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THIS DOCUMENT WAS PREPARED BY AND  
AFTER RECORDING SHOULD BE RETURNED TO:

97478155

Evan Kraus  
STEIN, RAY & CONWAY  
222 West Adams  
Suite 1800  
Chicago, Illinois 60606



DEPT-01 RECORDING \$48.50  
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\$1080 + KE \* -97-478155  
COOK COUNTY RECORDER

## SUBCONTRACTOR'S NOTICE AND CLAIM FOR MECHANICS LIEN

STATE OF WISCONSIN            )  
  ) SS  
COUNTY OF WAUKESHA        )

The claimant, McLaren/Hart Environmental Engineering Corporation ("Claimant"), with an address at 3695-M North 126th Street, Brookfield, Wisconsin 53005, hereby files its Subcontractor's Notice and Claim for Mechanics Lien on the Real Estate (as hereinafter described) and on all funds owing to any of Environmental Science & Engineering, Inc. ("ESE") of 8901 North Industrial Road, Plover, Illinois 61615, as general contractor, or Smith Technology Corporation ("Smith") of 2080 South Carboy Road, Mt. Prospect, Illinois 60056, as subcontractor, by 3635 Touhy L.L.C. ("Owner") of 3600 West Lake Avenue, Glenview, Illinois 60025, and against the interest of any person claiming an interest in the Real Estate (as hereinafter described) by, through or under Owner.

Claimant states as follows:

1. Since on or about August 22, 1995, Owner has owned the Real Estate in Cook County, Illinois, and legally described in Attachment 'A' to this Notice and Claim for Mechanics Lien. The Real Estate Tax Numbers are 10-35-107-009 and 10-35-107-010.
2. ESE was Owner's general contractor for the provision of professional engineering services on the Real Estate.
3. With the knowledge and consent of Owner, ESE entered into a written subcontract with Smith for the provision of professional engineering services on the Real Estate.
4. On or about October 18, 1996, Smith, as subcontractor, made a written sub-subcontract with Claimant under which Claimant agreed to provide all necessary labor, material and apparatus to provide professional engineering services on the Real Estate and on three (3) adjoining parcels of real estate (the "Adjoining Real Estate") known by Tax Numbers 10-35-107-014, 10-35-200-001, 10-35-200-011 and 10-35-200-012, in exchange for payment in the original contract sum of Four Hundred Thirty-Four Thousand, Five Hundred Dollars (\$434,500) (the "Sub-Subcontract").

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10-35-107-009  
10-35-107-010

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5. Claimant performed Thirty-Five Percent (35%) of the professional engineering services on the Real Estate, and Sixty-Five Percent (65%) of the professional engineering services on the Adjoining Real Estate.

6. Claimant furnished extra and additional materials and extra and additional labor on the Real Estate to the value of One Hundred Ninety-Seven Thousand, Nine Hundred Eighty-Three Dollars and Ninety-Six Cents (\$197,983.96). Claimant completed providing the additional materials and labor at various times.

7. The Owner specifically authorized ESE and/or ESE's agents to enter into contracts for the provision of professional engineering services on the Real Estate. Alternatively, the Owner knowingly permitted ESE and/or ESE's agents to enter into contracts for the provision of professional engineering services on the Real Estate.

8. As of the date hereof, there is due, unpaid and owing to Claimant, after allowing credits for payments made, the balance of Two Hundred Eighty-Nine Thousand, Eighty-Six Dollars and Sixteen Cents (\$289,086.16), which, with interest, Claimant claims a lien on the Real Estate and on the monies or other consideration due or to become due from Owner to ESE under the Contract between Owner and ESE, and under the subcontract between ESE and Smith.

9. This Notice and Claim for Mechanics Lien voluntarily revokes and supersedes that certain Amended Notice and Claim for Mechanics Lien Number 97167676 for the amount of Two Hundred Two Thousand, Eight Hundred Fifty-Five Dollars and Sixty-Four Cents (\$202,855.64).

Dated: July 1, 1997

McLAREN/HART ENVIRONMENTAL ENGINEERING CORPORATION



By: \_\_\_\_\_

Kim Anderson, Ph.D.  
Vice President  
McLaren/Hart Environmental  
Engineering Corporation

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**THIS DOCUMENT HAS BEEN PREPARED BY AND  
AFTER RECORDING SHOULD BE RETURNED TO:**

Evan Kraus  
STEIN, RAY & CONWAY  
222 West Adams, Suite 1800  
Chicago, Illinois 60606

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## CERTIFICATE OF SERVICE

I, Evan Kraus, an attorney, on oath, depose and state that on July 2, 1997, I served this Subcontractor's Notice and Claim for Mechanics Lien by sending a duplicate original thereof to the following entities by certified mail, return receipt requested, restricted delivery from 222 West Adams, Suite 1800, Chicago, Illinois:

Smith Technology Corporation  
2080 S. Carboy Road  
Mt. Prospect, Illinois 60056

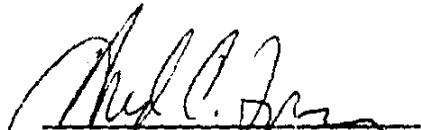
3635 Touhy L.L.C.  
3600 W. Lake Avenue  
Glenview, Illinois 60025

Environmental Science & Engineering, Inc.  
8901 North Industrial Road  
Peoria, Illinois 61615



Evan Kraus

SUBSCRIBED AND SWORN to  
before me this 2nd day  
of July, 1997.



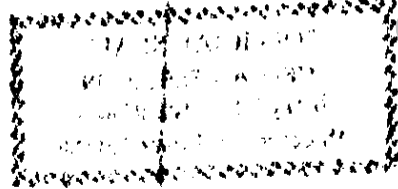
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## ATTACHMENT A

TO

McLAREN/HART ENVIRONMENTAL ENGINEERING CORPORATION'S  
SUBCONTRACTOR'S NOTICE AND CLAIM FOR MECHANICS LIEN  
AGAINST 3635 TOUHY L.L.C.

### PARCEL 4:

THAT PART OF THE EAST 1/2 OF THE NORTHEAST 1/4 OF THE NORTHWEST 1/4 OF SECTION 35, TOWNSHIP 41 NORTH, RANGE 13, EAST OF THE THIRD PRINCIPAL MERIDIAN, (EXCEPT THE WEST 188.0 FEET THEREOF, AS MEASURED ON THE NORTH LINE THEREOF) DESCRIBED AS FOLLOWS:

NOTE: THE WEST LINE OF THE ABOVE TRACT IS ASSUMED AS "DUE NORTH" FOR THE FOLLOWING COURSE:

BEGINNING AT THE NORTHEAST CORNER OF SAID NORTHWEST 1/4 OF SECTION 35; THENCE SOUTH 88 DEGREES 37 MINUTES WEST ON THE NORTH LINE THEREOF 245.81 FEET TO THE NORTHEAST CORNER OF THE WEST 412.33 FEET (AS MEASURED ON THE NORTH LINE OF SAID NORTHWEST 1/4) OF SAID EAST 1/2 OF THE NORTHEAST 1/4 OF THE NORTHWEST 1/4 FOR THE POINT OF BEGINNING OF THIS TRACT OF LAND; THENCE DUE SOUTH ON THE EAST LINE OF SAID WEST 412.33 FEET, A DISTANCE OF 791.0 FEET; THENCE DUE WEST AT RIGHT-ANGLE TO THE LAST COURSE 224.27 FEET TO A POINT IN THE EAST LINE OF THE SAID WEST 188 FEET; THENCE DUE NORTH ON SAID LINE 785.58 FEET TO THE NORTH LINE OF SAID NORTHWEST 1/4; THENCE NORTH 88 DEGREES 37 MINUTES EAST ON SAID LINE 224.33 FEET TO THE POINT OF BEGINNING (EXCEPTING THE NORTH 40.0 FEET BY RIGHT ANGLE MEASUREMENT, TAKEN FOR TOUHY AVENUE), IN COOK COUNTY, ILLINOIS.

### PARCEL 5:

THAT PART OF THE EAST 1/2 OF THE NORTHEAST 1/4 OF THE NORTHWEST 1/4 OF SECTION 35, TOWNSHIP 41 NORTH, RANGE 13, EAST OF THE THIRD PRINCIPAL MERIDIAN, (EXCEPT THE WEST 188.0 FEET THEREOF AS MEASURED ON THE NORTH LINE OF SAID NORTHWEST 1/4) DESCRIBED AS FOLLOWS:

NOTE: THE WEST LINE OF THE ABOVE TRACT IS ASSUMED AS "DUE NORTH FOR THE FOLLOWING COURSES:"

BEGINNING AT THE NORTHEAST CORNER OF SAID NORTHWEST 1/4 OF SECTION 35; THENCE SOUTH 88 DEGREES 37 MINUTES WEST ON THE NORTH LINE THEREOF 245.81 FEET TO THE NORTHEAST CORNER OF THE WEST 412.33 FEET (AS MEASURED ON THE NORTH LINE OF SAID NORTHWEST 1/4) OF SAID EAST 1/2 OF THE NORTHEAST 1/4 OF THE NORTHWEST 1/4; THENCE DUE SOUTH ON THE EAST LINE OF SAID WEST 412.33 FEET A DISTANCE OF 791.0 FEET TO THE POINT OF BEGINNING OF THIS TRACT OF LAND; THENCE CONTINUING DUE SOUTH 171.05 FEET; THENCE DUE EAST AT RIGHT ANGLES TO THE LAST DESCRIBED COURSE A DISTANCE OF 17.50 FEET; THENCE DUE SOUTH PARALLEL WITH THE SAID EAST LINE OF THE WEST 412.33 FEET A DISTANCE OF 50.00 FEET; THENCE SOUTHEASTERLY ON A CURVED LINE CONVEX TO THE SOUTHWEST, TANGENT TO SAID PARALLEL LINES, HAVING A RADIUS OF 519.33 FEET, A DISTANCE OF 140.82 FEET; THENCE SOUTH 15 DEGREES 32 MINUTES 10 SECONDS EAST ON A STRAIGHT LINE TANGENT TO SAID CURVED LINE, A DISTANCE OF 30.0 FEET; THENCE SOUTHEASTERLY ON A CURVED LINE CONVEX TO THE NORTHEAST, TANGENT TO SAID STRAIGHT LINE AND HAVING A RADIUS OF 317.06 FEET A DISTANCE OF 94.35 FEET, MORE OR LESS, TO AN INTERSECTION WITH THE WESTERLY LINE OF THE RIGHT OF WAY OF THE CHICAGO AND NORTHWESTERN RAILWAY; THENCE SOUTH 21 DEGREES 22 MINUTES WEST ON SAID LINE 48.10 FEET TO THE SOUTH LINE OF SAID NORTHWEST 1/4 OF THE NORTHWEST 1/4; THENCE SOUTH 88 DEGREES 30 MINUTES WEST ON SAID LINE 262.24 FEET TO A POINT IN THE EAST LINE OF THE SAID WEST 188 FEET; THENCE DUE NORTH ON SAID LINE 532.88 FEET TO A POINT IN A LINE THAT IS DRAWN AT RIGHT ANGLES TO THE ABOVE COURSE AND SAID RIGHT ANGLE LINE PASSES THROUGH THE POINT OF BEGINNING OF THIS TRACT OF LAND; THENCE DUE EAST ON SAID RIGHT ANGLE LINE 224.27 FEET TO THE SAID POINT OF BEGINNING (EXCEPT THEREFROM THAT PART LYING SOUTH OF A LINE 212.94 FEET NORTH OF AND PARALLEL WITH THE SOUTH LINE OF SAID TRACT) IN COOK COUNTY, ILLINOIS.

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## SMITH TECHNOLOGY CORPORATION SUBCONTRACT AGREEMENT

Project: \_\_\_\_\_

Job Number: 10180 Subcontract Number: \_\_\_\_\_

Contractor: Smith Technology Corporation

Address: 2080 South Carboy Road, Mount Prospect, IL 60056

Telephone: 847/437-3408

Subcontractor: McClarn/Hart, Inc.

Address: 25 Independence Blvd, Wallingford, VT 07059

Telephone: 908/647-8111 ext. 203

Effective Date: \_\_\_\_\_

Contractor has entered into a contract ("General Contract") Number \_\_\_\_\_ with

\_\_\_\_\_ ("Client") for the performance work on a location

described as: \_\_\_\_\_

The parties are desirous of entering into a subcontract by the terms of which Subcontractor will undertake the performance of a portion of the work to be performed under the General Contract. THEREFORE, in consideration of the mutual covenants and agreements herein contained and the payments to be made as herein provided, Contractor and Subcontractor mutually agree as follows:

### 1. GENERAL CONTRACT

- 1.1 Subcontractor acknowledges that it is fully familiar with the terms and conditions of the General Contract, which is incorporated herein, including but not limited to the General and Special Conditions, specifications, drawings and all other documents pertaining to the General Contract, and agrees to comply with the terms and conditions of the General Contract, which are applicable to this work.
- 1.2 Subcontractor acknowledges that it is fully informed as to the nature and location of the work, the general and local conditions, including weather conditions, and the hazards inherent in the work.

SMITH TECHNOLOGY CORPORATION  
SUBCONTRACT AGREEMENT

Page 122134 of 13  
May 23, 1994

*14 pgs total*

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2. WORK TO BE PERFORMED.

- 2.1 Subcontractor agrees to perform the work described in Exhibit A of this agreement. Exhibit A is a detailed description of the work to be performed by the Subcontractor and contains performance schedule, cost estimates, a schedule of rates and a payment schedule.
- 2.2 Subcontractor shall furnish all labor, materials, tools, equipment and supplies, except as may otherwise herein be provided, required for performance of the work, in accordance with the terms and conditions of Exhibit A, and any written modification, or price adjustment (collectively "Change Order") to this agreement.

3. COMPLETION AND TIMELY PERFORMANCE

- 3.1 Timely and strict compliance with Exhibit A are the essence of this agreement.
- 3.2 Subcontractor agrees, promptly after being directed by Contractor as to do, to commence the work and to prosecute the work diligently and continuously thereafter so as to complete all of the work in accordance with Exhibit A.
- 3.3 Subcontractor further understands that the Work to be performed may be performed concurrently with other work and will require coordination with work to be performed by others, as to time, location and scheduling. Subcontractor agrees to cooperate fully and to become familiar with the work to be performed by others where such coordination is necessary.

4. PAYMENTS TO SUBCONTRACTOR

- 4.1 The subcontract price is accepted by the Subcontractor as full compensation for the performance of all work required and for the risk of all loss or damage of every description arising out of or in connection with the work, provided that the price may be adjusted as herein provided through a Change Order. The Subcontract price includes all taxes, fees, or premiums and penalties arising out of or in connection with the work. *with 35-45% of profit of finance*
- 4.2 Payments to the Subcontractor will be made by ERF notes for work made out to Smith Technologies, Inc. and McLaughlin, Inc. for services rendered by both. *Smith Technologies, Inc. shall return Smith Technologies, Inc. upon their receipt of such check. For the portion of the check related to Smith Technologies, Inc. work according to the payment schedule contained in Exhibit A and if partial payments are allowed they will be made to the Subcontractor at the same intervals as such payments are made by the Client to the Contractor. The Contractor has the option to withhold up to 10% of the money due the Subcontractor until the agreement has been satisfactorily completed.*
- 4.3 No compensation shall be paid Subcontractor for work not approved and accepted by Client; and payment by Client to Contractor shall be deemed a condition precedent to payment by Contractor to Subcontractor. Where partial payments occur said partial payments shall not become due to Subcontractor until ten (10) days after Contractor received payment from the Client.

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- 4.4 No moneys shall be deemed owing the Subcontractor until Subcontractor has fulfilled all of Subcontractor obligations stated in Section 5.1.
- 4.5 Contractor reserves the right, prior to making any partial payment or final payment to Subcontractor, to require Subcontractor to certify under oath that all obligations incurred by or on behalf of the Subcontractor in connection with performance of its obligations hereunder have been paid. In addition to such certification, Contractor may require Subcontractor to furnish evidence that all such obligations have been satisfied.
- 4.6 Subcontractor agrees that as an additional condition precedent to final payment, Subcontractor shall execute and deliver to Contractor a release and complete discharge of and from any and all claims and demands arising out of, or in any manner connected with the Work performed hereunder, in favor of Contractor and Client. Such release and discharge shall be in addition to any other certification, warranty or indemnification by Subcontractor hereunder. In the absence of an executed release and final discharge, Subcontractor agrees that the acceptance by Subcontractor of final payment shall constitute and operate as a release and complete discharge of Contractor and Client and from all claims and demands arising out of, or in connection with the Work performed hereunder.

5. PAYMENTS BY SUBCONTRACTOR

- 5.1 Subcontractor shall promptly make payment to all persons supplying Subcontractor with labor, materials, equipment and (or) tools used or to be used in the prosecution of the Work or in connection therewith and all other charges, taxes, fees, assessments, premiums and sums of whatever nature arising out of or in connection with Subcontractor's work pursuant to this agreement. Subcontractor will defend, indemnify and hold Contractor, Client, and their parties harmless from any action, suit, claim, lien, cost or expense arising from nonpayment by Subcontractor of any such obligation.
- 5.2 Contractor reserves the right to make payment directly to such creditors of Subcontractor as may assert such claims and Subcontractor assents to such payment by Contractor.
- 5.3 Subcontractor agrees that if any lien is filed or if a claim of any nature is asserted against Client or Contractor on account of any obligation of Subcontractor, Subcontractor shall, within five (5) days thereafter at its own cost and expense, cause such lien or claim to be satisfied or discharged; Subcontractor's failure to do so shall constitute a default of this agreement.

6. CHANGES EXTRA WORK

- 6.1 A Change Order as described in Section 2.2 is defined as a written order by Contractor modifying the terms, provisions, or performance requirements contained in Exhibit A.
- 6.2 Subcontractor agrees to be bound by any modifications or changes of the work to be performed made at the direction of the Contractor through a written Change Order. Subcontractor will be notified of such Change Order and where practicable, consulted with respect to the proposed changes.

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- 6.2.1 Subcontractor may submit a written proposal to Contractor of any cost or performance schedule adjustment which Subcontractor reasonably believes will result from the Change Order.
- 6.2.2 Contractor and Subcontractor shall negotiate in good faith the subcontractor's proposed adjustments.
- 6.2.3 Contractor shall present the adjustments to the Client. ~~Subcontractor hereby authorizes Contractor to negotiate on its behalf the proposed cost or performance schedule adjustments, and agree to comply with any final determination of the Client in accordance with the General Contract and this Subcontract regarding any Change Order or modification.~~ Subcontractor agrees to proceed with the performance of the work under the Change Order.

7. FORCE MAJEURE

- 7.1 ~~The performance of this subcontract, except for the payment of money for services already rendered, may be suspended by either party in the event performance of this subcontract is prevented by a cause or causes beyond the reasonable control and without the fault or negligence of either party.~~ Such causes shall include, but not be limited to, acts of God, acts of war, riot, fire, explosion, accident, flood, or sabotage; Governmental laws, regulations, requirements, orders, or actions; breakage or failure of machinery or apparatus; national defense requirements; injunctions or restraining orders; lat or trouble, strike, lockout or injunction (provided that neither party shall be required to settle a labor dispute against its own best judgment).
- 7.2 The party asserting a right to suspend performance under this Section must, within a reasonable time after it has knowledge of the effective cause, notify the other party of the cause for suspension. Suspension compensation will be provided according to the terms of Section 10.3.
- 7.3 If such suspension substantially impairs the value of this agreement, either party may terminate this Subcontract by giving 10 days notice in writing of such termination and complying with Section 15.1 notice provisions. Termination compensation will be paid to the Subcontractor according to the terms of Section 10.4.
- 7.4 The party asserting a right to suspend performance shall advise the other party when the suspending event has ended, and when performance will be resumed.

8. DEFAULT BY SUBCONTRACTOR

- 8.1 Subcontractor shall be in default if it: (1) fails to commence the work within the specified time, or (2) fails to prosecute the work continuously with sufficient supervision, workers, and equipment to ensure its completion within the time and in the manner herein specified, or (3) fails to perform the work according to any term or provision of the General Contract or of this subcontract or (4) shall be dissolved, have entered against it an order for relief in an involuntary case under the Federal Bankruptcy Laws, commences a voluntary case under the Federal Bankruptcy Laws, makes an assignment for the benefit of creditors or file a petition to take advantage of any other state or federal insolvency statute or fail to pay its obligations as they come due, or (5) fails in any other respect to fully perform its obligations hereunder, or (6) by any act or omission, gives the Contractor

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or Client reasonable cause to doubt Subcontractor's ability to fully and properly perform its obligations hereunder in a timely manner.

8.2 Contractor may give Subcontractor notice in writing of such default, specifying the nature thereof, and if Subcontractor, within 48 hours after such notice, does not proceed to remedy such default, Contractor may, subject to whatever rights any trustee in bankruptcy has under the Federal Bankruptcy Act: (1) terminate this agreement or, (2) without process of law and without terminating or violating this agreement, take over possession and performance of the work, or any portion thereof, and complete it with its own forces, or (3) contract with other parties for its completion, or (4) use such other measures as in Contractor's sole discretion are appropriate to ensure its timely and proper completion.

8.3 Contractor shall be entitled to recover from Subcontractor, and from Subcontractor's surety, if any, all costs expenses, losses or damages, including administrative costs, reasonable attorneys' fees and related legal expenses, incurred in connection with Subcontractor's default, including interest on any fees expended by Contractor resulting from the default.

9. TERMINATION FOR CONVENIENCE

9.1 Contractor may without cause and at any time, terminate this agreement in whole or in part by written notice to Subcontractor. Subcontractor will receive compensation according to Section 10.4

10. COMPENSATION FOR DELAY, SUSPENSION AND TERMINATION

10.1 Subcontractor shall comply with all instructions issued by Client and Contractor to delay, suspend or terminate the performance or completion of the work.

10.2 If Subcontractor is delayed by act or omission of Client, Contractor or other subcontractors, Subcontractor shall not be entitled to additional compensation for increased costs resulting therefrom, but shall only be entitled to an equitable adjustment of the time allowed for performance of the work hereunder, unless additional compensation is allowed and paid by Client to Contractor, which payment shall be deemed a condition precedent to any payment by Contractor to Subcontractor.

10.3

In the event of suspension, Subcontractor shall be paid for work completed up to the date of suspension, plus reasonable costs actually incurred by Subcontractor as a result of the suspension, in the event and to the extent that Contractor receives payment thereof from Client.

10.4 In the event of termination, Subcontractor may claim its reasonable direct costs incurred prior to the effective date of termination plus a reasonable allowance for profit, and will be entitled to other costs or damages, provided, however, the total sum payable upon termination shall not exceed the subcontract price reduced by payments previously made.

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11. INSURANCE

11.1 Prior to performance of any work hereunder, Subcontractor shall obtain insurance, with the limits, coverage, and for such period of time as designated by Contractor, as follows:

11.1.1 Workers' Compensation (or its equivalent) as required by all applicable laws, including Federal Compensation Laws and Employer's Liability, with limits of \$1,000,000. each occurrence.

11.1.2 Broad Form Comprehensive General Liability, including contractors liability, blanket contractual liability, \* completed operations, products liability, and explosion, collapse and underground property damage, all on an occurrence basis extended for at least two years after completion of the General Contract, with limits of \$1,000,000. each occurrence personal injury and property damage, combined single limit and in the aggregate.

11.1.3 Comprehensive Automobile Liability, (including non-ownership and hired car coverage as well as owned vehicles, with limits of \$1,000,000. each occurrence personal injury and property damage, combined single limit.

11.1.4 All Risk Builders Risk (Completed Value basis), unless such coverage has been furnished by Owner or Contractor and Subcontractor has been advised in writing that such coverage has been arranged by them. (Required only if the work contemplated hereunder involves a building or structure).

11.1.5 Protection and Indemnity Liability and Crew Liability for watercraft, to the amount of \$1,000,000. each occurrence. (Required only if the work contemplated hereunder involves use of watercraft).

11.1.6 Contractor's Pollution Legal Liability, sudden, accidental and gradual, with limits of not less than \$1,000,000. each occurrence and \$2,000,000. in the annual aggregate. (Required only if the work contemplated hereunder involves the performance of remediation activities on site).

11.1.7 Professional Errors and Omissions Coverage in the amount of \$1,000,000 per occurrence and \$2,000,000 in the aggregate. (Required only if the work contemplated hereunder involves analytical testing, consulting or other professional services)

11.1.8 Automotive/Transportation Liability in the amount of \$3,000,000. each occurrence, personal injury and property damage combined single limit, with MCS-10 hazardous materials transport endorsement. (Required only if work contemplated hereunder involves the transportation of hazardous materials).

\* Delete the highlighted portion if subcontract is used for analytical testing or similar professional services.

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11.1.9 Environmental Impairment Liability with limits \$3,000,000. per occurrence and \$6,000,000. in the aggregate. (Required only of a TSDP. Contractor need not be named additional insured on this coverage.)

11.2 In addition to the coverage enumerated herein, Subcontractor agrees to obtain such additional insurance coverage as may be required by the General Contract or in the judgment of the Contractor may be reasonably necessary to protect Contractor's interest in the work.

11.3 Subcontractor shall require all insurance companies issuing policies of insurance to subcontractor pursuant to this agreement to certify to Contractor that such policies have been issued, are in force, and will not be canceled or annulled except upon thirty (30) days' prior written notice to Contractor. Subcontractor shall not cancel any policies of insurance required hereunder, either before or after completion of the work, without the written consent of the Contractor. All policies, except coverage required under Subsections 11.1.1 and 11.1.9, shall name Contractor its officers, agents and employees as additional insured, and ~~The programs under Sections 11.1.1, 11.1.2, and 11.1.9 shall provide for waiver of subrogation rights against Contractor, its officers, agents and employees.~~

11.4 In the event a subcontract under this subcontract is further subcontract, Subcontractor shall require insurance as herein provided to be obtained by all such subcontractors of any tier and shall, upon request, furnish Contractor evidence of such insurance.

11.5 In the event Subcontractor fails or refuses to obtain any insurance required hereunder, Contractor may, in its sole discretion, procure appropriate insurance, pay the premium costs and deduct such costs from sums due or to become due Subcontractor or may otherwise proceed to collect such costs plus interest thereon from Subcontractor or declare the Subcontractor in default of this agreement.

12. INDEMNITY

12.1 Subcontractor agrees to defend, indemnify and hold harmless Contractor and Client (including their officers, agents and employees) from any and all claims, demands, loss, cost, damage, expense or liability, including attorneys' fees and related legal expenses arising out of or in any manner connected with Subcontractor's contractual obligations arising under this agreement.

12.2 Subcontractor also agrees to defend, indemnify and hold harmless Contractor and Client (including their officers, agents and employees) from any and all claims, demands, loss, cost, damage, expense or liability, including attorneys' fees and related legal expenses, resulting from injury to or death sustained by any person (including but not limited to Subcontractor's employees) or damage to property of any kind actually or allegedly arising out of or in any way connected with the work to be performed by Subcontractor and resulting from acts of negligence, error or omission.

12.3 At any time before final settlement or adjudication of any loss, damage, liability, claim, demand, suit or cause of action for which Subcontractor hereby agrees to indemnify and save harmless Client and Contractor, Contractor may withhold from any payment due or to become due Subcontractor an amount judged by Contractor to be sufficient to protect Client and Contractor from any loss, cost,

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expense, damage or liability associated therewith, including attorney's fees to the extent and related legal expenses.

12.3.1 Contractor agrees to hold harmless the Subcontractor from and against liability, including reasonable counsel fees, to the extent arising out of a) negligence of Contractor, b) any breach by contractor of any obligations hereunder.

12.3.2 Contractor acknowledges that Subcontractor has neither created nor contributed to the creation of or existence of contamination located at the project site which occurred prior to the date on which the performance of the work which is subject of this Subcontract Agreement is commenced hereunder (collectively, "Pre-existing Conditions"). Accordingly, Contractor agrees to hold harmless the Subcontractor against liability, including reasonable counsel fees arising from or relating to Pre-existing Conditions except where such liability is attributable to or aggravated by the act or omission of the Subcontractor.

12.3.3 Contractor's limitation of liability under this article shall not exceed \$1,000,000 and neither party shall be liable to the other for consequential damages.

13. SETTLEMENT OF DISPUTES

13.1 In addition to any remedies the parties may have at law, equity or otherwise, the parties may, by mutual agreement, choose to resolve any dispute arising under this Subcontract through alternative dispute resolution procedures, or through arbitration conducted in accordance with Construction Industry Arbitration Rules of the American Arbitration Association.

13.2 Notwithstanding the pendency of a dispute, Subcontractor shall continue to prosecute the work and perform all of its obligations hereunder as directed by Contractor.

14. SAFETY

14.1 Subcontractor shall comply with all applicable safety rules, regulations and recognized trade practices for the protection of workers and other persons about the work area. Subcontractor shall also promptly comply with any directives issued by Contractor or Client pertaining to safety and shall participate fully in Contractor's safety program.

14.2 Where applicable, Subcontractor shall provide, erect and maintain adequate warning signals, signs, lights, barricades, and fences and shall take all other necessary precautions for the protection of the work and safety of the public.

14.3 Subcontractor shall perform its work in such manner that the project site shall be at all times clean, orderly and free from debris. Upon completion of its work, Subcontractor shall remove all plant and excess materials from the site, clean up all refuse and debris, and leave the site in a clean and orderly condition.

15. NOTICE

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15.1 Any notice required or permitted to be given hereunder shall be in writing and deemed to have been sufficiently given when delivered in person or by registered or certified mail, postage prepaid, return receipt requested to the address of the respective party below:

**CONTRACTOR**  
Smith Technology Corporation  
Attn:  
Title:

**SUBCONTRACTOR**  
McLean Hill, Inc.  
Attn: Kenneth W. Pilarski  
Title: Contract Manager

16. **CONFLICT WITH TERMS OF GENERAL CONTRACT**

16.1 In the event of a specific conflict between a term of this agreement and a term of the General Contract, the term of this subcontract shall prevail, unless the General Contract Term imposes a greater obligation, in which case Subcontractor shall comply with the greater obligation of the General Contract.

17. **INDEPENDENT CONTRACTOR**

17.1 Subcontractor is an independent contractor and employing unit, and Subcontractor shall keep such records and make such records and payments of taxes or contributions as are required by law. Subcontractor agrees to defend, indemnify and hold harmless Contractor from any claim, demand, loss, expense or liability arising in connection with Subcontractor's status as an employing unit.

18. **COMPLIANCE WITH THE LAW**

18.1 Subcontractor agrees to pay for and obtain all necessary permits, licenses, registrations, inspections and authorizations required prior to commencement of the Work, and as may be required to complete the Work.

18.2 Subcontractor shall comply with all applicable federal, state, and local laws, regulations and standards, including without limitation those governing labor, safety, health and sanitation, and subcontractor agrees to defend, indemnify and hold harmless Contractor from any and all claims, demands, loss, cost, expense or damages, including attorneys' fees and reasonable legal expense, which may result from violation of such laws, regulations and standards.

19. **DELEGATION AND ASSIGNMENT**

19.1 Subcontractor shall not assign this agreement without Contractor's prior written consent. Subcontractor shall not without the prior written consent of the Contractor, delegate the performance of the Work or any portion thereof, which is by this agreement undertaken by Subcontractor. Any such assignment or delegation, without the prior written consent of the Contractor, is void and of no force and effect.

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20. ENTIRE AGREEMENT

20.1 This subcontract and its exhibits and attachments represents the entire understanding and agreement between the contractor and subcontractor and supersedes any and all prior agreements, whether written or oral that may exist between the parties regarding the subject matter of this subcontract. No terms conditions, prior course of dealings, course of performance usage or trade understandings, purchase orders, or agreement purporting to modify, vary, supplement or explain any provision of this subcontract shall be effective unless in writing and signed by representatives of both parties authorized to amend this subcontract.

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21. AMENDMENTS

21.1 The basic material terms of this subcontract may be amended or modified only by separate written amendment to this agreement signed by an officer of each the parties. In order to be valid such an amendment must specifically state that it is the intent of the parties to modify a specific term of the agreement.

22. WAIVER

22.1 A waiver by Contractor of any condition, default, or breach of this agreement shall not be construed as a subsequent waiver of the same condition, default or breach, or as a waiver of any other condition, default, or breach.

23. CONSTRUCTION

23.1 The validity, interpretation and performance of this subcontract shall be governed and construed in accordance with the laws of the State in which the project is located. All paragraph headings herein are for convenience only and are in no way to be construed as part of this Subcontract or as a limitation of the scope of the particular section, subsection sentence or clause of this agreement.

24. SEPARABILITY

24.1 If any Section, subsection, sentence or clause of this subcontract shall be adjudged illegal, invalid or unenforceable, such illegality, invalidity or unenforceability shall not affect the legality, validity or enforceability of this subcontract as a whole or of any Section, subsection, sentence or clause hereof not so adjudged.

25. SUCCESSORS AND ASSIGNS

25.1 The covenants and agreements contained in this subcontract shall apply to, inure to the benefit of and be binding upon the parties hereto and upon their respective successors and assigns.

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10/18/96 10:43 8700 037 3408

SMITH TECHNOLOGY

003

10/18/96 10:55 TITAN TEXTILES

NO. 209 PCS

From Order Form: See CONTRACT WORK INFORMATION

To Job Order

Page 2 of 2 Monday, October 14, 1996 09:10 AM

IN WITNESS WHEREOF, the parties have caused this Subcontract to be executed by their duly authorized representatives as of the day and year first written.

SMITH TECHNOLOGY CORPORATION

Signature: 

Typed Name: BRUCE MACK

Title:

Date: 10/12/96

  
\_\_\_\_\_

Signature: 

Typed Name: Michael Barbara

Title: Chief Technical Officer

Date: October 18, 1996

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ATTACHMENT A

- 1.1 The scope of work is based upon a minimum of 10,000 cubic yards of trichloroethylene contaminated soil to be treated. McLaren/Hart will thermally treat soils in a process designed to achieve the treatment objective of <100 mg/kg (PPM), however it is recognized that trichloroethylene levels in individual batches of treated soil may vary, therefore up to 300 mg/kg (300 PPM) will be accepted in individual batches, providing that an average treatment level of  $\leq 200$  mg/kg (PPM) is maintained during the project.

Additional quantities of soil within the conditions as outlined in section 1.2 will be treated in accordance with the unit rates as listed in section 1.3 for the appropriate quantity.

- 1.2 Smith Technology Corporation recognizes the estimate furnished by McLaren/Hart Inc. is based upon conditions known at the time the estimate was prepared. Specifically these conditions are detailed in the site conditions portion of McLaren/Hart's August 1996 proposal as attached and updated by the Remedial Action Plan, ITW Lincolnwood Site, Lincolnwood, Illinois dated July 1996, as prepared by Environmental Science and Engineering, Inc. (ESE Project #53952778300) and furnished to McLaren/Hart, Inc. Conditions different from those outlined in this document will be cause for equitable adjustment of fees. The site conditions are further clarified as follows:

McLaren/Hart has prepared their proposal based upon an average moisture content in the soils of 20% over the lifetime of the project. As McLaren/Hart has contracted to provide treatment from a stockpile provided by Smith Technology Corporation to a stockpile for replacement by Smith Technology Corporation, moisture conditions of the soil are considered to be within the scope of the estimate if the soil moisture is an average of 20% at the time it is stockpiled for McLaren/Hart's use. Any increase in soil moisture while the soils are stockpiled will not be grounds for a change in conditions.

McLaren/Hart, Inc. will furnish and operate with all appurtenances, eight (8) thermal treatment units which will treat the anticipated soil contamination at a rate of approximately 450 - 474 tons per 24 hour day for an anticipated 26 days. Smith Technologies, Inc. will furnish soils for treatment to a stockpile area, McLaren/Hart, Inc. will be responsible for materials handling from that stockpile, thermal treatment to the required limit, and stockpiling of the treated soils. Smith Technology Corporation, Inc. will replace the soils.

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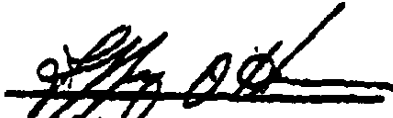
McLaren/Hart will be responsible for the setup and removal of their units including electrical wiring, but is not responsible for electrical service to the site.

McLaren/Hart will be responsible for proper disposal in accordance with all applicable laws and ordinances, all byproducts of their operation such as general refuse, spent filters, rinseate from decontamination, PPE, dust cyclone refuse, condensate, spent carbon, etc.

1.3 Schedule of Payment

Mobilization	\$ 37,500.00	Paid prior to Mobilization
Demobilization	\$ 5,175.00	Paid upon start of on Site
Oper. 10/18		
Fees	\$ 14,800.00	Paid at start of Demobilization
	\$ 3,825.00	Paid upon completion of
Demobilization		
	\$ 20,800.00	Total Proposed Mobilization & Demobilization Fees
	\$ 17.25	Unit Price per cubic yard for first 10,000 cubic yards
	\$ 373,600.00	Total unit price treatment fees (based on 10,000 cubic yards)
	\$ 434,500.00	Estimated Project Total (based on 10,000 cubic yards)
	\$ 38.00	Unit price per cubic yard for 10,000 - 20,000 cubic yards
	\$ 33.00	Unit price per cubic yard for 20,000 plus cubic yards
		Production Rates

Weekly invoices for production will be acceptable.

  
Acknowledged by:

10/11/88

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## Low Temperature Thermal Desorption

**Smith Environmental  
Technologies Corporation  
Mt. Prospect, IL**

August 21, 1996

*Prepared for:* Smith Environmental Technologies Corporation  
Remedial Services Division  
7060 Carboy Road  
Mt. Prospect, IL 60106

*Prepared by:* McLaren/Hart Environmental Engineering Corporation  
National Remediation Services  
9323 Stockport Place  
Charlotte, NC 28273

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17 pages total

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## EXECUTIVE SUMMARY

McLaren/Hart, Inc. is a multi disciplined engineering, consulting and remedial construction firm dedicated to solving environmental challenges. Our spectrum of services includes Risk Assessment, Regulatory Compliance Management, and Remediation.

For the past 15 years, McLaren/Hart has provided comprehensive remedial services to both the public and private sector. The company has experience in all major industrial sectors including automobile manufacturing, chemical processing, pulp and paper processing, petroleum industries, steel manufacturing, aerospace industries, and heavy manufacturing. In addition, McLaren/Hart has significant experience in the National Priority List (NPL)/Superfund program, having provided remedial services at over 40 CERCLA sites.

McLaren/Hart's National Remediation Services Group uses direct hire labor and company owned or leased equipment to implement a vast array of often complex remedial solutions. The group is managed by a number of skilled professionals having management experience on projects ranging from under \$100,000 to over \$30,000,000. The group provides remedial services on a national basis, operating out of the company's various locations and is comprised of technicians, machine operators, scientists, engineers, health and safety professionals, construction managers, estimators, and construction administrators.

On all of their projects, McLaren/Hart uses a phased project management approach beginning with assembling a dedicated project team; followed by delineation of the overall project into individual activities or tasks; assignment of costs to these activities based on the project estimate; generation of a project schedule; mobilization of the impacted site; execution of the project remedy during which project costs and schedules are continually tracked and updated; demobilization of the site and submittal of all pertinent project closure reports.

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## TABLE OF CONTENTS

Section	Page
1.0 INTRODUCTION .....	1
2.0 SITE CONDITIONS .....	2
3.0 PROJECT APPROACH .....	3
3.1 PROJECT INITIATION .....	3
3.1.1 Equipment Mobilization .....	3
3.1.2 Site Preparation .....	4
Exclusion Zone .....	4
Contamination Reduction Zone .....	4
Support Facilities .....	4
Utilities .....	5
3.2 EXCAVATION .....	5
3.3 SOIL TREATMENT .....	5
3.3.1 IRV-100 PROCESS DESCRIPTION .....	6
Treatment Chamber .....	7
Vacuum/Blower .....	8
Dust Cyclone .....	8
Condenser .....	9
Polishing Carbon System .....	9
Piping and Associated Apparances .....	9
IRV-100 Specifications .....	10
3.4 WATER HANDLING, STORAGE AND TREATMENT SYSTEM .....	10
3.5 DECONTAMINATION & DEMOBILIZATION .....	11
4.0 FEE SCHEDULE .....	12
4.1 CONDITIONS OF PERFORMANCE .....	13

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## 1.0 INTRODUCTION

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Thermal desorption has been described in a United States Environmental Protection Agency (USEPA) document as "an ex-situ physical separation technique that transfers contaminants from soil and water to the gas phase. The process uses heat to raise the temperature of organic contaminants to volatilize and separate them from the soil matrix. Temperatures are controlled to prevent widespread combustion since incineration is not the desired result." A thermal desorption device is generally followed by one or more air pollution control devices to capture the volatilized contaminants as well as entrained particulate matter.

McLaren/Smith plans to utilize eight Low Temperature Thermal Desorption (LTTD) treatment units to implement the soil remedy at the Smith Environmental facility. The LTTD units are batch operated and treat 4.75 cubic yards or 7.0 tons per cycle. Based on recent history of treating similar soil with trichloroethene contamination, the anticipated treatment temperature is 180° F and thus the average treatment time is three hours, resulting in a daily treatment production rate of approximately 450 tons. Based on that treatment rate and allowing a 30% sluff factor for excavated soil, the treatment of the soil would require 45 days.

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## 2.0 SITE CONDITIONS

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Information concerning the site was provided by Jeff O'Ham of McLaren/Hart. The Charlotte, North Carolina office is proposing to investigate and provide remedial alternatives for the closure of an inactive facility for Smith Environmental.

The Smith Environmental site is located near Chicago, Illinois. The area of concern encompasses approximately 1.12 acres of surface area with contamination extending to an average depth of 2.31 feet for 10,000 yards; 3.46 feet for 15,000 yards and 4.63 feet for 20,000 yards. For proposal preparation, a given quantity is variable and is being used to determine the fees for remediation. The soil make up is 42% silt, 31% clay, 24% sand and 3% gravel. The wet bulk density is 111.1 lbs/cu. ft. at a moisture content of 20%. The contaminant of concern is trichloroethene with a concentration  $\leq 3000$  ppm. Long chain hydrocarbons and other companion contaminants which would affect carbon usage and treatment spans are not present.

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## 3.0 PROJECT APPROACH

This section discusses the procedures to safely, efficiently, and cost-effectively manage the soil treatment. The most important aspect of the work is the treatment process. This proposal concentrates on the operation and mechanics of this predominant phase.

## 3.1 PROJECT INITIATION

Upon receipt of the proper approvals from the applicable State regulatory agencies, remediation equipment and materials will be mobilized to the site. All equipment will be cleaned prior to mobilization, and if necessary, cleaned again prior to entering the exclusion zone. Once mobilization of essential equipment and the lead personnel is complete, McLaren/Hart will begin site preparation by establishing site interior access routes, decontamination areas, office facilities, and surface water control measures.

### 3.1.1 Equipment Mobilization

In order to accomplish the soil remediation of the source areas, McLaren/Hart will mobilize eight low vacuum, low temperature thermal desorption units (IRV-100), the necessary air pollution control devices and the ancillary support equipment. Material handling equipment will be rented locally. The following is a list of the equipment.

	Description	Utility Requirement
2 - 8	IRV-100 Treatment Unit	Propane, Continuous Feed @ 14 WC Inches
2 - 4	HEPA Filter Unit (1.5 micron)	Passive
1 - 4	Condenser Units	Passive
1 - 4	Condensate Transfer Pump	110 Volt, 20 Amp Circuit
1 - 4	Blower	480 Volt, 3 Phase, 90 Amp Circuit
1ea	Chiller (50 - 200 ton)	480 Volt, 3 Phase, 200 Amp Circuit
1ea	Carbon Polishing Units	Passive
1 - 2	Cat 416 B (Loader Backhoe)	Diesel

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## 3.1.2 Site Preparation

McLaren/Hart will prepare the site by incorporating the site's topographical layout with operational design procedures. This will include establishing a work area/exclusion zone, contamination reduction zone, and a support zone. Additional activities will include the installation of required utilities, set up of the IRV-100s, and the associated air pollution control systems.

### *Exclusion Zone*

The exclusion zone (EZ) will encompass a continuous area around the eight treatment units and the excavation. The treatment units will be located in close proximity to the excavation to prevent double handling of the material. It will also be necessary to establish an area for the stockpiling of treated material. The perimeter will be cordoned off by barrier tape imprinted with a chemical hazard warning.

### *Contamination Reduction Zone*

The contamination reduction zone (CRZ) will serve as a buffer zone between the exclusion zone and the contaminant free zone. This will serve as the avenue of exit to insure that decontamination procedures will be performed in a systematic fashion and that all personnel enter and exit through a defined corridor. A boot wash and boot storage rack will be stationed within the CRZ immediately outside the personnel decontamination facility. All discarded personal protection equipment (PPE) will be collected and stored in appropriate containers pending proper disposal.

The transfer of equipment out of the exclusion zone is not anticipated until the final breakdown of the site. Procedures for removal of equipment are detailed in the demobilization section of this plan.

### *Support Facilities*

The support zone will be located after determination of prevailing wind direction. A mobile office trailer will be set up. Communication and office equipment will be setup to administer the project and to provide for emergency situations or injuries. Site utilities will consist of propane fuel, electricity and water.

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## *Utilities*

The propane fuel along with six 1,000 gallon storage tanks will be supplied by Suburban Propane Co. Placement will be determined with consideration of ignition sources, property lines, and accessibility. All fittings will be checked with leak detection fluid at the time of initial pressurization. The tank will be refilled at two to three day intervals by truck delivery.

The treatment process will require both 480 volt three phase 700 A and 120 V single phase 100 A electrical power. The individual motor control panels equipped with local disconnects will be linked by flexible cable to a main control panel. Electrical connections to the power sources will be made by a licensed electrician. Individual component requirements are listed in Section 2.1. Electrical costs are presented separately in the fee schedule.

Water will be needed to suppress potential dust and decontamination of equipment. It is assumed that water will be available and at no charge.

## 3.2 EXCAVATION

Excavation activities will commence after the treatment equipment has been setup and all components are tested both individually and as a complete system. Demarcation of the excavation perimeter and utility clearances will be performed by the client or its designated representative. The excavation will be performed by Smith Environmental.

The excavation of materials will be gradual with production mirroring the rate of soil treatment. A tracked excavator will be used to remove shallow lifts. The lifts will create incremental planes that are parallel to the original finished grade. To prevent cave in of the area the sides walls will be benched and sloped in accordance with OSHA standards. Entry into water saturated zones will be delayed until all dry material is removed. Dewatering of the excavation and water treatment can be provided as an extension of the proposal. Estimated quantities and contaminant levels are necessary before fees can be estimated.

## 3.3 SOIL TREATMENT

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The general operating parameters of the Low Vacuum Low Temperature Thermal Desorption System (IRV-100) are:

- (a) depression of the boiling points of the target compounds by lowering the ambient pressure;
- (b) use of infrared radiation to generate a thermal gradient in the top several inches of non-liquid material and;
- (c) use of a carrier gas to transport the desorbed contaminants from the treatment chamber to a pollution control system.

The overall effect is a batch treatment system capable of desorbing target contaminants from a non-liquid material under reduced pressure and low temperature. The desorbed contaminants undergo a reversible phase change from liquid to vapor and are condensed back to liquid in the pollution control system. The following information will examine in further detail the dynamics of the IRV-100.

### 3.3.1 IRV-100 PROCESS DESCRIPTION

McLaren/Hart's patented IRV-100 system is comprised of the following components:

- Treatment chamber
- Vacuum / Blower
- Cyclone
- Condenser
- Polishing carbon system

The principle used in this method of soil treatment includes: infrared heat, convection heat, and reduced pressure volatilization in a batch treatment system. First, the boiling points of the target compounds are depressed by lowering the ambient pressure within the treatment chamber using a vacuum created by a vacuum blower. Infrared heaters mounted above the contaminated soil are

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the primary heat source.

Infrared light, with some convection heat from the propane-fired infrared source, heats the top four inches of the soil without heating the air as a transfer medium. Upon striking the soil, the infrared energy is converted to heat. The top layer of soil becomes a large emitter. The air flow from the vacuum is directed downward, and the emitted heat from the top layer of soil is used to heat the remaining eight inches of soil through conduction and convection. The temperature differential between the upper and lower portions of the soil is the driving force and determines the rate of radiant energy transfer. The creation of a thermal gradient and depression of boiling points causes the target contaminants to desorb from the soil matrix.

Once desorption occurs, a carrier gas transports these contaminants from the treatment chamber into a cyclone separator and vapors condense in a cool down chamber. During this phase of air flow, air temperatures are approximately 180° F and reduce to approximately 50° F while flowing through expanded volume areas within the cyclone, condenser and transfer piping. The pre-cooled air passes through an activated carbon bed filter before release. Hand held monitoring equipment is used to assure compliance with air emission standards. Continuous monitoring, self calibrating equipment with print documentation is also available contingent on permit conditions as an extension of this proposal.

## *Treatment Chamber*

Each of the eight IRV-100 units consists of a nine foot by eighteen foot by two foot steel container with a vacuum extraction chamber, a pea gravel filter medium in the bottom, and a soil chamber at the top. Attached to the underside of the steel top and located approximately eight inches above the soil are infrared heaters. The steel top of the container rolls on and off, and the front chamber door opens to load and unload soil. A loader places and removes up to five cubic yards of soil into the container.

The burner system consists of sixteen (16) heaters per treatment unit. Each unit has a gas manifold which has a gas ball shut off valve for each heater. The propane fired infrared heaters

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are equipped with a regulator which meters the propane at 4-5 psi into the units manifold. At the propane source there is a high pressure regulator and an excess flow control valve which will stop the flow of gas to the system in the event of a fire or low pressure conditions. The remote gas shut off valve can be easily accessed for shut down should the need arise.

## *Vacuum/Blower*

As noted, the JRV-100 unit utilizes a vacuum extraction system in combination with heat to produce a very effective and rapid means of contaminant desorption. The vacuum portion of the system has two functions. First, it acts as a conventional vacuum extraction unit, with heat added to enhance the effects. The second contribution is as a pressure reduction system. The vacuum chamber and the soil compartment are placed under low pressure. A pressure gradient is created. The pressure ranges from ten to fifty inches of water column. This reduction in pressure reduces the boiling points of the contamination constituents that are to be extracted. This allows the LTIDS to remove heavy (high boiling point compounds) contaminants at lower temperatures.

The vapor extraction system is comprised of 10 stainless steel well screens four inches in diameter and 15 feet in length. These screens, located at the bottom of the chamber, connect to a manifold which is eight feet by one foot by one foot with a 2 inch outlet. The manifold is connected to a blower which moves 5,000 CFM of air at 50 inches of water column. The blower is driven by a 75 H.P. electric motor which is powered by 480 volt, 3 phase electric which has a 90 amps draw. The blower draws air through the soils and forces the exhaust through a cyclone separator, condenser, and carbon filtration unit.

## *Dust Cyclone*

The most widely used type of dust-collection equipment is the cyclone, in which dust-laden gas enters a conical chamber tangentially at one point and leaves through a central opening. The gas path involves a double vortex with the gas spiraling downward at the outside and upward at the inside. The dust particles, by virtue of their inertia, will tend to move toward the outside separator wall. A cyclone is essentially a settling chamber in which gravitational acceleration is

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replaced by centrifugal acceleration.

The dimensions of the cyclone to be employed is four feet in diameter and 11 feet in height. The air intake is rated at 4,000 CFM and will remove 95 percent of dust emissions.

## *Condenser*

A two stage condenser is installed in line between the treatment chamber and the carbon vessel to remove the desorbed contaminants from the carrier gas stream. The condenser is of fin and tube construction with an actual cubic foot capacity of 8,000 and the capability of removing 2,000 pounds per hour of water or SVOC and VOC emissions. The system has an estimated rated efficiency of 85 percent removal of SVOC's and 95 percent removal of total VOC's.

The condensers are coupled to a chiller using ethylene glycol and water as a cooling media. The total cooling capacity of the chiller is approximately 200 tons. This cooling media is non-contact relative to the carrier gas passing through the condenser and has no potential for cross contamination.

## *Polishing Carbon System*

The carrier gas will exit the condenser returning the air stream to atmospheric pressure conditions. At this point, all contaminants should be removed from the carrier stream. However, the carrier gas will be passed through a vapor phase carbon polishing system prior to discharge of the carrier gas to the atmosphere. The system is charged with approximately 2000 pounds of 4 x 8 granulated carbon derived from coconut shells. The overall dimensions are four feet wide, eight feet long, and six and one half feet in height. The unit has the capability of removing 95 percent of VOC and SVOC emissions and 99 percent of dust.

## *Piping and Associated Appurtenances*

The IRV-100 is connected to the blower, the cyclone, the condenser, and the polishing carbon system with 8 inch steel piping. The steel piping itself is inter-connected using flanges, temperature resistant gaskets and bolts.

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The condensate collected from the condenser is transferred to various collection vessels using a synthetic vacuum hose constructed primarily of n-butyl rubber. The diameter of this hose is dependant on the flow rates and the sections of hose are inter-connected using aluminum, cam lock type fittings.

Thermocouples are located throughout the IRV-100 to monitor the desorption process and insure that treatment conditions conform to design parameters necessary to effect the proper desorption and collection of the target contaminants.

There is one vacuum gauge on the IRV-100 that is installed between the effluent plenum on the treatment chamber and influent side of the blower. The gauge is installed in accordance with manufacturer's specifications to insure proper function. The purpose of this gauge is to measure the strength of the vacuum between the treatment chamber and the blower. Since the separation between the treatment chamber, condenser and vacuum pump is short and a closed loop, a measurement at this point will reflect the strength of the vacuum inside the treatment chamber as well as within this entire section of the system.

## *IRV-100 Specifications*

A piping and instrumentation diagram is presented in Figure 1. The following delineates the specifications for the IRLV-100:

Operation Temperatures	1200° F
Soil Temperatures	200-600° F
Operational Heat	1,250,000 BTU/hour
Soil Throughput	2 to 3 cubic yards/hour/unit
Work Space Needed for System	2,500 square feet
Power Requirements	15 gallons LP gas/hour
Air Turnover	2,500 CFM

## 3.4 WATER HANDLING, STORAGE AND TREATMENT SYSTEM

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*Check with  
a written*

*Work covered  
by separate  
fee*

Based on a soil density of 111.1 lbs/cu ft. with 20 percent of water, it is anticipated that the treatment process will generate between 600,250 to 720,000 gallons of condensate. These liquids will be pumped into 20,000 gallon mobile tanks.

The contaminants can be separated from the condensed aqueous phase utilizing closed-loop counter current air separation. The contaminant-laden air would be purged by passing it through carbon filtration and discharged through the monitored centralized stack. Subsequent to the air stripping process, the water would flow through a carbon contactor for polishing and then into a clean water frac-tank.

*Soil*

The treated aqueous phase would then be analyzed to confirm success of stripping and utilized for re-hydration of soils and control of particulate matter. Details and fees for this phase of operation will be determined once discharge parameters and logistics are determined.

### 3.5 DECONTAMINATION & DEMOBILIZATION

Decontamination activities will consist of gross physical decontamination followed by pressure washing. All storage tanks, water treatment vessels, emission control equipment, piping, etc. will be placed on the pad and cleaned using a steam pressure washer. The TRV-100 units will be heated up without soils to clean the potential residues. The last thing to be decontaminated will be the storage tanks and water treatment system.

McLaren/Hart intends to utilize a regenerative carbon polishing system. Any compounds generated during the regeneration process will be collected in drums and disposed of in accordance with applicable local, state and federal regulations. Any carbon exhibiting a concentration greater than target levels will be disposed of off site in accordance with applicable local, state and federal regulations. Any residual soils generated during gross physical decontamination will be collected by McLaren/Hart and analyzed for contaminants. Any waste stream generated by McLaren/Hart's activities shall be disposed at an approved facility.

Following completion of the decontamination procedures, McLaren/Hart will demobilize all

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equipment. A final report will be prepared to document all pertinent site activities and details of the treatment.

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## 4.0 FEE SCHEDULE

McLaren/Hart is presenting this budgetary fee schedule based on information provided by Smith Environmental to McLaren/Hart's Charlotte office.

The basis for soil quantities is as follows:

Soil	Yards	Multiplier	Tons
In-Situ	1	1.5	1.5
Expansion Factor - 1.2			
Excavated Material	1.2	1.25	1.5

McLaren/Hart will provide the wherewithal to treat the trichloroethene contaminated soils to the total of < 100 mg/Kg.

The following fee scenario applies:

10,000 cy	\$36/cy	\$360,000
Mobilization / Demobilization		\$74,500
<b>TOTAL:</b>		<b>\$434,500</b>

Turn-key price is \$43.45 per cubic yard.

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## 4.1 CONDITIONS OF PERFORMANCE

- ◆ McLaren/Hart has based its proposal on an operation schedule of 24 hours/day, seven days per week. Access to the site must be made available during operation period.
- ◆ Confirmation sampling, analysis and frequency has not been included in the above fees. Once parameters and frequencies are known, fees can be provided for this phase.
- ◆ Excavations will be performed in a manner in which soil will be stockpiled at all times for treatment systems.
- ◆ Stand-by charges of \$530.00 per hour, not to exceed \$5,000 per day.
- ◆ Soil quantities will be measured volumetrically by the batch yard. Each batch will be loaded to a known volume and recorded.
- ◆ Smith Environmental has agreed to supply the following:
  - Electrical Drops
  - Office Trailer
  - Frac Tank
  - Porta-Toilet
  - 5 ft. Safety Fence
- ◆ Soils will not contain free liquids.
- ◆ Moisture conditions cannot exceed those stated in information provided to McLaren/Hart. A 20% surcharge based on a per cubic yard rate will be assessed in the event moisture contents levels are exceeded.

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TRANSMITTAL

To: ROI COHAN

Company: \_\_\_\_\_

Fax #: 916-329-3425

Re: \_\_\_\_\_

Date: 22 . 97

Pages: 11 including cover page

*If you do not receive all pages, please call (714) 756-2667*

Message:

*Current change on terms  
of our previous agreement on  
the State's  
Superior cell plan  
& other agreements*

*Rich Cohan\**

McLaren/Hart  
16755 Von Karman  
Irvine, California 92606-4918

(714) 756-2667  
Fax: (714) 756-8460

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McLaren/Hart

MEMORANDUM

Fax (916) 329-3425

To: Ron Cohen, Esq.

COMPANY PRIVATE

From: Rich Caton

Date: January 22, 1997

Re: Smith Environmental Contract

cc: Steve Mair, Esq.

Ron: Per our conversation I am faxing the following:

- 1) Subcontract Agreement dated 10/18/96 (14 pages)
- 2) Our Proposal dated 8/21/96 (17 pages)

Is there any way we can avoid performing additional work beyond the initial 10,000 yards?

Smith has yet to order the added work and we would like to terminate the agreement or notify them it is commercially impractical for us to consider additional work at the contract rate.

Anthony Price  
Project Manager

2080 S. Carboy Road

Mt Pleasant Illinois 60056

Richard W. Caton  
Vice President  
Corporate Contracts  
(714) 752-3239  
Fax: (714) 756-8480

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