "Risk Factors" contained in this Prospectus. The Company undertakes no obligations to update publicly any forward-looking statement, whether as a result of new information, future events or otherwise.

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#### AVAILABLE INFORMATION

The Company is subject to the informational requirements of the Securities Exchange Act of 1934, as amended ("Exchange Act"), and, in accordance therewith, files reports, proxy statements and other information with the Commission. Such reports, proxy statements and other information can be inspected and copied at the public reference facilities maintained by the Commission at Room 1024, Judiciary Plaza, 450 Fifth Street, N.W., Washington, D. C. 20549, as well as at its Regional Offices located at 7 World Trade Center, Suite 1300, New York, New York 10048, and 500 West Madison Street, Suite 1400, Chicago, Illinois 60661-2511. Copies of such material can be obtained from the Public Reference Section of the Commission, 450 Fifth Street, N.W., Washington, D. C. 20549, at prescribed rates. Such materials can also be accessed through the World Wide Web site of the Commission, which contains reports, proxy and information statements and other information regarding registrants that file electronically with the Commission (<http://www.sec.gov>). The Company's Common Stock is listed on the BSE and with NASDAQ, and reports, proxy statements and other information concerning the Company may also be inspected at (a) the offices of the BSE at One Boston Place, Boston, Massachusetts 02108, and (b) the offices of NASDAQ at 1735 K Street, N.W., Washington, D. C. 20006-1506.

The Company has filed the Registration Statement under the Securities Act with respect to the Shares offered by this Prospectus. This Prospectus constitutes a part of the Registration Statement and omits certain information contained in the Registration Statement in accordance with the rules and regulations of the Commission. Reference is made to the Registration Statement and exhibits thereto for further information with respect to the Company and the Shares of Common Stock offered hereby. Copies of the Registration Statement and the exhibits thereto may be obtained at prescribed rates upon request to the Commission in Washington, D. C. Any statements contained herein concerning the provisions of any documents are not necessarily complete, and, in each instance, such statements are qualified in their entirety by reference to such document filed as an exhibit to the Registration Statement or otherwise filed with the Commission.

#### INCORPORATION BY REFERENCE

The following documents filed by the Company with the Commission under the Exchange Act are incorporated by reference in this Prospectus and will be deemed part of this Prospectus:

- (1) Annual Report on Form 10-K for the year ended December 31, 1998;
- (2) Quarterly Report on Form 10-Q for the quarter ended March 31, 1999;

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- (3) Quarterly Report on Form 10-Q for the quarter ended June 30, 1999;
- (4) Current Report on Form 8-K, earliest event reported April 8, 1999;
- (5) Current Report on Form 8-K, earliest event reported June 1, 1999; and
- (6) Current Report on Form 8-K/A, earliest event reported June 1, 1999.

All documents filed by the Company pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this Prospectus and prior to the termination of the offering under this Prospectus will be deemed to be incorporated by reference into this Prospectus from the respective dates those documents are filed. If any statement in this Prospectus, in a subsequent supplement to this Prospectus or any document incorporated by reference in this Prospectus is modified or superseded by a statement in this Prospectus, in subsequent supplement to this Prospectus, or in any document incorporated by reference in this Prospectus, the earlier statement will be deemed, for the purposes of this Prospectus, to have been modified or superseded by the subsequent statement and the earlier statement is incorporated by reference only as modified or to the extent it is not superseded.

The Company will provide to each person to whom this Prospectus is delivered a copy of any or all of the documents which have been or may be incorporated by reference in this Prospectus (other than certain exhibits to those documents). Such copies will be provided upon written or oral request and without charge. Requests should be directed to Richard T. Kelecy, Perma-Fix Environmental Services, Inc., 1940 Northwest 67th Place, Gainesville, Florida 32653, telephone (352) 373-4200.

#### RISK FACTORS

In evaluating an investment in the Shares, prospective purchasers of the Shares pursuant to this Prospectus should consider carefully the factors set forth below, as well as the other information contained in this Prospectus and incorporated herein by reference.

#### Accumulated Deficits; Net Losses; Future Losses

The Company has reported consolidated net losses in all annual periods since it began operations in 1991, and there is no assurance that the Company will be able to become profitable on an annualized basis in the foreseeable future. The Company's historical consolidated balance sheet at December 31, 1998, reflected an accumulated deficit of approximately \$22,157,000. The



Company's consolidated statement of operations for the year ended December 31, 1998, reflected a net loss applicable to Common Stock of approximately \$698,000, or a net loss of approximately \$.06 per share, after taking into account a preferred stock dividend of \$1,160,000 relating to dividends paid and the issuance by the Company of a series of convertible preferred stock in 1998 that is convertible at a discount from market value of the Common Stock on the date of issuance as discussed below. This is compared to a net loss applicable to Common Stock of approximately \$5,169,000, or a net loss of approximately \$.49 per share, after taking into account the loss from discontinued operations of \$4,101,000, or \$.39 per share, and a preferred stock dividend of \$1,260,000 relating to dividends paid and the issuance by the Company of a series of convertible preferred stock in 1997 that is convertible at a discount from market value of the Common Stock on the date of issuance as discussed below for the year ended December 31, 1997.

For the three months ended June 30, 1999, the Company had an unaudited consolidated net income of approximately \$703,000 (after taking into account a preferred stock dividend of \$73,000) on unaudited consolidated net revenues of approximately \$10,573,000, as compared to an unaudited consolidated net income of

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approximately \$127,000 (after taking into account a preferred stock dividend of \$89,000) on unaudited consolidated net revenues of approximately \$7,678,000 for the three months ended June 30, 1998. For the six month period ended June 30, 1999, the Company had an unaudited consolidated net income of approximately \$717,000 (after taking into account a preferred stock dividend of \$190,000) on unaudited consolidated net revenues of approximately \$18,385,000, as compared to an unaudited consolidated net loss of approximately \$364,000 (after taking into account a preferred stock dividend of \$176,000) on unaudited consolidated net revenues of approximately \$14,226,000 for the six months ended June 30, 1998. If the Company is unable to become profitable on an annualized basis in the foreseeable future, such inability would have a material adverse effect on the Company and the Company's ability to operate.

In March 1997, the Commission announced its position on accounting for preferred stock which is or may be convertible into Common Stock at a discount from the market price of the Common Stock on the date of issuance of the series of preferred stock. The Commission's position, pursuant to Emerging Issues Task Force ("EITF") D-60, is that a preferred stock dividend should be recorded for the difference between the conversion price and the quoted market price of the Common Stock as determined at the date of issuance of such preferred stock. To comply with this position, the Company restated its 1996 consolidated financial statements to reflect a preferred stock dividend of approximately \$2,000,000 related to the sale of convertible preferred stock in 1996. The Company also restated the reported net loss per share of Common Stock for the year ended December 31, 1996, to (\$.27), from the previously reported amount of (\$.05). Pursuant to EITF D-60 and EITF D-42, the Company has also restated its 1997 consolidated financial statements to reflect a preferred stock dividend of approximately \$713,000 related to the sales and subsequent exchanges of preferred stock in 1997 and a preferred stock dividend of approximately \$195,000 related to the issuance of warrants in 1997 in connection therewith. The restatement reflects dividends totaling \$908,000 resulting from the sale of convertible preferred stock in 1997, of which approximately \$111,000 was attributable to the quarter ended June 30, 1997, and approximately \$797,000 was

attributable to the quarter ended September 30, 1997. The Company's consolidated financial statements for the year ended December 31, 1998, reflected an additional preferred stock dividend of approximately \$750,000 as a result of the issuance of the Series 10 Preferred and various warrants associated therewith during 1998.

#### Potential Environmental Liability

The nature of the Company's business of rendering services in connection with management of waste, including certain types of hazardous waste and low level radioactive waste, is such that the Company cannot avoid exposure to significant risk of liability for damages. Such liability could involve, without limitation, (a) claims for clean-up costs, personal injury or damage to the environment in cases in which the Company is held responsible for the release of hazardous or radioactive materials; (b) claims of employees, customers or third parties for personal injury or property damage occurring in the course of the Company's operations; and (c) claims alleging negligence or professional errors or omissions in the planning or performance of its services or in the providing of its products. In addition, the Company could be deemed a responsible party for the cost of clean-up of any property which may be contaminated by hazardous substances generated by the Company and disposed of at such property or transported by the Company to a site selected by the Company, including properties owned or leased by the Company. The Company could also be subject to fines and civil penalties in connection with violations of regulatory requirements. See "--Governmental Regulation" and "The Company-Potential Environmental Liability and Certain Environmental Expenditures."

#### Potential Adverse Effects on Price of Common Stock Due to Conversion of Convertible Preferred Stock; Potential Dilution

The Company has 4,537 shares of convertible preferred stock currently outstanding, including the Series 9 Preferred, Series 14 Class N Convertible Preferred Stock (the "Series 14 Preferred"), Series 15 Preferred, and Series 16 Preferred. Subject to fulfillment of certain terms and conditions, the holders of the preferred stock have the right to convert the preferred stock into Common Stock. It is anticipated by the Company that by exercising

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their conversion rights, the holders of the preferred stock would be issued a substantial number of shares of Common Stock. Such a substantial increase in the number of outstanding shares of Common Stock would result in dilution of the Common Stock, which may have an adverse effect upon the market price of the Common Stock and could impair the Company's ability to raise additional equity capital. In addition, the issuance by the Company of future priced securities may be followed by a decline in the price of the Company's Common Stock, thereby resulting in additional dilution to the holders of the Company's Common Stock. See "--Potential Adverse Effects of Floating-Price Convertible Preferred Stock."

#### Potential Adverse Effects of Floating-Price Convertible Preferred Stock

The conversion of various series of the Company's outstanding preferred stock could potentially result in an issuance of a substantial number of shares of Common Stock, which could, among other things, (i) reduce the percentage ownership of existing common shareholders, (ii) depress the price of the Common Stock,

and (iii) detrimentally affect the Company's ability to raise additional equity capital. The Company has 4,537 shares of preferred stock currently outstanding (Series 9 Preferred, Series 14 Preferred, Series 15 Preferred and Series 16 Preferred) which are convertible into shares of Common Stock.

There are currently 350 shares of Series 9 Preferred. The floating conversion price of the Series 9 Preferred is the lesser of (i) \$1.8125 and (ii) the product of the average of the closing bid quotation of the Common Stock for the five trading days immediately preceding the conversion date multiplied by 80% if at the time of conversion the price of the Common Stock is less than \$2.265 per share. Because there is no minimum conversion price, the number of shares of Common Stock which may be issuable pursuant to conversion of the Series 9 Preferred will increase as the closing bid price of the Common Stock goes below \$2.265 per share. The more the closing bid price falls below \$2.265, the more shares of Common Stock are issuable upon conversion of the Series 9 Preferred. See table below in this Risk Factor.

There are currently 1,769 outstanding shares of Series 14 Preferred. The Series 14 Preferred was issued in exchange for the Series 11 Preferred, which, previously had been exchanged for the Series 3 Preferred. From April 20, 1999 until April 20, 2000, the Series 14 Preferred may not be converted. From April 20, 2000 until April 20, 2001, the conversion price of the Series 14 Preferred is \$1.50 per share. After April 20, 2001, the floating conversion price of the Series 14 Preferred is based on the product of the average of the closing bid quotation of the Common Stock for the five trading days immediately preceding the conversion date multiplied by 75%, and the conversion price has a minimum of \$0.50 per share and a maximum of \$1.50 per share. The minimum conversion price is reduced by \$0.25 per share each time the Company sustains a net loss, on a consolidated basis, in each of two consecutive quarters; provided, however, that for the purposes of determining whether the Company has sustained a net loss in each of two consecutive quarters under the Series 14 Preferred, at no time will a quarter that has already been considered in such determination be considered in any subsequent determination.

There are currently 616 outstanding shares of Series 15 Preferred. From April 20, 1999 until April 20, 2000, the Series 15 Preferred may not be converted. After April 20, 2000, the floating conversion price of the Series 15 Preferred is the lesser of (i) \$1.8125 and (ii) the product of the average of the closing bid quotation of the Common Stock for the five trading days immediately preceding the conversion date multiplied by 80% if at the time of conversion the price of the Common Stock is less than \$2.265 per share, except from April 20, 2000, until April 20, 2001, the minimum conversion price of the Series 15 Preferred is \$1.50 per share. Because there is no minimum conversion price after April 20, 2001, the number of shares of Common Stock which may then be issuable pursuant to conversion of the Series 15 Preferred will increase as the closing bid price of the Common Stock goes below

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\$2.265 per share. The more the closing bid price falls below \$2.265, the more shares of Common Stock are issuable upon conversion of the Series 15 Preferred. See table below in this Risk Factor.

There are currently 1,802 outstanding shares of Series 16 Preferred. From April 20, 1999 until April 20, 2000, the Series 16

Preferred may not be converted. After April 20, 2000, the floating conversion price of the Series 16 Preferred is the lesser of (i) \$1.875 and (ii) the product of the average of the closing bid quotation of the Common Stock for the five trading days immediately preceding the conversion date multiplied by 80% if at the time of conversion the price of the Common Stock is less than \$2.34 per share, except from April 20, 2000 until April 20, 2001, the minimum conversion price of the Series 16 Preferred is \$1.50 per share. Because there is no minimum conversion price after April 20, 2001, the number of shares of Common Stock which may be issuable pursuant to conversion of the Series 16 Preferred will increase as the closing bid price of the Common Stock goes below \$2.34 per share. The more the closing bid price falls below \$2.34, the more shares of Common Stock are issuable upon conversion of the Series 16 Preferred. See table below in this Risk Factor.

Pursuant to the terms of the Company's agreements with the holders of the preferred stock, the holders of such preferred stock may not sell the Company's Common Stock "short" while they hold any of the shares of preferred stock or any Common Stock into which such preferred stock was converted. Upon conversion of the various series of preferred stock, the Company is required to issue the shares of Common Stock pursuant to the terms of the preferred stock. There are no provisions which allow the Company upon conversion to tender a cash payment to the applicable holder in lieu of the issuance of Common Stock.

The tables below are provided in an attempt to approximate the potential issuance of Common Stock which could result from conversion of the Company's currently outstanding preferred stock assuming various average closing bid prices for the five days prior to conversion. As the price of the Common Stock moves downward, the number of shares of Common Stock which may be issued upon conversion of the Series 9 Preferred, Series 14 Preferred, Series 15 Preferred and Series 16 Preferred increases, subject to the indicated minimum conversion prices. The first table approximates the potential issuance from April 20, 2000 until April 20, 2001, during which time the Series 14 Preferred, Series 15 Preferred and Series 16 Preferred have a minimum conversion price of \$1.50. The second table approximates the potential issuance after April 20, 2001.

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<TABLE>

<CAPTION>

Estimated Potential Additional Issuance from April 20, 2000 until April 20, 2001

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<S>	<C>	<C>	<C>	<C>
Average Closing Bid Price of Common Stock for five days prior to conversion	\$2.50	\$2.00	\$1.00	\$0.25
Series 9 Conversion Price	\$1.8125(1)	\$1.60(1)	\$0.80(1)	\$0.20(1)
Price (maximum \$1.8125)				

Number of Shares of Common Stock Issuable upon Series 9 Conversion	193,103	218,750	437,500	1,750,000
Series 14 Conversion Price (minimum \$1.50, maximum \$1.50)	\$1.50 (2)	\$1.50 (2)	\$1.50 (2)	\$1.50 (2)
Number of Shares of Common Stock Issuable upon Series 14 Conversion	1,179,333	1,179,333	1,179,333	1,179,333
Series 15 Conversion Price (minimum \$1.50, maximum \$1.8125)	\$1.8125 (1)	\$1.60 (1)	\$1.50 (1)	\$1.50 (1)
Number of Shares of Common Stock Issuable upon Series 15 Conversion	339,862	385,000	410,667	410,667
Series 16 Conversion Price (minimum \$1.50, maximum \$1.875)	\$1.875 (1)	\$1.60 (1)	\$1.50 (1)	\$1.50 (1)
Number of Shares of Common Stock Issuable upon Series 16 Conversion	961,067	1,126,250	1,201,333	1,201,333
Total shares of Common Stock Issuable Upon Conversion	2,673,365	2,909,333	3,228,833	4,541,333

<FN>

(1) 80% of the product of the average of the closing bid quotation of the Common Stock for the five trading days immediately preceding the conversion date, subject to the stated minimum and maximum conversion price.

(2) 75% of the product of the average of the closing bid quotation of the Common Stock for the five trading days immediately preceding the conversion date, subject to the stated minimum and maximum conversion price.

</FN>

</TABLE>

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<TABLE>

<CAPTION>

Estimated Potential Additional Issuance after April 20, 2001

<S>	<C>	<C>	<C>	<C>
Average Closing Bid Price of Common Stock for five days prior to conversion	\$2.50	\$2.00	\$1.00	\$0.25

Series 9 Conversion Price (maximum \$1.8125)	\$1.8125 (1)	\$1.60 (1)	\$0.80 (1)	\$0.20 (1)
Number of Shares of Common Stock Issuable upon Series 9 Conversion	193,103	218,750	437,500	1,750,000
Series 14 Conversion Price (minimum \$0.50, maximum \$1.50)	\$1.50 (2)	\$1.50 (2)	\$0.75 (2)	\$0.50 (2)
Number of Shares of Common Stock Issuable upon Series 14 Conversion	1,179,333	1,179,333	2,358,667	3,538,000
Series 15 Conversion Price (maximum (\$1.8125)	\$1.8125 (1)	\$1.60 (1)	\$0.80 (1)	\$0.20 (1)
Number of Shares of Common Stock Issuable	339,862	385,000	770,000	3,080,000
Series 16 Conversion Price (maximum \$1.875)	\$1.875 (1)	\$1.60 (1)	\$0.80 (1)	\$0.20 (1)
Number of Shares of Common Stock Issuable upon Series 16 Conversion	961,067	1,126,250	2,252,500	9,010,000
Total shares of Common Stock Issuable Upon Conversion	2,673,365	2,909,333	5,818,667	17,378,000 (3)

<FN>

- (1) 80% of the product of the average of the closing bid quotation of the Common Stock for the five trading days immediately preceding the conversion date, subject to the stated maximum..
- (2) 75% of the product of the average of the closing bid quotation of the Common Stock for the five trading days immediately preceding the conversion date, subject to the stated minimum and maximum. The minimum conversion price of the Series 14 Preferred is reduced by \$0.25 per share each time the Company sustains a net loss, on a consolidated basis, in each of two consecutive quarters. See "-Potential Adverse Effects of Floating-Price Convertible Preferred Stock."
- (3) The Company has 50,000,000 shares of Common Stock authorized for issuance. There are 20,486,219 shares of Common Stock issued and outstanding as of the date of this Prospectus, and 4,624,963 shares are issuable upon exercise of warrants outstanding as of the date of this Prospectus. The Company might not have sufficient shares of Common Stock authorized but unissued if it were required to issue 17,378,000 shares upon conversion of the Series 9 Preferred, Series 14 Preferred, Series 15 Preferred and Series 16 Preferred and 4,624,963 shares upon exercise of all such outstanding warrants.

</FN>

</TABLE>

The NASDAQ requires that the Company obtain the approval of its shareholders regarding any transaction (other than a public offering) involving the sale or issuance of common stock or securities convertible into common stock which equals 20% or more of the common stock outstanding before the transaction at a price less than the current market value of the common stock at the time of such sale. The transaction in which the Company issued the Series 10 Preferred and various warrants in connection therewith could, under certain circumstances, result in the issuance of 20% or more of the Common Stock outstanding before such transaction at a price less than the current market value of the Common Stock at the time of the sale of the Series 10 Preferred. See "-Potential Adverse Effects of Floating-Price Convertible Preferred." In order to comply with the requirements of the NASDAQ and to be able to list the shares of Common Stock issuable upon conversion of the Series 10 Preferred and the warrants granted in connection therewith on the NASDAQ, the terms of the Series 10 Preferred and the warrants issued in connection with the Series 10 Preferred contain provisions requiring the Company to obtain shareholder approval under certain circumstances. Under the terms of the Series 10 Preferred and the warrants issued in connection therewith, shareholder approval is required if (i) the aggregate number of shares of Common Stock issued by the Company pursuant to the terms of the Series 10 Preferred and certain of such warrants exceeds 2,388,347 shares of Common Stock (which equals 19.9% of the outstanding shares of Common Stock of the Company as of June 30, 1998) and (ii) RBB Bank Aktiengesellschaft, located in Graz, Austria ("RBB Bank"), the holder of the Series 10 Preferred, has converted or elects to convert any of the then outstanding shares of Series 10 Preferred pursuant to the terms of the Series 10 Preferred at a conversion price of less than \$1.875 (\$1.875 being the market value per share of Common Stock as quoted on the NASDAQ as of the close of business on June 30, 1998, which was the date of the agreement relating to the sale of the Series 10 Preferred), other than if the conversion price is less than \$1.875 solely as a result of the anti-dilution provisions of the Series 10 Preferred. As of the date of this Prospectus, RBB Bank has converted 748 shares of Series 10 Preferred into an aggregate of 971,429 shares of Common Stock, and the Company has issued a total of 64,597 shares of Common Stock in payment of dividends on the Series 10 Preferred prior to the Series 10 Preferred being exchanged for the Series 13 Preferred. Such conversion was at a price below \$1.875 per share of Common Stock. Additionally, after the exchange of the Series 13 Preferred for the Series 10 Preferred, and prior to the exchange of the Series 13 Preferred for Series 16 Preferred, 450 shares of Series 13 Preferred were redeemed by the Company, at \$1,000 per share (the liquidation value), leaving 1,802 shares of Series 13 Preferred outstanding that were exchanged for an equal number of Series 16 Preferred, which are outstanding as of the date of this Prospectus.

The Series 13 Preferred, which were issued in exchange for the Series 10 Preferred, and the Series 16 Preferred, which were issued in exchange for the Series 13 Preferred, are subject to the same shareholder approval requirements as the Series 10 Preferred. The aggregate number of shares of Common Stock issued upon conversion of the Series 10 Preferred (which has been exchanged for the Series 13 Preferred), Series 13 Preferred (which has been exchanged for the Series 16 Preferred) or the outstanding Series 16 Preferred, and in payment of dividends thereon, are all considered to be part of the 2,388,347 shares of Common Stock which may be issued without shareholder approval.

The Liviakis Warrant and the Prag Warrant (as defined in "Private Placements and Exchange Agreements RBB Series 10 Private Placement") which were issued in connection with the Series 10 Preferred and allowed the purchase of 2,500,000 shares of Common Stock have been canceled and exchanged for 200,000 shares of Common Stock pursuant to an Exchange Agreement dated March 14, 1999. The Company believes that the NASDAQ would consider these 200,000 shares to be part of the shares issued in connection with the Series 10 Preferred, Series 13 Preferred and Series 16 Preferred and part of the 2,388,347 shares of Common Stock which may be issued without shareholder approval.

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As an example, assuming (a) none of the warrants issued in connection with the Series 10 Preferred have been or will be exercised, (b) all of the shares of Series 16 Preferred are converted after April 20, 2001, when the average of the closing bid prices for the Common Stock for the five days prior to conversion is less than approximately \$2.23 per share and (c) the 200,000 shares of Common Stock issued to Liviakis and Prag (as defined in "Private Placements and Exchange Agreements RBB Series 10 Private Placement") are considered to have been issued in connection with the Series 10 Preferred, shareholder approval would be required because such conversion would result in the issuance of more than 2,388,347 shares of Common Stock when combined with the 971,429 shares of Common Stock which have been issued as of the date of this Prospectus upon conversion of the 748 shares of Series 10 Preferred. If the Series 16 Preferred were converted at a conversion price of \$1.50, which is the minimum conversion price until April 20, 2001 and assuming none of the warrants issued in connection with the Series 10 Preferred have been or will be exercised, conversion of more than 1,728 shares of the 1,802 Series 16 Preferred remaining outstanding would require shareholder approval under the terms of the Series 16 Preferred and the warrants issued in connection with the issuance of the Series 10 Preferred. The Company believes that it is likely that shareholder approval regarding the Series 10 Preferred transaction will be required at some time in the future.

Since RBB Bank has already converted certain shares of the Series 10 Preferred at a price below \$1.875, if the Company were to issue in excess of 2,388,347 shares of Common Stock upon conversion of the Series 10 Preferred and Series 16 Preferred and the exercise of the warrants granted in connection with the issuance of the Series 10 Preferred without obtaining shareholder approval under the above-described circumstances, the NASDAQ could de-list the Common Stock or could refuse to list the shares of Common Stock in excess of 2,388,347, either of which actions would have a material adverse effect upon the Company. See "--Maintaining Exchange Listing."

Pursuant to the terms of the Series 16 Preferred (which terms were contained in the Series 10 Preferred), if the Company does not obtain shareholder approval within ninety days of the earlier of the Company's receipt of (i) a conversion notice triggering the need for shareholder approval or (ii) a notice from the holder of the Series 16 Preferred that the Common Stock has traded after January 1, 1999, at a five day average closing bid price below \$2.34 per share and that the holder wishes that shareholder approval be obtained, then the Company must pay liquidated damages to the holder of the Series 16 Preferred in an amount of 4% per month of the Series 16 Liquidation Value until shareholder approval



is obtained. Neither event has occurred as of the date of this Prospectus. If the Company is required to make such payment to the holder of the Series 16 Preferred, such payment could have a material adverse effect upon the Company.

#### Maintaining Exchange Listing

Maintaining the listing of the Common Stock on the NASDAQ is of importance to the Company. The de-listing of the Common Stock from the NASDAQ would have a material adverse effect upon the marketability of the Common Stock and could, among other things, materially and adversely affect the Company's ability to raise additional equity capital or to obtain financing through other sources. The NASDAQ has numerous requirements which must be complied with for a company to maintain its security's listing on the NASDAQ, one of which is that the minimum bid price of the security must be \$1.00 or greater per share. If the minimum bid price of the Common Stock were below \$1.00 per share for a period of 30 or more consecutive business days, the NASDAQ could take action to de-list the Common Stock from the NASDAQ. As of the close of business on October 13, 1999, the closing price of the Common Stock was \$1.4375 per share as quoted on the NASDAQ. Additionally, the NASDAQ could take action to de-list the Common Stock from the NASDAQ if the Company were to fail to meet any of the NASDAQ listing requirements. The Company notes that in addition to the specific criteria for listing of shares on the NASDAQ, the NASDAQ also has discretionary authority under which it can require additional or more stringent criteria for the listing of a particular security otherwise qualified for listing if NASDAQ deems such is necessary to protect the public interest. See "-Shareholder Approval Requirements" and "-Voting Control; Ability to Direct Management."

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If the Common Stock were de-listed from the NASDAQ, trading would thereafter be reported on the Boston Stock Exchange and/or in the National Association of Securities Dealers ("NASD") Over the Counter Bulletin Board or in the "pink sheets." The investing in securities traded in the Bulletin Board or in the pink sheets is generally considered to be subject to more risk than comparable investing in securities which are traded on one of the major national securities exchanges such as the NASDAQ or the American Stock Exchange. In the event of de-listing from the NASDAQ, the Common Stock may be classified as a "penny stock" by the Commission and would become subject to rules adopted by the Commission regulating broker-dealer practices in connection with transactions in "penny stocks." Broker-dealers recommending a penny stock must, among other things, document the suitability of the investment for the specific customer, obtain a written agreement of the customer to purchase the penny stock, identify such broker-dealer's role, if any, as a market maker in the particular stock, and provide information with respect to market prices of the Common Stock and the amount of compensation that the broker-dealer will earn in the proposed transaction. These disclosure requirements may have the effect of reducing the level of trading activity in the secondary market for the Common Stock. If the Common Stock became subject to the penny stock rules, many broker-dealers may be unwilling to engage in transactions in the Company's securities because of the added disclosure requirements, thereby making it more difficult for purchasers of the Common Stock in this offering to dispose of their shares of the Common Stock. The ownership of penny stock is generally considered to subject the owner to greater risks than the

ownership of common stock as a whole due, among other things, to the smaller trading volume in such stocks and to the substantial impact upon the stock's overall value which results from small stock price variations.

#### Potential Adverse Effect to Company and Potential Adverse Impact on Earnings Per Share Upon Exercise of Outstanding Warrants and Options and Conversion of Outstanding Preferred Stock

The issuance of Common Stock pursuant to various outstanding warrants, options, and convertible preferred stock may potentially have a substantial and material adverse impact on the earnings per share of the Company, existing shareholders' percentages of the outstanding shares of Common Stock, as well as on the ability of the Company to raise additional equity capital. The Company has outstanding warrants to purchase up to approximately 4,624,963 shares of Common Stock, including, without limitation, the Series 3 Warrants, Series 6 Warrants, Series 10 Warrants, and the other warrants for purchase of shares of Common Stock covered in this Prospectus (as defined and described under "Summary of Securities Being Offered") and outstanding options to purchase up to approximately 1,322,255 shares of Common Stock. The exercise prices of the outstanding warrants for purchase of shares of the Company's Common Stock range from \$ 1.50 per share to \$3.50 per share, subject to adjustment pursuant to certain anti-dilution provisions. See "Summary of Securities Being Offered" and "Use of Proceeds." The Company is also obligated to issue to (a) RBB Bank (i) up to approximately 1,179,333 shares of Common Stock upon conversion of the Series 14 Preferred, (ii) up to approximately 410,667 shares of Common Stock upon conversion of the Series 15 Preferred and (iii) up to approximately 1,201,333 shares of Common Stock upon conversion of the Series 16 Preferred assuming that such conversions are made on or prior to April 20, 2001, when the minimum conversion price is \$1.50 per share. The Company is also obligated to issue to The Infinity Fund, L.P. ("Infinity") up to approximately 304,348 shares of Common Stock upon conversion of the Series 9 Preferred, assuming the average of the closing bid quotations of the Common Stock for the five trading days immediately preceding each conversion date of the Series 9 Preferred equals \$1.4375 per share, which was the closing price of the Common Stock on October 13, 1999. See "Summary of Securities Being Offered" and "Private Placements and Exchange Agreements." Depending on the price of the Common Stock as of the date of conversion and under certain conditions, the number of shares issuable upon conversion of the Series 9 Preferred may exceed the amounts indicated above. The Series 14 Preferred, Series 15 Preferred and Series 16 Preferred are not convertible until April 20, 2000, and until April 20, 2001, such preferred stock has a minimum conversion price of \$1.50 per share.

As of the close of business on October 13, 1999, the closing price of the Common Stock was \$1.4375 per share as quoted on the NASDAQ. If, after April 20, 2001, the holders of the Series 9

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Preferred, Series 14 Preferred, Series 15 Preferred and Series 16 Preferred converted all of the shares of Series 9 Preferred, Series 14 Preferred, Series 15 Preferred and Series 16 Preferred outstanding as of the date of this Prospectus and at the time of such conversion the closing bid price of the Common Stock, as quoted on the NASDAQ averaged \$1.4375 per share for five trading days immediately prior to such conversion (which is the closing bid price of the Common Stock on October 13, 1999), the holders of the Series 9 Preferred, Series 14 Preferred, Series 15 Preferred and

Series 16 Preferred would receive a total of 3,421,720 shares of Common Stock as a result of the conversion. If, after April 20, 2001, the holders of the Series 9 Preferred, the Series 14 Preferred, the Series 15 Preferred, the Series 16 Preferred converted all of the shares of such preferred stock outstanding as of the date of this Prospectus and at the time of conversion the average closing bid price is less than \$1.4375 for five trading days immediately preceding such conversion, the number of shares of Common Stock that the holders would be entitled to receive as a result of the conversion would substantially increase. See the table under "--Potential Adverse Effects of Floating - Price Convertible Preferred Stock." In addition, the terms of Series 9 Preferred, Series 14 Preferred, Series 15 Preferred and Series 16 Preferred allow the Company to pay accrued dividends on such preferred stock either in cash or Common Stock, and the Company intends to pay dividends accruing on the outstanding shares of Series 9 Preferred, Series 14 Preferred, Series 15 Preferred and Series 16 Preferred in shares of Common Stock rather than cash if and when declared by the Board of Directors. Under the Company's loan agreement, the Company is prohibited from paying cash dividends without the lender's prior written consent. See "Private Placements and Exchange Agreements."

The issuance of Common Stock pursuant to such warrants, options, convertible preferred stock, or in payment of dividends on the Series 9 Preferred, Series 14 Preferred, Series 15 Preferred and Series 16 Preferred could adversely affect the ability of the Company to, and the terms on which it can, raise additional equity capital. If all or a substantial portion of such warrants and options are exercised and all or a substantial portion of the Series 9 Preferred, Series 14 Preferred, Series 15 Preferred and Series 16 Preferred are converted into Common Stock, the issuance of the additional shares of Common Stock will have a substantial and material adverse impact on an existing shareholder's ownership percentage of the outstanding shares of Common Stock and may result in a "change of control" of the Company. Moreover, in the event the Company generates net income, there could be a substantial material adverse impact on earnings per share if such additional shares are issued and to the extent the options and warrants are required to be included in the weighted average shares outstanding calculation. See "--Voting Control; Ability to Direct Management," "--Barriers to Takeover" and "Private Placements and Exchange Agreements."

#### Voting Control; Ability to Direct Management

RBB Bank may have the ability to affect a change in control of the Company through conversion of a substantial portion of the outstanding convertible preferred stock and the exercise of outstanding warrants held by it. Prior to the conversion of the outstanding shares of the Company's Series 9 Preferred, Series 14 Preferred, Series 15 Preferred and Series 16 Preferred or the exercise of any outstanding warrants and options, approximately 14.6% of the outstanding shares of Common Stock is held by the Company's executive officers and directors as of the date of this Prospectus. In addition, such persons have options or similar other rights to acquire approximately 2.4% of additional shares of the Company's Common Stock. Assuming the options and warrants held by the Company's executive officers and directors which are exercisable within 60 days of the date hereof have been exercised and the Company's outstanding shares of preferred stock are not converted and no other outstanding options or warrants are exercised, the Company's executive officers and directors would

beneficially own, as a group, approximately 16.7% of the outstanding shares of Common Stock.

As of the date of this Prospectus, RBB Bank owns of record 6,751,482 shares of Common Stock, or approximately 33.0% of the outstanding shares of Common Stock as of the date of this Prospectus. RBB Bank is also the owner of record of all of the outstanding shares of the Company's Series 14 Preferred, Series 15 Preferred and Series 16 Preferred which are convertible into approximately 2,791,333 shares of Common Stock. See "-- Potential

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Adverse Effect to Company and Potential Adverse Impact on Earnings Per Share Upon Exercise of Outstanding Warrants and Options and Conversion of Outstanding Preferred Stock." The foregoing estimates are based on various assumptions and do not include the shares of Common Stock which may be issued to RBB Bank in payment of dividends accrued on the Series 14 Preferred, Series 15 Preferred and the Series 16 Preferred. Depending on the price of the Common Stock as of the date of conversion and under certain conditions, the number of shares of Common Stock issuable upon conversion of the Series 9 Preferred, Series 14 Preferred, Series 15 Preferred and Series 16 Preferred may greatly exceed the amounts indicated above. For the Series 14 Preferred, subject to the minimum conversion price of \$0.50, the further the average closing bid quotation for the Common Stock five trading days immediately preceding each conversion date is below \$2.00, the more shares of Common Stock are issuable upon conversion of the Series 14 Preferred. For the Series 9 Preferred and Series 15 Preferred, the further the average closing bid quotation for the Common Stock five trading days immediately preceding each conversion date is below \$2.265, the more shares of Common Stock are issuable upon conversion of the Series 9 Preferred and Series 15 Preferred. For the Series 16 Preferred, the further the average closing bid quotation for the Common Stock five trading days immediately preceding each conversion date is below \$2.34, the more shares of Common Stock are issuable upon conversion of the Series 16 Preferred. See "--Potential Adverse Effects of Floating-Price Convertible Preferred Stock" and "Summary of Securities Being Offered." As of the close of business on October 13, 1999, the closing price of the Common Stock was \$1.4375 per share. If RBB Bank were to convert after April 20, 2001, all of the presently outstanding shares of the Company's preferred stock held by RBB Bank (Series 14 Preferred, Series 15 Preferred and the Series 16 Preferred) at a time when the average closing bid quotation for the Common Stock for the five trading days was \$1.4375 then RBB Bank would be entitled to receive a total of approximately 3,117,372 shares of Common Stock as a result of such conversion.

In addition to the shares of the Company's Common Stock and preferred stock of the Company held by RBB Bank, RBB Bank holds warrants which were issued in connection with the issuance of the Series 3 Preferred ("Series 3 Warrants"), which may be exercised for the purchase of up to 2,000,000 shares of Common Stock; the Series 6 Warrants (as defined under "Private Placements and Exchange Agreements"), which may be exercised for the purchase of up to 656,250 shares of Common Stock; and the Series 10 Warrants (as defined under "Private Placements and Exchange Agreements"), which may be exercised for the purchase of up to 350,000 shares of Common Stock.

If RBB Bank acquires an aggregate of an additional 2,791,333 shares of Common Stock on conversion of the Series 14 Preferred, Series 15 Preferred and Series 16 Preferred and 3,006,250 shares of

Common Stock upon the exercise of the Series 3 Warrants, Series 6 Warrants and Series 10 Warrants, RBB Bank will own approximately 12,549,065 shares of Common Stock (which includes the 6,751,482 shares of Common Stock directly held by RBB Bank as of the date of this Prospectus but does not include the shares of Common Stock which may be issuable for payment of dividends on the Series 14 Preferred, Series 15 Preferred, and Series 16 Preferred), representing approximately 47.7% of the Company's then outstanding Common Stock, assuming no other options or warrants are exercised, the Series 9 Preferred is not converted, and the Company does not issue any additional shares of Common Stock after the date of this Prospectus. In such event, RBB Bank would be the largest shareholder of the Company, and the Company may not have sufficient remedies to be able to avoid an actual change in control of the Company if RBB Bank seeks such a change in control. See "Private Placements and Exchange Agreements" and "Selling Shareholders."

In the event there were such a change of control of the Company, the NASDAQ could deem such to be a change in financial structure or a merger or consolidation with RBB Bank. In such event, the NASDAQ could require the Company to requalify under the initial listing standards of the NASDAQ in order to maintain the listing of the Company's Common Stock on the NASDAQ. Among other things, the Company's Common Stock would have to have a minimum bid price of \$4.00 per share to be eligible for listing on the NASDAQ.

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The market price of the Common Stock as of the effective date of this Prospectus is below \$4.00 and would not meet the NASDAQ initial listing requirements. See "-- Maintaining Exchange Listing."

#### Governmental Regulation

The Company's business is subject to extensive, evolving and increasingly stringent federal, state and local environmental laws and regulations. Such federal, state and local environmental laws and regulations govern the Company's activities regarding the treatment, storage, recycling, disposal and transportation of hazardous and non-hazardous waste and low level radioactive waste. The Company must obtain and maintain permits, licenses and/or approvals in order to conduct such activities in compliance with such laws and regulations. Failure to obtain and maintain such permits, licenses and/or approvals would have a material adverse effect on the Company, its operations and financial condition. There can be no assurance that the Company will be able to maintain its currently held permits, licenses and/or approvals or obtain any additional permits, licenses and/or approvals which may be required as the Company expands its operations. See "The Company-- Governmental Regulation," and "--Permits and Licenses."

Because the environmental industry continues to develop rapidly, the Company cannot predict the extent to which its operations may be affected by future enforcement policies as applied to existing laws, by changes to current environmental laws and regulations or by the enactment of new environmental laws and regulations. Any predictions regarding possible liability under such laws are complicated further by current environmental laws which provide that the Company could be liable jointly and severally for certain activities of third parties over whom the Company has limited or no control. See " Potential Environmental Liability." The nature of the standards imposed by federal, state,

and local permitting laws require the Company to incur certain levels of capital expenditures to maintain compliance with such standards. See "The Company Potential Environmental Liability and Certain Environmental Expenditures" and "--Governmental Regulation."

The inability of the Company to become profitable on a long term basis could have a negative impact on the Company's ability to remain in compliance with various federal, state and local environmental regulations. Violation of such federal, state and local regulations could result in the loss of one or more of the Company's permits or subject the Company to substantial fines, penalties or other liabilities that could have a material adverse impact on the Company's business.

#### Potential Increase in Litigation

The Company's operations are regulated by numerous laws regarding procedures for waste treatment, storage, recycling, transportation and disposal activities, all of which may provide the basis for litigation against the Company. See "The Company--Governmental Regulation." In recent years, the waste treatment industry has experienced a significant increase in so-called "toxic-tort" litigation as those injured by contamination seek to recover for personal injuries or property damage. The Company believes that as the Company's operations and activities expand, there will be a similar increase in the potential for litigation alleging that the Company is responsible for contamination or pollution caused by its normal operations, negligence or other misconduct or for accidents which occur in the course of the Company's business activities. Such litigation, if significant and not adequately insured against, could have a material adverse effect upon the Company's operations and financial condition. In addition, involvement in protracted litigation would likely result in expenditure of significant amounts of the Company's time, effort and money, and could prevent the management of the Company from focusing on the operation and expansion of the Company and thereby result in a material adverse effect upon the Company. See "--The Company-Potential Environmental Liability and Certain Environmental Expenditures."

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#### Adequacy of Insurance

The business of the Company exposes it to various risks, including claims for causing damage to property and injuries to persons which may involve allegations of negligence or professional errors or omissions in the performance of its services. Such claims could be substantial. See "--Potential Environmental Liability" and "--Potential Increase in Litigation" and "The Company - Potential Environmental Liability and Certain Environmental Expenditures." The Company believes that its insurance coverage is presently adequate and similar to or greater than the coverage maintained by other companies of its size in the industry. There can be no assurance that the Company will be able to obtain adequate or required insurance coverage in the future or, if obtainable, that such insurance be available at affordable rates. If the Company cannot obtain or maintain such coverage, it would be a violation of its permit conditions and other requirements of the environmental laws, rules and regulations under which the Company operates and the Company would be unable to continue certain of its operations. Such events would have a material adverse effect on the Company's operations and financial condition. See "The

Company--Insurance."

#### Reliance on Key Employees; Attraction and Retention of Qualified Professionals

The Company is substantially dependent upon the services of Dr. Louis F. Centofanti, its Chairman, President and Chief Executive Officer. The loss of Dr. Centofanti could have a material adverse effect on the Company. Effective October 1, 1997, Dr. Centofanti entered into a three (3) year employment agreement ("Centofanti Employment Agreement") with the Company. See "The Company--Centofanti Employment Agreement." The Company's future success depends on its ability to retain and expand its staff of qualified personnel, including environmental specialists and technicians, sales personnel and engineers. There can be no assurance that the Company will be successful in its efforts to attract and retain such personnel as their availability is limited due to the rapid increase in the demand for hazardous waste management services and the highly competitive nature of the hazardous waste management industry. The Company does not maintain key-person insurance on any of its employees, officers or directors.

#### Dependence on Environmental Regulation and Future Legislation

Demand for the Company's services is substantially dependent upon the public's concern with, and the continuation and proliferation of the laws and regulations governing, the treatment, storage, recycling and disposal of hazardous, non-hazardous and low level radioactive waste. A decrease in the level of public concern, the repeal or modification of such laws, or any significant relaxation of regulations relating to the treatment, storage, recycling and disposal of hazardous waste and low level radioactive waste, would significantly reduce the demand for the services offered by the Company and could have a material adverse effect on the Company, its operations and financial condition. The Company is not aware of any current federal or state (Florida, Ohio, Oklahoma, Michigan and Georgia, the states in which the Company or a subsidiary of the Company has a TSD Facility (as defined)) government or agency efforts in which a moratorium or limitation has been or will be placed upon the creation of new hazardous waste regulations that would have a material adverse effect on the Company; however, no assurance can be made that such a moratorium or limitation will not be implemented in the future.

#### Competition

The Company competes with numerous companies which are able to provide one or more of the environmental services offered by the Company. Many of the Company's competitors have greater financial,

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human and other resources than the Company. The increased competition in the waste management industry has resulted in reduced gross margin levels, which may become further reduced due to several factors: (a) more companies entering the market as the industry continues to mature; (b) the likely expansion of the range of services offered by current and future competitors of the Company; (c) the current efforts of companies and governmental authorities to encourage waste minimization; and (d) the existence of fewer unserved markets available for Company expansion as the Company and its competitors move into new geographic markets. The increased competition and reduced gross margin levels could have a

material adverse effect on the business and financial condition of the Company. See "The Company--Competitive Conditions."

#### No Dividends Paid

Since its inception, the Company has not paid cash dividends on its Common Stock and the Company does not anticipate paying any cash dividends in the foreseeable future. The Company intends to retain future earnings, if any, to provide funds for the operation and/or expansion of its business.

The terms of the Series 9 Preferred, Series 14 Preferred, Series 15 Preferred and Series 16 Preferred allow the Company to pay dividends on the shares of such preferred stock in cash or Common Stock. The Company currently intends to pay the dividends accruing on the shares of Series 9 Preferred, Series 14 Preferred, Series 15 Preferred and Series 16 Preferred in shares of Common Stock if and when declared and paid by the Board of Directors of the Company. Pursuant to its various subscription and exchange agreements with the holders of its convertible preferred stock, the Company has registered a certain number of shares of Common Stock to be issuable in payment of such dividends. The actual number of shares of Common Stock issuable in payment of such accrued dividends may be greater or lesser than the number which have been registered depending upon, among other things, the length of time the preferred stock is outstanding and the price of the Common Stock at the time of payment of dividends. The Company's loan agreement prohibits the Company from paying cash dividends on its outstanding preferred stock without the lender's prior written consent. See "--Potential Adverse Effect to Company and Potential Adverse Impact on Earnings Per Share Upon Exercise of Outstanding Warrants and Options and Conversion of Outstanding Preferred Stock" and "Private Placements and Exchange Agreements."

#### Loss Carry Forwards

The Company's net loss carry forwards are subject to various limitations and have not been approved by the Internal Revenue Service ("IRS"). The Company's net loss carry forwards have resulted from certain of the Company's losses and the Company anticipates they may be used to reduce the federal income tax payments which the Company would otherwise be required to make with respect to income, if any, generated in future years. The Company has estimated its available net operating loss carry forwards for federal income tax purposes of approximately \$10.8 million at December 31, 1998, based on its federal income tax returns as filed with the IRS for taxable years through 1998. The use of the net operating loss carry forwards is, however, subject to certain limitations and they will expire to the extent not utilized by the years 2006 through 2015. See "The Company--Availability of Company's Loss Carry Forwards." Net operating losses may be further limited under the provision of Treasury Regulations 1.1502-21 regarding Separate Return Limitation Years. In addition, the amount of these carry forwards has not been audited or approved by the IRS, and, accordingly, no assurance can be given that such carry forwards will not be reduced as a result of audits in the future.



There are a variety of factors which could discourage other persons from attempting to acquire the Company. The Company is a Delaware corporation and is governed, in part, by the provisions of Section 203 of the General Corporation Law of Delaware, an anti-takeover law enacted in 1988. In general, Section 203 prohibits a Delaware public corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business contribution is approved in a prescribed manner. As a result of Section 203, potential acquirers of the Company may be discouraged from attempting to affect acquisition transactions with the Company, thereby possibly depriving holders of the Company's securities of certain opportunities to sell or otherwise dispose of such securities at above-market prices pursuant to such transactions. Further, the Company's 1991 Performance Equity Plan, 1992 Outside Directors Stock Option Plan and 1993 Nonqualified Stock Option Plan provide for the immediate acceleration of, and removal of restrictions from, options and other awards under such plans upon a "change of control" (as defined in the respective plans). Such provisions may also have the result of discouraging acquisitions of the Company. See "--Voting Control; Ability to Direct Management."

The issued and outstanding shares of the Company's preferred stock held by RBB Bank and the Series 3 Warrants, Series 6 Warrants and Series 10 Warrants held by RBB Bank could discourage other persons from attempting to acquire the Company. If RBB Bank acquires an aggregate of 5,797,583 additional shares of Common Stock upon such conversion and exercise of the outstanding convertible preferred stock and warrants of the Company held by RBB Bank, RBB Bank will own approximately 47.7% of the outstanding shares of Common Stock of the Company, which includes the 6,751,482 shares of Common Stock directly held by RBB Bank as of the date of this Prospectus but does not include the shares of Common Stock which may be issuable in payment of dividends on the Series 14 Preferred, Series 15 Preferred and Series 16 Preferred. This estimate assumes that the Series 9 Preferred is not converted, the Infinity Warrants are not exercised, and that no shares of Common Stock are issued by the Company after the date of this Prospectus, other than in connection with the conversion of the outstanding shares of Series 14 Preferred, Series 15 Preferred and Series 16 Preferred and exercise of the Series 3 Warrants, Series 6 Warrants and Series 10 Warrants. In such event, RBB Bank will be the largest single shareholder of the Company and will have such a significant number of shares of Common Stock within its control that the Company may have insufficient remedies to avoid an actual change in control of the Company in favor of RBB Bank. The issued and outstanding shares of the Company's preferred stock held by RBB Bank and the Series 3 Warrants, Series 6 Warrants and Series 10 Warrants held by RBB Bank could discourage other persons from attempting to acquire the Company even if RBB Bank does not obtain control of the Company. See "--Voting Control; Ability to Direct Management" and "Private Placements and Exchange Agreements."

## THE COMPANY

### Company Overview

The Company is a Delaware corporation organized in 1990. The Company is engaged, through its subsidiaries in:

Waste Management Services, which includes:

- \*treatment, storage, processing, and disposal of hazardous and non-hazardous waste and mixed waste which is both low-level radioactive and hazardous;
- \*nuclear mixed and low-level radioactive waste treatment, processing and disposal, which includes research, development, on-and off-site waste remediation and processing; and

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- \*industrial waste and wastewater management services, including the collection, treatment, processing and disposal, and the design and construction of on-site wastewater treatment systems.

Consulting Engineering Services, which includes:

- \*broad-scope environmental issues, including environmental management programs, regulatory permitting, compliance and auditing, landfill design, field testing and characterization.

The Company services research institutions, commercial companies and governmental agencies nationwide. The distribution channels for services are through direct sales to customers or via intermediaries.

In recent years, the Company has grown through acquisitions and internal development. The Company's primary subsidiaries in the Waste Management Services are:

- \* Perma-Fix Treatment Services, Inc. ("PFTS") located in Tulsa, Oklahoma;
- \* Perma-Fix of Florida, Inc. ("PFF") located in Gainesville, Florida;
- \* Perma-Fix of Dayton, Inc. ("PFD") located in Dayton, Ohio;
- \* Perma-Fix of Ft. Lauderdale, Inc. ("PFFL") located in Davie, Florida;
- \* Perma-Fix of New Mexico, Inc. ("PFNM") located in Albuquerque, New Mexico;
- \* Chemical Conservation Corporation ("Chemical Florida") located in Orlando, Florida;
- \* Chemical Conservation of Georgia, Inc. ("Chemical Georgia") located in Valdosta, Georgia; and
- \* Chem-Met Services, Inc. ("Chem-Met") located in Detroit, Michigan.

The Company's primary subsidiaries in the Consulting and Engineering Services are:

- \* Mintech, Inc., located in Tulsa, Oklahoma, and
- \* Schreiber Yonley & Associates located in St. Louis, Missouri.

The Company's executive offices are located at 1940 N.W. 67th Place, Gainesville, Florida 32653.

Acquisition of Chemical Conservation Corporation,  
Chemical Conservation of Georgia, Inc. and Chem-Met Services, Inc.

On May 27, 1999, (i) the Company, Chemical Florida, Chemical

Georgia, The Thomas P. Sullivan Living Trust, dated September 6, 1978 ("TPS Trust"); The Ann L. Sullivan Living Trust, dated September 6, 1978 ("ALS Trust"); Thomas P. Sullivan, an individual ("TPS"); and Ann L. Sullivan, an individual ("ALS"), entered into a Stock Purchase Agreement ("Chem-Con Stock Purchase Agreement"), pursuant to which the Company purchased all of the outstanding capital stock of Chemical Florida and Chemical Georgia from the ALS Trust pursuant to the terms of the Chem-Con Stock Purchase Agreement, and (ii) the Company, Chem-Met, the TPS Trust, the ALS Trust, TPS and ALS entered into a Stock Purchase Agreement ("Chem-Met Stock Purchase Agreement"), pursuant to which the Company purchased all of the outstanding capital stock of Chem-Met from the TPS Trust pursuant to the terms of the Chem-Met Stock Purchase Agreement. The Chem-Con Stock Purchase Agreement and the Chem-Met Stock Purchase Agreement are collectively referred to as the "Stock Purchase Agreements." TPS and ALS are husband and wife.

Under the terms of the Stock Purchase Agreements, the purchase price paid by the Company in connection with the acquisition of Chemical Florida, Chemical Georgia and Chem-Met was \$8,700,000, consisting of (i) \$1,000,000 in cash paid at closing, (ii) three promissory notes ("Promissory Notes"), in the aggregate amount of

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\$4,700,000, to be paid in equal monthly installments of principal and interest of approximately \$90,276.96 over five years and having an interest rate of 5.5% for the first three years and 7% for the remaining two years. The payment of the Promissory Notes are guaranteed by Chem-Met under a non-recourse guaranty. The non-recourse guaranty is secured by certain real estate owned by Chem-Met, and (iii) \$3,000,000 paid in the form of 1,500,000 shares of Common Stock, paid to the ALS Trust at closing; however, if the ALS Trust owns any of such shares of Common Stock at the end of eighteen (18) months from the June 1, 1999, closing date (the "Guarantee Period") and the market value (as determined below) per share of Common Stock at the end of the Guarantee Period is less than \$2.00 per share, the Company shall pay the ALS Trust, within ten (10) business days after the end of the Guarantee Period, an amount equal to the sum determined by multiplying the number of shares of Common Stock issued to the ALS Trust under the Stock Purchase Agreements that are still owned by the ALS Trust at the end of the Guarantee Period by \$2.00 less the market value (as determined below) of such shares of Common Stock owned by the ALS Trust at the end of the Guarantee Period, with such amount, if any, payable by the Company to the ALS Trust, at the Company's option, in cash or in Common Stock or a combination thereof.

Notwithstanding anything to the contrary, the aggregate number of shares of Common Stock issued or issuable under the Stock Purchase Agreements for any reason whatsoever shall not exceed eighteen percent (18%) of the number of issued and outstanding shares of Common Stock on the date immediately preceding the June 1, 1999, closing date. The market value of each share of Common Stock at the end of the Guarantee Period shall be determined based on the average of the closing sale price per share of Common Stock as reported on the NASDAQ for the five (5) consecutive trading days ending with the trading day immediately prior to the end of the Guarantee Period. Under the Company's loan agreement, the Company may only pay such amount due the ALS Trust at the end of the Guarantee Period in Common Stock unless the Company's lender agrees that the Company may satisfy all or part of such in cash. Issuance of the shares of Common Stock in connection with the Stock Purchase Agreements was exempt from registration under Section 4(2) of the

Securities Act and/or Regulation D promulgated under the Securities Act.

Under the terms of the Stock Purchase Agreements, the ALS Trust and the TPS Trust have the right to select one nominee to the Board of Directors of the Company under certain limited conditions. In connection with the closing of the Stock Purchase Agreements, a new seat was created on the Board of Directors of the Company and TPS was appointed to fill such vacant seat.

The cash portion of the purchase price for the acquisition of Chemical Florida, Chemical Georgia and Chem-Met was obtained through borrowing under the Company's credit facility. The Company anticipates that the Promissory Notes will be paid with working capital generated from operations and/or borrowing under the Company's revolving credit facility with Congress. In connection with the closing, using funds borrowed by the Company under the Company's credit facility, the Company also paid an aggregate of approximately \$3,842,560 to satisfy certain obligations of Chem-Met.

#### Potential Environmental Liability and Certain Environmental Expenditures

In May 1995, Perma-Fix of Memphis, Inc. ("PFM"), a subsidiary of the Company which was purchased in December 1993 and was formerly known as American Resource Recovery Corporation ("ARR"), became aware that the U.S. District Attorney for the Western District of Tennessee and the Department of Justice (the "DOJ") were investigating certain prior activities of W & R Drum Company ("Drum"), its successor, First Southern Container Company, and any other facility owned or operated, in whole or in part, by Johnnie Williams. In May and September 1995, PFM received a Grand Jury Subpoena which demanded the production of any documents in the possession of PFM pertaining to Drum, First Southern Container Company, or any other facility owned or operated, and held in part, by Johnnie Williams. PFM complied with each Grand Jury Subpoena. In December 1995, representatives of the DOJ advised PFM that it was also currently a subject of the investigation involving Drum,

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First Southern Container Company, and/or Johnnie Williams. Since December 1995, PFM has not heard from, or been in contact with, the DOJ regarding this investigation.

In January 1998, the Environmental Protection Agency ("EPA") informed PFM that it believes that PFM is a potentially responsible party ("PRP"), regarding the remediation of the site operated by Drum ("Drum Site"), primarily as a result of acts by ARR prior to the time ARR was acquired by the Company. PFM and certain other PRPs entered into a Consent Decree with the federal government, whereby PFM has agreed to pay \$225,000 (\$150,000 payable at closing and the balance payable over a twelve month period) in settlement of the claims that the EPA has against PFM in connection with the Drum Site. The court has approved the Consent Decree, and PFM has paid the first installment of \$150,000.

For 1999, the Company budgeted capital expenditures of approximately \$2,500,000 to improve operations, reduce the cost of waste processing and handling, expand the range of wastes that can be accepted for treatment and processing, maintain permit compliance at its various treatment, storage and disposal facilities ("TSD Facilities") and \$437,000 to comply with federal,

state, and local regulations in connection with remediation activities by PFD at the Leased Property (as defined below) and the PFM facility. The Company believes that these expenditures are necessary to remain competitive or to maintain compliance with federal, state or local environmental requirements. The Company anticipates financing these expenditures by, without limitation, a combination of lease financing to the extent allowed under the Company's loan agreements, utilization of the equity raised in the RBB Series 10 Private Placement (as such term is defined in "Private Placements and Exchange Agreements"), funds generated internally and other sources.

PFD is required to remediate a parcel of formerly leased property ("Leased Property"), which Leased Property was previously operated as a RCRA storage and solvent recycling facility by a company that was merged with PFD prior to the Company's acquisition of PFD. The Leased Property contains certain contaminated waste in the soils and groundwater. The Company was indemnified by the entity which sold PFD (the "Seller") to the Company for costs associated with remediating the Leased Property, which entails remediation of soil and/or groundwater restoration. However, the Seller filed for bankruptcy in 1995. Prior to the acquisition of PFD by the Company, the Seller had established a trust fund ("Trust Fund") to support the remedial activity on the Leased Property pursuant to an agreement with the Ohio Environmental Protection Agency ("Ohio EPA"). The Trust Fund was funded with the Seller's stock. The value of the Seller's stock subsequently declined and the stock was sold by the Trustee of Trust Fund after the Company's acquisition of PFD and prior to the Seller's bankruptcy filing. The decline in the value of the Seller's stock resulted in a shortfall in the value of the Trust Fund, and the Company was required to deposit \$250,000 into the Trust Fund. The balance in the Trust Fund was approximately \$383,000 as of December 31, 1998. The Company has accrued approximately \$460,000 for the estimated costs of remediating the Leased Property, which process is estimated to extend over a period of three to five years. While the Company believes that its expenditures towards remediation of the Leased Property will not have a material adverse effect upon the Company, no assurance can be made that the remediation process will not prove to be more difficult or costly than anticipated or that the Company's remediation expenditures will not have a material adverse effect on the Company's operations and financial condition.

Prior to the Company's acquisition of PFM, gasoline had been detected in the groundwater at the PFM facility. In the acquisition process, the Company assumed certain liabilities to remediate gasoline contaminated groundwater and to investigate potential areas of soil contamination at the PFM facility. The previous owners of PFM installed monitoring and treatment equipment to restore the groundwater to acceptable standards in accordance with federal, state and local authorities. The Company is continuing this restoration process and anticipates expenditures of approximately \$910,000 over the next five to ten years to remediate the prior contamination.

The PFM facility is situated in the vicinity of the Memphis Defense Depot (the "Defense Facility"). The Defense Facility is listed as a Superfund site. The Defense Facility is adjacent to the Allen Well Field utilized by Memphis Light, Gas & Water to

provide public water to Memphis, Tennessee. Chlorinated compounds have been detected in the groundwater beneath the Defense Facility, as well as in a limited number of certain production wells in the Allen Well Field. Very low concentrations of certain chlorinated compounds also have been detected in the groundwater beneath the PFM facility. The Company is currently investigating the possible presence of these compounds. Based upon a study performed by the Company's environmental engineering group, the Company does not believe the PFM facility is the source of the chlorinated compounds in the Allen Well Field. Accordingly, the Company does not believe that the presence of the low concentrations of chlorinated compounds at the PFM facility will have a material adverse effect upon the Company. If the Company is determined to be the source of such contamination, any liabilities, obligations to remediate, or penalties associated with such contamination, could have a material adverse effect upon the Company.

The fire and explosion at the PFM facility in January 1997 caused limited contamination in the soil at the facility. PFM has remediated or is in the process of remediating the contamination, caused by the fire and explosion, and the Company does not believe that such remediation will have a material adverse effect on the Company.

Certain properties owned and operated by Chemical Georgia and Chem-Met were previously determined to have environmental contamination, and remediation efforts at such facilities have been ongoing for a number of years. Therefore, the Company has accrued certain estimated remediation costs in connection with its acquisition of the regulated facilities of Chemical Georgia and Chem-Met, which costs were determined pursuant to RCRA guidelines. The Company has recognized long-term environmental accruals totaling \$4,319,000. This amount represents the Company's best estimate of the long-term costs to remove contaminated soil and to undergo groundwater remediation activities at Chemical Georgia's facility located in Valdosta, Georgia, and Chem-Met's facility located in Detroit, Michigan. This estimate is based on a remediation model which incorporates numerous assumptions, including certain assumptions which have been provided to the Company by third-parties. If one or more of these assumptions turns out to be inaccurate, or there is substantially more contamination than currently anticipated, actual remediation costs for the Company could be substantially different from the Company's current best estimates and the costs could substantially exceed the amount accrued in connection with such remediation. Both facilities have pursued remedial activities for the last five years with additional studies forthcoming and potential groundwater restoration could extend for a period of ten years. No insurance or third party recovery was taken into account in determining the Company's cost estimates or reserve, nor do such cost estimate or reserve reflect any discount for present value purposes. There can be no assurance that the Company's estimates regarding the costs of remediation efforts at the regulated facilities of Chemical Georgia and Chem-Met are accurate or that the anticipated remediation expenditures will prove to be sufficient to complete remediation at such facilities. An increase in the Company's costs of remediation at the regulated facilities of Chemical Georgia and Chem-Met could have a material adverse effect on the Company.

#### Insurance

The Company currently maintains general liability insurance coverage of \$1 million per occurrence, with \$2 million in the aggregate plus an additional \$10 million excess umbrella coverage.

In addition, the Company carries contractors' operations and professional liability coverage of \$2 million per occurrence and \$4 million in the aggregate. The Company is required by EPA regulations to carry environmental impairment liability insurance providing coverage for off-site damages on a "claims made" basis in amounts of at least \$1 million per occurrence and \$2 million per year in the aggregate. To meet the requirements of customers, the Company has doubled these coverage amounts to \$2 million per occurrence and \$4 million per year in the aggregate. In addition, the deep well operated by PFTS located in Tulsa, Oklahoma, carries environmental impairment liability insurance of \$4 million per occurrence and \$8 million per year in the aggregate. Chemical Florida, Chemical Georgia and Chem-Met currently maintain separate

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policies ("Chemical Policies") which were in place prior to their acquisition by the Company and expire on December 31, 1999. At the time of the expiration of these policies, the Company anticipates consolidating the insurance for Chemical Florida, Chemical Georgia and Chem-Met into the Company's policies. The Chemical Policies include general liability coverage of \$1 million per occurrence, with \$2 million in the aggregate plus an additional \$5 million excess umbrella coverage and environmental impairment liability insurance of \$1 million per occurrence and \$2.5 million in the aggregate. The cost of the Company's insurance is substantial and is expected to increase. See "Risk Factors--Adequacy of Insurance."

#### Governmental Regulation

Various federal, state and local laws and regulations have been enacted regarding the handling and management of waste. These laws create liability for environmental contamination caused by such handling and management. The Company will likely be subject to extensive compliance review by federal, state and local environmental regulatory authorities. The Company has implemented or intends to implement procedures at each of its facilities designed to help assure compliance with applicable environmental laws and regulations. Noncompliance with environmental laws and regulations, including failure to implement required procedures regarding such laws and regulations, could result in civil or criminal enforcement actions or private actions, mandatory cleanup requirements, revocation of required permits or licenses, denial of applications for future permits, or significant fines, penalties or damages, any of which could have a material adverse effect on the Company, its operations and financial condition.

In connection with the Company's waste management services, the Company may generate from time to time both hazardous and non-hazardous waste which it transports to other facilities for destruction or disposal. The Company also acts as a broker for customers in connection with the transportation, treatment and/or disposal of hazardous and non-hazardous waste. As a generator or broker of hazardous substances delivered to a disposal facility, the Company could be a PRP notwithstanding any absence of fault on the part of the Company. If the Company were deemed a responsible party, it could be subject to substantial clean-up costs, fines and penalties. Specifically, liability is joint and several under CERCLA, which authorizes the EPA or a private party to require companies to remediate contaminated or polluted sites. Accordingly, the Company could be held responsible under CERCLA for clean-up costs at a site as to which it is deemed a responsible party regardless of its proportionate responsibility for the site pollution. While the Company believes that, as a practical matter,

the EPA and the courts attempt to allocate clean-up costs for a site among the various potentially responsible parties, no assurance can be made that such allocation would occur if the Company is deemed a responsible party for a clean-up site. If the Company is deemed a responsible party regarding one or more sites, the resulting liability could have a material adverse effect on the Company's operations and financial condition. Further, the Company will be liable to remediate sites on which it operates its hazardous waste treatment, storage and disposal ("TSD") facilities under the Resource Conservation and Recovery Act of 1976, as amended ("RCRA"), if such sites become contaminated. The Company is, as of the date of this Prospectus, remediating one site on which it operates a RCRA permitted treatment and storage facility that became contaminated prior to being acquired by the Company in 1993 and one site that was leased by a company subsequently acquired by the Company in 1994. Additionally, the Company is, as of the date of this Prospectus, remediating two sites on which it operates RCRA permitted treatment and storage facilities that became contaminated prior to being acquired by the Company in 1999. See "--Potential Environmental Liability and Certain Environmental Expenditures" and "Risk Factors Potential Environmental Liability."

Except as disclosed in "--Potential Environmental Liability and Certain Environmental Expenditures," the Company believes that it is currently in substantial compliance with applicable laws, rules and regulations imposed on the Company by governmental authorities having jurisdiction over the Company's activities. However, no assurance can be made that the Company will not be found to be out

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of compliance with applicable laws, rules and regulations, which could result in the loss of one or more of the Company's permits or subject the Company to substantial fines, penalties or other liabilities that could have a material adverse impact on the Company's business.

#### Permits and Licenses

The Company's Waste Management Companies are subject to extensive, evolving and increasingly stringent federal, state and local environmental laws and regulations. Such federal, state and local environmental laws and regulations govern the Company's activities regarding the treatment, storage, processing, disposal and transportation of hazardous, non-hazardous and radioactive wastes, and require us to obtain and maintain permits, licenses and/or approvals in order to conduct certain of the Company's waste activities. Failure to obtain and maintain our permits or approvals would have a material adverse effect on the Company, its operations and financial condition. Moreover, as the Company expands its operations it may be required to obtain additional approvals, licenses or permits, and there can be no assurance that it will be able to do so.

PFTS is a permitted hazardous waste treatment and storage facility and a permitted solid waste underground injection well facility. Additionally PFTS maintains an active Injection Facility Operations Permit for our two waste disposal injection wells, and a Pre-Treatment permit in order to discharge industrial wastewaters to the City of Tulsa's Publically Owned Treatment Works. PFTS is also registered as a hazardous waste transporter.

PFF operates its hazardous and low-level radioactive waste activities under a hazardous waste permit and a low level



radioactive material license issued by the state of Florida.

PFL operates under a general permit and use oil processors license issued by the State of Florida and a transporter license issued by the State of Florida and a transfer facility license issued by Broward County, Florida. Broward County also issued PFL a discharge pretreatment permit that allows discharge of treated water to the Broward County Publically Owned Treatment Works.

PFD operates a hazardous and non-hazardous waste treatment and storage facility under various permits. PFD provides wastewater pretreatment under a discharge permit with Montgomery County Publically Owned Treatment Works and is a specification and off-specification used oil processor under guidelines of the Ohio EPA.

Chemical Florida operates a permitted hazardous waste treatment and storage facility and operates a transfer station that serves as the base for licensed transporters of hazardous waste.

Chemical Georgia operates a permitted hazardous waste and solvent recycling facility.

Chem-Met operates an inorganic waste treatment and stabilization facility under various permits and it maintains a government services division which focuses on the Defense Revitalization and Marketing Services segment. Chem-Met is currently operating its hazardous waste treatment and storage facility under interim status pursuant to a Consent Judgment with the State of Michigan.

The Company believes that its TSDs presently have obtained all approvals, licenses and permits necessary to enable them to conduct business as they are presently conducted. The failure of the Company's TSDs to renew any of their present approvals, licenses and permits, or the termination of any such approvals, licenses or permits, could have a material adverse effect on the Company, its operations and financial condition.

The Company believes that its on-site waste treatment services do not require federal environmental permits provided certain conditions are met, and it has received written verification from

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each state in which it is presently operating that no such permit is required provided certain conditions are met. There can be no assurance that states in which the Company's waste facilities presently do business, other states in which the Company's waste facilities may do business in the future, or the federal government will not change policies or regulations requiring the Company to obtain permits to carry its on-site activities.

#### Competitive Conditions

The Company competes with numerous companies which are able to provide one or more of the environmental services offered by the Company. Many of the Company's competitors have greater financial, human and other resources than the Company. The increased competition within certain segments of the waste management industry has resulted in reduced gross margin levels for such segments. These gross margins may be reduced further due to several factors: (a) more companies entering the market as the industry matures; (b) the likely expansion of the range of services

offered by current and future competitors of the Company; (c) the current efforts of companies and governmental authorities to encourage waste minimization policies, and (d) fewer underserved markets available for Company expansion as the Company and its competitors move into new geographic markets. The increased competition and reduced gross margin levels could have a material adverse effect on the business and financial condition of the Company. See "Risk Factors--Competition."

The Company believes that it is a significant participant in the delivery of off-site waste treatment services in the Southeast, Midwest and Southwest. The Company competes with TSD facilities operated by national, regional and independent environmental services firms located within a several hundred mile radius of the Company's facilities.

The Company's competitors for remediation services include national and regional environmental services firms that may have larger environmental remediation staffs and greater resources than the Company. The Company recognizes its lack of financial resources necessary to compete for larger remediation contracts. Accordingly, the Company presently concentrates on remediation services projects within its existing customer base or projects in its service area which are too small for companies without a physical presence in the market to perform competitively.

Environmental engineering and consulting services provided by the Company through its engineering companies involve competition with larger engineering and consulting firms. The Company believes that it is able to compete with these firms based on its established reputation in its market areas and its expertise in several specific elements of environmental engineering and consulting such as cement kiln waste recycling programs.

The Company believes that the barriers of entry for companies seeking to compete with the Company in the waste management industry are dependent upon the specific service to be offered. Consequently, the Company believes that its operations which provide certain services are more likely to encounter increased competition in the future. The Company believes that there are no formidable barriers to entry into the on-site treatment business within which the Company operates. Similarly, certain of the Company's non-hazardous waste operations engage in businesses which do not present any formidable barriers of entry. However, the Company believes that the permitting requirements and the cost to obtain such permits may be barriers of entry into the business of providing hazardous and low-level radioactive waste TSD facilities as presently operated by the Company. The Company's business of providing low level radioactive and hazardous waste recycling of liquid scintillation vials requires both a radioactive permit and a hazardous waste RCRA permit, and the Company believes that this dual permitting requirement is a substantial barrier of entry. The Company believes that only one other facility in the United States currently provides low level radioactive and hazardous waste recycling of liquid scintillation vials. If the permit requirements for hazardous waste TSD activities and/or the handling of low level radioactive materials are eliminated or if such permits become easier to obtain, the Company believes that more companies will enter these markets and provide greater competition

to the Company, which could have a material adverse effect on the Company, its operations and financial condition.

The Company believes that consumers of waste management services currently focus primarily on the quality and timeliness of service. However, the Company anticipates that price will become an increasingly important competitive factor as the industry matures. Accordingly, the revenues generated from, and the profitability of, certain of the Company's services may be reduced as price competition intensifies. This reduction could have a material adverse effect on the business and financial condition of the Company. Many of the Company's competitors are larger and more established, with greater marketing, financial, human and other resources than the Company. These competitors will provide significant long-term competition. The Company also expects competition to intensify as technological and other advances are made in the waste treatment fields and as public awareness of the hazardous waste disposal problem increases.

#### Centofanti Employment Agreement

Effective October 1, 1997, Dr. Centofanti entered into the Centofanti Employment Agreement with the Company which is for a term of three (3) years and provides for, among other things, an annual salary of \$110,000 and the issuance of Non-Qualified Stock Options ("Non-Qualified Stock Options"). The Non-Qualified Stock Options provide Dr. Centofanti with the right to purchase an aggregate of 300,000 shares of Common Stock in the form of (i) after one year 100,000 shares of Common Stock at a price of \$2.25 per share, (ii) after two years 100,000 shares of Common Stock at a price of \$2.50 per share, and (iii) after three years 100,000 shares of Common Stock at a price of \$3.00 per share. The Non-Qualified Stock Options expire ten years after the date of the Centofanti Employment Agreement.

#### Availability of Company's Loss Carry Forwards

The Company anticipates that its cash flow in future years will benefit from its ability to utilize net operating loss ("NOL") carry forwards from prior periods. The NOL carry forwards should reduce the federal income tax payments which the Company will otherwise be required to make with respect to income generated in future years. Based upon its federal income tax returns as filed with the IRS for taxable years through 1998, the Company estimates that it has on a consolidated basis available NOL carry forwards of approximately \$10.8 million for federal income tax purposes. These NOL carry forwards will expire to the extent not utilized by the years 2006 through 2012. See "Risk Factors--Loss Carry Forwards."

The amount of NOL carry forwards has not been audited or approved by the IRS and no assurance can be given that such carry forwards will not be reduced as a result of future audits. In addition, the ability of the Company to utilize these carry forwards in the future will be subject to a variety of limitations applicable to corporate taxpayers generally under both the Internal Revenue Code of 1986, as amended (the "Code"), and the Treasury Regulations. These include, in particular, limitations imposed by Code Section 382 ("382 Limitations").

The 382 Limitations provide certain limitations on the utilization of NOL carry forwards following a more than 50% change (by value) in the stock ownership of company. In general, the 382 limitations apply when, within a three year "testing period", there is a more than 50 percentage point increase in the stock of a company that has an NOL held by one or more persons who own

(directly or constructively) at least 5% of such Company's stock (with persons who separately are less than 5% shareholders generally being treated in the aggregate as a single shareholder) over the lowest percentage of stock of such company owned by such person(s) at any time during the testing period. The amount of the

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percentage point increase in stock ownership is calculated for each 5% shareholder, and the increase of each 5% shareholder is aggregated with the increases of other 5% shareholders to determine the total percentage point increase in stock ownership. For purposes of these tests, stock issuable upon the exercise of certain options and warrants or upon the conversion of preferred stock may be treated as outstanding.

The use of approximately \$4,800,000 of the approximate \$10.8 million in NOL carry forwards based upon the Company's federal income tax returns as filed with the IRS for taxable years through 1998, is limited to a certain extent in future years by reason of certain acquisitions and the issuance of various series of preferred stock of the Company, excluding the Series 10 Preferred. See "Private Placements and Exchange Agreements." Each taxable year after 1998, approximately \$1,500,000 of the approximate \$10.8 million in 382 Limitations is no longer limited, and after five years, all of the approximate \$10.8 million in NOL carry forwards will be available for use by the Company for federal income tax purposes, except to the extent such has been previously used to reduce the Company's federal income tax payments or such has been reduced by the IRS in connection with audits conducted by the IRS. These amounts are based upon preliminary analysis of the Company's 382 limitations and are subject to change.

#### Liquidity

During fiscal year 1997, 1998 and 1999 there were numerous events, many of which were precipitated by the Company, which served to increase the Company's liquidity on a short term and long term basis. During 1997, the Company and certain of its subsidiaries (i) sold non productive assets in the amount of \$245,075, (ii) entered into and received business interruption insurance proceeds for the Ft. Lauderdale facility in the amount of \$231,235, (iii) received \$943,464 from the issuance of Common Stock upon the exercise of certain options and warrants, (iv) issued the Series 4 Preferred for an aggregate sales price of \$2,500,000, (v) issued the Series 5 Preferred for an aggregate sales price of \$350,000, (vi) received insurance proceeds of \$497,000 as a result of the fire and explosion at PFM; and (vii) issued \$410,295 of Common Stock for outstanding obligations including preferred stock dividends and payment of services.

During 1998, the Company entered into the Loan Agreement with Congress Financial Corporation (Florida) ("Congress"), pursuant to which (i) the previous loan arrangements with Heller Financial Corporation and Ally Capital Corporation were replaced, (ii) the then existing loan covenant violations of the Company under such arrangements were eliminated, and (iii) the Company received increased lending availability. The Company also received insurance proceeds related to the fire and explosion at PFM in the amount of \$1,475,000, issued the Series 10 Preferred for an aggregate sales price of \$3,000,000, received \$288,367 from the issuance of Common Stock upon the exercise of certain options and warrants and proceeds from a stock purchase plan, and issued \$599,813 of Common Stock for outstanding obligations, including

preferred stock dividends and payment of services.

During 1999, in connection with the acquisition of Chemical Florida, Chemical Georgia and Chem-Met, on May 27, 1999, Congress, the Company, and the Company's subsidiaries, including Chemical Florida, Chemical Georgia and Chem-Met (which, when acquired by the Company, would be wholly owned subsidiaries of the Company) entered into an Amendment and Joinder to Loan and Security Agreement (the "Loan Amendment") dated May 27, 1999, pursuant to which the Loan and Security Agreement ("Original Loan Agreement") among Congress, the Company and the Company's subsidiaries was amended to provide, among other things, (i) the credit line was increased from \$7,000,000 to \$11,000,000, with the revolving line of credit portion being determined as the maximum credit of \$11,000,000 but less the term loan balance, with the exact amount that can be borrowed under the revolving line of credit not to exceed eighty percent (80%) of the Net Amount of Eligible Accounts (as defined in the Original Loan Agreement) less certain reserves; (ii) the term loan portion of the Original Loan Agreement was increased from its then current balance of approximately \$1,600,000 to \$3,750,000 and it shall be subject to a four year amortization schedule payable over three years at an interest rate of 1.75% over prime; (iii) the

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term of the Original Loan Agreement, as amended, was extended for three years from the date of the acquisition, subject to earlier termination pursuant to the terms of the Original Loan Agreement, as amended; (iv) Chemical Florida, Chemical Georgia and Chem-Met were added as co-borrowers under the Original Loan Agreement, as amended; (v) the interest rate on the revolving line of credit continued at 1.75% over prime, with a rate adjustment to 1.5% if 1999 or 2000 net income applicable to Common Stock of the Company is equal to or greater than \$1,500,000 for either fiscal year ended December 31, 1999 or 2000; (vi) the monthly service fee was increased from \$1,700 to \$2,000; (vii) government receivables will be limited to 20% of eligible accounts receivable; and (viii) certain obligations of Chem-Met shall be paid at closing of the acquisition of Chem-Con and Chem-Met.

The cash portion of the purchase price for Chemical Florida, Chemical Georgia and Chem-Met was obtained through borrowing by the Company under its credit facility. The Company anticipates that the Promissory Notes issued as part of the purchase price for Chemical Florida, Chemical Georgia and Chem-Met will be paid with working capital generated from operations and/or borrowing under the Company's revolving credit facility with Congress. At the closing, using funds borrowed by the Company under its credit facility. The Company also paid an aggregate of approximately \$3,843,000 to satisfy certain obligations of Chem-Met.

As of June 30, 1999, borrowings under the revolving loan agreement were approximately \$3,642,000, an increase of \$3,545,000 over the December 31, 1998, balance of \$97,000. This increase represents \$2,799,000 borrowed to complete the acquisition of Chemical Florida, Chemical Georgia and Chem-Met on June 1, 1999, and \$746,000 for general working capital needs which is typical during increased revenue periods. The Company funded through the revolving and term loan a total of \$4,882,000 pursuant to the Company's acquisition of Chemical Florida, Chemical Georgia and Chem-Met, excluding legal, professional and other closing fees, of which \$2,651,000 represented the repayment of certain debt obligations, \$1,192,000 represented payment of certain settlement

obligations and \$1,000,000 of the cash consideration paid to the former owners of Chemical Florida, Chemical Georgia and Chem-Met. As of June 30, 1999, the Company's borrowing availability under the Company's revolving credit facility, based on its then outstanding eligible accounts receivable, was approximately \$3,062,000. The Company also had at June 30, 1999, approximately \$486,000 in cash and cash equivalents.

#### Recent Developments

During October 1999, the Company completed the development of a new treatment technology designed to treat certain selenium contaminated materials and waste (the "Selenium Process"). Selenium is a hazardous and highly toxic element that is present in a variety of industrial waste materials. The Selenium Process for treatment of selenium waste is a water-based chemical treatment process that operates at room temperature in an enclosed reactor. The Company has filed a patent application with the U.S. Patent and Trademark Office covering the Selenium Process. As of the date of this report, the Company has not received a patent for the Selenium Process, and there are no assurances that such a patent will be issued. Until development of the Selenium Process, the Company was not aware of a relatively simple process that would detoxify waste containing selenium to meet EPA standards. The Company believes, based upon laboratory testing, that the Selenium Process is effective on a variety of selenium contaminated waste streams and is capable of processing such waste streams to meet currently applicable EPA standards. To date, however, the Company has not used the Selenium Process in a commercial operation, and, therefore, it is not known whether the Company will be able to utilize the Selenium Process in a commercial operation or to incorporate the Selenium Process into the Company's waste treatment operations, or, if the Company is able to utilize the Selenium Process, whether it will be able to do so on a profitable basis.

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#### PRIVATE PLACEMENTS AND EXCHANGE AGREEMENTS

##### RBB Series 4 Private Placement

On or about June 11, 1997, the Company issued to RBB Bank 2,500 shares of newly-created Series 4 Class D Convertible Preferred Stock (the "Series 4 Preferred") at a price of \$1,000 per share, for an aggregate sales price of \$2,500,000 ("RBB Series 4 Private Placement"). The sale to RBB Bank was made in a private placement under Section 4(2) of the Securities Act and/or Rule 506 of Regulation D under the Securities Act, pursuant to the terms of a Subscription and Purchase Agreement, dated June 9, 1997, between the Company and RBB Bank ("RBB Series 4 Subscription"). As part of the sale of the Series 4 Preferred, the Company also issued to RBB Bank certain warrants ("Series 4 Warrants") entitling RBB Bank to purchase, after December 31, 1997 and until June 9, 2000, an aggregate of up to 375,000 shares of Common Stock, subject to certain antidilution provisions, with 187,500 shares exercisable at a price equal to \$2.10 per share and 187,500 shares exercisable at a price equal to \$2.50 per share. The Company received net proceeds of approximately \$2,287,500 under the RBB Series 4 Private Placement after the payment of placement fees and legal fees. The Company used the net proceeds from the RBB Series 4 Private Placement to reduce the outstanding balance under its then existing revolving credit facility.

In connection with the RBB Series 4 Private Placement, the Company paid fees (excluding legal and accounting) of \$200,000 to JW Genesis Financial Corporation ("JW Genesis") (f/k/a JW Charles Financial Services, Inc.), the investment banking firm that handled the RBB Series 4 Private Placement, and issued to JW Genesis two warrants, each dated June 9, 1997, entitling JW Genesis to purchase (a) until June 9, 2000, up to 200,000 shares of Common Stock at an exercise price of \$2.00 per share, subject to certain antidilution provisions; and (b) until June 9, 2002, up to 100,000 shares of Common Stock, at an exercise price of \$1.50 per share, subject to certain antidilution provisions (collectively, the "Series 4 Genesis Warrants"). Under the terms of the Series 4 Genesis Warrants, JW Genesis is entitled to certain registration rights with respect to the shares of Common Stock issuable on the exercise of each warrant.

In connection with the RBB Series 4 Private Placement, the Company issued (i) two warrants to Karl H. Ehlert, each to purchase 175,000 shares of Common Stock for five years, with the first having an exercise price of \$2.00 per share and the second having an exercise price of \$3.00 per share (the "Ehlert Warrants"); (ii) two warrants to R. Keith Fetter, each allowing the purchase of up to 75,000 shares of Common Stock for three years, with the first having an exercise price of \$2.00 per share and the second having an exercise price of \$2.50 per share (the "Fetter Warrants") (the Ehlert Warrants and Fetter Warrants are collectively referred to as the "Service Warrants"); and (iii) one warrant, dated as of September 16, 1997, issued by the Company to Dionysus Limited ("Dionysus"), an Isle of Man corporation, allowing the purchase of up to an aggregate of 100,000 shares of Common Stock and exercisable for three years at \$1.70 per share ("Dionysus Warrant"). These warrants were issued for various consulting services rendered to the Company. Dionysus has exercised the Dionysus Warrant as to 51,800 shares of Common Stock, leaving 48,200 shares of Common Stock remaining which may be purchased upon exercise of the Dionysus Warrant.

#### RBB Series 4 Exchange Agreement

Pursuant to the Exchange Agreement, dated November 6, 1997, but effective as of September 16, 1997 (the "RBB Series 4 Exchange Agreement"), the Company and RBB Bank exchanged the 2,500 shares of Series 4 Preferred and the Series 4 Warrants for (i) 2,500 shares of Series 6 Preferred, (ii) two warrants each allowing the purchase of up to 187,500 shares of Common Stock at an exercise price of \$1.8125 per share, and (iii) one warrant to purchase 281,250 shares of Common Stock at an exercise price of \$2.125 per share (collectively, the "Series 6 Warrants"), pursuant to an exemption from registration under Section 4(2) of the Securities Act. The Series 6 Warrants may be exercised at any time after December 31, 1997, and until June 9, 2000. The Company paid RBB Bank the

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dividends on the Series 4 Preferred that accrued from the date of issuance until September 16, 1997, the effective date of the RBB Exchange Agreement by issuing to RBB Bank 14,165 shares of Common Stock pursuant to the terms of the Series 4 Preferred, which shares of Common Stock are covered by this Prospectus.

The rights under the Series 6 Preferred were the same as the rights under the Series 4 Preferred, except for certain conversion rights. The Series 6 Preferred provided that the conversion price

per share is \$1.8125, except that, in the event the average closing bid price of the Common Stock as reported in the over-the-counter market, or the closing sale price if listed on a national securities exchange, for 20 of any 30 consecutive trading days after March 1, 1998, shall be less than \$2.50, the conversion price shall thereafter be the lesser of (i) the average closing bid quotation of the Common Stock as reported on the over-the-counter market, or the closing sale price if listed on a national securities exchange for the five trading days immediately preceding the date of the conversion notice provided by the holder to the Company multiplied by 80% or (ii) \$1.8125. Notwithstanding the foregoing, the conversion price shall not be less than a minimum of \$.75 per share, which minimum was eliminated from and after September 6, 1998.

Under the terms of the Series 6 Warrants, if the Company declares or pays, without consideration, any dividend on the Common Stock payable in Common Stock, or effects a subdivision of the outstanding shares of Common Stock into a greater number of shares of Common Stock (by stock split, reclassification or otherwise than by payment of a dividend in Common Stock or in any right to acquire Common Stock), or if the outstanding shares of Common Stock are combined or consolidated, by reclassification or otherwise, into a lesser number of shares of Common Stock, then the number of shares of Common Stock issuable upon the exercise of such warrant or the exercise price of such warrant will be adjusted appropriately. As a result of such adjustment, the proportionate number of shares of Common Stock issuable immediately prior to the happening of such event will be the number of shares of Common Stock issuable subsequent to the happening of such event. If at any time the shares of Common Stock covered by the Series 6 Warrants are covered by an effective registration statement and the average closing bid price of the Common Stock for ten consecutive trading days is in excess of \$3.50 with respect to half of the Series 6 Warrants or in excess of \$4.00 with respect to the other half of the Series 6 Warrants, then the Company will have the option to redeem the respective Series 6 Warrants for \$0.01 per share of Common Stock covered by the Series 6 Warrants. The holder of the Series 6 Warrants will have the option to exercise the Series 6 Warrants prior to redemption by the Company. Under the terms of the Series 6 Warrants, the Common Stock issuable upon conversion of the Series 6 Warrants is subject to certain registration rights.

The Series 6 Warrants are entitled to certain rights upon any consolidation or merger of the Company in which the Company is not the surviving entity, or in case of any sale or conveyance by the Company to another entity of all or substantially all of the property of the Company as an entirety or substantially as an entirety. Upon any such event, the holder of the Series 6 Warrants will have the right, upon exercise of such warrants, to receive the kind and amount of securities, cash or other property which the holder of the Series 6 Warrants would have owned or been entitled to receive immediately after such consolidation, merger, sale or conveyance had such warrants been exercised in full immediately prior to the effective date of such consolidation, merger, sale or conveyance.

#### RBB Series 6 Exchange Agreement

Pursuant to the Exchange Agreement, dated April 30, 1998, but to be considered effective as of February 28, 1998 (the "RBB Series 6 Exchange Agreement"), the Company and RBB Bank exchanged the 2,500 shares of Series 6 Preferred for 2,500 shares of Series 8 Preferred, pursuant to an exemption from registration under Section



3(a)(9) and/or Section 4(2) of the Securities Act. The Series 6 Warrants were not affected by the RBB Series 6 Exchange Agreement. The Company paid to RBB Bank the dividends on the Series 6

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Preferred which accrued from the date of issuance through February 28, 1998, the effective date of the RBB Series 6 Exchange Agreement, by issuing to RBB Bank 20,864 shares of Common Stock, which shares of Common Stock are covered by this Prospectus.

The rights of the Series 8 Preferred were the same as the rights under the Series 6 Preferred, except for the conversion price. The Series 8 Preferred was convertible at a conversion price of \$1.8125 per share, except that, in the event the average closing bid price of the Common Stock as reported in the over-the-counter market, or the closing sale price if listed on a national securities exchange, for the five (5) trading days prior to a particular date of conversion, shall be less than \$2.50, the conversion price for only that particular conversion was the average of the closing bid quotations of the Common Stock as reported on the over-the-counter market, or the closing sale price if listed on a national securities exchange, for the five (5) trading days immediately preceding the date of such particular conversion notice provided by the holder to the Company multiplied by 80%. Notwithstanding the foregoing, the conversion price was to be not less than a minimum of \$.75 per share, which minimum has been eliminated from and after September 6, 1998. See "--RBB Series 4 Exchange Agreement." Because there is no minimum conversion price, the number of shares of Common Stock which were issuable pursuant to conversion of the Series 8 Preferred increased the further the closing bid price of the Common Stock goes below \$2.265 per share. The more the closing bid price fell below \$2.265, the more shares of Common Stock were issuable upon conversion of the Series 8 Preferred. See "Risk Factors--Potential Adverse Effects of Floating-Price Convertible Preferred Stock."

The Series 8 Preferred was not entitled to any voting rights, except as required by law. The Series 8 Preferred had a liquidation preference over the Common Stock equal to \$1,000 consideration per outstanding share of Series 8 Preferred (the "Series 8 Liquidation Value"), plus an amount equal to all unpaid dividends accrued thereon. The Series 8 Preferred accrued dividends on a cumulative basis at a rate of 4% per annum of the Liquidation Value ("Series 8 Dividend Rate"), and was payable semi-annually when and as declared by the Board of Directors. No dividends or other distributions could be paid or declared or set aside for payment on the Common Stock until all accrued and unpaid dividends on all outstanding shares of Series 8 Preferred were paid or set aside for payment. Dividends could be paid, at the option of the Company, in the form of cash or Common Stock of the Company if and when declared by the Board of Directors. If the Company paid dividends in Common Stock, such were payable in the number of shares of Common Stock equal to the product of (a) the quotient of (i) the Series 8 Dividend Rate divided by (ii) the average of the closing bid quotation of the Common Stock as reported on the NASDAQ for the five trading days immediately prior to the date the dividend is declared, multiplied by (b) a fraction, the numerator of which is the number of days elapsed during the period for which the dividend is to be paid and the denominator of which is 365. The Company has issued 63,044 shares of Common Stock in payment of dividends that have accrued on the Series 8 Preferred through July 15, 1999, the date on which the Series 8 Preferred was exchanged

for the Series 12 Preferred.

#### RBB Series 10 Private Placement

The Company issued to RBB Bank 3,000 shares of newly-created Series 10 Preferred at a price of \$1,000 per share, for an aggregate sales price of \$3,000,000 ("RBB Series 10 Private Placement"). The sale to RBB Bank was made in a private placement under Section 4(2) of the Securities Act and/or Rule 506 of Regulation D under the Securities Act, pursuant to the terms of a Private Securities Subscription Agreement, dated June 30, 1998 between the Company and RBB Bank ("Series 10 Subscription"). As part of the sale of the Series 10 Preferred, the Company also issued to RBB Bank certain warrants ("Series 10 Warrants") entitling RBB Bank to purchase until three years after June 30, 1998, an aggregate of up to 350,000 shares of Common Stock, subject to certain antidilution provisions, with 200,000 shares exercisable at a price equal to \$1.875 per share and 150,000 shares exercisable at a price equal to \$2.50 per share. The Company received net proceeds of approximately \$2,653,000 from this private placement, after the deduction for certain commissions and expenses incurred by the Company.

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The Series 10 Preferred had a liquidation preference over the Company's Common Stock equal to \$1,000 consideration per outstanding share of Series 10 Preferred (the "Series 10 Liquidation Value"), plus an amount equal to all unpaid and accrued dividends thereon. The Series 10 Preferred accrued dividends on a cumulative basis at a rate of four percent (4%) per annum of the Series 10 Liquidation Value ("Series 10 Dividend Rate"), and was payable semi-annually within ten (10) business days after each subsequent June 30 and December 31 (each a "Dividend Declaration Date"), and was payable in cash or shares of the Company's Common Stock at the Company's option. The first Dividend Declaration Date for the Series 10 Preferred was December 31, 1998. No dividends or other distributions were to be paid or declared or set aside for payment on the Company's Common Stock until all accrued and unpaid dividends on all outstanding shares of Series 10 Preferred were paid or set aside for payment. Dividends could be paid, at the option of the Company, in the form of cash or Common Stock of the Company. If the Company paid dividends in Common Stock, such were payable in the number of shares of Common Stock equal to the product of (a) the quotient of (i) the Series 10 Dividend Rate divided by (ii) the average of the closing bid quotation of the Common Stock as reported on the NASDAQ for the five trading days immediately prior to the date the dividend was declared, times (b) a fraction, the numerator of which is the number of days elapsed during the period for which the dividend was to be paid and the denominator of which is 365.

The conversion price per outstanding share of Series 10 Preferred ("Series 10 Conversion Price") was \$1.875; except that if the average of the closing bid price per share of Common Stock quoted on the NASDAQ (or the closing bid price of the Common Stock as quoted on the national securities exchange if the Common Stock is not listed for trading on the NASDAQ but is listed for trading on a national securities exchange) for the five (5) trading days immediately prior to the particular date on which the holder notified the Company of a conversion ("Series 10 Conversion Date") was less than \$2.34, then the Conversion Price for that particular conversion was to be eighty percent (80%) of the average of the closing bid price of the Common Stock on the NASDAQ (or if the

Common Stock is not listed for trading on the NASDAQ but is listed for trading on a national securities exchange then eighty percent (80%) of the average of the closing bid price of the Common Stock on the national securities exchange) for the five (5) trading days immediately prior to the particular Series 10 Conversion Date. As of June 30, 1998, the closing price of Common Stock on the NASDAQ was \$1.875 per share. Because there was no minimum conversion price, the number of shares of Common Stock which were issuable pursuant to conversion of the Series 10 Preferred could increase the further the closing bid price of the Common Stock goes below \$2.34 per share. The more the closing bid price falls below \$2.34, the more shares of Common Stock were issuable upon conversion of the Series 10 Preferred. See "Risk Factors--Potential Adverse Effects of Floating-Price Convertible Preferred Stock."

Pursuant to the terms of the Series 10 Preferred, in the case of (a) any consolidation or merger to which the Company was a party, other than a merger or consolidation in which the Company was the continuing or surviving corporation ("Merger"), or (b) any sale or conveyance to another corporation of all or substantially all of the property of the Company ("Sale") and such Merger or Sale becomes effective (i) while any shares of Series 10 Preferred were outstanding and prior to the effectiveness of the Registration Statement covering the Common Stock issuable upon conversion of the Series 10 Preferred, the Company was to provide for the holder of the Series 10 Preferred the right to convert the Series 10 Preferred into the kind and amount of shares of stock or other securities and property receivable upon such Merger or Sale by a holder of the number of shares of Common Stock into which the Series 10 Preferred could have been converted into immediately prior to the Merger or Sale.

In the event of a Merger or Sale, where the Company was not the survivor, the holder of the Series 10 Preferred had the right to redeem all of the outstanding shares of Series 10 Preferred at 120% of the Series 10 Liquidation Value of each share of Series 10 Preferred then outstanding plus all accrued and unpaid dividends (the "Series 10 Redemption Amount"). The Company was to pay this Series 10 Redemption Amount in cash within ten business days of receipt by the Company of notice from the holder of the Series 10 Preferred, and receipt by the Company of all outstanding shares of Preferred Stock duly endorsed by the Holder to the Company.

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Under the terms of the Series 10 Preferred, if the Company declared or paid, while any Series 10 Preferred remained outstanding, any dividend on the Common Stock payable in Common Stock, or effected a subdivision of the outstanding shares of Common Stock into a greater number of shares of Common Stock (by stock split, reclassification or otherwise than by payment of a dividend in Common Stock or in any right to acquire Common Stock), or if the outstanding shares of Common Stock were combined or consolidated, by reclassification or otherwise, into a lesser number of shares of Common Stock, then the number of shares of Common Stock issuable upon the exercise of such warrant or the exercise price of such Series 10 Conversion Price were to be adjusted appropriately.

If the Common Stock issuable upon conversion of the Series 10 Preferred were changed into the same or a different number of shares of Common Stock of any other class or classes of stock, whether by capital reorganization, reclassification or otherwise

(other than a subdivision or combination of shares of Common Stock as described in the previous paragraph), the Series 10 Conversion Price then in effect were, concurrently with the effectiveness of such reorganization or reclassification, to be proportionately adjusted so that the Series 10 Preferred would be convertible into, in lieu of the number of shares of Common Stock which the holders of Series 10 Preferred would otherwise have been entitled to receive, a number of shares of Common Stock of such other class or classes of stock equivalent to the number of shares of Common Stock that would have been subject to receipt by the holders upon conversion of the Series 10 Preferred immediately before that change.

Under the terms of the Series 10 Warrants, if the Company shall (i) declare or pay a dividend in shares of Common Stock or make a distribution, without receipt of consideration, in shares of Common Stock to holders of its outstanding Common Stock, (ii) subdivide its outstanding shares of Common Stock, (iii) combine its outstanding shares of Common Stock into a smaller number of shares of Common Stock or (iv) issue any shares of its capital stock in a reclassification of the Common Stock, then the number of shares of Common Stock purchasable upon exercise of the Series 10 Warrants immediately prior thereto shall be adjusted so that the holder of the Series 10 Warrants shall be entitled to receive the kind and number of shares of Common Stock or other securities of the Company which he would have owned or have been entitled to receive had such Series 10 Warrants been exercised in advance thereof. Upon each such adjustment of the kind and number of shares of Common Stock or other securities of the Company which are purchasable hereunder, the holder of the Series 10 Warrants shall thereafter be entitled to purchase the number of shares of Common Stock or other securities resulting from such adjustment at an exercise price obtained by multiplying the exercise price in effect immediately prior to such adjustment by the number of shares of Common Stock purchasable thereto immediately prior to such adjustment and dividing by the number of shares of Common Stock or other securities of the Company resulting from such adjustment. Such an adjustment shall become effective immediately after the effective date of such event retroactive to the record date, if any, for such event.

The Series 10 Warrants are entitled to certain rights upon any consolidation or merger of the Company in which the Company is not the surviving entity, or in case of any sale or conveyance by the Company to another entity of all or substantially all of the property of the Company in which the consideration to be received by the Company or its shareholders consists in whole or in part of consideration other than cash. Upon any such event, the holder of the Series 10 Warrants will have the right, upon exercise of such warrants, to receive the kind and amount of securities, cash or other property which the holder of the Series 10 Warrants would have owned or been entitled to receive immediately after such consolidation, merger, sale or conveyance had such warrants been exercised in full immediately prior to the effective date of such consolidation, merger, sale or conveyance.

In connection with the RBB Series 10 Private Placement, the Company also issued (i) one warrant ("Liviakis Warrant") dated as of June 30, 1998, to Liviakis Financial Communications, Inc. ("Liviakis") entitling the holder to purchase until June 29, 2002, up to 1,875,000 shares of Common Stock at an exercise price of \$1.875 per share, (ii) one warrant ("Prag Warrant") dated as of June 30, 1998, to Robert B. Prag, an executive officer of Liviakis ("Prag"), entitling the holder to purchase until June 29, 2002, up

to 625,000 shares of Common Stock at an exercise price of \$1.875

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per share, (iii) one warrant ("Series 10 Genesis Warrant") dated as of June 30, 1998, to JW Genesis entitling the holder to purchase until June 30, 2001, up to 150,000 shares of Common Stock at an exercise price of \$1.875 per share, and (iv) one warrant ("Fontenoy Warrant") dated as of June 30, 1998, to Fontenoy Investments ("Fontenoy") entitling the holder to purchase until June 30, 2001, up to 350,000 shares of Common Stock at an exercise price of \$1.875. The issuance of these warrants to Liviakis, Prag, JW Genesis and Fontenoy was made in a private placement under Section 4(2) of the Securities Act and/or Rule 506 of Regulation D as promulgated under the Securities Act. Each of these warrants is subject to adjustment pursuant to certain antidilution provisions and is subject to certain registration rights with respect to the shares of Common Stock issuable on the exercise of each warrant. These warrants were issued for various consulting services rendered to the Company.

In March, 1999, the Company entered into an Exchange Agreement ("Liviakis Exchange Agreement") dated March 14, 1999, with Liviakis and Prag whereby the Liviakis Warrant and the Prag Warrant were canceled and exchanged for 200,000 shares of Common Stock, 150,000 of which were issued to Liviakis and 50,000 of which were issued to Prag pursuant to an exemption from registration under Section 3(a)(9) and/or Section 4(2) of the Securities Act. Pursuant to the terms of the Liviakis Exchange Agreement the Company agreed to register the shares of Common Stock issued to Liviakis and Prag thereunder.

#### July 1999 Exchange Agreements

On July 15, 1999, the Company and RBB Bank entered into (i) an Exchange Agreement, dated July 15, 1999 ("Series 8 Exchange Agreement"), pursuant to which the 916 outstanding shares of Series 8 Preferred, all of which were held by RBB Bank, were exchanged for an equal number of shares of newly created Series 12 Class L Convertible Preferred Stock, par value \$.001 per share ("Series 12 Preferred"); and (ii) an Exchange Agreement, dated July 15, 1999 ("Series 10 Exchange Agreement"), pursuant to which the 2,252 outstanding shares of Series 10 Preferred Stock, all of which were held by RBB Bank, were exchanged for an equal number of shares of newly created Series 13 Class M Convertible Preferred Stock, par value \$.001 per share ("Series 13 Preferred").

The issuances of the Series 12 Preferred and Series 13 Preferred to RBB Bank were made in private placements under Section 4(2) of the Securities Act and/or pursuant to an exemption from registration under Section 3(a)(9) of the Securities Act. The terms of the newly issued securities are substantially the same as the series for which each was exchanged with the exception of certain differences as described below.

#### Redemption Terms of Series 8 Preferred and Series 12 Preferred

The Series 8 Preferred was redeemable by the Company (a) within four (4) years from June 9, 1997 at \$1,300 per share when the average of the closing bid price of the Common Stock for ten (10) consecutive days is in excess of \$4.00 per share as quoted on the NASDAQ and (b) at \$1,000 per share after four years from June 9, 1997. The Company had to provide thirty (30) days notice to the Series 8 Preferred holder prior to any date stipulated by the

Company for redemption and at such time, the Series 8 Preferred holder had the option of converting the shares which are to be redeemed.

Under the terms of the Series 12 Preferred, the Company was permitted to redeem up to 300 shares of Series 12 Preferred for \$1,000 per share, or an aggregate of \$300,000, provided that any such redemption had to occur within 150 days of issuance of the Series 12 Preferred. On July 15, 1999, the Company redeemed 300 shares of Series 12 Preferred leaving 616 shares of Series 12 Preferred issued and outstanding.

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#### Redemption Terms of Series 10 Preferred and Series 13 Preferred

The Series 10 was not redeemable by the Company. Under the terms of the Series 13 Preferred, the Company was permitted to redeem up to 450 shares of Series 13 Preferred for \$1,000 per share, or an aggregate of \$450,000, provided that any such redemption had to occur within 150 days of issuance of the Series 13 Preferred. On July 15, 1999, the Company redeemed 450 shares of Series 13 Preferred leaving 1,802 shares of Series 13 Preferred issued and outstanding.

#### Other Differences

In addition to the different redemption terms for the Series 12 Preferred and the Series 13 Preferred described above, the Series 12 Preferred and Series 13 Preferred (together, the "July 1999 Exchange Preferred") each contain provisions, described hereafter, which are different from those provisions in the Series 8 Preferred and Series 10 Preferred, as applicable.

- \* RBB Bank could make no conversions of the July 1999 Exchange Preferred for 12 months from July 15, 1999.
- \* The July 1999 Exchange Preferred had a minimum conversion price of \$1.50 per share for a 24 month period from July 15, 1999.
- \* Except for the 750 shares described above which were redeemed at \$1,000 per share on July 15, 1999, for 12 months from July 15, 1999, the Company could redeem at any time and from time to time any of the July 1999 Exchange Preferred held by RBB Bank at 110% of its "stated value" of \$1,000 per share. Thereafter, the Company could redeem at any time and from time to time any of such July 1999 Exchange Preferred at 120% of its "stated value" of \$1,000 per share. After 12 months from July 15, 1999, upon any notice of redemption, RBB had only 5 business days to exercise its conversion rights regarding the redeemed shares. For 12 months from July 15, 1999, RBB Bank could not elect to convert shares of July 1999 Exchange Preferred even if the Company redeemed such shares of July 1999 Exchange Preferred.

#### August 1999 Exchange Agreements

On August 3, 1999, the Company and RBB Bank entered into (i) an Exchange Agreement, dated August 3, 1999 ("Series 12 Exchange Agreement"), pursuant to which the 616 outstanding shares of Series 12 Preferred, all of which were held by RBB Bank, were exchanged for an equal number of shares of newly created Series 15 Class O

Convertible Preferred Stock, par value \$.001 per share ("Series 15 Preferred"); and (ii) an Exchange Agreement, dated August 3, 1999 ("Series 13 Exchange Agreement"), pursuant to which the 1,802 outstanding shares of Series 13 Preferred Stock, all of which were held by RBB Bank, were exchanged for an equal number of shares of newly created Series 16 Class P Convertible Preferred Stock, par value \$.001 per share ("Series 16 Preferred"). The Series 12 Exchange Agreement and Series 13 Exchange Agreement terminated all previous subscription and exchange agreements regarding the Series 8 Preferred, Series 10 Preferred, Series 12 Preferred and Series 13 Preferred.

The issuances of the Series 15 Preferred and Series 16 Preferred (collectively, the "August 1999 Exchange Preferred") to RBB Bank were made in private placements under Section 4(2) of the Securities Act and/or pursuant to an exemption from registration under Section 3(a)(9) of the Securities Act. The terms of each of the August 1999 Exchange Preferred are substantially identical to the particular July 1999 Exchange Preferred for which each was exchanged except that the July 15 dates as described above in connection with the July 1999 Exchange Preferred were changed to

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April 20 and certain registration rights were granted regarding the shares of Common Stock issuable under the August 1999 Exchange Preferred. Therefore, (i) RBB Bank may make no conversions of the August 1999 Exchange Preferred for 12 months from April 20, 1999, even regarding shares redeemed by the Company; (ii) each of the August 1999 Exchange Preferred has a minimum conversion price of \$1.50 per share for a 24 month period from April 20, 1999; (iii) for 12 months from April 20, 1999, the Company may redeem at any time and from time to time any of the August 1999 Exchange Preferred held by RBB Bank at 110% of its "stated value" of \$1,000 per share; and (iv) if the Company does not register with the Commission certain shares of the Common Stock issuable upon conversion of the August 1999 Exchange Preferred by January 31, 2000, the Company agrees to pay to RBB Bank a penalty in an amount equal to two percent (2%) of the product of (a) the number of shares of such convertible preferred stock then outstanding times (b) \$1,000, payable in cash. The Company further agreed that for each month thereafter which terminates without such registration statement being declared effective by the Commission before the end of the last day thereof, the Company shall pay to RBB Bank a penalty in an amount equal to two percent (2%) of the product of (a) the number of shares of convertible preferred stock then outstanding times (b) \$1,000, payable in cash. After April 20, 2000, the Company may redeem at any time and from time to time any of such August 1999 Exchange Preferred at 120% of its "stated value" of \$1,000 per share and, upon any notice of redemption, RBB shall have 5 business days to exercise its conversion rights regarding the redeemed shares. During the 12 months after April 20, 1999, RBB Bank cannot elect to convert shares of August 1999 Exchange Preferred even if the Company redeems such shares of August 1999 Exchange Preferred. As of the date of this Prospectus, RBB Bank owns of record 6,751,482 shares of Common Stock, or approximately 33.0% of the outstanding shares of Common Stock.

Prior to April 20, 2000, the Series 14 Preferred, Series 15 Preferred and Series 16 Preferred are not convertible into Common Stock. During such time period, RBB Bank has the right to acquire an aggregate of approximately 3,006,250 additional shares of Common Stock upon the exercise of the Series 3 Warrants, Series 6 Warrants

and Series 10 Warrants. Based on the assumptions noted below, upon such exercise as described in this paragraph, RBB Bank would own approximately 9,757,732 shares of Common Stock or approximately 41.5% of the outstanding shares of Common Stock of the Company, which includes the 6,751,482 shares of Common Stock held of record by RBB Bank as of the date of this Prospectus but does not include the shares of Common Stock which may be issuable for payment of dividends on the Series 14 Preferred, Series 15 Preferred and Series 16 Preferred.

From April 20, 2000, until April 20, 2001, the Series 14 Preferred, Series 15 Preferred and Series 16 Preferred have a minimum conversion price of \$1.50 per share. During such time period, RBB Bank has the right to acquire an aggregate of approximately 5,797,583 additional shares of Common Stock consisting of (i) 1,179,333 shares upon conversion of the issued and outstanding Series 14 Preferred, which has a fixed conversion price of \$1.50 per share during such period; (ii) 410,667 shares upon conversion of the issued and outstanding Series 15 Preferred, which has a minimum conversion price of \$1.50 during such period ; (iii) 1,201,333 shares upon conversion of the issued and outstanding Series 16 Preferred, which has a minimum conversion price of \$1.50 during such period; and (iv) 3,006,250 shares upon the exercise of the Series 3 Warrants, Series 6 Warrants and Series 10 Warrants. Based on the assumptions noted below, upon such conversion and exercise as described in this paragraph, RBB Bank would own approximately 12,549,065 shares of Common Stock or approximately 47.7% of the outstanding shares of Common Stock of the Company, which includes the 6,751,482 shares of Common Stock held of record by RBB Bank as of the date of this Prospectus but does not include the shares of Common Stock which may be issuable for payment of dividends on the Series 14 Preferred, Series 15 Preferred and Series 16 Preferred.

After April 20, 2001, RBB Bank has the right to acquire approximately 6,123,622 additional shares of Common Stock consisting of (i) 1,640,850 shares upon conversion of the issued and outstanding Series 14 Preferred, which has a minimum conversion price of \$.50 per share during such period, subject to change under certain limited circumstances; (ii) 535,652 shares upon conversion of the issued and outstanding Series 15 Preferred, which has no minimum conversion price after April 20, 2001; (iii) 940,870 shares

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upon conversion of the issued and outstanding Series 16 Preferred, which has no minimum conversion price after April 20, 2001; and (iv) 3,006,250 shares upon the exercise of the Series 3 Warrants, Series 6 Warrants and Series 10 Warrants. The foregoing estimates are made assuming that the average of the closing bid quotations for the Common Stock for the five trading days immediately preceding each conversion date equals \$1.4375 per share (which was the closing price of the Common Stock on October 13, 1999). Upon such conversion and exercise as described in this paragraph, RBB Bank would own approximately 12,875,104 shares of Common Stock or approximately 48.4% of the outstanding shares of Common Stock of the Company, which includes the 6,751,482 shares of Common Stock held of record by RBB Bank as of the date of this Prospectus but does not include the shares of Common Stock which may be issuable for payment of dividends on the Series 14 Preferred, Series 15 Preferred and Series 16 Preferred.

The foregoing figures regarding the number of shares issuable to RBB Bank under certain circumstances are only estimates which



are based upon certain assumptions. The associated figures regarding potential percentage ownership of the Common Stock of the Company which RBB Bank could obtain are made assuming that the Series 9 Preferred is not converted, no other shares of Common Stock are issued by the Company (other than in connection with the conversion of the outstanding shares of Series 14 Preferred, Series 15 Preferred and Series 16 Preferred), no other warrants or options are exercised (other than the Series 3 Warrants, Series 6 Warrants and Series 10 Warrants), the Company does not acquire additional shares of Common Stock as treasury stock, and RBB Bank does not dispose of any shares of Common Stock.

If the average closing bid price of the Common Stock is less than \$1.4375 per share for the five trading days immediately preceding the time of conversion, then the maximum number of shares of Common Stock which could be issued to RBB Bank as a result of conversion of such convertible preferred stock could be substantially increased from the number of shares of Common Stock described above. See "Risk Factors--Potential Adverse Effects of Floating-Price Convertible Preferred Stock."

If, as an example, after April 20, 2001, RBB Bank were to convert all of its preferred stock of the Company that are outstanding as of the date of this Prospectus when the average closing bid price per share of Common Stock for the five trading days prior to RBB Bank's conversion were \$0.25, the Series 14 Preferred, Series 15 Preferred and Series 16 Preferred would be convertible into approximately 15,628,000 shares of Common Stock. If RBB Bank were to also exercise all of its Series 3 Warrants, Series 6 Warrants and Series 10 Warrants, it would own 25,385,732 shares of Common Stock representing approximately 64.9% of the then outstanding shares of Common Stock of the Company, including the 6,751,482 shares of Common Stock held of record by RBB Bank as of the date of this Prospectus. The foregoing assumes that the Series 9 Preferred is not converted, no other shares of Common Stock are issued by the Company (other than in connection with the conversion of the outstanding shares of Series 14 Preferred, Series 15 Preferred and Series 16 Preferred or the payment of accrued dividends on the outstanding shares of Series 9 Preferred, Series 14, Preferred, Series 15 Preferred and Series 16 Preferred), no other warrants or options are exercised (other than the Series 3 Warrants, Series 6 Warrants and Series 10 Warrants), the Company does not acquire additional shares of Common Stock as treasury stock, and RBB Bank does not dispose of any shares of Common Stock.

Regardless of the price of the Common Stock at the time of RBB's conversion of all of its preferred stock, upon such conversion RBB Bank would most likely be the largest single shareholder of the Company and the Company may not be able to avoid an actual change in control of the Company if RBB Bank seeks such a change in control. Moreover, if such conversion and exercise results in RBB Bank acquiring more than 50% of the then outstanding Common Stock of the Company, the Company would not be able to avoid a change in control. See "--Private Placements and Exchange Agreements." See "Risk Factors--Voting Control; Ability to Direct Management, and Potential Adverse Effects of Floating-Price Convertible Preferred Stock."

newly-created Series 5 Class E Convertible Preferred Stock (the "Series 5 Preferred") at a price of \$1,000 per share, for an aggregate sales price of \$350,000. The sale to Infinity was made in a private placement (the "Infinity Private Placement") under Rule 506 of Regulation D under the Securities Act, pursuant to the terms of a Subscription and Purchase Agreement, dated July 7, 1997, between the Company and Infinity ("Infinity Subscription"). The Company received proceeds of \$350,000 under the Infinity Private Placement, excluding the payment of legal fees and miscellaneous costs. The Company has used the net proceeds from the Infinity Private Placement to reduce the outstanding balance under its then current revolving credit facility.

#### First Infinity Exchange Agreement

Effective September 16, 1997, the Company entered into an Exchange Agreement, dated October 31, 1997, but effective as of September 16, 1997 (the "First Infinity Exchange Agreement"), with Infinity pursuant to which the 350 shares of Series 5 Preferred were tendered to the Company in exchange for (i) 350 shares of Series 7 Preferred and (ii) two warrants to purchase up to an aggregate of 35,000 shares of Common Stock issuable upon the exercise of two warrants, each dated as of September 16, 1997, issued by the Company to Infinity in connection with the First Infinity Exchange Agreement, and exercisable for three years at \$1.8125 (the "Infinity Warrants"), pursuant to an exemption from registration under Section 4(2) of the Securities Act. The Infinity Warrants may be exercised at any time after December 31, 1997, and until July 7, 2000. The Company paid to Infinity the dividends on the Series 5 Preferred which accrued from the date of issuance until September 16, 1997, the effective date of the First Infinity Exchange Agreement, by issuing to Infinity 1,461 shares of Common Stock pursuant to the terms of the Series 5 Preferred, which shares of Common Stock are covered by this Prospectus. The rights of the Series 7 Preferred are the same as the rights under the Series 5 Preferred, except for certain conversion rights.

The conversion price of the Series 7 Preferred is \$1.8125 per share of Common Stock, except that, in the event the average closing bid price of the Common Stock for 20 of any 30 consecutive trading days (a "30 Day Period") after March 1, 1998, shall be less than \$2.265 as reported on the over-the-counter market, or the closing sale price if listed on a national securities exchange and if the holders of the Series 7 Preferred have engaged in no sales of Common Stock of the Company during, and for 30 trading days prior to, the applicable 30 Day Period, the conversion price shall thereafter be the lesser of (i) the average closing bid quotation of the Common Stock as reported on the over-the-counter market, or the closing sale price if listed on a national securities exchange, for the five trading days immediately preceding the date of the conversion notice, provided by the holder to the Company multiplied by 80% or (ii) \$1.8125. Notwithstanding the foregoing, the conversion price shall not be less than a minimum of \$.75 per share, which minimum has been eliminated from and after September 6, 1998. Subject to the closing bid price of the Company's Common Stock at the time of conversion and the other conditions which could increase the number of shares to be issued upon conversion, the Series 7 Preferred, if all were converted, could be converted into between approximately 193,103 and 304,348 shares of Common Stock based on a closing bid price of \$1.4375, which is the closing price of the Common Stock as of October 13, 1999. The Company is registering 310,000 shares of Common Stock to be issuable upon conversion of the Series 9 Preferred.

Under the terms of the Infinity Warrants, if the Company declares or pays, without consideration, any dividend on the Common Stock payable in Common Stock, or effects a subdivision of the outstanding shares of Common Stock into a greater number of shares of Common Stock (by stock split, reclassification or otherwise than by payment of a dividend in Common Stock or in any right to acquire Common Stock), or if the outstanding shares of Common Stock are combined or consolidated, by reclassification or otherwise, into a lesser number of shares of Common Stock, then the number of shares of Common Stock issuable upon the exercise of such warrant or the

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exercise price of such warrant will be adjusted appropriately. As a result of such adjustment, the proportionate number of shares of Common Stock issuable immediately prior to the happening of such event will be the number of shares of Common Stock issuable subsequent to the happening of such event. If at any time the shares of Common Stock covered by the Infinity Warrants are covered by an effective registration statement and the average closing bid price of the Common Stock for ten consecutive trading days is in excess of \$7.00, then the Company will have the option to redeem the Infinity Warrants for \$0.01 per share of Common Stock covered by the Infinity Warrants. The holder of the Infinity Warrants will have the option to exercise the Infinity Warrants prior to redemption by the Company. Under the terms of the Infinity Warrants, the Common Stock issuable upon exercise of the Infinity Warrants is subject to certain registration rights.

The Infinity Warrants are entitled to certain rights upon any consolidation or merger of the Company in which the Company is not the surviving entity, or in case of any sale or conveyance by the Company to another entity of all or substantially all of the property of the Company as an entirety or substantially as an entirety. Upon any such event, the holder of the Infinity Warrants will have the right, upon exercise of such warrant, to receive the kind and amount of securities, cash or other property which the holder of the Infinity Warrants would have owned or been entitled to receive immediately after such consolidation, merger, sale or conveyance had such warrant been exercised in full immediately prior to the effective date of such consolidation, merger, sale or conveyance.

#### Second Infinity Exchange Agreement

Pursuant to the Exchange Agreement, dated April 30, 1998, but to be considered effective as of February 28, 1998 (the "Second Infinity Exchange Agreement"), the Company and Infinity exchanged the 350 shares of Series 7 Preferred for 350 shares of Series 9 Preferred, pursuant to exemption from registration under Sections 3(a)(9) and/or 4(2) of the Securities Act. Except for the exchange of Series 7 Preferred for the Series 9 Preferred and termination of any and all rights Infinity may have under the Series 7 Preferred, the Second Infinity Exchange Agreement does not terminate the First Infinity Exchange Agreement. In addition, the Infinity Warrants were not affected by the Second Infinity Exchange Agreement. The Company has paid to Infinity the dividends on the Series 7 Preferred which accrued from the date of issuance through February 28, 1998, the effective date of the Second Infinity Exchange Agreement, by issuing to Infinity 1,071 shares of Common Stock in payment of such accrued dividends, which Common Stock is included in this Prospectus.

The rights of the Series 9 Preferred are the same as the rights under the Series 7 Preferred, except for the conversion price. The Series 9 Preferred is convertible at a conversion price of \$1.8125 per share, except that, in the event the average closing bid price of the Common Stock as reported in the over-the-counter market, or the closing sale price if listed on a national securities exchange, for the five (5) trading days prior to a particular date of conversion, shall be less than \$2.265, the conversion price for only such particular conversion shall be the average of the closing bid quotations of the Common Stock as reported on the over-the-counter market, or the closing sale price if listed on a national securities exchange for the five (5) trading days immediately preceding the date of such particular conversion notice provided by the holder to the Company multiplied by 80%. Notwithstanding the foregoing, the conversion price shall not be less than a minimum of \$.75 per share, which minimum was eliminated from and after September 6, 1998. See "--First Infinity Exchange Agreement." Because there is no minimum conversion price, the number of shares of Common Stock which may be issuable pursuant to conversion of the Series 9 Preferred will increase the further the closing bid price of the Common Stock goes below \$2.265 per share. The more the closing bid price falls below \$2.265, the more shares of Common Stock are issuable upon conversion of the Series 9 Preferred. See "Risk Factors--Potential Adverse Effects of Floating-Price Convertible Preferred Stock" and "Potential Adverse Effects on Price of Common Stock Due to Conversion of Convertible Preferred Stock; Potential Dilution."

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The Series 9 Preferred is not entitled to any voting rights, except as required by law. The Series 9 Preferred has a liquidation preference over the Common Stock equal to \$1,000 consideration per outstanding share of Series 9 Preferred (the "Series 9 Liquidation Value"), plus an amount equal to all unpaid dividends accrued thereon. The Series 9 Preferred accrues dividends on a cumulative basis at a rate of 4% per annum of the Liquidation Value ("Series 9 Dividend Rate"), and is payable semi-annually when and as declared by the Board of Directors. No dividends or other distributions may be paid or declared or set aside for payment on the Common Stock until all accrued and unpaid dividends on all outstanding shares of Series 9 Preferred have been paid or set aside for payment. Dividends may be paid, at the option of the Company, in the form of cash or Common Stock of the Company. If the Company pays dividends in Common Stock, such is payable in the number of shares of Common Stock equal to the product of (a) the quotient of (i) the Series 9 Dividend Rate divided by (ii) the average of the closing bid quotation of the Common Stock as reported on the NASDAQ for the five trading days immediate prior to the date the dividend is declared, multiplied by (b) a fraction, the numerator of which is the number of days elapsed during the period for which the dividend is to be paid and the denominator of which is 365.

The Company will have the option to redeem the shares of Series 9 Preferred (a) between July 7, 1998, and July 7, 2001, at a redemption price of \$1,300 per share if at any time the average closing bid price of the Common Stock for ten consecutive trading days is in excess of \$4.00, and (b) after July 7, 2001, at a redemption price of \$1,000 per share. The holder of the Series 9 Preferred will have the option to convert the Series 9 Preferred prior to redemption by the Company. The Common Stock issuable on the conversion of the Series 9 Preferred is subject to certain registration rights pursuant to the Infinity Exchange Agreement.

See "Summary of Securities Being Offered."

If the Company at any time or from time to time while shares of Series 9 Preferred are issued and outstanding declares or pays, without consideration, any dividend on the Common Stock payable in Common Stock, or effects a subdivision of the outstanding shares of Common Stock into a greater number of shares of Common Stock (by stock split, reclassification or otherwise than by payment of a dividend in Common Stock or in any right to acquire Common Stock), or if the outstanding shares of Common Stock are combined or consolidated, by reclassification or otherwise, into a lesser number of shares of Common Stock, then the conversion price in effect immediately before such event will, concurrently with the effectiveness of such event, be proportionately decreased or increased, as appropriate. If the Company declares or pays, without consideration, any dividend on the Common Stock payable in any right to acquire Common Stock for no consideration, then the Company will be deemed to have made a dividend payable in Common Stock in an amount of shares equal to the maximum number of shares issuable upon exercise of such rights to acquire Common Stock.

#### USE OF PROCEEDS

The Company will not receive any part of the proceeds of the sale of Shares. The Company will receive approximately \$5,188,907 if the Selling Shareholders exercise all of the warrants covering Shares included in this Prospectus. See "Plan Of Distribution." Any proceeds received by the Company from the exercise of such warrants, less the Company's share of the estimated expenses of the cost of this offering, will be used by the Company for general corporate purposes.

The Company has agreed to pay all costs and fees relating to the registration of the Common Stock covered by this Prospectus, except for any discounts, concessions or commissions payable to underwriters, dealers or agents incident to the offering of the Shares covered by this Prospectus or any legal fees incurred by any Selling Shareholders relating to this offering.

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#### YEAR 2000 ISSUES

The staff of the Commission has indicated that each public company should discuss its "Year 2000" issues. The Year 2000 problem arises because many computer systems were designed to identify a year using only two digits, instead of four digits, in order to conserve memory and other resources. For instance, "1997" would be held in the memory of a computer as "97."

When the year changes from 1999 to 2000, a two digit system would read the year as changing from "99" to "00." For a variety of reasons, many computer systems are not designed to make such a date change or are not designed to "understand" or react appropriately to such a date change. Therefore, as the date changes to the year 2000, many computer systems could completely stop working or could perform in an improper and unpredictable manner.

The Company has conducted a review of its computer systems to identify the systems which it anticipated could be affected by the

Year 2000 issue, and the Company believes that all such systems were already, or have been converted to be, Year 2000 compliant. Such conversion, when required, did not entail material expenditures by the Company. Pursuant to the Company's Year 2000 planning, the Company has requested information regarding the computer systems of its key suppliers, customers, creditors, and financial service organizations and has been informed that they are substantially Year 2000 compliant. There can be no assurance, however, that such key organizations are actually Year 2000 compliant and that the Year 2000 issue will not adversely affect the Company's financial position or results of operations. The Company believes that its expenditures in addressing its Year 2000 issues will not have a material adverse effect on the Company's financial position or results of operations.

#### SUMMARY OF SECURITIES BEING OFFERED

The 8,291,072 Shares covered by this Prospectus are comprised of the following: (a) 2,057,143 shares of Common Stock issued by the Company upon the conversion of 1,584 shares of Series 8 Preferred; (b) 410,667 shares of Common Stock issuable by the Company upon the conversion of the 616 shares of Series 15 Preferred based upon the \$1.50 minimum conversion price of the Series 15 Preferred until April 20, 2001; (c) 147,353 shares of Common Stock which have been or may be issued by the Company in payment of dividends accrued on the Series 15 Preferred (which was exchanged for the Series 12 Preferred), the Series 12 Preferred (which was exchanged for the Series 8 Preferred), the Series 8 Preferred (which was exchanged for the Series 6 Preferred), the Series 6 Preferred (which was exchanged for the Series 4 Preferred), and the Series 4 Preferred; (d) 656,250 shares of Common Stock issuable upon the exercise of the Series 6 Warrants, exercisable for three years at an exercise price of \$1.8125 per share as to 375,000 shares of Common Stock and \$2.125 per share as to 281,250 shares of Common Stock; (e) 971,429 shares of Common Stock issued by the Company upon the conversion of 748 shares of Series 10 Preferred; (f) 1,201,333 shares of Common Stock issuable by the Company upon the conversion of 1,802 shares of Series 16 Preferred remaining issued and outstanding based upon the \$1.50 minimum conversion price of the Series 15 Preferred until April 20, 2001; (g) 208,757 shares of Common Stock which have been or may be issued by the Company in payment of dividends accrued on the Series 16 Preferred (which was exchanged for the Series 13 Preferred), the Series 13 Preferred (which was exchanged for the Series 10 Preferred), and the Series 10 Preferred; (h) 350,000 shares of Common Stock issuable upon the exercise of the Series 10 Warrants exercisable for three years at an exercise price of \$2.50 per share as to 150,000 shares of Common Stock and \$1.875 per share as to 200,000 shares of Common Stock; (i) 300,000 shares of Common Stock issuable by the Company upon the exercise of the Series 4 Genesis Warrants, 100,000 of which are exercisable for three years at \$1.50 per share and 200,000 of which are exercisable for five years at \$2.00 per share; (j) 150,000 shares of Common Stock issuable by the Company upon the exercise of the Series 10 Genesis Warrant, exercisable for three years at \$1.875 per share; (k) 350,000 shares of Common Stock issuable by the Company upon the exercise of the Fontenoy Warrant, exercisable for three years at \$1.875 per share;

(l) 310,000 shares of Common Stock issuable by the Company upon the conversion of 350 shares of Series 9 Preferred remaining issued and outstanding assuming the average of the closing bid quotations for the Common Stock for the five trading days immediately preceding

each conversion date equals \$1.4375 per share, being the closing bid price of the Common Stock on October 13, 1999, (m) 44,453 shares of Common Stock which have been or may be issued by the Company to Infinity in payment of dividends accrued on the Series 9 Preferred (which was exchanged for the Series 7 Preferred), Series 7 Preferred (which was exchanged for the Series 5 Preferred), and Series 5 Preferred; (n) 35,000 shares of Common Stock issuable upon the exercise of the Infinity Warrants issued by the Company to Infinity in connection with the Infinity Exchange Agreement, exercisable for three years at an exercise price of \$1.8125 per share; (o) 150,000 shares of Common Stock issued to Liviakis pursuant to the Liviakis Exchange Agreement; (p) 50,000 shares of Common Stock issued to Prag pursuant to the Liviakis Exchange Agreement; (q) 75,000 shares of Common Stock issuable by the Company upon exercise of the following warrants: (v) 7,000 shares of Common Stock issuable upon the exercise of ("Blair Remainder Warrant"), exercisable until December 31, 1999, at an exercise price of \$2.375 per share, issued to D.H. Blair Investment Banking Corporation ("Blair") to reflect the unassigned portion of a warrant for 75,000 shares of Common Stock which was previously issued by the Company to Blair in connection with the extension of a promissory note ("Blair Warrant") and which was partially assigned by Blair to the following officers and directors of Blair: (w) 28,000 shares of Common Stock issuable by the Company upon exercise of one warrant issued to J. Morton Davis ("Davis") as a result of the assignment by Blair of a portion of the Blair Warrant, exercisable until December 31, 1999, at an exercise price of \$2.375 per share ("Davis Warrant"); (x) 28,000 shares of Common Stock issuable by the Company upon exercise of one warrant issued to Esther Stahler ("Stahler") as a result of the assignment by Blair of a portion of the Blair Warrant, exercisable until December 31, 1999, at an exercise price of \$2.375 per share ("Stahler Warrant"); (y) 7,000 shares of Common Stock issuable by the Company upon exercise of one warrant issued to Ruki Renov ("Renov") as a result of the assignment by Blair of a portion of the Blair Warrant, exercisable until December 31, 1999, at an exercise price of \$2.375 per share ("Renov Warrant"); and (z) 5,000 shares of Common Stock issuable by the Company upon exercise of one warrant issued to Martin A. Bell ("Bell") as a result of the assignment by Blair of a portion of the Blair Warrant, exercisable until December 31, 1999, at an exercise price of \$2.375 per share ("Bell Warrant"); (r) 20,513 shares of Common Stock issuable by the Company upon exercise of a warrant issued to Ally Capital Management, Inc. ("Ally") in connection with a loan to the Company, which warrant is exercisable until September 11, 2000, at an exercise price of \$2.4375 per share; (s) 100,000 shares of Common Stock issuable by the Company upon the exercise of the Dionysus Warrant issued by the Company to Dionysus in connection with the RBB Series 4 Private Placement and exercisable for three years at an exercise price of \$1.70 per share (of which 51,800 shares of Common Stock have been issued); (t) 500,000 shares of Common Stock issuable upon the exercise of the following Service Warrants, each dated July 23, 1997: (aa) 175,000 shares of Common Stock issuable at an exercise price of \$2.00 per share and 175,000 shares of Common Stock issuable at an exercise price of \$3.00 per share under the Ehler Warrants and (bb) 75,000 shares of Common Stock issuable at an exercise price of \$2.00 per share and 75,000 shares of Common Stock issuable at an exercise price of \$2.50 per share under the Fetter Warrants; and (u) 203,174 shares of Common Stock which have been issued in connection with an Asset Purchase Agreement, 31,176 of which were issued to Evelio Acosta and 31,175 of which were issued to Lewis R. Goodman and 140,823 of which were issued to Hesco Sales, Inc. See "Private Placements and Exchange Agreements."

The shares of Series 15 Preferred and Series 9 Preferred may be converted into shares of Common Stock at a conversion price ("Conversion Price") equal to \$1.8125 per share of Common Stock, except that, in the event the average closing bid price of the Common Stock as reported in the over-the-counter market, or the closing sale price if listed on a national securities exchange, for the five (5) trading days prior to a particular date of conversion, shall be less than \$2.265, the conversion price for only such particular conversion shall be adjusted ("Conversion Price Adjustment") to be the average of the closing bid quotations of the Common Stock as reported on the over-the-counter market, or the closing sale price if listed on a national securities exchange for the five (5) trading days immediately preceding the date of such particular conversion notice provided by the holder to the Company multiplied by 80%. Notwithstanding the foregoing, the

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Series 15 Preferred is not convertible until April 20, 2000 and until April 20, 2001, the conversion price of the Series 15 Preferred shall not be less than a minimum of \$1.50 per share. See "Private Placements and Exchange Agreements."

If the Conversion Price Adjustment does not become effective for any conversion of the Series 15 Preferred or Series 9 Preferred, the conversion of all of the Series 15 Preferred could result in the issuance of up to approximately 339,862 shares of Common Stock, and the conversion of all of the Series 9 Preferred could result in the issuance of up to approximately 193,103 shares of Common Stock. If the Conversion Price Adjustment is in effect for all conversions of Series 15 Preferred and Series 9 Preferred, the number of shares of Common Stock issuable upon the conversion of the Series 15 Preferred and Series 9 Preferred could result in the issuance of a larger number of shares of Common Stock, with the actual number depending upon the closing bid price of the Common Stock over the five (5) trading days immediately preceding the conversion date or dates. See "Risk Factors--Potential Adverse Effects of Floating Price Convertible Preferred Stock." Because after April 20, 2001, there is no minimum conversion price regarding either the Series 15 Preferred or Series 9 Preferred, the number of shares of Common Stock which may be issuable pursuant to conversion of the Series 15 Preferred and Series 9 Preferred could be substantially greater than as estimated above. The more the closing bid price falls below \$2.265, the more shares of Common Stock are issuable upon conversion of the Series 15 Preferred and Series 9 Preferred. See "Risk Factors--Potential Adverse Effects of Floating-Price Convertible Preferred Stock."

The Series 16 Preferred is not convertible into Common Stock until April 20, 2000. The Series 16 Conversion Price is \$1.875; except that if the average of the closing bid price per share of Common Stock quoted on the NASDAQ (or the closing bid price of the Common Stock as quoted on the national securities exchange if the Common Stock is not listed for trading on the NASDAQ but is listed for trading on a national securities exchange) for the five (5) trading days immediately prior to the particular Series 16 Conversion Date is less than \$2.34, then the Series 16 Conversion Price for that particular conversion shall be eighty percent (80%) of the average of the closing bid price of the Common Stock on the NASDAQ (or if the Common Stock is not listed for trading on the NASDAQ but is listed for trading on a national securities exchange then eighty percent (80%) of the average of the closing bid price of the Common Stock on the national securities exchange) for the



five (5) trading days immediately prior to the particular Series 16 Conversion Date. As of June 30, 1998, the closing price of Common Stock on the NASDAQ was \$1.875 per share. Notwithstanding the foregoing, from April 20, 2000 until April 20, 2001, the conversion price shall not be less than \$1.50 per share. See "Private Placements and Exchange Agreements." Because there is no minimum conversion price after April 20, 2001, the further the closing bid price falls below \$2.34, the more shares of Common Stock are issuable upon conversion of the Series 16 Preferred. See "Risk Factors--Potential Adverse Effects of Floating-Price Convertible Preferred Stock."

Under the terms of the Service Warrants, the Dionysus Warrant, the Blair Remainder Warrant, the Davis Warrant, the Stahler Warrant, the Renov Warrant, the Bell Warrant, the Ally Warrant, the Series 10 Genesis Warrant, and the Fontenoy Warrant (collectively, the "Affected Warrants") if at any time or from time to time after the date of each Affected Warrant, the Company (a) pays a dividend on its Common Stock in shares of Common Stock, (b) subdivides its outstanding shares of Common Stock into a greater number of shares, (c) combines its outstanding shares of Common Stock into a smaller number of shares, or (d) issues by reclassification of its Common Stock any shares of any other class of capital stock of the Company, then the number of shares issuable upon exercise of the Affected Warrant and the exercise price of the Affected Warrant in effect immediately prior to such event will be adjusted so that the holder will be entitled upon exercise of such Affected Warrant to purchase, without additional consideration, the number of shares of Common Stock or other capital stock of the Company which the holder would have owned or been entitled to purchase immediately following the happening of any of the events described in (a), (b) or (c) above had such Affected Warrant been exercised and the holder become the holder of record of the shares purchased pursuant to the Affected Warrant immediately prior to the record date fixed for the determination of shareholders entitled to

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receive such dividend or distribution on the effective date of such subdivision, combination or reclassification. In such event the exercise price will be equal to the aggregate consideration which the holder would have had to pay for such shares issued pursuant to the Affected Warrant immediately prior to such event divided by the number of shares issued pursuant to the Affected Warrant the holder is entitled to receive immediately after such event. If as a result of an adjustment made as described in this paragraph the holder of such Affected Warrant thereafter surrendered for exercise becomes entitled to receive shares of two or more classes of capital stock or shares of Common Stock and any other class of capital stock of the Company, the Board of Directors (whose determination shall be conclusive and shall be described in a written notice to all holders of the Affected Warrants promptly after such adjustment) will determine the allocation of the adjusted exercise price of the Affected Warrant between or among shares of such classes of capital stock or shares of Common Stock and such other class of capital stock. See "Private Placements and Exchange Agreements."

The terms of the Affected Warrants provide that upon any consolidation or merger to which the Company is a party, other than a merger or consolidation in which the Company is the continuing or surviving corporation, or in case of any sale or conveyance to another entity of all or substantially all of the property of the

Company as an entirety or substantially as an entirety, the holder of the Affected Warrant will have the right thereafter, upon exercise of such warrant, to receive the kind and amount of securities, cash or other property which the holder would have owned or been entitled to receive immediately after such consolidation, merger, sale or conveyance had such Affected Warrant been exercised immediately prior to the effective date of such consolidation, merger, sale or conveyance and in any such case, if necessary, appropriate adjustment will be made in the application thereafter with respect to the rights and interests of the holder of such Affected Warrant to the end that the provisions of this paragraph and the preceding paragraph thereafter will be correspondingly applicable, as nearly as may reasonably be, to such securities and other property.

If the Company distributes pro rata to all of the holders of its then outstanding shares of Common Stock (a) securities, other than shares of Common Stock or stock options, or (b) property, other than cash, without payment therefor, then, and in each such case, the holder of a Affected Warrant, upon its exercise, will be entitled to receive the securities and property which such holder would hold on the date of such exercise if, on the date of such Affected Warrant, the holder had been the holder of record of the number of shares of the Common Stock subscribed for upon such exercise and, during the period from the date of such warrant to and including the date of such exercise, had retained such shares and the securities and properties receivable by the holder during such period.

Under the terms of the Liviakis Exchange Agreement, the Common Stock issued to Liviakis and Prag pursuant to the Liviakis Exchange Agreement is subject to certain registration rights.

The shares of Common Stock issued to Lewis R. Goodman ("Goodman"), and Evelio Acosta ("Acosta") were issued pursuant to the terms of an Asset Purchase Agreement, by and among PFFL, Action Environmental Corp., a Florida corporation ("Action"), Goodman, and Acosta, dated April 1, 1998, whereby PESI issued to Action certain shares of Common Stock, as partial consideration for the purchase by PFFL of all or substantially all of the assets of Action. Action has transferred 31,176 of such shares to Acosta and 31,175 of such shares to Goodman, Acosta and Goodman being the sole shareholders of Action.

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#### SELLING SHAREHOLDERS

<TABLE>

<CAPTION>

The following table sets forth, (a) the name of each Selling Shareholder, (b) the amount of shares beneficially owned by each Selling Shareholder as of the date of this Prospectus, (c) the number of shares of Common Stock under this Prospectus, (d) the number of shares beneficially owned after the offering, assuming that all shares of Common Stock being offered hereby are sold and that such are outstanding, and (e) the percentage of Common Stock beneficially owned after completion of the offering, assuming that all shares of Common Stock being offered hereby are sold and that such are outstanding.

Percentage

Selling Shareholder	Common Stock Beneficially Owned Prior to Offering (1)	Common Stock Being Offered	Common Stock Beneficially Owned After Completion of Offering (2)	of Common Stock Beneficially Owned After Completion of Offering
<S>	<C>	<C>	<C>	<C>
RBB Bank Aktiengesellschaft (3)	12,954,785 (3)	6,002,932	6,951,853	26.1%
JW Genesis Financial Corp. (4)	562,500 (4)	450,000	112,500	(18)
The Infinity Fund, L.P. (5)	389,453 (5)	389,453	—	(18)
Karl H. Ehlert (6)	602,000 (6)	350,000	252,000	1.2%
R. Keith Fetter (7)	154,500 (7)	150,000	4,500	(18)
Fontenoy Investments f/k/a Dionysus Limited (8)	450,000 (8)	450,000	—	(18)
Ally Capital Management (9)	20,513 (9)	20,513	—	(18)
D.H. Blair Investment Banking Corp. (10)	224,701 (10)	7,000	217,701	1.1%
J. Morton Davis (11)	339,701 (11)	28,000	371,701	1.8%
Esther Stahler (12)	28,000 (12)	28,000	—	(18)
Ruki Renov (13)	7,000 (13)	7,000	—	(18)
Martin A. Bell (14)	5,000 (14)	5,000	—	(18)
Liviakis Financial Communications, Inc. (15)	150,000 (15)	150,000	—	(18)
Lewis R. Goodman (16)	31,175 (16)	31,175	—	(18)
Evelio Acosta (16)	31,176 (16)	31,176	—	(18)
Hesco Sales, Inc. (16)	140,823 (16)	140,823	—	(18)
Robert B. Prag (17)	60,000 (17)	50,000	10,000	(18)

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<FN>

(1) Includes shares of Common Stock which may be acquired upon (a) the exercise of outstanding warrants, whether such are currently exercisable and/or (b) conversion of outstanding shares of preferred stock, whether or not such are currently convertible.

(2) Assumes (a) all shares of Common Stock covered by this Prospectus are sold, (b) the Selling Shareholder does not acquire beneficial ownership of additional shares of Common Stock after the date of this Prospectus, and (c) the Company

does not issue any additional shares of Common Stock after the date of this Prospectus, except the shares of Common Stock which a person has the right to acquire upon the exercise of warrants and conversion of preferred stock outstanding as of the date of this Prospectus, but are not determined to be outstanding for the purpose of computing the percentage ownership of any other person. The amounts indicated are based on outstanding Common Stock of 20,486,219 shares as of October 13, 1999.

- (3) Includes (a) 3,006,250 shares that RBB Bank is entitled to receive upon exercise of all of the Series 3 Warrants, Series 6 Warrants and Series 10 Warrants; (b) 1,179,333 shares that RBB Bank is entitled to receive upon conversion of the 1,769 shares of Series 14 Preferred held by RBB Bank based upon a conversion price of \$1.50, which is the minimum conversion price for the Series 14 Preferred until April 20, 2001; (c) 2,057,143 shares issued to RBB Bank upon the conversion of 1,584 shares of Series 8 Preferred; (d) 410,667 shares that RBB Bank is entitled to receive upon conversion of the 616 shares of Series 15 Preferred (based upon a conversion price of \$1.50, which is the minimum conversion price for the Series 15 Preferred until April 20, 2001; (e) 971,429 shares issued to RBB Bank upon the conversion of 748 shares of Series 10 Preferred; (f) 1,201,333 shares of Common Stock that RBB Bank is entitled to receive upon conversion of the 1,802 shares of Series 16 Preferred held by RBB Bank (g) 212,280 shares of Common Stock that RBB Bank may receive in payment of the accrued dividends on the Series 3 Preferred, Series 11 Preferred and Series 14 Preferred; (h) 147,353 shares that RBB Bank may receive in payment of the accrued dividends on the Series 4 Preferred (which has been exchanged for the Series 6 Preferred), Series 6 Preferred (which has been exchanged for the Series 8 Preferred), Series 8 Preferred (which has been exchanged for the Series 12 Preferred), Series 12 Preferred (which has been exchanged for the Series 15 Preferred), and Series 15 Preferred (i) 208,757 shares that RBB Bank has received or may receive in payment of the accrued dividends on the Series 10 Preferred (which has been exchanged for the Series 13 Preferred), the Series 13 Preferred (which has been exchanged for the Series 16 Preferred) and the Series 16 Preferred, and (j) 3,560,240 shares held directly by RBB Bank, excluding shares issued which are other wise described in this Note. The Company's Registration Statement on Form S-3, No. 333-14513, effective October 21, 1996, and the Company's Registration Statement on Form S-3, No. 333-87437, effective September 20, 1999, (together, the "Registration Statements") currently cover the reoffer and resale of up to 6,874,545 of the 12,954,785 shares noted as beneficially owned by RBB Bank. The shares of Common Stock described as being issuable to RBB Bank upon conversion of the Series 14 Preferred, Series 15 Preferred and Series 16 Preferred are not issuable within the next 60 days because such series of preferred stock are not convertible until April 20, 2000.
- (4) Includes (a) 112,500 shares that Genesis is entitled to receive upon exercise of a warrant dated September 16, 1996 (the "1996 Genesis Warrant"), (b) 300,000 shares that Genesis is entitled to receive upon exercise of the Series 4 Genesis Warrants, and (c) 150,000 shares that Genesis is entitled to receive upon exercise of the Series 10 Genesis Warrant. The 1996 Registration Statement (defined in footnote (3) to this table) covers the reoffer and resale of the 112,000 shares issuable upon exercise of the 1996 Genesis Warrant. Genesis is a publicly traded company whose shares of common stock are traded on the American Stock Exchange

- (5) Includes (a) 310,000 shares that Infinity is entitled to receive upon conversion of all of the Series 9 Preferred held by Infinity, (b) 44,453 shares of Common Stock that Infinity has received or may receive in payment of the accrued dividends on the Series 7 Preferred (which was exchanged for the Series 9 Preferred), and Series 9 Preferred, and (c) 35,000 shares that are issuable upon exercise of the Infinity Warrants. The general partner of Infinity, International Financial Research Alliance, L.L.C. ("IFRA"), has voting or dispositive control over shares held by Infinity. The members of IFRA are Mark Scott, Barry Pearl, and Elizabeth Scott.
- (6) Includes 350,000 shares that Mr. Ehlert is entitled to receive upon exercise of the Ehlert Warrants and 252,000 shares held directly by Mr. Ehlert. Mr. Ehlert currently provides investor relations, marketing, and consulting services to the Company.
- (7) Includes 150,000 shares that Mr. Fetter is entitled to receive upon exercise of the Fetter Warrants and 4,500 shares held directly by Mr. Fetter. Mr. Fetter previously provided investor relations, marketing, and consulting services to the Company.
- (8) Includes 350,000 shares that Fontenoy is entitled to receive upon exercise of the Fontenoy Warrant and 100,000 shares (of which 51,800 shares have been received) that Fontenoy is entitled to receive upon exercise of the Dionysus Warrant. Subsequent to receiving the Dionysus Warrant, Dionysus Limited changed its name to Fontenoy Investments. Fontenoy currently provides investor relations, marketing and consulting services to the Company. The beneficial owners of Fontenoy having voting or dispositive control over shares held by Fontenoy are as follows: David Hermanus Bester, Richard Scott, Linda Jean Alton, Gordon John Mundy, and Katharine Georgina Lamb.
- (9) Includes 20,513 shares that Ally is entitled to receive upon exercise of the Ally Warrant. The beneficial owners of Ally having voting or dispositive control over shares held by Ally are as follows: Allen Gold and Gary Abriem.
- (10) Includes 7,000 shares that Blair is entitled to receive upon exercise of the Blair Remainder Warrant issued to Blair to reflect the unassigned portion of the Blair Warrant for 75,000 shares of Common Stock which was previously issued by the Company to Blair in connection with the extension of a promissory note. Effective March 23, 1995, the Blair Warrant was partially assigned by Blair to the following officers and directors of Blair: Davis, Stahler, Renov and Bell to purchase 28,000, 28,000, 7,000 and 5,000 shares thereunder, respectively. See "Summary of Securities Being Offered." Includes 217,701 shares held directly by Blair. All of the Common Stock held by Blair may be considered to be beneficially owned by Davis, the sole shareholder of Blair. See footnote 11 to this Table.
- (11) Mr. Davis is an investment banker and sole shareholder of Blair, a broker-dealer registered under the Exchange Act. Includes (i) 28,000 shares that Davis is entitled to receive upon exercise of the Davis Warrant; (ii) 154,000 shares owned by Davis' spouse; and (iii) 217,701 shares currently held

directly by Blair and described in footnote 10 to this Table. Mr. Davis disclaims beneficial ownership over the shares held by his spouse. The number of shares indicated does not include 7,000 shares of Common Stock which are issuable to Blair upon exercise of warrants, as described in footnote 10 to this Table, which shares are to be sold under this Prospectus.

- (12) Includes 28,000 shares that Stahler is entitled to receive upon exercise of the Stahler Warrant.

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- (13) Includes 7,000 shares that Renov is entitled to receive upon exercise of the Renov Warrant.
- (14) Includes 5,000 shares that Bell is entitled to receive upon exercise of the Bell Warrant.
- (15) Represents shares that Liviakis received pursuant to the Liviakis Exchange Agreement. The beneficial owners of Liviakis having voting or dispositive control over shares held by Liviakis are John Liviakis and his spouse, Renee Liviakis.
- (16) Acosta's and Goodman's shares of Common Stock consist of shares received by them in connection with a certain Asset Purchase Agreement ("Action Agreement") dated on or about April 1, 1998, by and among PFFL, Action, Goodman and Acosta, dated April 1, 1998, as partial consideration for the purchase by PFFL of all or substantially all of the assets of Action, which is wholly owned by Acosta and Goodman. Hesco Sales, Inc., a creditor of Action, received its shares of Common Stock from Action following the consummation of the Action Agreement.
- (17) Includes 50,000 shares that Prag received pursuant to the Liviakis Exchange Agreement and 10,000 shares held directly by Prag.
- (18) Less than 1.0%.
- </FN>
- </TABLE>

#### PLAN OF DISTRIBUTION

The Shares may be offered and sold from time to time by the Selling Shareholders, or by pledges, donees, transferees or other successors in interest. The Selling Shareholders will act independently of the Company in making decisions with respect to the timing, market, or otherwise at prices related to the then current market price or in negotiated transactions. The Shares may be sold by the Selling Shareholders in one or more transactions on the NASDAQ and the BSE or otherwise at market prices then prevailing or in privately negotiated transactions. The Shares may be sold by one or more of the following: (i) ordinary brokerage transactions and transactions in which the broker solicits purchasers; (ii) purchases and resale by a broker-dealer for its account pursuant to this Prospectus, and (iii) a block trade in which the broker-dealer so engaged will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction. The Company has not been advised by the Selling Shareholders that they have, as of the date hereof, made any arrangements relating to the distribution of the Shares covered by this Prospectus, except that certain of the

Selling Shareholders are broker-dealers. See "Selling Shareholders." In effecting sales, broker-dealers engaged by the Selling Shareholders may arrange for other broker-dealers to participate, and, in such case, broker-dealers will receive commissions or discounts from the Selling Shareholders in amounts to be negotiated immediately prior to sale.

In offering the Shares, the Selling Shareholders and any broker-dealers and any other participating broker-dealers who execute sales for the Selling Shareholders may be deemed to be "underwriters" within the meaning of the Securities Act in connection with such sales. Accordingly, any profits realized by the Selling Shareholders and the compensation of such broker-dealer may be deemed to be underwriting discounts and commissions. Any Shares covered by this Prospectus which qualify for sale pursuant to Rule 144 may be sold under Rule 144 rather than pursuant to this Prospectus.

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#### LEGAL OPINION

Certain legal matters in connection with the Common Stock offered hereby will be passed upon for the Company by Conner & Winters, A Professional Corporation, Oklahoma City, Oklahoma ("Conner & Winters"). Irwin H. Steinhorn, a shareholder of Conner & Winters, has an individual retirement account which owns 385 shares of Common Stock.

#### EXPERTS

The financial statements and schedule incorporated by reference in this Prospectus have been audited by BDO Seidman LLP, independent certified public accountants to the extent and for the periods set forth in their report incorporated herein by reference, and are included herein in reliance upon such report given upon the authority of said firm as experts in auditing and accounting.

The financial statements and schedules regarding Chem-Con incorporated by reference in this Prospectus and elsewhere in the Registration Statement, to the extent and for the periods indicated in their reports, have been audited by Bovitz & Co. CPA, P.C., independent public accountants, and are included herein in reliance upon the authority of said firm as experts in giving such reports.

No dealer, salesman or other person has been authorized to give any information not contained in this Prospectus and, if given or made, such information or representations must not be relied upon as having been authorized by the Company or the Standby Purchasers. This Prospectus does not constitute an offer to sell or a solicitation of an offer to buy any of the securities offered hereby in any jurisdiction to any person to whom it is unlawful to make such offer in such jurisdiction. Neither the delivery of this Prospectus nor any sale hereunder shall under any circumstances create any implication that there has been no change in the affairs of the Company since the date hereof.

8,291,072 Shares

Perma-Fix Environmental Services, Inc.

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Prospectus

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October \_\_\_\_, 1999



INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution

<TABLE>

<CAPTION>

Nature of Expense

<S>	<C>
SEC Registration Fee . . . . .	\$ 4,961.37
Legal Fees (Including Blue Sky). . . . .	\$ 70,000.00
Accounting Fees and Expenses . . . . .	\$ 10,000.00
Printing . . . . .	\$ 2,500.00
Miscellaneous. . . . .	\$ 2,500.00
<hr/>	
Total	\$ 89,961.37
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</TABLE>

The foregoing expenses, except for the registration fee, are estimated pursuant to Item 511 of Regulation S-K.

Item 15. Indemnification of Officers and Directors

Section 145 of the Delaware Corporation Law provides that a corporation has the power to indemnify a director, officer, employee or agent of the corporation and certain other persons serving at the request of the corporation in related capacities against amounts paid and expenses incurred in connection with an action or proceeding to which he is or is threatened to be made a party by reason of such position, if such person shall have acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the corporation, and, in any criminal proceeding, if such person had no reasonable cause to believe his conduct was unlawful; provided that, no indemnification shall be made with respect to any matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the adjudicating court determines that, despite the adjudication of liability but in view of all the circumstance of the case, such person is fairly and reasonably entitled to indemnification.

Article EIGHTH of the Company's Restated Certificate of Incorporation provides as follows with respect to the indemnification of officers and directors of the Company:

All persons who the Corporation is empowered to indemnify pursuant to the provisions of Section 145 of the General Corporation Law of the State of Delaware (or any similar provision or provisions of applicable law at the time in effect), shall be indemnified by the Corporation to the full extent permitted thereby. The foregoing right of indemnification shall not be deemed to be exclusive of any other rights to which those seeking indemnification may be entitled under any bylaw, agreement, vote of stockholders or disinterested directors, or otherwise. No repeal or amendment of this Article EIGHTH shall adversely affect any rights of any person pursuant to this Article EIGHTH which existed at the time of such repeal or amendment with respect to acts or omissions occurring prior to such repeal or amendment.

The Company's Restated Certificate of Incorporation provides that no director of the Company shall be personally liable to the Company or its stockholders for any monetary damages for breaches of fiduciary duty as a director, provided that this provision shall not eliminate or limit the liability of a director (i) for any breach of the director's duty of loyalty to the Company or its stockholders; (ii) for acts or omissions not in good faith or which

involve intentional misconduct or a knowing violation of law; (iii) under Section 174 of the General Corporation Law of the State of Delaware; or (iv) for any transaction from which the director derived an improper personal benefit.

Item 16. Exhibits

<TABLE>

<CAPTION>

Exhibit

No.	Description
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<S> <C>

- |      |  |
|------|--|
| 4.1  | Subscription and Purchase Agreement, dated June 9, 1997, between the Company and RBB Bank Aktiengesellschaft as incorporated by reference from Exhibit 4.1 to the Company's Form 8-K, dated June 11, 1997.   |
| 4.2  | Subscription and Purchase Agreement, dated July 7, 1997, between the Company and the Infinity Fund, L.P. as incorporated by reference from Exhibit 4.1 to the Company's Form 8-K, dated July 7, 1997.  |
| 4.3  | Exchange Agreement, dated November 6, 1997, to be considered effective as of September 16, 1997, between the Company and RBB Bank, as incorporated by reference from Exhibit 4.11 from the Company's Report on Form 10-Q for the period ended September 30, 1997.                  |
| 4.4  | Certificate of Designations of Series 6 Class F Convertible Preferred Stock as incorporated by reference from Exhibit 4.7 to the Company's Report on Form 10-Q for the period ended September 30, 1997.  |
| 4.5  | Exchange Agreement dated as of October 31, 1997, to be considered effective as of September 16, 1997, between the Company and the Infinity Fund, L.P. as incorporated by reference from Exhibit 4.12 to the Company's Report on Form 10-Q for the period ended September 30, 1997. |
| 4.6* | Certificate of Designations of Series 7 Class G Convertible Preferred Stock.   |
| 4.7  | Exchange Agreement, dated April 30, 1998, to be considered effective as of February 28, 1998, between the Company and RBB Bank, as incorporated by reference from Exhibit 10.6 to the Company's Report on Form 10-Q for the quarter ended June 30, 1998.                           |
| 4.8  | Certificate of Designations of Series 8 Class H Convertible Preferred Stock as incorporated by reference from Exhibit 3(i) to the Company's Report on Form 10-Q for the quarter ended June 30, 1998.   |
| 4.9  | Specimen copy of Series 8 Class H Convertible Preferred Stock Certificate, as incorporated by reference from Exhibit 4.5 to  |

the Company's Report on Form 10-Q for the quarter ended June 30, 1998.

- 4.10 Exchange Agreement dated as of April 30, 1998, to be considered effective as of February 28, 1998, between the Company and the Infinity Fund, L.P., as incorporated by reference from Exhibit 10.7 to the Company's Report on Form 10-Q for the quarter ended June 30, 1998.
- 4.11 Certificate of Designations of Series 9 Class I Convertible Preferred Stock, as incorporated by reference from Exhibit 3(i) to the Company's Report on Form 10-Q for the quarter ended June 30, 1998.
- 4.12 Specimen copy of Series 9 Class I Convertible Preferred Stock Certificate, as incorporated by reference from Exhibit 4.7 to the Company's Report on Form 10-Q for the quarter ended June 30, 1998.

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Exhibit  
No.

Description

- 4.13 Certificate of Elimination regarding the Series 6 Class F Convertible Preferred Stock and the Series 7 Class G Convertible Preferred Stock, as incorporated by reference from Exhibit 3(i) to the Company's Report on Form 10-Q for the quarter ended June 30, 1998.
- 4.14 Private Securities Subscription Agreement, dated June 30, 1998, between the Company and RBB Bank Aktiengesellschaft as incorporated by reference from Exhibit 4.1 to the Company's Form 8-K dated June 30, 1998.
- 4.15 Certificate of Designations of Series 10 Class J Convertible Preferred Stock, dated July 16, 1998, as incorporated by reference from Exhibit 3(i) to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 1998.
- 4.16 Specimen copy of Certificate relating to the Series 10 Class J Convertible Preferred Stock as incorporated by reference from Exhibit 4.3 to the Company's Form 8-K, dated June 30, 1998.
- 4.17 Exchange Agreement exchanging 916 shares of Series 8 Class H Convertible Preferred Stock, Par Value \$.001 per share of Perma-Fix Environmental Services, Inc. for 916 shares of Series 12 Class L Convertible Preferred Stock, Par Value \$.001 per share of Perma-Fix Environmental Services, Inc. dated July 15, 1999, between the Company and RBB Bank Aktiengesellschaft, as incorporated by reference from Exhibit 4.1 to the Company's Report on Form 10-Q for the period ended June 30, 1999.
- 4.18 Exchange Agreement exchanging 2,252 shares of Series 10 Class J Convertible Preferred Stock, Par Value \$.001 per share of Perma-Fix Environmental Services, Inc. for 2,252 shares of Series 13 Class Convertible Preferred Stock, Par Value \$.001 per share of Perma-Fix Environmental Services, Inc. dated July 15, 1999, between the Company and RBB Bank Aktiengesellschaft, as incorporated by reference from Exhibit 4.2 to the Company's Report on Form 10-Q for the period ended June 30, 1999.

- 4.19 Exchange Agreement exchanging 1,769 shares of Series 3 Class C Convertible Preferred Stock, Par Value \$.001 per share of Perma-Fix Environmental Services, Inc. for 1,769 shares of Series 11 Class K Convertible Preferred Stock, Par Value \$.001 per share of Perma-Fix Environmental Services, Inc. dated July 15, 1999, between the Company and RBB Bank Aktiengesellschaft, as incorporated by reference from Exhibit 4.3 to the Company's Report on Form 10-Q for the period ended June 30, 1999.
- 4.20 Certificate of Designations of Series 11 Class K Convertible Preferred Stock, dated July 15, 1999, as incorporated by reference from Exhibit 3(i) to the Company's Report on Form 10-Q for the period ended June 30, 1999.
- 4.21 Specimen copy of Certificate relating to the Series 11 Class K Convertible Preferred Stock, as incorporated by reference from Exhibit 4.5 to the Company's Report on Form 10-Q for the period ended June 30, 1999.
- 4.22 Certificate of Designations of Series 12 Class L Convertible Preferred Stock, dated July 15, 1999, as incorporated by reference from Exhibit 3(i) to the Company's Report on Form 10-Q for the period ended June 30, 1999.
- 4.23 Specimen copy of Certificate relating to the Series 12 Class L Convertible Preferred Stock, as incorporated by reference from Exhibit 4.7 to the Company's Report on Form 10-Q for the period ended June 30, 1999.

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Exhibit No.	Description
4.24	Certificate of Designations of Series 13 Class M Convertible Preferred Stock, dated July 15, 1999, as incorporated by reference from Exhibit 3(i) to the Company's Report on Form 10-Q for the period ended June 30, 1999.
4.25	Specimen copy of Certificate relating to the Series 13 Class M Convertible Preferred Stock, as incorporated by reference from Exhibit 4.9 to the Company's Report on Form 10-Q for the period ended June 30, 1999.
4.26	Exchange Agreement exchanging 1,769 shares of Series 11 Class K Convertible Preferred Stock, Par Value \$.001 per share of Perma-Fix Environmental Services, Inc. for 1,769 shares of Series 14 Class N Convertible Preferred Stock, Par Value \$.001 per share of Perma-Fix Environmental Services, Inc. dated August 3, 1999, between the Company and RBB Bank Aktiengesellschaft, as incorporated by reference from Exhibit 4.10 to the Company's Report on Form 10-Q for the period ended June 30, 1999.
4.27	Exchange Agreement exchanging 616 shares of Series 12 Class L Convertible Preferred Stock, Par Value \$.001 per share of Perma-Fix Environmental Services, Inc. for 616 shares of Series 15 Class O Convertible Preferred Stock, Par Value \$.001 per share of Perma-Fix Environmental Services, Inc. dated August 3, 1999, between the Company and RBB Bank

Aktiengesellschaft, as incorporated by reference from Exhibit 4.11 to the Company's Report on Form 10-Q for the period ended June 30, 1999.

- 4.28 Exchange Agreement exchanging 1,802 shares of Series 13 Class M Convertible Preferred Stock, Par Value \$.001 per share of Perma-Fix Environmental Services, Inc. for 1,802 shares of Series 16 Class P Convertible Preferred Stock, Par Value \$.001 per share of Perma-Fix Environmental Services, Inc. dated August 3, 1999, between the Company and RBB Bank Aktiengesellschaft, as incorporated by reference from Exhibit 4.12 to the Company's Report on Form 10-Q for the period ended June 30, 1999.
- 4.29 Certificate of Designations of Series 14 Class N Convertible Preferred Stock, dated August 10, 1999, as incorporated by reference from Exhibit 3(i) to the Company's Report on Form 10-Q for the period ended June 30, 1999.
- 4.30 Specimen copy of Certificate relating to the Series 14 Class N Convertible Preferred Stock, as incorporated by reference from Exhibit 4.14 to the Company's Report on Form 10-Q for the period ended June 30, 1999.
- 4.31 Certificate of Designations of Series 15 Class O Convertible Preferred Stock, dated August 10, 1999, as incorporated by reference from Exhibit 3(i) to the Company's Report on Form 10-Q for the period ended June 30, 1999.
- 4.32 Specimen copy of Certificate relating to the Series 15 Class O Convertible Preferred Stock, as incorporated by reference from Exhibit 4.16 to the Company's Report on Form 10-Q for the period ended June 30, 1999.
- 4.33 Certificate of Designations of Series 16 Class P Convertible Preferred Stock, dated August 10, 1999, as incorporated by reference from Exhibit 3(i) to the Company's Report on Form 10-Q for the period ended June 30, 1999.
- 4.34 Specimen copy of Certificate relating to the Series 16 Class P Convertible Preferred Stock, as incorporated by reference from Exhibit 4.18 to the Company's Report on Form 10-Q for the period ended June 30, 1999.
- 5.1\*\* Opinion of Conner & Winters, a Professional Corporation.
- 23.1\*\* Consent of BDO Seidman, LLP.

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Exhibit  
No.

Description

- 23.2\*\* Consent of Bovitz & Co., CPA, P.C.
- 23.3\*\* Consent of Conner & Winters, as contained in Exhibit 5.1 hereto and incorporated herein by reference.
- 24.1\* Powers of Attorney for Messrs. Zwecker, Gorlin, and Colin, as contained in the Power of Attorney of the signature page included in the previously filed copies

of this Registration Statement.

- 24.2\*\* Power of Attorney for Mr. Sullivan.
- 99.1\* Common Stock Purchase Warrant (\$1.8125) No. RBB 9-97-1, dated September 16, 1997, between the Company and RBB Bank Aktiengesellschaft.
- 99.2\* Common Stock Purchase Warrant (\$1.8125) No. RBB 9-97-2, dated September 16, 1997, between the Company and RBB Bank Aktiengesellschaft.
- 99.3\* Common Stock Purchase Warrant (\$2.125) No. RBB 9-97-3, dated September 16, 1997, between the Company and RBB Bank Aktiengesellschaft.
- 99.4\* Common Stock Purchase Warrant No. INF 9-97-1, dated September 16, 1997, between the Company and The Infinity Fund, L.P.
- 99.5\* Common Stock Purchase Warrant No. INF 9-97-2, dated September 16, 1997, between the Company and The Infinity Fund, L.P.
- 99.6 Common Stock Purchase Warrant (\$1.50), dated June 9, 1997, between the Company and JW Charles Financial Services, Inc., as incorporated by reference from Exhibit 4.6 to the Company's Form 8-K, dated June 11, 1997.
- 99.7 Common Stock Purchase Warrant (\$2.00), dated June 9, 1997, between the Company and JW Charles Financial Services, Inc., as incorporated by reference from Exhibit 4.7 to the Company's Form 8-K, dated June 11, 1997.
- 99.8 Warrant Agreement, dated June 17, 1994, between the Company and Sun Bank, National Association, as incorporated by reference from Exhibit 4.2 to the Company's Form 8-K, dated June 17, 1994.
- 99.9\* Common Stock Purchase Warrant (\$2.00), dated July 25, 1997, between the Company and Karl Ehlert.
- 99.10\* Common Stock Purchase Warrant (\$3.00), dated July 25, 1997, between the Company and Karl Ehlert.
- 99.11\* Common Stock Purchase Warrant (\$2.00), dated July 25, 1997, between the Company and Keith Fetter.
- 99.12\* Common Stock Purchase Warrant (\$2.50), dated July 25, 1997, between the Company and Keith Fetter.
- 99.13\* Common Stock Purchase Warrant, dated effective as of September 16, 1997, between the Company and Dionysus Limited.
- 99.14\* Common Stock Purchase Warrant dated January, 1995, between the Company and D. H. Blair Investment Banking Corp.
- 99.15\* Common Stock Purchase Warrant dated effective as of March 23, 1995, between the Company and D. H. Blair Investment Banking Corp.

Exhibit No.	Description
99.16*	Common Stock Purchase Warrant dated effective as of March 23, 1995, between the Company and J. Morton Davis.
99.17*	Common Stock Purchase Warrant dated effective as of March 23, 1995, between the Company and Esther Stahler.
99.18*	Common Stock Purchase Warrant dated effective as of March 23, 1995, between the Company and Martin Bell.
99.19*	Common Stock Purchase Warrant dated effective as of March 23, 1995, between the Company and Ruki Renov.
99.20*	Common Stock Purchase Warrant dated September 11, 1995 between the Company and Ally Capital Management, Inc.
99.21	Common Stock Purchase Warrant (\$1.875) dated June 30, 1998, between the Company and RBB Bank Aktiengesellschaft as incorporated by reference from Exhibit 4.4 to the Company's Form 8-K, dated June 30, 1998.
99.22	Common Stock Purchase Warrant (\$2.50) dated June 30, 1998, between the Company and RBB Bank Aktiengesellschaft as incorporated by reference from Exhibit 4.5 to the Company's Form 8-K, dated June 30, 1998.
99.23	Common Stock Purchase Warrant effective June 30, 1998, between the Company and JW Genesis Financial Corporation as incorporated by reference from Exhibit 10.8 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 1998.
99.24	Common Stock Purchase Warrant effective June 30, 1998, between the Company and Fontenoy Investments as incorporated by reference from Exhibit 10.9 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 1998.
99.25	Employment Agreement dated October 1, 1997, between the Company and Dr. Louis F. Centofanti is incorporated by reference from Exhibit 10.9 to the Company's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 1997.
99.26	Stock Purchase Agreement dated as of May 27, 1999, among Perma-Fix Environmental Services, Inc., Chemical Conservation Corporation, Chemical Conservation of Georgia, Inc., the Thomas P. Sullivan Living Trust, dated September 6, 1978, the Ann L. Sullivan Living Trust, dated September 6, 1978, Thomas P. Sullivan, and Ann L. Sullivan, as incorporated by reference from Exhibit 2.1 to the Company's Current Report on Form 8-K, earliest event reported June 1, 1999.
99.27	Stock Purchase Agreement dated as of May 27, 1999, among Perma-Fix Environmental Services, Inc., Chem-Met Services, Inc., the Thomas P. Sullivan Living Trust, dated September 6, 1978, the Ann L. Sullivan Living Trust, dated September 6, 1978, Thomas P. Sullivan, and Ann L. Sullivan, as incorporated by reference from

Exhibit 2.2 to the Company's Current Report on Form 8-K, earliest event reported June 1, 1999.

99.28 Amendment and Joinder to Loan and Security Agreement (the "Loan Amendment") dated May 27, 1999, among Congress Financial Corporation (Florida), Perma-Fix Environmental Services, Inc. and the subsidiaries of Perma-Fix Environmental Services, Inc., as incorporated by reference from Exhibit 4.1 to the Company's Current Report on Form 8-K, earliest event reported June 1, 1999.

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Exhibit  
No.

Description

99.29 Subordination Agreement dated May 27, 1999 among Congress Financial Corporation (Florida), Perma-Fix Environmental Services, Inc., the subsidiaries of Perma-Fix Environmental Services, Inc., the Thomas P. Sullivan Living Trust dated September 6, 1978 and the Ann L. Sullivan Living Trust dated September 6, 1978, as incorporated by reference from Exhibit 4.2 to the Company's Current Report on Form 8-K, earliest event reported June 1, 1999.

99.30 Promissory Note for \$1,230,000 issued to the Ann L. Sullivan Living Trust dated September 6, 1978, as incorporated by reference from Exhibit 10.1 to the Company's Current Report on Form 8-K, earliest event reported June 1, 1999.

99.31 Promissory Note for \$1,970,000 issued to the Ann L. Sullivan Living Trust dated September 6, 1978, as incorporated by reference from Exhibit 10.2 to the Company's Current Report on Form 8-K, earliest event reported June 1, 1999.

99.32 Promissory Note for \$1,500,000 issued to the Thomas P. Sullivan Living Trust dated September 6, 1978, as incorporated by reference from Exhibit 10.3 to the Company's Current Report on Form 8-K, earliest event reported June 1, 1999.

99.33 Non-recourse Guaranty dated May 28, 1999, by and among Chem-Met Services, Inc., the Thomas P. Sullivan Living Trust dated September 6, 1978, and the Ann L. Sullivan Living Trust dated September 6, 1978., as incorporated by reference from Exhibit 10.4 to the Company's Current Report on Form 8-K, earliest event reported June 1, 1999.

99.34 Mortgage dated May 28, 1999, by Chem-Met Services, Inc. to the Thomas P. Sullivan Living Trust dated September 6, 1978 and the Ann L. Sullivan Living Trust dated September 6, 1978, as incorporated by reference from Exhibit 10.5 to the Company's Current Report on Form 8-K, earliest event reported June 1, 1999.

99.35 Exchange Agreement dated March 14, 1999, among Liviakis Financial Communications, Inc., Robert B. Prag and Perma-Fix Environmental Services, Inc. as incorporated by reference from Exhibit 10.56 to the Company's Annual Report on Form 10-K for the year ended December 31, 1998.



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\*Previously filed  
\*\*Filed herein

</TABLE>

Item 17. Undertakings

The Company hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to the Registration Statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933, as amended (the "Securities Act");

(ii) To reflect in the prospectus any facts or events arising after the effective date of this Registration Statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the Registration Statement;

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(iii) To include any material information with respect to the plan of distribution not previously disclosed in the Registration Statement or any material change to such information in the Registration Statement;

Provided, however, that paragraphs (1)(i) and (1)(ii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed with or furnished to the Commission by the Company pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), that are incorporated by reference in this Registration Statement.

(2) That, for the purpose of determining any liability under the Securities Act, each post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at the time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

The Company hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the Company's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the Registration Statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at the time shall be deemed to be the initial bona fide offering thereof.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Company pursuant to the indemnification provisions described herein, or otherwise, the Company has been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Company of expenses incurred or paid by a director, officer or controlling person of the Company in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Company will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

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SIGNATURES FOR FORM S-3

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Gainesville, State of Florida, on the 20th day of October, 1999.

PERMA-FIX ENVIRONMENTAL  
SERVICES, INC.

By: /s/ Louis Centofanti

\_\_\_\_\_  
Dr. Louis F. Centofanti  
Chairman, President and  
Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

Signature _____	Title _____	Date _____
/s/ Louis Centofanti  _____ Dr. Louis F. Centofanti	Chairman of the Board of Directors, President, and Chief Executive Officer (Principal Executive Officer)	October 20, 1999

/s/ Richard T. Kelecy

Richard T. Kelecy

Chief Financial Officer  
(Principal Financial  
and Accounting Officer)

October 20, 1999

\*

Mark A. Zwecker

Director

October 20, 1999

\*

Steve Gorlin

Director

October 20, 1999

\*

Jon Colin

Director

October 20, 1999

/s/ Thomas P. Sullivan

Thomas P. Sullivan

Director

October 20, 1999

By /s/ Louis Centofanti

Dr. Louis F. Centofanti  
Attorney In Fact

October 20, 1999

<TABLE>

<CAPTION>

EXHIBIT INDEX

Exhibit No.	Description	Sequential Page No.
<S> <C>		
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4.18	Exchange Agreement exchanging 2,252 shares of Series 10 Class J Convertible Preferred Stock, Par Value \$.001 per share of Perma-Fix Environmental Services, Inc. for 2,252 shares of Series 13 Class Convertible Preferred Stock, Par Value \$.001 per share of Perma-Fix Environmental Services, Inc. dated July 15, 1999, between the Company and RBB Bank Aktiengesellschaft, as incorporated by reference from Exhibit 4.2 to the Company's Report on Form 10-Q for the period ended June 30, 1999.	
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4.29	Certificate of Designations of Series 14 Class N Convertible Preferred Stock, dated August 10, 1999, as incorporated by reference from Exhibit 3(i) to the Company's Report on Form 10-Q for the period ended June 30, 1999.	
4.30	Specimen copy of Certificate relating to the Series 14 Class N Convertible Preferred Stock, as incorporated by reference from Exhibit 4.14 to the Company's Report on Form 10-Q for the period ended June 30, 1999.	
4.31	Certificate of Designations of Series 15 Class O Convertible Preferred Stock, dated August 10, 1999, as incorporated by reference from Exhibit 3(i) to the Company's Report on Form 10-Q for the period ended June 30, 1999.	
4.32	Specimen copy of Certificate relating to the Series 15 Class O Convertible Preferred Stock, as incorporated by reference from Exhibit 4.16 to the Company's Report on Form 10-Q for the period ended June 30, 1999.	

Exhibit No.	Description	Sequential Page No.
4.33	Certificate of Designations of Series 16 Class P Convert-	

ible Preferred Stock, dated August 10, 1999, as incorporated by reference from Exhibit 3(i) to the Company's Report on Form 10-Q for the period ended June 30, 1999.

4.34	Specimen copy of Certificate relating to the Series 16 Class P Convertible Preferred Stock, as incorporated by reference from Exhibit 4.18 to the Company's Report on Form 10-Q for the period ended June 30, 1999.	
5.1**	Opinion of Conner & Winters, a Professional Corporation.	70
23.1**	Consent of BDO Seidman, LLP.	77
23.2**	Consent of Bovitz & Co., CPA, P.C.	78
23.3**	Consent of Conner & Winters, as contained in Exhibit 5.1 hereto and incorporated herein by reference.	
24.1*	Powers of Attorney for Messrs. Zwecker, Gorlin, and Colin, as contained in the Power of Attorney of the signature page included in the previously filed copies of this Registration Statement.	
24.2**	Power of Attorney for Mr. Sullivan.	79
99.1*	Common Stock Purchase Warrant (\$1.8125) No. RBB 9-97-1, dated September 16, 1997, between the Company and RBB Bank Aktiengesellschaft.	
99.2*	Common Stock Purchase Warrant (\$1.8125) No. RBB 9-97-2, dated September 16, 1997, between the Company and RBB Bank Aktiengesellschaft.	
99.3*	Common Stock Purchase Warrant (\$2.125) No. RBB 9-97-3, dated September 16, 1997, between the Company and RBB Bank Aktiengesellschaft.	
99.4*	Common Stock Purchase Warrant No. INF 9-97-1, dated September 16, 1997, between the Company and The Infinity Fund, L.P.	
99.5*	Common Stock Purchase Warrant No. INF 9-97-2, dated September 16, 1997, between the Company and The Infinity Fund, L.P.	
99.6	Common Stock Purchase Warrant (\$1.50), dated June 9, 1997, between the Company and JW Charles Financial Services, Inc., as incorporated by reference from Exhibit 4.6 to the Company's Form 8-K, dated June 11, 1997.	

Exhibit No.	Description	Sequential Page No.
99.7	Common Stock Purchase Warrant (\$2.00), dated June 9, 1997, between the Company and JW Charles Financial Services, Inc., as incorporated by reference from Exhibit 4.7 to the Company's Form 8-K, dated June 11, 1997.	
99.8	Warrant Agreement, dated June 17, 1994, between the Company and Sun Bank, National Association, as incorporated by reference from Exhibit 4.2 to the Company's Form 8-K, dated	

June 17, 1994.

- 99.9\* Common Stock Purchase Warrant (\$2.00), dated July 25, 1997, between the Company and Karl Ehlert.
- 99.10\* Common Stock Purchase Warrant (\$3.00), dated July 25, 1997, between the Company and Karl Ehlert.
- 99.11\* Common Stock Purchase Warrant (\$2.00), dated July 25, 1997, between the Company and Keith Fetter.
- 99.12\* Common Stock Purchase Warrant (\$2.50), dated July 25, 1997, between the Company and Keith Fetter.
- 99.13\* Common Stock Purchase Warrant, dated effective as of September 16, 1997, between the Company and Dionysus Limited.
- 99.14\* Common Stock Purchase Warrant dated January, 1995, between the Company and D. H. Blair Investment Banking Corp.
- 99.15\* Common Stock Purchase Warrant dated effective as of March 23, 1995, between the Company and D. H. Blair Investment Banking Corp.
- 99.16\* Common Stock Purchase Warrant dated effective as of March 23, 1995, between the Company and J. Morton Davis.
- 99.17\* Common Stock Purchase Warrant dated effective as of March 23, 1995, between the Company and Esther Stahler.
- 99.18\* Common Stock Purchase Warrant dated effective as of March 23, 1995, between the Company and Martin Bell.
- 99.19\* Common Stock Purchase Warrant dated effective as of March 23, 1995, between the Company and Ruki Renov.
- 99.20\* Common Stock Purchase Warrant dated September 11, 1995 between the Company and Ally Capital Management, Inc.
- 99.21 Common Stock Purchase Warrant (\$1.875) dated June 30, 1998, between the Company and RBB Bank Aktiengesellschaft as incorporated by reference from Exhibit 4.4 to the Company's Form 8-K, dated June 30, 1998.

Exhibit No.	Description	Sequential Page No.
99.22	Common Stock Purchase Warrant (\$2.50) dated June 30, 1998, between the Company and RBB Bank Aktiengesellschaft as incorporated by reference from Exhibit 4.5 to the Company's Form 8-K, dated June 30, 1998.	
99.23	Common Stock Purchase Warrant effective June 30, 1998, between the Company and JW Genesis Financial Corporation as incorporated by reference from Exhibit 10.8 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 1998.	
99.24	Common Stock Purchase Warrant effective June 30, 1998, between the Company and Fontenoy Investments as	



incorporated by reference from Exhibit 10.9 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 1998.

- 99.25 Employment Agreement dated October 1, 1997, between the Company and Dr. Louis F. Centofanti is incorporated by reference from Exhibit 10.9 to the Company's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 1997.
- 99.26 Stock Purchase Agreement dated as of May 27, 1999, among Perma-Fix Environmental Services, Inc., Chemical Conservation Corporation, Chemical Conservation of Georgia, Inc., the Thomas P. Sullivan Living Trust, dated September 6, 1978, the Ann L. Sullivan Living Trust, dated September 6, 1978, Thomas P. Sullivan, and Ann L. Sullivan, as incorporated by reference from Exhibit 2.1 to the Company's Current Report on Form 8-K, earliest event reported June 1, 1999.
- 99.27 Stock Purchase Agreement dated as of May 27, 1999, among Perma-Fix Environmental Services, Inc., Chem-Met Services, Inc., the Thomas P. Sullivan Living Trust, dated September 6, 1978, the Ann L. Sullivan Living Trust, dated September 6, 1978, Thomas P. Sullivan, and Ann L. Sullivan, as incorporated by reference from Exhibit 2.2 to the Company's Current Report on Form 8-K, earliest event reported June 1, 1999.
- 99.28 Amendment and Joinder to Loan and Security Agreement (the "Loan Amendment") dated May 27, 1999, among Congress Financial Corporation (Florida), Perma-Fix Environmental Services, Inc. and the subsidiaries of Perma-Fix Environmental Services, Inc., as incorporated by reference from Exhibit 4.1 to the Company's Current Report on Form 8-K, earliest event reported June 1, 1999.

Exhibit No.	Description	Sequential Page No.
99.29	Subordination Agreement dated May 27, 1999 among Congress Financial Corporation (Florida), Perma-Fix Environmental Services, Inc., the subsidiaries of Perma-Fix Environmental Services, Inc., the Thomas P. Sullivan Living Trust dated September 6, 1978 and the Ann L. Sullivan Living Trust dated September 6, 1978, as incorporated by reference from Exhibit 4.2 to the Company's Current Report on Form 8-K, earliest event reported June 1, 1999.	
99.30	Promissory Note for \$1,230,000 issued to the Ann L. Sullivan Living Trust dated September 6, 1978, as incorporated by reference from Exhibit 10.1 to the Company's Current Report on Form 8-K, earliest event reported June 1, 1999.	
99.31	Promissory Note for \$1,970,000 issued to the Ann L. Sullivan Living Trust dated September 6, 1978, as incorporated by reference from Exhibit 10.2 to the Company's Current Report on Form 8-K, earliest event reported June 1, 1999.	

- 99.32 Promissory Note for \$1,500,000 issued to the Thomas P. Sullivan Living Trust dated September 6, 1978, as incorporated by reference from Exhibit 10.3 to the Company's Current Report on Form 8-K, earliest event reported June 1, 1999.
- 99.33 Non-recourse Guaranty dated May 28, 1999, by and among Chem-Met Services, Inc., the Thomas P. Sullivan Living Trust dated September 6, 1978, and the Ann L. Sullivan Living Trust dated September 6, 1978., as incorporated by reference from Exhibit 10.4 to the Company's Current Report on Form 8-K, earliest event reported June 1, 1999.
- 99.34 Mortgage dated May 28, 1999, by Chem-Met Services, Inc. to the Thomas P. Sullivan Living Trust dated September 6, 1978 and the Ann L. Sullivan Living Trust dated September 6, 1978, as incorporated by reference from Exhibit 10.5 to the Company's Current Report on Form 8-K, earliest event reported June 1, 1999.
- 99.35 Exchange Agreement dated March 14, 1999, among Liviakis Financial Communications, Inc., Robert B. Prag and Perma-Fix Environmental Services, Inc. as incorporated by reference from Exhibit 10.56 to the Company's Annual Report on Form 10-K for the year ended December 31, 1998.

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\*Previously filed

\*\*Filed herein

</TABLE>

CONNER & WINTERS  
A PROFESSIONAL CORPORATION  
ONE LEADERSHIP SQUARE, SUITE 1700  
OKLAHOMA CITY, OKLAHOMA 73102  
(405) 272-5711

October 21, 1999

Perma-Fix Environmental Services, Inc.  
1940 Northwest 67th Place  
Gainesville, Florida 32653

Re: Perma-Fix Environmental Services, Inc.; Amendment  
No. 5 to Form S-3 Registration Statement;  
Registration No. 333-43149; Registering 8,291,072  
Shares of Common Stock; Our File No. 7034.29

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Ladies and Gentlemen:

We have acted as special counsel to Perma-Fix Environmental Services, Inc. (the "Company") in connection with the Form S-3 Registration Statement, No. 333-43149, as amended by Amendment No. 5 (the "Registration Statement"), to be filed by the Company with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Act"), registering up to 8,291,072 shares of the Company's Common Stock, par value \$.001 per share ("Common Stock") to be reoffered or resold from time to time by certain Selling Shareholders (as defined in the Registration Statement).

Included in the Registration Statement are shares of Common Stock issued upon conversion and/or in payment of dividends on the following series of convertible preferred stock which have undergone various exchanges as described hereafter:

1. Series 4 Class D Convertible Preferred Stock, par value \$.001 per share ("Series 4 Class D Preferred Stock"), Series 6 Class F Convertible Preferred Stock ("Series 6 Class F Preferred Stock"), Series 8 Class H Convertible Preferred Stock, par value \$.001 per share ("Series 8 Class H Preferred Stock"), Series 12 Class L Convertible Preferred Stock, par value \$.001 per share ("Series 12 Class L Preferred Stock"), and Series 15 Class O Convertible Preferred Stock ("Series 15 Class O Preferred Stock") (with the Series 4 Class D Preferred Stock being exchanged for the Series 6 Class F Preferred Stock, the Series 6 Class F Preferred Stock

Perma-Fix Environmental Services, Inc.  
October 21, 1999  
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being exchanged for the Series 8 Class H Preferred Stock, the Series 8 Class H Preferred Stock being exchanged for the Series 12 Class L Preferred Stock, and the Series 12 Class L Preferred Stock being exchanged for the Series 15 Class O Preferred Stock);

2. Series 10 Class J Convertible Preferred Stock, par

value \$.001 per share ("Series 10 Class J Preferred Stock"), Series 13 Class M Convertible Preferred Stock, par value \$.001 per share ("Series 13 Class M Preferred Stock"), and Series 16 Class P Convertible Preferred Stock, par value \$.001 per share ("Series 16 Class P Preferred Stock") (with the Series 10 Class J Preferred Stock being exchanged for the Series 13 Class M Preferred Stock, and the Series 13 Class M Preferred Stock being exchanged for the Series 16 Class P Preferred Stock); and

3. Series 5 Class E Convertible Preferred Stock, par value \$.001 per share ("Series 5 Class E Preferred Stock"), Series 7 Class G Convertible Preferred Stock, par value \$.001 per share ("Series 7 Class G Preferred Stock"), and Series 9 Class I Convertible Preferred Stock, par value \$.001 per share ("Series 9 Class I Preferred Stock") (with the Series 5 Class E Preferred Stock being exchanged for Series 7 Class G Preferred Stock and the Series 7 Class G Preferred Stock being exchanged for the Series 9 Class I Preferred Stock).

The following shares are covered by the Registration Statement:

- (i) up to 6,002,932 shares of the Company's Common Stock, par value \$.001 per share ("Common Stock"), by RBB Bank Aktiengesellschaft ("RBB Bank") that have been issued or are issuable by the Company to RBB Bank ("RBB Shares") as follows:
  - (a) up to 2,467,810 shares previously issued or issuable upon conversion of shares of the Company's Series 6 Class F Preferred Stock, Series 8 Class H Preferred Stock, Series 12 Class L Preferred Stock and Series 15 Class O Preferred Stock;
  - (b) up to 147,353 shares which have been issued or are issuable in payment of dividends on the Series 4 Class D Preferred Stock, Series 6 Class F Preferred Stock, Series 8 Class H Preferred Stock, Series 12 Class L Preferred Stock, and Series 15 Class O Preferred Stock;
  - (c) 2,172,762 shares previously issued or issuable upon conversion of the Series 10 Class J Preferred Stock and the Series 16 Class P Preferred Stock;

Perma-Fix Environmental Services, Inc.

October 21, 1999

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- (d) up to 208,757 shares which have been issued or are issuable in payment of dividends on the on the Series 10 Class J Preferred Stock, Series 13 Class M Preferred Stock, and Series 16 Class P Preferred Stock;
- (e) up to 656,250 shares which are issuable upon exercise of the Series 6 Warrants (as defined in the Registration Statement);

- (f) up to 350,000 shares being acquired by RBB Bank upon exercise of the Series 10 Warrants (as defined in the Registration Statement);
- (ii) up to 389,453 shares of the Company's Common Stock by The Infinity Fund, L.P. ("Infinity") that are issuable by the Company to Infinity ("Infinity Shares") as follows:
  - (a) up to 310,000 shares issuable upon conversion of the Company's Series 9 Class I Preferred Stock;
  - (b) up to 44,453 shares previously issued or issuable in payment of dividends on the Series 5 Class E Preferred Stock, Series 7 Class G Preferred Stock, and Series 9 Class I Preferred Stock; and
  - (c) up to 35,000 shares being acquired by Infinity upon exercise of the Infinity Warrants (as defined in the Registration Statement);
- (iii) up to 150,000 shares of Common Stock by Liviakis Financial Communications, Inc. ("Liviakis") that were issued to Liviakis ("Liviakis Shares") in connection with an exchange agreement ("Liviakis Exchange Agreement") for a warrant previously issued by the Company to Liviakis;
- (iv) 50,000 shares of Common Stock by Robert B. Prag, an executive officer of Liviakis ("Prag") that were issued to Prag ("Prag Shares") in connection with the Liviakis Exchange Agreement for a warrant previously issued by the Company to Prag;
- (v) up to 450,000 shares of Common Stock by Fontenoy Investments ("Fontenoy") that are issuable by the Company to Fontenoy ("Fontenoy Shares") upon the exercise of a warrant previously issued by the Company to Fontenoy and a warrant previously issued to Fontenoy's predecessor Dionysus Limited (hereinafter collectively referred to as the "Fontenoy Warrants");

Perma-Fix Environmental Services, Inc.  
 October 21, 1999  
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- (vi) up to 450,000 shares of Common Stock by JW Genesis Financial Corporation ("JW Genesis") that are issuable by the Company to JW Genesis (the "JW Genesis Shares") upon the exercise of the Series 4 Genesis Warrants (as defined in the Registration Statement) and the Series 10 Genesis Warrant (as defined in the Registration Statement), all of which warrants were previously issued by the Company to JW Genesis or its predecessor JW Charles Financial Services, Inc. ( hereinafter collectively referred to as the "JW Genesis

Warrants");

- (vii) up to 7,000 shares of Common Stock by D. H. Blair Investment Banking Corporation ("Blair") that are issuable by the Company to Blair ("Blair Shares") upon the exercise of a warrant previously issued by the Company to Blair ("Blair Remainder Warrant") to reflect the remainder of a warrant for 75,000 shares of Common Stock which was previously issued by the Company to Blair ("Blair Warrant") and which was partially assigned by Blair to certain officers and directors of Blair;
- (viii) up to 28,000 shares of Common Stock by J. Morton Davis ("Davis") that are issuable by the Company to Davis ("Davis Shares") upon the exercise of a warrant previously issued by the Company to Davis ("Davis Warrant") as a result of the assignment by Blair of a portion of the Blair Warrant;
- (ix) up to 28,000 shares of Common Stock by Esther Stahler ("Stahler") that are issuable by the Company to Stahler ("Stahler Shares") upon the exercise of a warrant previously issued by the Company to Stahler ("Stahler Warrant") as a result of the assignment by Blair of a portion of the Blair Warrant;
- (x) up to 7,000 shares of Common Stock by Martin A. Bell ("Bell") that are issuable by the Company to Bell ("Bell Shares") upon the exercise of a warrant previously issued by the Company to Bell ("Bell Warrant") as a result of the assignment by Blair of a portion of the Blair Warrant;
- (xi) up to 5,000 shares of Common Stock by Ruki Renov ("Renov") that are issuable by the Company to Renov ("Renov Shares") upon the exercise of a warrant previously issued by the Company to Renov ("Renov Warrant") as a result of the assignment by Blair of a portion of the Blair Warrant;
- (xii) up to 20,513 shares of Common Stock being acquired by Ally Capital Management ("Ally") that are issuable by the Company to Ally ("Ally Shares") upon the exercise of a warrant previously issued by the Company to Ally ("Ally Warrant");

Perma-Fix Environmental Services, Inc.  
October 21, 1999  
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- (xiii) up to 350,000 shares of Common Stock being acquired by Karl H. Ehlert ("Ehlert") that are issuable by the Company to Ehlert ("Ehlert Shares") upon the exercise of two (2) warrants previously issued by the Company to Ehlert ("Ehlert Warrants");
- (xiv) up to 150,000 shares of Common Stock being acquired by R. Keith Fetter ("Fetter") that are issuable by the Company to Fetter ("Fetter Shares") upon the exercise of two (2) warrants previously issued by the Company to Fetter ("Fetter Warrants");

- (xv) up to 31,176 shares of Common Stock which were issued to Evelio Acosta ("Acosta Shares") in connection with an Asset Purchase Agreement ("Asset Purchase Agreement");
- (xvi) up to 31,175 shares of Common Stock which were issued to Lewis R. Goodman ("Goodman Shares") in connection with the Asset Purchase Agreement; and
- (xvii) up to 140,823 shares of Common Stock which were issued to Hesco Sales, Inc. ("Hesco Shares") in connection with the Asset Purchase Agreement;

We have examined such corporate records, certificates of officers, other documents and questions of law, as we have considered necessary or appropriate for the purposes of this opinion.

On the basis of such examination and review, we are of the opinion that:

- (i) the RBB Shares previously issued or issuable pursuant to the terms of the Series 4 Class D Preferred Stock, Series 6 Class F Preferred Stock, Series 8 Class H Preferred Stock, Series 12 Class L Preferred Stock, Series 15 Class O Preferred Stock, the Series 6 Warrants, the Series 10 Class J Preferred Stock, the Series 13 Class M Preferred Stock, the Series 16 Class P Preferred Stock, and the Series 10 Warrants constitute or will constitute, when so issued, validly issued and fully paid and nonassessable shares of Common Stock;
- (ii) the Infinity Shares previously issued or issuable pursuant to the terms of the Infinity Shares previously issued pursuant to the terms of the Series 5 Class E Preferred Stock, Series 7 Class G Preferred Stock, Series 9 Class I Preferred Stock, and the Infinity Warrants constitute or will constitute, when so issued, validly issued and fully paid and nonassessable shares of Common Stock;

Perma-Fix Environmental Services, Inc.

October 21, 1999

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- (iii) the Liviakis Shares previously issued by the Company pursuant to the terms of the Liviakis Exchange Agreement, constitute validly issued and fully paid and nonassessable shares of Common Stock;
- (iv) the Prag Shares previously issued by the Company pursuant to the terms of the Liviakis Exchange Agreement, constitute validly issued and fully paid and nonassessable shares of Common Stock;
- (v) the Fontenoy Shares will constitute, when issued by the Company pursuant to the terms of the Fontenoy Warrants, validly issued and fully paid

and nonassessable shares of Common Stock;

- (vi) the JW Genesis Shares will constitute, when issued by the Company pursuant to the terms of the JW Genesis Warrants, validly issued and fully paid and nonassessable shares of Common Stock;
- (vii) the Blair Shares will constitute, when issued by the Company pursuant to the terms of the Blair Remainder Warrant, validly issued and fully paid and nonassessable shares of Common Stock;
- (viii) the Davis Shares will constitute, when issued by the Company pursuant to the terms of the Davis Warrant, validly issued and fully paid and nonassessable shares of Common Stock;
- (ix) the Stahler Shares will constitute, when issued by the Company pursuant to the terms of the Stahler Warrant, validly issued and fully paid and nonassessable shares of Common Stock;
- (x) the Bell Shares will constitute, when issued by the Company pursuant to the terms of the Bell Warrant, validly issued and fully paid and nonassessable shares of Common Stock;
- (xi) the Renov Shares will constitute, when issued by the Company pursuant to the terms of the Renov Warrant, validly issued and fully paid and nonassessable shares of Common Stock;
- (xii) the Ally Shares will constitute, when issued by the Company pursuant to the terms of the Ally Warrant, validly issued and fully paid and nonassessable shares of Common Stock;

Perma-Fix Environmental Services, Inc.

October 21, 1999

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- (xiii) the Ehlert Shares will constitute, when issued by the Company pursuant to the terms of the Ehlert Warrants, validly issued and fully paid and nonassessable shares of Common Stock;
- (xiv) the Fetter Shares will constitute, when issued by the Company pursuant to the terms of the Fetter Warrants, validly issued and fully paid and nonassessable shares of Common Stock;
- (xv) the Acosta Shares previously issued by the Company pursuant to the terms of the Asset Purchase Agreement, constitute validly issued and fully paid and nonassessable shares of Common Stock;
- (xvi) the Goodman Shares previously issued by the Company pursuant to the terms of the Asset Purchase Agreement, constitute validly issued and fully paid and nonassessable shares of Common Stock; and
- (xvii) the Hesco Shares previously issued by the Company pursuant to the terms of the Asset Purchase Agreement,



constitute validly issued and fully paid and  
nonassessable shares of Common Stock;

We consent to the reference to our firm under the heading  
"Legal Opinion" and to the filing of this opinion as Exhibit 5.1  
to said Registration Statement.

Very truly yours,

CONNER & WINTERS,  
A Professional Corporation

/s/ Conner & Winters

Consent of Independent  
Certified Public Accountants

Perma-Fix Environmental Services, Inc.  
Gainesville, Florida

We hereby consent to the incorporation by reference into this Registration Statement on Form S-3, Registration No. 333-43149, of our report dated March 5, 1999, relating to the consolidated financial statements of Perma-Fix Environmental Services, Inc. appearing in the Annual Report on Form 10-K for the year ended December 31, 1998.

We also consent to the reference to us under the heading "Experts" in the Prospectus.

/s/ BDO Seidman, LLP

BDO Seidman, LLP

Orlando, Florida  
October 20, 1999

B O V I T Z

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& C O, C P A, P. C.

CERTIFIED PUBLIC ACCOUNTANTS

CONSENT OF INDEPENDENT  
CERTIFIED PUBLIC ACCOUNTANTS

Perma-Fix Environmental Services, Inc.  
Gainesville, Florida

We hereby consent to the incorporation by reference into this Registration Statement on Form S-3, Registration No. 333-43149, of our report dated January 26, 1999, relating to the combined financial statements and schedule of Chemical Conservation Corporation, Chemical Conservation of Georgia, Inc. and Chem-Met Services, Inc. and subsidiaries appearing in the Report on Form 8-K/A, earliest event June 1, 1999 of Perma-Fix Environmental Services, Inc. We also consent to the reference to us under the heading "Experts" in the Prospectus.

/s/ Robert L. Bovitz  
Robert L. Bovitz  
Bovitz & Co., CPA, P.C.

Trenton, Michigan  
October 19, 1999

1651 Kingsway Court \* P.O. Box 445 / Trenton, Michigan 48183-0445  
Phone: (734) 671-5300 / Fax: (734) 671-6504  
Website: [bovitzcpa.com](http://bovitzcpa.com) / E-Mail: [bovitz@bovitzcpa.com](mailto:bovitz@bovitzcpa.com)

POWER OF ATTORNEY

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KNOW ALL PERSONS BY THESE PRESENTS that Thomas P. Sullivan hereby constitutes and appoints Dr. Louis F. Centofanti as his true and lawful attorney-in-fact and agent, with full power of substitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to the Registration Statement of Perma-Fix Environmental Services, Inc., Registration No. 333-43149, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent or his substitute or substitutes, shall do or cause to be done by virtue hereof.

/s/ Thomas P. Sullivan

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Thomas P. Sullivan, Director  
Perma-Fix Environmental Services, Inc.

October 20, 1999