



1061 Waterdam Plaza Drive
Suite 201
McMurray, PA 15317
724-260-5219 Phone
724-260-5226 Fax
www.themahfoodgroup.com

March 27, 2012

Mr. Guy Nisbet
Department of Administration
Purchasing Division
2019 Washington Street, East
Charleston, West Virginia 25305

**Re: RFQ No: DEP 15796
Environmental Risk Assessment Services Bid**

Dear Mr. Nisbet:

The Mahfood Group LLC[®] (TMG) is proud to respond to the above referenced RFQ and to present our qualifications to the State of West Virginia, West Virginia Department of Environmental Protection (WVDEP), Division of Land Restoration.

We believe our distinguished track record in the field of risk assessment and specifically regarding our risk assessment efforts over the past three years assisting the WVDEP, uniquely qualify our firm to supply risk assessment services to the WVDEP. We've conducted risk assessments under many federal and state programs including Superfund, RCRA, various state land recycling initiatives and underground storage tank programs. We also have supplied advanced toxicological expertise associated with currently evolving chemical topics such as polycyclic aromatic hydrocarbons and arsenic in fly ash.

We are also involved in community-based educational programs in order to bring the concepts of human health risk assessments into the local communities by reducing the complexities of the science into a form that is easy to understand for the nontechnical person. This initiative is being fueled by The Healthy Roots Project[®] under the direction of TMG.

The attached bid contains the following items per the instructions provided by the State of West Virginia RFQ No. DEP 15796:

- RFQ No. DEP 15796, including any addenda as applicable;
- Bid Schedule DEP 15796;
- State of West Virginia Vendor Preference Certificate (Not Applicable);
- State of West Virginia Purchasing Affidavit;
- Electronic copies of an example risk assessment and a risk assessment review:
and,

RECEIVED

2012 MAR 28 AM 9:43

WV PURCHASING
DIVISION

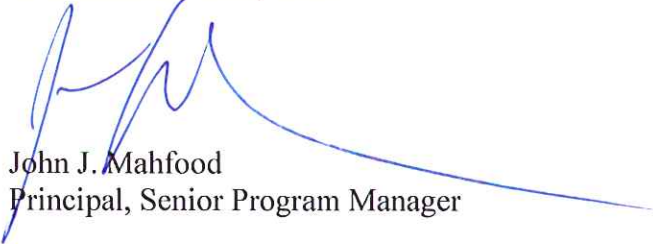


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- Environmental Risk Assessor Resume and Diplomas (copies).

TMG looks forward to continuing to serve the State of West Virginia, West Virginia Department of Environmental Protection on this very important opportunity. Please don't hesitate to contact me at 724.260.5219 if you have any questions or concerns regarding this bid or any other information contained herein.

Sincerely,
The Mahfood Group LLC®



John J. Mahfood
Principal, Senior Program Manager

Cc: File



State of West Virginia
 Department of Administration
 Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER
DEP15796

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
GUY NISBET 304-558-8802

VENDOR	*122113023 724-260-5219
	MAHFOOD GROUP LLC 1061 WATERDAM PLAZA DR STE 201
	MCMURRAY PA 15317

SHIP TO	ENVIRONMENTAL PROTECTION DEPARTMENT OF ENVIRONMENTAL REMEDIATION 601 57TH STREET SE CHARLESTON, WV 25304 304-926-0499
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DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
03/01/2012				
BID OPENING DATE: 04/10/2012		BID OPENING TIME 01:30PM		

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	HR		946-36	\$ 69.00/hr	\$ 48,300.00
<p>ENVIRONMENTAL RISK ASSESSOR</p> <p>REQUEST FOR QUOTATION</p> <p>THE WEST VIRGINIA PURCHASING DIVISION, FOR THE AGENCY, THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S DIVISION OF LAND RESTORATION, SEEKS BIDS TO PROVIDE ENVIRONMENTAL RISK ASSESSMENT SERVICES TO DETERMINE ECOLOGICAL AND HUMAN HEALTH RISK THAT MAY BE ASSOCIATED WITH PROJECTS IN THE VOLUNTARY REMEDIATION AND REDEVELOPMENT PROGRAM.</p> <p>INQUIRIES:</p> <p>WRITTEN QUESTIONS SHALL BE ACCEPTED THROUGH 4PM ON THURSDAY, MARCH 15, 2012. QUESTIONS MAY BE SENT VIA: USPS, FAX, COURIER OR EMAIL. IN ORDER TO ASSURE THAT NO VENDOR RECEIVES AN UNFAIR ADVANTAGE, NO SUBSTANTIVE QUESTIONS WILL BE ANSWERED ORALLY. IF POSSIBLE, EMAIL QUESTIONS ARE PREFERRED. ANY TECHNICAL QUESTIONS RECEIVED WILL BE ANSWERED BY FORMAL WRITTEN ADDENDUM TO BE ISSUED BY THE PURCHASING DIVISION AFTER THE QUESTION SUBMITTAL DEADLINE HAS LAPSED.</p> <p>ADDRESS INQUIRIES TO:</p> <p>GUY NISBET DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION 2019 WASHINGTON STREET, EAST</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS			
SIGNATURE	TELEPHONE	DATE	
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE	

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

GENERAL TERMS & CONDITIONS REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)

1. Awards will be made in the best interest of the State of West Virginia.
2. The State may accept or reject in part, or in whole, any bid.
3. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required \$125 fee.
4. All services performed or goods delivered under State Purchase Order/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods this Purchase Order/Contract becomes void and of no effect after June 30.
5. Payment may only be made after the delivery and acceptance of goods or services.
6. Interest may be paid for late payment in accordance with the *West Virginia Code*.
7. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
8. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
9. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
10. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern the purchasing process.
11. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
12. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, the State may deem this contract null and void, and terminate such contract without further order.
13. **HIPAA BUSINESS ASSOCIATE ADDENDUM:** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, is available online at www.state.wv.us/admin/purchase/vrc/hipaa.html and is hereby made part of the agreement provided that the Agency meets the definition of a Cover Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.
14. **CONFIDENTIALITY:** The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in <http://www.state.wv.us/admin/purchase/privacy/noticeConfidentiality.pdf>.
15. **LICENSING:** Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, and the West Virginia Insurance Commission. The vendor must provide all necessary releases to obtain information to enable the director or spending unit to verify that the vendor is licensed and in good standing with the above entities.
16. **ANTITRUST:** In submitting a bid to any agency for the State of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the State of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, or person or entity submitting a bid for the same material, supplies, equipment or services and is in all respects fair and without collusion or fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division. Complete all sections of the quotation form.
2. Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Unit prices shall prevail in case of discrepancy. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
4. All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications: Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130, Charleston, WV 25305-0130
5. Communication during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited (W.Va. C.S.R. §148-1-6.6).



State of West Virginia
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*122113023 724-260-5219
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 601 57TH STREET SE
 CHARLESTON, WV
 25304 304-926-0499

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS		
03/01/2012						
BID OPENING DATE: 04/10/2012		BID OPENING TIME 01:30PM				
LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
CHARLESTON, WV. 25305 FAX: 304.558.4115 EMAIL: GUY.L.NISBET@WV.GOV EXHIBIT 3 LIFE OF CONTRACT: THIS CONTRACT BECOMES EFFECTIVE AWARD AND EXTENDS FOR A PERIOD OF ONE (1) YEAR OR UNTIL SUCH "REASONABLE TIME" THEREAFTER AS IS NECESSARY TO OBTAIN A NEW CONTRACT OR RENEW THE ORIGINAL CONTRACT. THE "REASONABLE TIME" PERIOD SHALL NOT EXCEED TWELVE (12) MONTHS. DURING THIS "REASONABLE TIME" THE VENDOR MAY TERMINATE THIS CONTRACT FOR ANY REASON UPON GIVING THE DIRECTOR OF PURCHASING 30 DAYS WRITTEN NOTICE. UNLESS SPECIFIC PROVISIONS ARE STIPULATED ELSEWHERE IN THIS CONTRACT DOCUMENT, THE TERMS, CONDITIONS AND PRICING SET HEREIN ARE FIRM FOR THE LIFE OF THE CONTRACT. RENEWAL: THIS CONTRACT MAY BE RENEWED UPON THE MUTUAL WRITTEN CONSENT OF THE SPENDING UNIT AND VENDOR, SUBMITTED TO THE DIRECTOR OF PURCHASING THIRTY (30) DAYS PRIOR TO THE EXPIRATION DATE. SUCH RENEWAL SHALL BE IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE ORIGINAL CONTRACT AND SHALL BE LIMITED TO TWO (2) ONE (1) YEAR PERIODS. CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN NOTICE TO THE VENDOR IF THE COMMODITIES AND/OR SERVICES SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM TO THE SPECIFICATIONS OF THE BID AND CONTRACT HEREIN. OPEN MARKET CLAUSE: THE DIRECTOR OF PURCHASING MAY						
SEE REVERSE SIDE FOR TERMS AND CONDITIONS						
SIGNATURE				TELEPHONE	DATE	
TITLE		FEIN		ADDRESS CHANGES TO BE NOTED ABOVE		

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25304 **304-926-0499**

DATE PRINTED 03/01/2012	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
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BID OPENING DATE: **04/10/2012** BID OPENING TIME **01:30PM**

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
	<p>AUTHORIZE A SPENDING UNIT TO PURCHASE ON THE OPEN MARKET, WITHOUT THE FILING OF A REQUISITION OR COST ESTIMATE, ITEMS SPECIFIED ON THIS CONTRACT FOR IMMEDIATE DELIVERY IN EMERGENCIES DUE TO UNFORESEEN CAUSES (INCLUDING BUT NOT LIMITED TO DELAYS IN TRANSPORTATION OR AN UNANTICIPATED INCREASE IN THE VOLUME OF WORK.)</p> <p>QUANTITIES: QUANTITIES LISTED IN THE REQUISITION ARE APPROXIMATIONS ONLY, BASED ON ESTIMATES SUPPLIED BY THE STATE SPENDING UNIT. IT IS UNDERSTOOD AND AGREED THAT THE CONTRACT SHALL COVER THE QUANTITIES ACTUALLY ORDERED FOR DELIVERY DURING THE TERM OF THE CONTRACT, WHETHER MORE OR LESS THAN THE QUANTITIES SHOWN.</p> <p>BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THE STATE MAY DEEM THIS CONTRACT NULL AND VOID, AND TERMINATE SUCH CONTRACT WITHOUT FURTHER ORDER.</p> <p>THE TERMS AND CONDITIONS CONTAINED IN THIS CONTRACT SHALL SUPERSEDE ANY AND ALL SUBSEQUENT TERMS AND CONDITIONS WHICH MAY APPEAR ON ANY ATTACHED PRINTED DOCUMENTS SUCH AS PRICE LISTS, ORDER FORMS, SALES AGREEMENTS OR MAINTENANCE AGREEMENTS, INCLUDING ANY ELECTRONIC MEDIUM SUCH AS CD-ROM.</p> <p>ORDERING PROCEDURE: SPENDING UNIT(S) SHALL ISSUE A WRITTEN STATE CONTRACT ORDER (FORM NUMBER WV-39) TO THE VENDOR FOR COMMODITIES COVERED BY THIS CONTRACT. THE ORIGINAL COPY OF THE WV-39 SHALL BE MAILED TO THE VENDOR AS AUTHORIZATION FOR SHIPMENT, A SECOND COPY MAILED TO THE PURCHASING DIVISION, AND A THIRD COPY RETAINED BY THE SPENDING UNIT.</p>					

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BID OPENING DATE: **04/10/2012** BID OPENING TIME **01:30PM**

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
				REQUISITION NO.: DEP15796		
				ADDENDUM ACKNOWLEDGEMENT		
				I HEREBY ACKNOWLEDGE RECEIPT OF THE FOLLOWING CHECKED ADDENDUM(S) AND HAVE MADE THE NECESSARY REVISIONS TO MY PROPOSAL, PLANS AND/OR SPECIFICATION, ETC.		
				ADDENDUM NO.'S:		
				NO. 1 .. (A)	<i>(A) None available at the time of submission of this bid.</i>	
				NO. 2 .. (A)		
				NO. 3 .. (A)		
				NO. 4 .. (A)		
				NO. 5 .. (A)		
				I UNDERSTAND THAT FAILURE TO CONFIRM THE RECEIPT OF THE ADDENDUM(S) MAY BE CAUSE FOR REJECTION OF BIDS.		
				VENDOR MUST CLEARLY UNDERSTAND THAT ANY VERBAL REPRESENTATION MADE OR ASSUMED TO BE MADE DURING ANY ORAL DISCUSSION HELD BETWEEN VENDOR'S REPRESENTATIVES AND ANY STATE PERSONNEL IS NOT BINDING. ONLY THE INFORMATION ISSUED IN WRITING AND ADDED TO THE SPECIFICATIONS BY AN OFFICIAL ADDENDUM IS BINDING.		
			 SIGNATURE		

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

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03/01/2012				

BID OPENING DATE: **04/10/2012** BID OPENING TIME **01:30PM**

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
				<i>The Mahfood Group LLC</i> COMPANY <i>3-27-12</i> DATE		
NOTE: THIS ADDENDUM ACKNOWLEDGEMENT SHOULD BE SUBMITTED WITH THE BID.						
REV. 09/21/2009						
NOTICE						
A SIGNED BID MUST BE SUBMITTED TO:						
DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION BUILDING 15 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25305-0130						
THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:						
SEALED BID						
BUYER:				GN-23		
RFQ. NO.:				DEP15796		
BID OPENING DATE:				4/10/2012		
BID OPENING TIME:				1:30 PM		

SEE REVERSE SIDE FOR TERMS AND CONDITIONS						
SIGNATURE			TELEPHONE		DATE	
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LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID: <p style="text-align: center;">----- <i>724-260-5226</i> -----</p> CONTACT PERSON (PLEASE PRINT CLEARLY): <p style="text-align: center;">----- <i>John J. Mahfood</i> -----</p> ANY INDIVIDUAL SIGNING THIS BID IS CERTIFYING THAT: (1) HE OR SHE IS AUTHORIZED BY THE BIDDER TO EXECUTE THE BID OR ANY DOCUMENTS RELATED THERETO ON BEHALF OF THE BIDDER, (2) THAT HE OR SHE IS AUTHORIZED TO BIND THE BIDDER IN A CONTRACTUAL RELATIONSHIP, AND (3) THAT THE BIDDER HAS PROPERLY REGISTERED WITH ANY STATE AGENCIES THAT MAY REQUIRE REGISTRATION.						
***** THIS IS THE END OF RFQ DEP15796 ***** TOTAL:						<u><i>\$48,300.00</i></u>

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DEP15796
REQUEST FOR QUOTATIONS
SPECIFICATIONS

The West Virginia Department of Environmental Protection (DEP) is releasing this request for quotations (RFQ) to qualified vendors to secure an environmental risk assessor to determine ecological and human health risks that may be associated with projects in our Voluntary Remediation and Redevelopment Program. DEP will enter into an open-end contract for these services and reserves the right to award this contract up to 2 vendors. Work Directives will be issued for individual sites or projects in accordance with the criteria set forth in this RFQ.

BACKGROUND

The West Virginia Department of Environmental Protection (WVDEP), Division of Land Restoration, Office of Environmental Remediation (OER) oversees the Voluntary Remediation and Redevelopment (VRRP) and Brownfield Programs, which encourages the voluntary clean-up of contaminated sites and redevelopment of abandoned and under-utilized properties. Within these programs, human health and ecological risks are assessed by use of 1 or more levels of evaluation, in order to determine suitability of these sites for reuse, and the need for applying engineering or institutional controls to mitigate remaining site risks.

The primary responsibility for providing an accurate assessment of site risks resides with the Licensed Remediation Specialist (LRS), who is retained by the property owner or interested party, to oversee the site evaluation. Once submitted, the risk assessment report is reviewed by the agency to ensure it complies with applicable regulatory requirements, and is supported by adequate analytical data. In addition, an agency risk assessor is often consulted during the early stages of a site investigation, to assist in developing a preliminary conceptual site model supported by an appropriate sampling and analysis plan. This ensures that samples are collected from suitable locations, analyzed for relevant contaminants, and that the resulting data will meet the data quality objectives required for use in human health and ecological risk assessments.

At the present time, risk assessments are most often evaluated by agency toxicologists. Due to the variability in the workloads of internal personnel and the statutory requirements for timely review of documents submitted to the VRRP, the agency may experience a temporary need for additional capacity in order to meet required review deadlines for risk assessment and related documents. As this need is sporadic, the agency has determined that it is best met by use of an independent contractor performing many of the activities typically performed by agency risk assessors. In addition to review of the risk assessment and related documents, the contractor may be consulted during the early stages of a site investigation, to assist in development of a preliminary conceptual site model supported by an appropriate sampling and analysis plan.

DEFINITION

An *Environmental Risk Assessor* evaluates the exposure of human and ecological receptors to contaminants in environmental media (i.e. soil, groundwater, air, sediments and surface water) and determines the likelihood that such exposure, over a defined period of time, would result in an adverse impact to the health of the receptor. Because risk assessments are dependent upon mathematical constructs of interactions between living organisms and contaminants in their environments, risk assessors must possess a knowledge of toxicology,

statistics, biology, and chemistry, as well as the ability to apply appropriate computer models to simulate contaminant behavior in environmental media and/or contaminant uptake and distribution within a biological system.

In addition to technical skills, a risk assessor should have an understanding of state and federal regulations and guidance specific to risk assessment and environmental law. A cursory knowledge of related disciplines (e.g. geology, ecology, etc.) is also helpful.

CONDITIONS

WVDEP will enter into an *open-end contract* with two (2) Risk Assessors. Any expenses incurred while developing this cost proposal are considered incidental to the project and will not be billed to the WVDEP. In addition, WVDEP may contract separately with any source(s) considered qualified, due to their professional specialization, proximity to project site and any other considerations pertinent to the performance of Risk Assessor services. Such contracts will be awarded following a request for public bid through the Purchasing Division of the Department of Administration.

SCOPE OF WORK

The work involves assisting the Office of Environmental Remediation in reviewing and making recommendations on risk assessment, risk characterization and risk management related documents and activities submitted and performed by LRSs. Results of the review must be communicated to both the OER Project Manager and an OER Toxicologist, as a written report that may be included as an attachment to, or summarized in subsequent communications to the applicant and LRS.

All results, submittals, and reports shall become the sole property of WVDEP.

At the discretion of the Vendor, any individual possessing sufficient experience in the preparation of human health and ecological risk assessments and/or knowledge in the applicable disciplines of toxicology, statistics, biology, and chemistry may conduct the review. The final report, however, must be prepared by, or under the direction of, an Environmental Risk Assessor, possessing qualifications as listed below.

QUALIFICATIONS

For purposes of this RFQ, an Environmental Risk Assessor must possess the following qualifications:

- **An earned doctoral degree in a relevant field of study from an accredited university and a minimum of three years of relevant professional experience; or**
- **A Masters of Science degree in a relevant field of study from an accredited university and a minimum of five years of relevant professional experience.**
- **Relevant professional experience must consist of work related directly to risk assessment, risk characterization and risk management activities, including at least one year performed at the supervisory or project manager level.**

Vendor must submit a current resume of pertinent education and work experience for the qualified individual, including proof of educational qualifications along with their bid. Failure to submit this required information will result in rejection of the bid. A resume showing your work experience and education and a copy of your diploma shall satisfy this submittal requirement. Official transcripts are not required. An example risk assessment report or a risk assessment review prepared by the vendor demonstrating evidence of relevant professional experience must also be provided. Submission of the sample document(s) may be in electronic format.

NOTE: The DEP OER reserves the right to request and approve the credentials of any person assigned to perform work under this contract. *Substitution of the qualified individual assigned as the Environmental Risk Assessor, during the contract period, must be approved in advance by WVDEP.*

ORDERING PROCEDURE

- A. This is an indefinite quantity contract for the services specified in this RFQ for the period set forth herein. Delivery or performance shall be made in accordance with the provisions of this contract.
- B. Work will be ordered by WVDEP by issuance of a Work Directive which shall include the location of the project site, the specific problem, the work to be performed, and the time frame during which the work must be completed.
- C. A Work Directive may contain work directives for more than one site if the sites are in close proximity of each other.
- D. Provided there is no conflict of interest in review of a specific project, the Work Directive shall be awarded in the following manner:
 - To the first lowest awarded vendor within a reasonable distance of the project
 - If the vendor accepts the work directive, then a work plan and cost proposal will be required from the vendor as specified in the work directive.
 - If the vendor refuses the work directive then it will be offered to the 2nd awarded vendor.
 - The Contractor's submitted work plan and cost proposal which contains the quantity estimates shall be in accordance the unit prices provided in the response to this RFQ. If work plan and cost proposal is approved, the WVDEP will issue a NOTICE TO PROCEED which will specify cost of project and starting and ending dates.
 - The vendor shall not begin work until a signed NOTICE TO PROCEED has been issued by the WVDEP.

There will be no pre-bid conference.

INVOICE:

A flat rate per hour will be the total charge to the state and will cover the full cost of all work hours including labor, travel and materials. The vendor will be contracted to provide Risk Assessor services on an "as needed" basis only. The vendor will invoice DEP on a monthly basis. All invoices must be accompanied by a sworn statement detailing actual hours worked.

INDEMNIFICATION:

The Vendor agrees to indemnify, defend and hold harmless the State and the Agency, their officers, and employees from and against: (1) Any claims or losses for services rendered by any subcontractor, person or firm performing or supplying services, materials or supplies in connection with the performance of the contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use or disposition of any data used under the contract in a manner not authorized by the contract, or by Federal or State statutes or regulations; (3) Any failure of the Vendor, its officers, employees or subcontractors to observe State and Federal laws, including but not limited to labor and wage laws.

RECORD RETENTION (Access & Confidentiality):

Vendor shall comply with all applicable Federal and State of West Virginia rules and regulations, and requirements governing the maintenance of documentation to verify any cost of services or commodities rendered under this contract by Vendor. The Vendor shall maintain such records a minimum of five (5) years and make available all records to Agency personnel at Vendor's location during normal business hours upon written request by Agency within 10 days after receipt of the request. Vendor shall have access to private and confidential data maintained by Agency to the extent required for Vendor to carry out the duties and responsibilities defined in this contract. Vendor agrees to maintain confidentiality and security of the data made available and shall indemnify and hold harmless the State and Agency against any and all claims brought by any party attributed to actions of breach of confidentiality by the Vendor, subcontractors, or individuals permitted access by Vendor.

Should the agency request additional assistance from the contractor for testimony in any state or federal court or before any board or other administrative body associated with a document prepared under this agreement, such assistance shall be considered to be within this scope of work for purposes of billing and compensation.

VENDOR REGISTRATION

It is not required to be a registered vendor to submit a bid. However, the apparent successful vendor must be registered prior to the award of an actual contract. To become a registered vendor you can call 304-558-2311 and obtain a Vendor registration and Disclosure Statement, Form WV-1.

RENEWAL

Contract will be for one year with an option for renewal up to two years.

Bid Schedule DEP15796

Company Name: The Mahfood Group LLC (R)

Address: 1061 Waterdam Plaza Drive, Suite 201

McMurray, Pennsylvania 15317

The DEP reserves the right to request additional information and supporting documentation regarding unit prices when the unit price appears to be unreasonable.

ITEM NO.	* QUANTITY	DESCRIPTION	HR	TOTAL
1.0	700	Risk Assessor per hour	\$69.00/hour	\$ 48,300
TOTAL				\$ 48,300

* Quantities are estimated for bidding purposes. Actual will vary.

Signature: _____

Date: 3-27-12

State of West Virginia VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with *West Virginia Code*, §5A-3-37. (Does not apply to construction contracts). *West Virginia Code*, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the *West Virginia Code*. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Resident Vendor Preference, if applicable.

1. **Application is made for 2.5% resident vendor preference for the reason checked:**
 Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,
 Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,
 Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; or,
2. **Application is made for 2.5% resident vendor preference for the reason checked:**
 Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,
3. **Application is made for 2.5% resident vendor preference for the reason checked:**
 Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,
4. **Application is made for 5% resident vendor preference for the reason checked:**
 Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; or,
5. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**
 Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; or,
6. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**
 Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

NOT APPLICABLE

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (*West Virginia Code*, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: _____ Signed: _____

Date: _____ Title: _____

*Check any combination of preference consideration(s) indicated above, which you are entitled to receive.

RFO No. _____

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (*West Virginia Code §61-5-3*), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

WITNESS THE FOLLOWING SIGNATURE

Vendor's Name: The Mahfood Group LLC

Authorized Signature: [Signature] Date: 3-7-12

State of PENNSYLVANIA

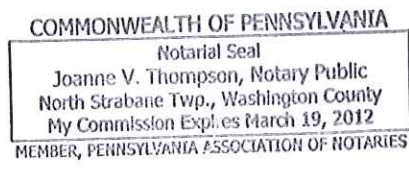
County of WASHINGTON, to-wit:

Taken, subscribed, and sworn to before me this 7th day of MARCH, 2012

My Commission expires MARCH 19, 2012

AFFIX SEAL HERE

NOTARY PUBLIC [Signature]



Resumes and Copies of Diplomas



JOHN J. MAHFOOD

Sr. Risk Assessment Specialist / Sr. Program Manager

EDUCATION

M.S. Health Aspects of Water Quality (1987)-University of Pittsburgh
B.S. Chemistry (1980)-University of Pittsburgh

FIELDS OF SPECIALIZATION

Public Health and Ecological Risk Assessments
Environmental Impact Assessments
Evaluation of Remedial Alternatives
Project Management
Analytical Chemistry
Indoor Air Quality and Vapor Intrusion
Environmental Education
PCB MegaRule
Residential Evaluations

EXPERIENCE SUMMARY

Mr. Mahfood is principal and co-owner of The Mahfood Group LLC[®] (TMG) and has over 31 years of combined environmental experience in project management, human health risk assessment, and analytical chemistry. He has focused on the technical requirements under Pennsylvania's Land Recycling and Environmental Remediation Standards Act (Act 2) including the latest issues associated with potential vapor intrusion and indoor air quality. More recently, Mr. Mahfood has engaged in assessing the utility of urban agriculture and public health risks and how this form of agriculture may be used on Brownfield/blighted properties. Mr. Mahfood has also worked on a variety of state led voluntary remediation programs across the eastern United States including Ohio, North Carolina, South Carolina and West Virginia. He has also worked on various federal programs across the country, including Superfund and both Air Force and Navy programs. Mr. Mahfood has also worked as the lead risk assessment specialist on at least ten (10) former manufactured gas plant sites in North Carolina and South Carolina. Mr. Mahfood has provided environmental health assessments to the natural gas and electric power industry for over twenty (20) years. In addition, Mr. Mahfood has completed over 25 risk assessments under the PA Code 245 Storage Tank and Spill Prevention Program.

Mr. Mahfood is responsible for launching The Healthy Roots Project[®] which is designed to promote awareness of environmental health issues in residential land development. The project focuses on soil, drinking water and indoor air "health" in rural and suburban developments. The Healthy Roots Project[®] brings together the concept of green building design, landscape design and healthy living into one vision. As part of The Healthy Roots Project[®], TMG is involved in local and regional environmental education programs for communities. The following website gives more detail on The Healthy Roots Project[®]: www.thehealthyrootsproject.com.

The Mahfood Group LLC[®] currently holds a contract through the West Virginia Department of Environmental Protection (WVDEP), Division of Land Restoration, to assist in the review of human health and ecological risk assessments associated with the voluntary remediation and redevelopment program. Mr. Mahfood acts as the technical lead for this contract and focuses on the following:

- Review of public health and ecological risk assessments
- Assist and coordinate development of technical topics for use in the review of quantitative risk assessments under the program
- Interact with both WVDEP project managers and risk assessors to assist in project coordination including scope of work development and review for the site assessments
- Perform site visits in support of the technical review
- Perform quantitative reviews of all calculations, fate and transport assumptions and modeling
- Review of conceptual site model design
- Develop technical comments to be addressed by the entity submitting the risk assessment report
- Coordinate with the consulting firm submitting the risk assessment report to expedite and streamline technical responses

Mr. Mahfood has also conducted Phase I Environmental Site Assessments, Interim Remedial Measures, and Phase II Field Investigations at over 40 former manufactured gas plant (MGP) facilities (of which at least 20 were located in Pennsylvania) with budgetary estimates totaling over one million dollars per year. These

projects included all aspects of agency negotiations to solicit a phased approach outlined in a decision flow diagram. He has coordinated all activities associated with the removal of coal tar material from above ground and below ground gas holders and associated MGP structures. Mr. Mahfood has also been responsible for conducting quantitative risk assessments at many different types of industrial/commercial facilities across the country.

SELECTED PROJECT EXPERIENCE

- A former industrial plant encompassing approximately 16 acres was evaluated by Mr. Mahfood utilizing the site specific standard under Pennsylvania's Act 2 program which affords a property owner the option to assess site specific risks using various current and potential future use scenarios. The site was divided into three future development parcels. Each parcel was addressed separately with site specific scenarios. One primary issue with the site was the diffuse groundwater discharge to surface water with impacts of chlorinated solvents and an identified preferential pathway also leading to the surface water via an historic catch basin system. Based on the results of the risk assessment a series of remedial action objectives were developed by Mr. Mahfood giving the property owner cost effective alternatives to address the surface water issues.
- Mr. Mahfood is responsible for developing and implementing a PCB monitoring program for a Pennsylvania utility under the federal PCB MegaRule Program Part 761. Responsibilities include developing sampling protocols, establishing a data base management system, working with the utility to update their natural gas pipeline system data base identifying PCB locations and developing system wide protocols for implementing mitigation measures.
- Mr. Mahfood is currently working as lead risk assessor on numerous petroleum/underground storage tank sites located in both Pennsylvania and West Virginia under their respective voluntary programs. These assessments focus the use of risk assessment on addressing environmental impacts in order to place these sites back into use. Preliminary conceptual site modeling is paramount in converging the investigative activities to address those areas of the site that could create the most significant risk and then will help to develop specific remedial action objectives to mitigate any risk benchmark exceedances. Most of the site conceptual models addressed nonresidential use, however, several of the sites needed to address future residential use and recreational use as part of the risk assessment.
- Mr. Mahfood is focusing a considerable amount of time on vapor intrusion and indoor air quality. He is working closing with a nationally recognized air laboratory to develop and refine soil gas sampling procedures and indoor air sampling methodologies utilizing his combined public health and chemistry background with specific focus on residential indoor air.
- Mr. Mahfood conducted a risk assessment on a former MGP located in Wilmington, NC. Investigative activities for this site were conducted under an Administrative Order on Consent (AOC). Current use of the site included a senior housing facility, a public boat ramp, and an abandoned industrial facility. The surrounding area includes residential properties. The site contained the typical MGP residual source areas. Because a portion of the MGP site is currently used and the other portion is being considered for future development, a variety of future use exposure scenarios were developed to focus the risk assessment. By incorporating reasonable future use scenarios at the beginning of the process and working together with the various interested parties, a significant cost savings can be realized for this site.
- One of Mr. Mahfood's latest projects involved the West Virginia Voluntary Remediation Program (VRP). The site is located in Kenova, West Virginia along the Ohio River. The site was a former industrial facility that housed a variety of industrial activities over the years. Mr. Mahfood was acting as both Sr. Project Manager and Sr. Risk Assessment Specialist on the project. The site has many unique characteristics including the involvement of multiple VRP's due to environmental impacts on adjacent properties, some of which have migrated and consequently impacted the site. Activities involving Mr. Mahfood's experience at the site have been ongoing for over three years. Beginning with a strategy meeting with the WVDEP, a

unique approach was developed to address impacts at the site. This approach included addressing the soil and groundwater impacts (vapor intrusion from shallow perched zones) first. This approach enabled progression of the site investigation activities related to the soil independent of the deep groundwater issues which were a result of other entities and are being addressed under separate VRP's.

A risk based approach was utilized at the beginning of the project to develop a conceptual site model (CSM) which focused the program on soil and the perched groundwater (vapor intrusion only). This process was helpful in centering the remedial investigation efforts on the end use and producing analytical data necessary for the site specific risk assessment. As part of the baseline risk assessment (BRA) for the site, Mr. Mahfood developed reasonable scenarios which addressed both current site situations and the future use based on knowledge of the surrounding area and the interest of adjacent property owners in the site. The BRA used both default and site specific inputs and assumptions which resulted in a conservative approach in order to develop potential remedial action objectives (RAOs). The BRA results indicated the need to address surface soil due to excess lead in two small areas of the site.

Therefore, Mr. Mahfood oversaw the preparation of a Remedial Action Plan (RAP) that was prepared and implemented to reduce the surface soil lead concentration to an acceptable level as demonstrated by the conduct of a residual risk assessment (RRA). Mr. Mahfood worked closely with the WVDEP project manager in order to delineate the remediation area and to collect post excavation samples necessary for use in the RRA.

In the conduct of this risk assessment process along with other risk assessments performed by Mr. Mahfood, he has utilized the most recent accepted methodologies in developing CSMs, fate and transport evaluation, receptor analysis, statistical analysis, quantitative assessment and uncertainty analysis. This project recently received a No Further Action Letter from the WVDEP.

- Mr. Mahfood is currently program manager for a multi-site MGP program being conducted under a Consent Order and Agreement (COA) in accordance with Pennsylvania's Land Recycling and Environmental Remediation Standards Act (commonly known as Act 2). Mr. Mahfood's responsibility includes managing 8-10 MGP sites on an annual basis under this program. Project activities have included Phase I activities, Remedial Investigations, Risk Assessments, Interim Remedial Activities, Cleanup Plans and Final Report documentation.

As part of this program, generic documents (e.g., Generic Work Plan, Generic QAPP and Generic HASP) have been developed. These generic plans facilitate the use of generic procedures on a site-specific basis. The client realizes a significant cost savings by utilizing these types of generic documents.

As an important element of the multi-site program, Mr. Mahfood participates in program meetings with the Pennsylvania Department of Environmental Protection (PADEP) once a year to discuss program and technical issues. These meetings include five of the six PADEP regions and PADEP's central office. These meetings act as the forum to discuss technical issues before they become problematic on a particular project (or program wide).

Under this program, Mr. Mahfood completed management of a site investigation and cleanup where a detailed delineation of a basal confining unit was performed in order to determine the potential for coal tar migration. This activity enabled the placement of a product recovery system in an area where coal tar accumulation was most prominent. In addition, delineation of this unit also was useful for the placement of piezometers to monitor potential migration during recovery efforts and show that the coal tar was not migrating to the point of compliance (i.e., property boundary).

The site activities have also included project objectives which have focused on reuse, including benefits for the site owner, local municipality and the local community. Mr. Mahfood has conducted a site-specific risk assessment for this property which incorporated very specific end use activities including a little league baseball field and supporting facilities (e.g. parking lot). Based on the risk assessment findings, it was determined that an engineered control along with deed restrictions on intrusive activities and an

incomplete pathway for groundwater use would satisfy Act 2 requirements for closure and offer this site for reuse to the local community. This site has recently been closed under Act 2 and a relief of liability has been granted. The site was also designated as one of PADEP's "Showcase Sites" under the Land Recycling Program.

- Mr. Mahfood was project manager for the investigation and interim remedial action (IRA) phases and senior risk assessment specialist for a former manufactured gas plant site located in Pennsylvania. This site was also evaluated under the multi-site program. The site is adjacent to a recreational surface water body and a boat ramp to access the river. Based on the results of the IRA (which included the removal of approximately 700 tons of coal tar from a below grade gas holder) and the risk assessment, the final remedy for the site included an engineered cover and natural attenuation. The natural attenuation portion was supported by groundwater modeling activities to demonstrate that there was no direct impact to the adjacent surface water body. The results of these activities invited the local municipality to purchase the property and designate the site as "green space" to help encourage additional recreational use of the river. This site received a relief of liability under Act 2.
- Mr. Mahfood was project manager and lead risk assessor for an MGP site where purifier waste was identified as the primary MGP waste. This material was distributed along the surface of the site. He lead the initial investigation activities to determine the vertical and horizontal extent of the purifier waste. Based on the site investigation Mr. Mahfood coordinated hot spot removal of certain areas exceeding applicable Act 2 medium-specific standards and performed a residual risk assessment demonstrating acceptable site-specific risks. Subsequent to the removal and risk assessment activities the area was returned to beneficial use as a parking lot for the local gas company. A relief of liability was granted for this site under Act 2.
- Mr. Mahfood was lead risk assessment specialist for two site-specific risk assessments utilizing both U.S. EPA Region 4 and State of North Carolina Guidance for a manufactured gas plant site located in North Carolina. The site consisted of two separate parcels where very different conceptual site models were developed to account for the distinct differences in current and potential future site use. The results of the risk assessment showed that for the one parcel only surgical soil removal would be necessary to meet site use and acceptable risk levels. While the other parcel met acceptable risk levels and no remedial alternative was necessary. A key element of both risk assessments was the development of a risk-based approach with consideration of potential current and future use and the use of reasonable exposure scenarios.
- Mr. Mahfood has completed the risk assessment on a former MGP site in North Carolina where the future development will be for recreational boating activities. Based on the planned future use, Mr. Mahfood was able to develop site-specific exposure scenarios which will limit removal of historic MGP materials to those contained in below grade structures (e.g. below grade holder and tar wells).
- Mr. Mahfood worked on a site-specific risk assessment in North Carolina where historic manufactured gas plant operations were conducted and more recently the site was used as a dry cleaner. The complicating factor with this site was the combined constituent list of manufactured gas plant residuals and dry cleaner chemicals. An office currently occupies a small portion of the site; however, the remainder of the site is unoccupied (with some vacant structures). The risk-based approach plays a very important role for redevelopment of the property. Redevelopment plans are incorporated into the risk-based approach therefore, enabling the refinement of a conceptual site model and the development of realistic potential exposure input parameters based on the future use, especially when considering potential exposure pathways such as vapor intrusion.
- As a Senior Environmental Risk Analyst, Mr. Mahfood has performed public health environmental assessments for industrial clients as part of remedial investigations and the development of various risk-based approaches. The types of sites include: coke plants, manufactured gas plants, wood treating plants, and coal tar refineries. He has provided expertise in the development of potential human

exposure and environmental pathways and fate and transport analysis of site related chemicals in the environment.

- Mr. Mahfood was lead risk assessor for an industrial site where he compared the benefits of performing a deterministic risk assessment versus a probabilistic risk assessment and weighed the cost of each against a favorable outcome in order to show that implementation of a remedy was not necessary. This assessment was conducted under the Ohio VAP and saved the client approximately \$500,000 dollars in remediation costs.
- Mr. Mahfood historically focused his efforts on evaluating the potential for reuse of "waste" material as a product for retail sale. He performed a risk assessment under Pennsylvania's Residual Waste Regulations to establish wood ash as a coproduct for various commercial uses (e.g., as a soil amendment, road base material). The activities associated with this risk assessment required a complete understanding of the manufacturing process which generated the wood ash, potential reuse markets, chemical breakdown of the material, potential use scenarios and a unique understanding of use specific exposure parameters.
- The following technical specialties support Mr. Mahfood's efforts acting as both project manager and risk assessment specialist for many of his projects. They include public health risk and environmental impact assessments, utilizing deterministic assessments and probabilistic analysis, chemical/ analytical program development, contaminant fate and transport and statistical analysis. Mr. Mahfood performed qualitative and quantitative health risk and environmental assessments for superfund remedial investigations and feasibility studies. One of his Superfund projects included a risk assessment for a car battery reclamation site where lead was the major environmental concern. This assessment not only included an evaluation of potential exposure to lead, but an assessment of how the lead would migrate in the environment based on the acidic conditions as a result of the battery acid.
- Mr. Mahfood has been responsible for the preparation of sampling and analysis plans, including budgeting and scheduling of associated analytical activities. Mr. Mahfood's background in analytical chemistry has assisted him in selecting the appropriate analytical methods necessary to accomplish project quality objectives and to assure attainment of chemical criteria.
- Mr. Mahfood has also completed public health and environmental assessments for uncontrolled waste sites and developed comprehensive validation procedures for the evaluation of analytical data on several remedial investigations for the U.S. Department of Defense. These sites included Air Force bases, with a focus on the risk associated with exposure to the various areas where training activities were completed (e.g., burn pits).
- As a Chemist, Mr. Mahfood coordinated the analysis and data review of water and soil samples under Superfund protocol for the analysis of pesticides, herbicides and PCBs. Mr. Mahfood has a complete analytical background in the analysis of industrial wastes by gas chromatography, including volatile compounds, PCBs, herbicides, base/neutral, and acids. He has also analyzed water samples for inorganic ions by ion chromatography and performed a variety of wet chemical analyses for inorganic constituents.
- Mr. Mahfood has developed quality control procedures, including routine quality control charts along with a complete statistical analysis to monitor and review test results on a daily basis. He has also performed analysis on other media such as acid mine drainage, industrial effluents, home drinking water and coal samples.

SELECTED PUBLICATIONS/PRESENTATIONS

Hale, J.R., J.J. Mahfood, and R.J. Hickman, 1999. *Evaluating Natural Attenuation of Dissolved Coal Gasification Derivatives in Shallow Unconfined Aquifers*. Presented at the IGT Twelfth International Symposium on Environmental Biotechnologies and Site Remediation Technologies & Utility Industry Environmental Issues, Challenges, and Solutions. December 1999.

Hasel, Michael, J.J. Mahfood, Anthony Mazzoni. A Case Study for Cost Effective Control of MGP Site Remediation Risks with a Fabric Structure in a Residential Setting. Presented at the Gas Technology Conference & Exhibition, Orlando, Florida. January 30-February 2, 2005.

Hayes, Heidi, J.J. Mahfood, B. Shamory. Comparison of EPA Compendium Methods TO-15 and TO-17 for the Measurement of Naphthalene in Soil Gas. Presented at Business of Brownfields Conference, April 17-18, 2008.

Hoff, Richard F., John J. Mahfood, Amanda L. McGuinness. Sustainable Benefits of Urban Farming as a Potential Brownfields Remedy. Business of Brownfields Conference, Pittsburgh, PA. April 2010.

Hoff, Richard F., Tammi Halapin, John J. Mahfood. Effects of Changing Regulatory Paradigms on Brownfield Viability and Sustainability. Business of Brownfields Conference, Pittsburgh, PA. April 2009.

Hoff, Richard F., Tammi Halapin, John J. Mahfood. Practical Considerations in Sustainability. Business of Brownfields Conference, Pittsburgh, PA. April 2009.

Kotun, R.J., and J.J. Mahfood, 1994. Deriving a Practical and Cost-Effective Soil Remedial Goal for Carcinogenic PAHs. Presented at Superfund 1994, December 1994.

Kupchella, L., A. Syty, and J.J. Mahfood, 1983. Improved Apparatus for Rapid Mercury Determination by Cold Vapor Atomic Absorption Spectroscopy. *Journal of the Association of Official Analytical Chemists*, September 1983, Volume 66, pp. 1117-1120.

Mahfood, J.J., Andrew Swales, 2011. Karst Geology, Vapor Intrusion and Human Health Risk Assessment – Fundamental Issues to Consider. Growing Communities on Karst 2011 and the Great Valley Water Resources Science Forum, September 2011.

Mahfood, J.J., Mary Washko, 2010. Risk Assessment and a Multi-Phased Approach to Investigating TCE Plume in Karst. Growing Communities on Karst 2010 and the Great Valley Water Resources Science Forum, September 2010.

Mahfood, J.J., B.D. Shamory, H. Hayes, 2007. Vapor Intrusion Pathways, Evaluating Naphthalene. Presented at the Business of Brownfields Conference, April, 2007.

Mahfood, J.J., M. Ferlin, R. Contrael, Dougherty, A. Lopez, D. Shier, 2006. Stratified Soil Gas Sampling at an MGP Site for Use in a Quantitative Risk Assessment, A Case Study. Presented at Gas Technology Conference and Exhibition, Orlando, Florida, October 2006.

Mahfood, J.J., Richard E. Baker, Jr., Jennifer M. Malle. Utilizing a Risk-Based Approach to Reduce Soil Excavation Costs. Presented at the Gas Technology Conference & Exhibition, Orlando, Florida. January 30-February 2, 2005.



JOHN J. MAHFOOD

Sr. Risk Assessment Specialist / Sr. Program Manager

Mahfood, J.J., D.J. Wingerd, and R.J. Kotun, 1994. A Decision Flow Chart for Cleanup of Multiple Manufactured Gas Plant Sites. Presented at HMCRI Federal Environmental Restoration III and Waste Minimization II Conference and Exhibition, New Orleans, LA, April 1994.

Malle, J.M., J.J. Mahfood, and A.C. Swales, 2001. Co-Product Determination-Applying State Residual Waste Regulations for Re-Use of Fly-Bottom Ash Material as a Retail Product. Presented at the Gas Technology Institute 14th Annual International Conference. December 2-6, 2001.

Shamory, Craig S., J.J. Mahfood, Andrew C. Swales. An Innovative Method for Presenting and Evaluating the Hydrogeologic and Exposure Aspects of a Risk-Based Site Closure. Presented at the Gas Technology Conference & Exhibition, Orlando, Florida. January 30-February 2, 2005.

Shosky Jr., D.J., J.J. Mahfood, R.A. Brown, and M. Jackson, Jr., 1995. Emerging Technologies for Recycling MGP Sites. Pollution Engineering, June 1995, Volume 27, Number 6, pp. 62-66.

Swales, A.C., J.J. Mahfood, J.R. Hale, E. Meyer, and M.J. Hasel, 2000. Remediation, Restoration, Re-Use: Accomplishing the Three R's of MGP Site Revitalization. Presented at the Gas Technology Institute Thirteenth International Symposium on Site Remediation Technologies & Environmental Management Practices in the Utility Industry. December 4-7, 2000.

University of Pittsburgh

Pittsburgh, Pennsylvania

To all persons to whom these presents may come, Greeting

Be it known that

John Jude Mahfood

having satisfied the requirements for the degree of

Bachelor of Science

is now admitted to that degree with all the rights, privileges and immunities therein appertaining.

In Witness Whereof, we the Trustees of the University have caused our corporate seal and the proper signatures to be hereunto affixed. Given at Pittsburgh, Pennsylvania, on the thirteenth day of August in the year of our Lord one thousand nine hundred and eighty.

Ernest A. Caldwell
Chairman Board of Trustees

Robert C. Smith
Trustee



Wesley W. Pasvan
Chancellor

Levin Schwab
Dean, College of Arts and Sciences

University of Pittsburgh

To all persons to whom these presents may come, Greeting

Be it known that

John Jude Mahood

having satisfied the requirements for the degree of

Master of Science in Hygiene

and having been recommended by the Graduate Faculty in

The Graduate School of Public Health

is now admitted to that degree with all the rights, privileges and immunities therunto appertaining.

In Witness Whereof, we the Trustees of the University have caused our corporate seal and the proper signatures to be hereunto affixed.

Given at Pittsburgh, Pennsylvania on the twenty-second day of April in the year of our Lord one thousand nine hundred and eighty-seven.



J. Maroon
Chairman, Board of Trustees

Donald M. Hudson
Vice President

Wesley W. Pasvan
President

Raymond Seltzer
Dean, Graduate School of Public Health



EDUCATION

B.S. Environmental Science (2009) –
California University of Pennsylvania

TRAINING

HAZWOPER
ASTM E1527 Phase I Training

FIELDS OF SPECIALIZATION

Public Health Assessments
Data Management
Statistical Evaluation of Analytical Data
Site Assessments

EXPERIENCE SUMMARY

Ms. Smith has one year of environmental experience in areas including data management and review, quantitative risk assessments, statistical evaluation of analytical data, site assessments, and risk assessment review. She has focused on the technical requirements under Pennsylvania's Land Recycling and Environmental Remediation Standards Act (Act 2).

SELECTED WORK/PROJECT EXPERIENCE

Ms. Smith has completed statistical evaluation of analytical data, screening of data against appropriate media specific criteria, toxicity assessments, quantitative risk assessments, and development of conceptual site models. She has also assisted in the development of Remedial Investigation Reports, Risk Assessments, and Residual Risk Assessments for several manufactured gas plant (MGP) sites. In addition, she has completed the 40-hr online HAZWOPER training and a training course for ASTM E1527 Phase I ESA.

Ms. Smith has developed a solid understanding of equations, parameters, and calculations necessary to complete a risk assessment using models from Pennsylvania as well as other states. She is familiar with the chemical properties and toxicity criteria available through a hierarchy of resources, as well as gathering background information, such as searching for existing groundwater wells within the vicinity of a site using the PA Groundwater Information System (PaGWIS) online database. She is competent in utilizing ProUCL, a comprehensive statistical software package, in order to perform statistical analyses of analytical data and to develop exposure point concentrations. Ms. Smith is currently developing risk calculations and supporting text for a multiple phase risk assessment/cleanup plan.

Ms. Smith contributed to the development of a fate and transport model and receptor-specific exposure pathway models for a remedial investigation report. She was responsible for compiling, reviewing, and managing all analytical data, validation reports, text, tables, figures, and appendices for the RI report. She also created soil and groundwater tag maps which are used to highlight exceedances of constituents in comparison to PA's Act 2 screening criteria and their location in relation to the site.

Ms. Smith assisted in developing a model that represents a wet basement and a sump scenario in order to estimate indoor air concentrations in which groundwater conditions limited the use of the Johnson and Ettinger (J&E) model. A model presented by the Virginia Department of Environmental Quality (VA DEQ) was creatively incorporated to this site-specific situation. In addition, she has utilized MS Publisher to create figures in support of a descriptive conceptual site model as well as create flow charts.

Ms. Smith has assisted in a residual risk assessment for a former MGP site. A residual risk assessment was conducted in order to derive remedial goals that would reduce the overall hazard index and cancer risk to acceptable levels for each receptor at the site. This required each receptor and exposure pathway to be evaluated in order to determine which pathway(s) contributed the most risk and as a result was chosen as the basis of the



LISA M. SMITH
Environmental Scientist/Risk Assessor

remedial action goals that were calculated. These remedial goals were calculated to be protective of all receptors evaluated at the site.

Ms. Smith currently performs statistical analyses on quarterly groundwater data under a National Pollutant Discharge Elimination System (NPDES)

Permit. This analysis utilizes the tolerance interval procedure to calculate tolerance limits based on the background well data and compares data from four compliance monitoring wells in order to determine if there is a statistically significant increase in concentration over the background well.

California
University
OF PENNSYLVANIA
1852

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HEREBY CONFERS UPON

LISA MARIE SMITH

THE DEGREE OF

BACHELOR OF SCIENCE

WITH ALL THE RIGHTS, HONORS AND PRIVILEGES THEREUNTO PERTAINING
GIVEN AT THE UNIVERSITY THIS SECOND DAY OF MAY, 2009


CHAIRPERSON, BOARD OF GOVERNORS


CHANCELLOR, STATE SYSTEM OF HIGHER EDUCATION


PRESIDENT


CHAIRPERSON, COUNCIL OF TRUSTEES



EDUCATION

M.S. Environmental Engineering (1997) – University of Akron
B.S. Mathematics (1995) – Clarion University of Pennsylvania

FIELDS OF SPECIALIZATION

Human Health Risk Assessment
Fate and Transport Modeling
Exposure Assessment
Statistical Evaluation

EXPERIENCE SUMMARY

Ms. Liebig has fifteen years of experience in the area of risk assessment and fate and transport modeling. In particular, she has specialized in human health risk assessments, calculating risks and hazards to exposed populations as well as calculating clean-up standards to meet appropriate regulations. Ms. Liebig has also performed numerous exposure assessments. These assessments involve developing a unique exposure matrix that characterizes the site conditions over time with either site-specific data or modeled concentrations. Ms. Liebig also routinely performs fate and transport modeling and various statistical analyses.

SELECTED PROJECT EXPERIENCE

- Prepared a Public Health Evaluation of a Remedial Alternative (PHERA) report for a Superfund Site in Oakland, California. Quantitatively evaluated risk-based performance standards resulting from residential exposure to dust and vapor emissions during contamination excavation activities. Performed several air emission models based on USEPA (1996, 2002) guidance documents for the generation of dusts from wind and remedial activity. Performed air dispersion modeling using AERMOD to evaluate dispersion of pollutants from sources under short-range, steady-state conditions. Calculated action levels for site-specific chemicals, particulates, and total volatile organic compounds (VOCs).
- Conducted fate and transport modeling of trichloroethylene (TCE) in groundwater at a Superfund site in California. Determined the time required for TCE to reach its Maximum Contaminant Level (MCL) at the Site by utilizing Biochlor and RemChlor models to simulate natural contaminant attenuation and active remediation. Utilized results of the models for soil and groundwater contaminants to determine appropriate remedial technologies.
- Acted as a technical resource for the PADEP by conducting a review of a human health risk assessment report through a General Technical Assistance Contract (GTAC). Reviewed screening of chemicals of potential concern, exposure assessment, and procedural and methodologies utilized for risk characterization in order to assist the PADEP in determining the appropriate remedial action for an active petroleum refinery in northern Pennsylvania.
- Prepared human health risk assessments for numerous retail petroleum sites throughout Pennsylvania in accordance with PA Chapter 250 Land Recycling Act (Act 2). Performed statistical evaluations and utilized various fate and transport models [Quick Domenico Advective Transport and Dispersion Groundwater (QD) Model, Johnson and Ettinger Indoor Vapor Intrusion (J&E) Model, Pennsylvania Single Discharge Wasteload Allocation Program for Toxicics (PENTOXSD) Model] to assess current and future risks due to the presence of contaminants. Developed cleanup levels based on site-specific data and complete exposure pathways.
- Prepared human health risk assessments for subsections of a large wax production facility in Pennsylvania by identifying chemicals of interest (COIs), performing an exposure assessment, a toxicity assessment, and a risk characterization. Utilized the PENTOXSD model to simulate the effect of groundwater contaminant concentrations into surface water bodies. Determined indoor air concentrations resulting from residual groundwater and soil contaminants utilizing the J&E model.

- Determined random soil sampling locations based on the Pennsylvania Department of Environmental Protection's (PADEP) Systematic Random Sampling Workbook for impacted properties adjacent to a former industrial solid waste disposal facility. Performed data evaluation to determine the 95% upper confidence limit of the arithmetic mean for arsenic concentrations in soil in accordance with Act 2 guidance.
- Reviewed scientific literature to determine toxicity values of diesel and gasoline range organics in order to qualitatively evaluate risks to potential receptors at a petroleum refinery in Salt Lake City, Utah.
- Prepared a human health risk assessment for an automobile repair facility in Pennsylvania by providing a quantitative analysis of potential adverse effects to human health associated with contaminants present in various environmental media. Developed a conceptual site exposure model, performed QD fate and transport modeling, determined groundwater usage, and developed site-specific standards based on the current and predicted future usage of groundwater.
- Prepared a human health risk assessment for an industrial site in West Virginia. Evaluated on-site and off-site risk for commercial workers, construction workers, and residents based on current and anticipated future use of the site and surrounding properties. Constructed a groundwater model, VLEACH, to assess the potential migration of chemicals of potential concern in soil to groundwater and to assess the fate and transport of these chemicals in groundwater. Utilized an activity-based dust loading equation developed by the U. S. Department of Energy to determine the inhalation exposure to contaminant laden particulate (dust) emissions from soils for a construction worker.
- Conducted trend analyses to evaluate concentrations of chemicals of potential concern in soil and groundwater across an industrial site in New Jersey. Utilized the Mann-Kendall non-parametric statistical test to determine significance of possible data trends in groundwater and analyzed plots of concentrations over time to support the Mann-Kendall results.
- Conducted exposure assessment modeling to evaluate effects of open detonations of explosions and munitions at an army facility in New Jersey. Utilized the Open Burn/Open Detonation Dispersion model (OBODM) to calculate air concentrations and contaminant deposition rates for two fuel types. Calculated and plotted results of average annual and peak contaminant concentrations throughout a watershed area and average annual deposition rates across the area of an adjacent lake in order to develop a baseline human health risk assessment.
- Prepared a human health risk assessment to quantify cancer risks and noncancer hazards for an apple orchard in New Jersey by evaluating current/future recreational exposure scenarios for industrial/research workers, on-site youth visitors, and a residential child. Evaluated the routes of exposure for incidental ingestion and dermal contact with soil, inhalation of dust particles, and volatilization of constituents in soil to ambient air followed by inhalation.
- Prepared a screening-level human health risk assessment for a Department of Defense facility to provide a preliminary understanding of potential risks to human health associated with multiple study sites at the facility. Summarized data in accordance with USEPA Region II and NJDEP protocols.
- Conducted exposure assessments to evaluate children's exposure to benzene, toluene, xylene and acetone by developing specific exposure scenarios to assess the manner in which children and prospective parents may be exposed to these chemicals in their daily lives. Some exposure scenarios included second-hand and mainstream tobacco smoke, gasoline fumes, nail polish remover, paint thinner and other various consumer

products. Exposure models that include the Multi-Chamber Concentration and Exposure Model (MCCEM) and the Exposure and Fate Assessment Screening Tool (E-FAST) were used to quantify specific exposures.

- Developed a database of exposure parameters and various reference scenarios to estimate potential monomer exposure to end users of products containing acrylate/methacrylate polymers. The database was developed using Microsoft Access and contains over 300 exposure parameters that can be utilized with various exposure assessment models including Promise, Consexpo, and the Wall-Paint Exposure Model.
- Prepared Solid Waste Management Unit (SWMU) specific human health risk assessments for an industrial facility. Calculated vapor emission rates, managed and manipulated data, and calculated health protective remediation goals for chemicals of concern in compliance with the EPA's Administrative Consent Order.
- Developed an exposure matrix model for the reconstruction of worker exposures at a manufacturing facility for use in a lung cancer dose-response project. There were over 200,000 data points including air sampling records obtained from 1943 to 1972 and worker history information such as job titles over time. Other parameters were also involved in these relationships such as time motion data and the extrapolation/interpolation of air sampling data. Individual dose was estimated by merging the individual work histories with the exposure matrix. The exposure groupings have been used in an epidemiology study of the workers and dose-response modeling for increased lung cancer risk.
- Performed fate and transport modeling for various industrial facilities in order to determine exposure point concentrations at compliance boundaries and to develop risk-based remediation goals.
- Developed alternative remediation standards for Superfund sites in northern New Jersey using particulate emission models including the Fugitive Dust Model, the Hazardous Waste TSDF Vehicle Traffic Particulate model, and the AP-42 model. Site-specific ARS risk assessments were prepared and submitted to the New Jersey Department of Environmental Protection.
- Performed one- and two-dimensional Monte Carlo analysis for industrial sites in order to determine the effect that parameter uncertainty and variability have on the outcome of various models. Performed sensitivity analyses to determine the driving parameters.
- Calculated spatial statistics that utilized Thiessen polygons to identify impacted sediments along a river in northern New Jersey. Identified additional potentially responsible parties along the river using this approach.
- Calculated toxic equivalency factors for PCB congeners found in contaminated river sediments. Compared sediment and biota data to that of a food web model in order to better refine a human health risk assessment.
- Developed a Microsoft Access database for the compilation of several years of invoices associated with the chromium-contaminated sites in northern New Jersey. There were over 50,000 records associated with these sites from 1987 to 2000. This database, which was used for litigation support, was fully automated using macros and visual basic.

SELECTED PUBLICATIONS/PRESENTATIONS

Proctor, D.M., J.M. Panko, E.W. Liebig and D.J. Paustenbach. (2004). "Estimating Historical Occupational Exposure to Airborne Hexavalent Chromium in a Chromate Production Plant: 1940-1972." *Journal of Occupational and Environmental Hygiene*. November.

Proctor, D.M., J.M. Panko, E.W. Liebig, P.K. Scott, K.A. Mundt, M.A. Buczynske, R.J. Barnhart, M.A. Harris, R.J. Morgan, and D.J. Paustenbach. (2003). "Workplace Airborne Hexavalent Chromium Concentrations for the Painesville, Ohio Chromate Production Plant (1943-1971)." *Applied Occupational and Environmental Hygiene Journal*. 18(6): 430-449. June.

Luippold, Rose, Kenneth Mundt, Robert Austin, Elizabeth Liebig, Julie Panko, Casey Crump, Kenny Crump, and Deborah Proctor. (2003). "Lung Cancer Mortality Among Chromate Production Workers". *Occupational and Environmental Medicine*. 60: 451-457.

Crump, Casey, Kenny Crump, Eric Hack, Julie Panko, Elizabeth Liebig, Kenneth Mundt, Rose Luippold, Dennis Paustenbach, and Deborah Proctor. (2002). "Dose-Response Assessment of Hexavalent Chromium and Lung Cancer Mortality." *Risk Analysis*. September.

Scott, Paul K., Dave E. Rabbe, Elizabeth W. Liebig, and Brent L. Finley. (2000). "Evaluation of Three Measures of Exposure Concentration: A Case Study of Surface Sediment Concentrations in the Passaic River." *Human and Ecological Risk Assessment*. 6(3): 511-528.

Liebig, Elizabeth W. and Teresa J. Cutright. (1999). "The Investigation of Enhanced Bioremediation through the Addition of Macro and Micro Nutrients in a PAH Contaminated Soil." *International Biodeterioration and Biodegradation*. 44: 55-64.

Liebig, Elizabeth W. (1997). "The Effect of Nutrient Additions on Enhancing Bioremediation." Master's Thesis. University of Akron. August.

Liebig, Elizabeth W. (1997). "The Effect of Nutrient Additions on Enhancing Bioremediation." Presented at the I&EC Special Symposium, Emerging Technologies in Hazardous Waste Management IX. American Chemical Society. Pittsburgh, PA. September 17.

Clarkson University

of Pennsylvania



hereby confers upon

Elizabeth Ann Ward

the degree of

Bachelor of Science

with all the rights, honors and privileges thereto pertaining.

Given at the University this tenth day of August, 1995.



John A. McConick
Chancellor of the State System

F. Lewis ...
Chancellor, Council of Trustees

Charles D. ...
President of the University

Michael R. ...
Chancellor, Council of Trustees

The State System of Higher Education

The University of Akron

The Graduate School
Upon recommendation of the Faculty
and the Board of Trustees
The University of Akron
hereby confers upon

Elizabeth Ann Ward

The Degree of

Master of Science in Civil Engineering

Akron, Ohio
For the Board of Trustees

Raymond H. ...
Secretary



August 16, 1997
For the Faculty

M. ...
President

...
For