TETRA TECH

August 16, 2017

Mr. Bill McKenna, P.E.
Village Engineer
Village of Oak Park
201 South Blvd.
Oak Park, Illinois 60302

Subject: **Proposal for Preliminary Site Investigation**
Lake Street from Harlem Avenue to Austin Boulevard
Oak Park, Illinois

Dear Mr. McKenna:

Tetra Tech is submitting this proposal to conduct a preliminary site investigation (PSI) to support various improvements that will be performed by the Village of Oak Park (Village) within the Lake Street corridor from Harlem Avenue to Austin Boulevard. The PSI will be conducted in accordance with the July 2013 Illinois Department of Transportation (IDOT) Bureau of Local Roads and Streets (BRL) Manual with specific reference to Section 20.12.05, which provides the requirements for conducting PSIs.

Background and Scope of Work

The project consists of resurfacing and streetscaping (federally funded) as well as updating water mains and sewers (locally funded) along Lake Street in Oak Park. The project consists of roadway resurfacing, underground water and sewer improvements, and installing streetscaping items, including street lighting, traffic signals, and associated foundations.

The scope and location of the construction project is as follows:

- Streetscaping, including signal and lighting improvements, on Lake Street from Harlem Avenue to Euclid Avenue; and on Marion Street from Lake Street to Ontario Street
- Local water service and sewer improvements on Lake Street from Grove Avenue to Euclid Avenue
- Street resurfacing, including sidewalk improvements on Lake Street from Euclid Avenue to Austin Boulevard, which will be done in accordance with the Americans with Disabilities Act

The PSI scope of work (SOW) includes:

- Preparing a PSI work plan
- Determining the nature and extent of soil contamination within the right-of-way in areas with planned excavations. If groundwater is encountered during the investigation, determine environmental impacts to the uppermost unit of groundwater.
- Preparing a site investigation report with findings, conclusions, and recommendations, which includes a scope of work for remediation, if necessary.
- If groundwater is impacted and sufficient data on the extent and source of contamination are available, providing remedial alternatives to implement cleanup.

1 S. Wacker Drive, 37th Floor, Chicago, IL 60606
Tel 312.201.7700 Fax 312.201.0031
www.tetratech.com

- Proposing supplemental site characterization, if necessary, to better determine the nature and extent of contamination.
- Evaluating the potential for contaminant migration to surrounding properties within the project area and presenting recommendations for reducing or eliminating such migration, if necessary, when the potential for migration is determined to be high.
- Preparing a PSI report that includes uncontaminated soil certification forms, if applicable; Table 1 below provides the general sample locations by address, number of borings, depths, and suggested analyses.
- Tetra Tech will also recommend installing monitoring wells at specific locations if groundwater is encountered adjacent to impacted properties. Estimated quantities are shown in the attached compensation schedule.

Tetra Tech will submit a list of preliminary locations of proposed borings to the Village and to the Village's contracted engineers, Thomas Engineering Group (TEG), for review prior to starting boring work. We will also work with the Village and TEG to ensure that the locations are clear of utilities or other subsurface structures. Tetra Tech will place "No Parking" signs (provided by the Village) at all boring locations affecting on-street parking. The "No Parking" signs will contain dates and times of restrictions posted clearly. Tetra Tech will be responsible for all traffic control. Tetra Tech will also restore boring locations with concrete caps in pavement areas and with topsoil and seed in grass parkway areas.

Tetra Tech will advance borings to the depths identified below in Table 1 at each potentially impacted property (PIP) and obtain at least two samples from each proposed boring location and hold one sample in reserve from each. Borings will be advanced using a Geoprobe equipped with a macropore liner. Each sample will be logged and evaluated with a photoionization detector (PID) for evidence of contamination. Samples will be analyzed for the parameters identified in Table 1 at each potentially impacted property (PIP). In addition, Tetra Tech will provide certification for clean construction demolition debris (CCDD) and waste characterization analysis and waste profile forms for non-special waste for any location which cannot meet CCDD requirements.

Tetra Tech has reviewed supplemental information for each individual PIP. Tetra Tech has also evaluated the proposed parameters used to analyze boring samples, based on the available data provided in the Phase I environmental site assessment (ESA) and found the parameters to be appropriate. Should hazardous waste be found, any costs for additional borings, analysis, and reporting shall be provided under a force account basis.

Tetra Tech will submit preliminary results of analytical results within 10 days of sampling to the Village so that the Village can authorize analysis for non-special waste characterization and waste profile generation within the required 14-day holding period timeframe.

To the extent possible, Tetra Tech will place cuttings back into the borings. Waste generated by investigation activities is expected to be minimal; however, any material generated will be considered investigation-derived waste and managed accordingly and disposed of on a per-55-gallon drum unit cost basis. All samples will be logged by an engineer, scientist, or geologist and screened for potential contamination using a PID. The cost for the analysis and generating the waste profile for this material will be paid for under the contract unit price for the non-special waste characterization.

If Tetra Tech identifies contamination during the initial scope of the PSI, Tetra Tech will work with the Village and TEG to review the results and compare them with the proposed construction scope at the individual locations to determine whether additional borings will be required to further delineate soils that cannot be considered CCDD.

Tetra Tech understands that reviewing the results of the PSI and determining whether additional borings are required shall be considered part of the scope of this contract.

Tetra Tech will work with TEG to develop required project specifications and engineering cost estimates, per IDOT requirements, for any non-special or hazardous waste removal pay items for the various construction projects to be conducted on Lake Street. Drafting of specifications is anticipated to be completed after the final PSI report submittal.

Cost Estimate and Schedule:

Tetra Tech has based our scope of work and cost estimate on the 29 PIPs identified in Table 1 below and the analyses of soil for the parameters listed for each PIP, including volatile organic compounds (VOC), semivolatile organic compounds (SVOC), polynuclear aromatic hydrocarbons (PAH), soil pH, methyl-tert-butyl-ether (MTBE), or lead. Our cost estimate assumes that only one sample will be analyzed for each boring location and that a second sample will be archived and analyzed only if the first sample exhibits contamination above Tier I remediation objectives. Analytical costs for the second sample, if needed, are not included in our costs. In addition, one duplicate and one matrix spike duplicate will be collected for each analytical parameter.

Tetra Tech has also assumed that drilling activities can be accomplished in two days. Two days are likely necessary to allow for traffic conditions and the mobilization between each sampling location.

For costs associated with temporary well installation, Tetra Tech has assumed that temporary wells will be installed during the drilling work and will not require an additional mobilization. Similarly, Tetra Tech assumes that any remobilization for additional borings will include an extra day of drilling; this extra day of drilling cost has been built into the follow-up boring and non-special waste characterization cost.

The cost estimate does not include analysis for the full CCD parameter list, because this was not included as a base item or an additional bid item cost; therefore, the number of required samples is not known at this time. It is also likley that CCDD waste can be certified based on the findings of the proposed sampling and will not require a full analysis if the receiving facility accepts the engineers' certification and data gathered during the investigation as meeting acceptance criteria. The cost for CCDD analysis is estimated at $1,200 per sample, which would be included as an additional cost item.

Tetra Tech has assumed the following two wastes may be generated based on the types of contamination identified at the PIPs: (1) petroleum-contaminated waste and (2) waste potentially containing VOCs. For the petroleum-contaminated waste, Tetra Tech assumes the soil will be analyzed using petroleum code parameters. For waste with VOC contamination, Tetra Tech assumes the soil will be analyzed for TCLP VOCs, flash point, paint filter, and TCLP lead.

TABLE 1
SUMMARY OF BORING LOCATIONS, DEPTH, AND ANALYTICAL PARAMETERS

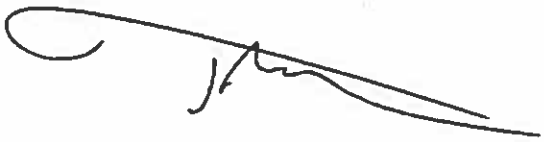
PIP Address	Number and Depth of Borings	Parameters
1125 W. Lake Street	1 boring to 5 ft	BTEX, PAH, pH
1111 W. Lake Street	1 boring to 5 ft	VOC, pH
1109 W. Lake Street	1 boring to 5 ft	BTEX, PAH, pH
1048 W. Lake Street	1 boring to 15 ft	BTEX, PAH, pH, and lead
1020 W. Lake Street	1 boring to 5 ft	BTEX, PAH, pH
1010 W. Lake Street	1 boring to 15 ft	BTEX, PAH, pH, and lead
848 W. Lake Street	1 boring to 5 ft	BTEX, PAH, pH, and lead
723 W. Lake Street	1 boring to 5 ft	VOC, pH
715 W. Lake Street	1 boring to 5 ft	BTEX, PAH, pH, and lead
714 W. Lake Street	1 boring to 5 ft	BTEX, PAH, pH, and lead
708 W. Lake Street	2 borings to 15 ft	BTEX, PAH, pH, MTBE and lead
701 W. Lake Street	1 boring to 15 ft	BTEX, PAH, pH, MTBE and lead
654-656 W. Lake Street	1 boring to 15 ft	VOC, SVOC, and pH
675 W. Lake Street	1 boring to 15 ft	BTEX, PAH, pH, and lead
515 W. Lake Street	1 boring to 2 ft	VOC, SVOC, pH, and lead
333 W. Lake Street	1 boring to 2 ft	BTEX, PAH, pH, and lead
332 W. Lake Street	1 boring to 2 ft	VOC, SVOC, and pH
310 W. Lake Street	1 boring to 2 ft	BTEX, PAH, and pH
300 W. Lake Street	1 boring to 2 ft	BTEX, PAH, pH, and lead
259 W. Lake Street	1 boring to 2 ft	VOC, SVOC, pH, and lead
244 W. Lake Street	1 boring to 2 ft	VOC, SVOC, and pH
226 W. Lake street	1 boring to 2 ft	BTEX, PAH, and lead
221 W. Lake Street	1 boring to 2 ft	BTEX, PAH, and pH
206-208 W. Lake Street	1 boring to 2 ft	VOC, SVOC, pH, and lead
201 W. Lake street	1 boring to 2 ft	BTEX, PAH, pH, and lead
38-40 W. Lake Street	1 boring to 2 ft	VOC and pH
32 W. Lake Street	1 boring to 2 ft	VOC, SVOC, pH, and lead
25 W. Lake Street	1 boring to 2 ft	BTEX, PAH, pH, and lead
7 W. Lake Street	1 boring to 2 ft	VOC, SVOC, and pH

Tetra Tech will provide a PSI work plan within 10 days of authorization to proceed and a PDF copy of the PSI report and three bound hard copies of the report within 30 days of authorization to proceed. Tetra Tech has estimated the cost for completing the PSI at $36,510.44.

Required forms and the signed cost forms are attached.

Tetra Tech appreciates this opportunity to support the Village of Oak Park. If you have any questions, please contact me at (312) 201-7474.

Sincerely,



Tom Hahne, CPG

Attachments

Required Certificates and Forms
Compensation Estimate Schedule

CERTIFICATE
TETRA TECH, INC.

To: Village of Oak Park, Illinois

I hereby certify to you that I am the duly elected and qualified Senior Vice President, General Counsel and Secretary of Tetra Tech, Inc., a Delaware corporation (the "Company"), and that, as such, I am authorized to execute this Certificate on behalf of the Company. I further certify to you on behalf of the Company that:

Jack Brunner, Chicago Operations Manager within the Company's Water, Environment and Infrastructure Business Group, is authorized and empowered, in accordance with the Company's Signature Approval Authority Matrix, as approved by the Company's Board of Directors, for and on behalf of the Company, to sign a proposal for professional environmental services related to Preliminary Site Investigation for the Lake Street Improvement Project.

IN WITNESS WHEREOF, I have hereunto set my hand as of this 14th day of August, 2017.

Janis B. Salin
Senior Vice President, General Counsel and Secretary

(Seal)

Oak Park

RESPONDENT CERTIFICATION

PROPOSAL SIGNATURE: _____

State of Illinois)
County of Cook)

Jack Brunner ,
TYPE NAME OF SIGNEE

being first duly sworn on oath deposes and says that the Respondent on the above proposal is organized as indicated below and that all statements herein made on behalf of such Respondent and that this deponent is authorized to make them, and also deposes and says that he has examined and carefully prepared their bid proposal from the Contract Exhibits and Specifications and has checked the same in detail before submitting this proposal or bid; that the statements contained herein are true and correct.

Signature of Respondent authorizes the Village of Oak Park to verify references of business and credit at its option.

Signature of Respondent shall also be acknowledged before a Notary Public or other person authorized by law to execute such acknowledgments.

Dated 8/15/17

Tetra Tech
Organization Name

(Seal - If Corporation)

By _____
Authorized Signature

Address 1 S. Wacker, 37th Floor, Chicago, IL 60606

Telephone 312 201 -7788

Subscribed and sworn to before me this 15th day of August, 2017.

Carole Ramsden
Notary Public

In the state of ILLINOIS.

My Commission Expires: 10-7-17

OFFICIAL SEAL
CAROLE RAMSDEN
Notary Public - State of Illinois
My Commission Expires Oct 7, 2017

(Fill Out Applicable Paragraph Below)

(a) Corporation

The Respondent is a corporation, which operates under the legal name of
Tetra Tech Inc.
and is organized and existing under the laws of the State of
Delaware.

The full names of its Officers are:

President Dan L. Batrack
Secretary Janis B. Salin

Treasurer Steven Burdick _____

The corporation does have a corporate seal. (In the event that this bid is executed by a person other than the President, attach hereto a certified copy of that section of Corporate By-Laws or other authorization by the Corporation which permits the person to execute the offer for the corporation.)

(b) Partnership

Name, signature, and addresses of all Partner

_____

_____

_____

_____

The partnership does business under the legal name of _____ which name is registered with the office of _____ in the county of _____ in the state of _____.

(c) Sole Proprietor

The Respondent is a Sole Proprietor whose full name is _____.
If the Respondent is operating under a trade name said trade name is _____ which name is registered with the office of _____ in the county of _____ in the state of _____.

Signed _____
Sole Proprietor

Oak Park

Attachment I. RESPONDENT CERTIFICATION

TETRA TECH
_____, as part of its bid on a contract for
(name of Respondent)

Professional Environmental Services for a Preliminary Site Investigation for the Lake Street Improvement Projects to the Village of Oak Park, hereby certifies that said Respondent is not barred from bidding on the aforementioned contract as a result of a violation to either Section 33E-3 or 33E-4 of Article 33E of Chapter 38 of the Illinois Revised Statutes or Section 2-6-12 of the Oak Park Village Code relating to "Bidding Requirements".

By: _____
(Authorized Agent of Respondent)

Subscribed and sworn to
before me this 15TH day
of AUGUST, 2017.

Carole Ramsden
(Notary Public)

OFFICIAL SEAL
CAROLE RAMSDEN
Notary Public - State of Illinois
My Commission Expires Oct 7, 2017

Oak Park

Attachment II. **TAX COMPLIANCE AFFIDAVIT**

Jack Brunner
_____, being first duly sworn, deposes and says:

that he/she is Operations Manager of
(partner, officer, owner, etc.)
TETRA TECH
_____.
(bidder selected)

The individual or entity making the foregoing proposal or proposal certifies that he/she is not barred from entering into an agreement with the Village of Oak Park because of any delinquency in the payment of any tax administered by the Department of Revenue unless the individual or entity is contesting, in accordance with the procedures established by the appropriate revenue act, liability for the tax or the amount of the tax. The individual or entity making the proposal or proposal understands that making a false statement regarding delinquency in taxes is a Class A Misdemeanor and, in addition, voids the agreement and allows the municipality to recover all amounts paid to the individual or entity under the agreement in civil action.

By: _____
Its: Jack Brunner
(name of bidder if the bidder is an individual)
(name of partner if the bidder is a partnership)
(name of officer if the bidder is a corporation)

The above statement must be subscribed and sworn to before a notary public.

Subscribed and sworn to before me this 15th day of August, 2017.

Carole Ramsden
Notary Public's Signature

- Notary Public Seal -
OFFICIAL SEAL
CAROLE RAMSDEN
Notary Public - State of Illinois
My Commission Expires Oct 7, 2017

Minority Business and Women Business Enterprises Requirements

The Village of Oak Park in an effort to reaffirm its policy of non-discrimination, encourages and applauds the efforts of bidders and subConsultants in taking affirmative action and providing Equal Employment Opportunity without regard to race, religion, creed, color, sex, national origin, age, handicap unrelated to ability to perform the job or protected veteran's status.

Reporting Requirements

The following forms must be completed in their entirety, notarized and included as part of the proposal document. Failure to respond truthfully to any question on the list or failure to cooperate fully with further inquiry by the Village of Oak Park will result in disqualification of your proposal.

Oak Park

Attachment III. ORGANIZATION OF BIDDING FIRM

Please fill out the applicable section:

A. Corporation:
The Consultant is a corporation, legally named TETRA TECH and is organized and existing in good standing under the laws of the State of Delaware. The full names of its Officers are:

President Dan L. Batrack

Secretary Janis B. Salin

Treasurer Steven Burdick

Registered Agent Name and Address: _____

The corporation has a corporate seal. (In the event that this Bid is executed by a person other than the President, attach hereto a certified copy of that section of Corporate By-Laws or other authorization by the Corporation that permits the person to execute the offer for the corporation.)

B. Sole Proprietor:
The Consultant is a Sole Proprietor. If the Consultant does business under an Assumed Name, the

Assumed Name is _____, which is registered with the Cook County Clerk. The Consultant is otherwise in compliance with the Assumed Business Name Act, 805 ILCS 405/0.01, et. seq.

C. Partnership:
The Consultant is a Partnership which operates under the name _____

The following are the names, addresses and signatures of all partners:

_____ _____

_____ _____
Signature Signature

(Attach additional sheets if necessary.) If so, check here _____.

If the partnership does business under an assumed name, the assumed name must be registered with the Cook County Clerk and the partnership is otherwise in compliance with the Assumed Business Name Act, 805 ILCS 405/0.01, et. seq.

D. Affiliates: The name and address of any affiliated entity of the business, including a description of the affiliation: _____

_____
Signature of Owner

Oak Park

Attachment IV. Compliance Affidavit

I, Jack Brunner being first duly sworn on oath depose and state as follows:

(Print Name)

1. I am the (title) Operations Manager of the Proposing Firm ("Firm") and am authorized to make the statements contained in this affidavit on behalf of the Firm.
2. The Firm is organized as indicated on Exhibit A to this Affidavit, entitled "Organization of Proposing Firm," which Exhibit is incorporated into this Affidavit as if fully set forth herein.
3. I have examined and carefully prepared this proposal based on the Request for Proposals and verified the facts contained in the proposal in detail before submitting it.
4. I authorize the Village of Oak Park to verify the Firm's business references and credit at its option.
5. Neither the Firm nor its affiliates[1] are barred from proposing on this project as a result of a violation of 720 ILCS 5/33E-3 or 33E-4 relating to bid rigging and bid rotating, or Section 2-6-12 of the Oak Park Village Code related to "Proposing Requirements".
6. The Proposing Firm has the M/W/DBE status indicated below on the form entitled "EEO Report."
7. Neither the Firm nor its affiliates is barred from agreement with the Village of Oak Park because of any delinquency in the payment of any debt or tax owed to the Village except for those taxes which the Firm is contesting, in accordance with the procedures established by the appropriate revenue act, liability for the tax or the amount of the tax. I understand that making a false statement regarding delinquency in taxes is a Class A Misdemeanor and, in addition, voids the agreement and allows the Village of Oak Park to recover all amounts paid to the Firm under the agreement in a civil action.
8. I am familiar with Section 13-3-2 through 13-3-4 of the Oak Park Village Code relating to Fair Employment Practices and understand the contents thereof; and state that the Proposing Firm is an "Equal Opportunity Employer" as defined by Section 2000(E) of Chapter 21, Title 42 of the United States Code Annotated and Federal Executive Orders #11246 and #11375 which are incorporated herein by reference. **Also complete the attached EEO Report or Submit an EEO-1.**
9. I certify that the Consultant is in compliance with the Drug Free Workplace Act, 41 U.S.C.A, 702.

[1] Affiliates means: (i) any subsidiary or parent of the bidding or contracting business entity, (ii) any member of the same unitary business group; (iii) any person with any ownership interest or distributive share of the bidding or contracting business entity in excess of 7.5%; (iv) any entity owned or controlled by an executive employee, his or her spouse or minor children of the bidding or contracting business entity.

Signature: _____ Printed Name Jack Brunner

Name of Business: TETRA TECH Your Title: Operations Manager

Business Address: 1 S. Wacker Drive, 37th Floor, Chicago, IL 60606
(Number, Street, Suite #) (City, State & Zip)

Telephone: 312 201 7788 Fax: 312 201 0031 Web Address: Illinois

Subscribed to and sworn before me this 15th day of August, 2017.

_____
Notary Public

OFFICIAL SEAL
CAROLE RAMSDEN
Notary Public - State of Illinois
My Commission Expires Oct 7, 2017

Illinois

M/W/DBE STATUS AND EEO REPORT

1. Consultant Name: TETRA TECH

2. Check here if your firm is:

   ☐ Minority Business Enterprise (MBE) (A firm that is at least 51% owned, managed and controlled by a Minority.)

   ☐ Women's Business Enterprise (WBE) (A firm that is at least 51% owned, managed and controlled by a Woman.)

   ☐ Owned by a person with a disability (DBE) (A firm that is at least 51% owned by a person with a disability)

   ☒ None of the above

   [Submit copies of any W/W/DBE certifications]

3. What is the size of the firm's current stable work force?

   See attached Number of full-time employees

   See attached Number of part-time employees

4. Similar information will be requested of all subConsultants working on this agreement. Forms will be furnished to the lowest responsible Consultant with the notice of agreement award, and these forms must be completed and submitted to the Village before the execution of the agreement by the Village.

Failure to respond truthfully to any questions on this form, failure to complete the form or failure to cooperate fully with further inquiry by the Village of Oak Park will result in disqualification of this Bid. For assistance in completing this form, contact the Department of Public Works at 708-358-5700.

Signature: _____

Date: August 15, 2017

co= 8357728
u= 8357728

EQUAL EMPLOYMENT OPPORTUNITY
2016 EMPLOYER INFORMATION REPORT
CONSOLIDATED REPORT - TYPE 2

SECTION B - COMPANY IDENTIFICATION

1. TETRA TECH INC
3475 E FOOTHILL BLVD
PASADENA, CA 91107

2.a. TETRA TECH INC
3475 E FOOTHILL BLVD
PASADENA, CA 91107

c. Y

SECTION C - TEST FOR FILING REQUIREMENT

1-Y 2-Y 3-Y DUNS NO.:045224250 EIN :954823555

SECTION E - ESTABLISHMENT INFORMATION

NAICS:

SECTION D - EMPLOYMENT DATA

JOB CATEGORIES	HISPANIC OR LATINO		NOT-HISPANIC OR LATINO												OVERALL TOTALS
	********** MALE **********								********** FEMALE **********						
	MALE	FEMALE	WHITE	BLACK OR AFRICAN AMERICAN	NATIVE HAWAIIAN OR PACIFIC ISLANDER	ASIAN	AMERICAN INDIAN OR ALASKAN NATIVE	TWO OR MORE RACES	WHITE	BLACK OR AFRICAN AMERICAN	NATIVE HAWAIIAN OR PACIFIC ISLANDER	ASIAN	AMERICAN INDIAN OR ALASKAN NATIVE	TWO OR MORE RACES	
EXECUTIVE/SR OFFICIALS & MGRS	4	1	224	1	0	15	1	0	33	0	0	0	0	0	279
FIRST/MID OFFICIALS & MGRS	34	12	699	19	1	41	2	8	266	8	1	23	1	6	1121
PROFESSIONALS	134	84	2150	106	5	183	9	60	1097	79	2	126	4	28	4067
TECHNICIANS	182	14	658	55	6	87	7	19	120	5	0	18	2	1	1174
SALES WORKERS	0	0	0	0	0	0	0	0	2	0	0	2	0	0	4
ADMINISTRATIVE SUPPORT	17	58	49	9	0	8	0	6	263	45	1	24	2	12	494
CRAFT WORKERS	30	0	65	3	0	0	1	1	2	0	0	0	0	0	102
OPERATIVES	57	0	162	12	1	3	4	5	6	0	0	0	0	0	250
LABORERS & HELPERS	57	1	76	4	0	2	2	2	1	1	0	0	0	0	146
SERVICE WORKERS	21	9	73	67	1	2	2	3	20	19	0	0	1	3	221
TOTAL	536	179	4156	276	14	341	28	104	1810	157	4	193	10	50	7858
PREVIOUS REPORT TOTAL	521	172	4196	247	10	360	21	101	1778	148	4	185	10	52	7805

SECTION F - REMARKS

DATES OF PAYROLL PERIOD: 07/09/2016 THRU 07/22/2016

SECTION G - CERTIFICATION

CERTIFYING OFFICIAL: RICHARD LEMMON
TITLE: SENIOR VICE PRESIDENT
EEO-1 REPORT CONTACT PERSON: JANET BRUNNER
TITLE: HR MANAGER
EMAIL: JANET.BRUNNER@TETRATECH.COM
TELEPHONE NO: 6264702508
CERTIFIED DATE[EST]: 08/31/2016 08:05 PM

TETRA TECH 8/17/17

Section III. Compensation Estimate Schedule

Please complete all forms and submit the information requested on the following pages and submit one (1) hard copy of the compensation schedule along with the proposal. The Compensation schedule shall include the total price and signature below.

The compensation schedule shall identify the Consultant's estimated price to complete the scope of services as specified in Section II, "Scope of Services," of this call for proposals according to the table below.

Item	Unit Price	Quantity	Total Cost
Cost to complete PSI adjacenet to 29 PIPs per recommended scope (estimated 30 borings/sampling locations)	N/A	Lump Sum	$22,501.00
Cost per each 55 gallon drum for removal and disposal of boring spoils which cannot be used as back fill	$165.00	5 (estimated)	$825.00
Cost to install monitoring well, sampling, and analysis of groundwater	$110.00	7 (estimated)	$770.00
Cost for non-special waste characterization and waste profile generation	$291.50	20 (estimated)	$5,830.00
Cost per each for follow-up boring and non-special waste characterization and waste profile generation	$658.44	10 (estimated)	$6,584.44
		Total Estimated Cost	$36,510.44

The undersigned proposes to perform the work as specified in Section II, "Scope of Services," of this call for proposals.

Proposal Signature: _____

State of ILLINOIS)

County of COOK)

JACK BRUNNER
_____,
(Type Name of Signee)

being first duly sworn on oath deposes and says that the Vendor on the above Proposal is organized as indicated below and that all statements herein made on behalf of such Vendor and that their deponent is authorized to make them, and also deposes and says that deponent has examined and carefully prepared their proposal from the Contract.

Statement of Qualifications
Environmental Consulting Services

Submitted To:

VILLAGE OF OAK PARK
Village Engineer
201 South Boulevard
Oak Park, IL 60302

Prepared By:

Tetra Tech

August 17, 2017

TABLE OF CONTENTS

1.0 INTRODUCTION TO TETRA TECH

This section provides an introduction to Tetra Tech, including its history, organizational structure, business operations, and financial strength.

Tetra Tech was founded in 1966 to provide engineering services to waterways, harbors, and coastal areas. Tetra Tech was acquired by Honeywell in 1982. In 1988, Tetra Tech acquired the firm of about 300 employees from Honeywell to become an independent environmental engineering firm. Since 1988, Tetra Tech has grown through internal growth and through acquisition to be one of the largest engineering and consulting firms in the United States, with approximately 16,000 permanent employees, more than 330 offices, and annual revenue of more than $2.6 billion. Tetra Tech is a Delaware Corporation and publicly traded company with the ticker symbol (TTEK) on the NASDAQ. Tetra Tech has been in business for about 40 years. Tetra Tech is in excellent financial condition (Dunn & Bradstreet No. 04-522-5240) and carries AAA rated insurance with the following limits: (a) General Liability up to $4 million aggregate, (b) Automobile Liability of $1 million, (c) Excess/Umbrella Liability of $5 million, (d) Worker's Compensation and Employers' Liability of $1 million, and (e) Professional Pollution and E&O Legal Liability of $5 million aggregate.

Tetra Tech's Position in the Field

- #1 firm in environmental management (*Engineering News-Record*)
- #2 firm in site assessment and compliance (*Engineering News-Record*)
- #5 firm in hazardous waste engineering (*Engineering News-Record*)
- #8 among all engineering firms in the country (*Engineering-News Record*)

Tetra Tech has two main operating groups including: (1) Water, Environment, and Infrastructure (WEI) and (2) Resource Management and Energy (RME). Each operating group contains a number of separate entities that focus on varying client services or client types. The Tetra Tech Chicago operations are within the WEI operating group. It is anticipated that Tetra Tech's Chicago Operations will manage and conduct all of the non-subcontracted work conducted under this contract. Tetra Tech will be assisted by subcontractors, all of which are local to the northwestern Indiana region, and all of which are disadvantaged business enterprises (DBE).

Tetra Tech's Chicago Operations employ over 70 environmental professionals. The Chicago office will provide all of the support to this project. Tetra Tech Chicago has an Operations Manager, Jack Brunner, who reports directly to the Tetra Tech Group President, Mr. Roger Argus. Jack Brunner has the direct authority to commit the required resources to this project, either directly or through the program or project manager assigned to the project. Tom Hahne, CPG, who reports directly to Jack Brunner, will be the client interface and project manager for this project.

2.0 QUALIFICATIONS AND RELATED EXPERIENCE

Tetra Tech offers a full range of environmental consulting and engineering services. Tetra Tech is uniquely qualified to support the Village of Oak Park (the Village) on this project for the following reasons:

- Tetra Tech is currently working throughout the Chicagoland area conducting. Phase I and II site assessments and site closure under Site Remediation Program and also working within right of ways to evaluate the extent of contamination and manage contaminated soils or clean construction and demolition debris (CCDD)..
- Tetra Tech has provided similar services for over 25 years to municipal governments and large property owners within the Chicago and Northwest Indiana area including municipalities (the City of Hammond, the City of Gary, the City of East Chicago, the Village of Oak Park, the City of Rockford, the Village of Maywood, and the City of Chicago), federal agencies (EPA, Fish and Wildlife Service, Army Corps of Engineers), other taxing districts (the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC), the East Chicago Waterway Management District (ECWMD), as well as industries and developers.
- Tetra Tech has worked on both small and large projects, conducting site assessment and redevelopment-related cleanup. We have worked on small and focused projects to large scale and complex investigation and requiring site-specific risk assessment, and remediation to meet regulatory requirements. Tetra Tech's team staff proposed for this project have conducted work on similar projects within the project area.
- Tetra Tech is approved by the Illinois Department of Transportation (IDOT) for the hazardous waste complex category. Tetra Tech is fully aware of the unique requirements for conducting preliminary site investigations (PSI) and follow on investigative and remedial tasks in compliance with IDOT requirements.

Tetra Tech has extensive direct local experience in all the required environmental consulting areas as well as tremendous local resources in terms of the depth of experience and personnel. Tetra Tech has an excellent relationship with the IEPA, IDOT, and US EPA. Our reputation is unsurpassed working on local, state, and federal projects.. The Tetra Tech team is currently working on several site cleanups and voluntary cleanups in Illinois and is familiar with all aspects of risk evaluation and cleanup management under IEPA and IDOT programs, which can be tailored to meet regulatory requirements while limiting risk to the community and unnecessary cost..

About Tetra Tech: Tetra Tech's primary business area is the environment. Tetra Tech's work base consists of assessing, investigating, designing, and redeveloping sites contaminated with hazardous or petroleum materials. As one of the largest hazardous waste environmental engineering firms in the country, Tetra Tech has extensive in-house corporate experience in conducting Phase II assessments, site closure under the Voluntary Remediation Program, and remediation management. The Tetra Tech Chicago office has completed work at about 800 solid and hazardous waste sites in the the Chicagoland area for the City of Gary, the City of East Chicago, City of Chicago, U.S. EPA Region 5, IEPA, and other government and industry clients. We possess the technical expertise, regulatory knowledge, managerial capabilities, and resources necessary to complete a wide range of assignments covering the full spectrum of environmental engineering work. Tetra Tech has completed hundreds of Phase II assessments within Illinois. Our use of state-of-the-art survey instruments such as the Lumex 915+ mercury vapor analyzer has allowed the rapid screening of hazardous conditions and reduced project cost. Tetra Tech has provided support at hundreds of industrial, municipal, commercial, or federal site projects. .

Table 1 provides a list of representative projects and experience, and it also includes a summary matrix with an evaluation of required technical activities required in the scope of services, aligning experience and project. From this list we have provided more detailed descriptions of a number of projects, which are provided after the table. .

Tetra Tech would be the Village's best choice in completing the work because of the following:

- Tetra Tech has the local resources and experience to complete all the required project components within a short timeframe
- Tetra Tech is familiar with IDOT requirements and procedures.
- Tetra Tech has experience working with the contractor and the waste and clean construction and demolition debris (CCDD) to properly characterize and manage materials encountered during this work
- Tetra Tech has the capabilities to perform remediation services for all media encountered as well as to evaluate risk management options to ensure public safety.

TABLE 1
PROFESSIONAL SERVICES EXPERIENCE – REPRESENTATIVE PROJECTS

Project	Technical Activities Required in the Scope of Services					
	Site Assessment, Redevelopment, or Site Closure	Right of Way Investigation	Phase II Site Assessments	Soil Management	Waste Management	Remediation Management
Perlmark Development – Midway Pointe	•	•	•	•	•	•
Lake St. Redevelopment Area (Oak Park, IL)	•	•	•	•	•	•
River Forest, River Forest Cleaners	•	•	•	•	•	
West Pullman Industrial Redevelopment Area (Chicago)	•	•	•	•	•	•
Amforge Industrial Site (Chicago)	•	•	•	•	•	•
Maywood Site Redevelopment	•	•	•	•	•	•
76th and Albany Silver Shovel Site Remedial and Removal Actions (Chicago)	•	•	•	•		•

Project Title: Lake Street Redevelopment Area	**Time Period of Project:** 2001 to 2010
Location of the Project: Oak Park, Illinois	**Project Budget:** $400,000
Type of Project: SRP Cleanup	**Completion Date:** 2010
Key Personnel Involved: Tom Hahne, Carol Nissen	

Reference Information

Client: Village of Oak Park, Planning Department
Contact: Mr. William McKenna, Village Engineer
Address: 201 South Blvd, Oak Park, IL 60302 **Telephone No.:** (708) 358-5722

Description of Project

The Lake Street Development Area is a large mixed-use area consisting primarily of residential and commercial property in the central portion of Oak Park. The area has been zoned as a Tax Incremental Funding (TIF) area to stimulate redevelopment. The eastern portion of the TIF area consisted of an underutilized area, which was historically used as a commercial and industrial area. Potential environmental concerns were identified including a former coal-fired power plant, a number of small manufacturing operations, and at least five former service stations. Starting in 2001, Tetra Tech assisted Oak Park in evaluating the area by conducting Phase I and Phase II ESAs. Oak Park worked with several developers to redevelop a number of parcels, primarily as residential. Because of identified environmental concerns, several of the sites were entered into the Illinois Environmental Protection Agency (IEPA) Site Remediation Program (SRP). Other Sites were evaluated based on the concerns of the developer, lenders, and Oak Park and, where possible work was conducted that met SRP and lender criteria, but the Sites were not formerly entered into the SRP.

Tetra Tech worked with the lenders, IEPA representatives, developers, and Oak Park to identify development and remediation approaches that would meet IEPA SRP criteria, while minimizing the amount of soil that would have to be removed from the Site. At the former coal-fired power plant, elevated courtyard areas were used to manage soils in place in a soil management zone (SMZ) to address soils that contained PAH compounds above Tiered Approach to Cleanup Objectives (TACO) criteria. Similarly where commercial properties were developed on areas with petroleum contamination, perimeter and interior column areas were evaluated and remediated, while soils outside of the column areas were managed in place under an engineered barrier, in most cases a structural slab. Soils exhibiting contamination above an applicable risk-based pathway were removed, while pathway elimination was used to address other soils in place.

This project has been completed. NFRs have been received for all of the parcels.

Summary of Challenges and Resolution

The biggest challenge of this project was to find a way to manage the large volume of contaminated soil within the footprint of the development. Tetra Tech resolved this challenge by establishing a soil management zone to allow for the retention of over 3,000 cubic yards of soil, which exceeded the remedial objectives at the site.

Project Title: River Forest Cleaners	**Time Period of Project:** 2009 to 2016
Location of the Project: River Forest, IL	**Project Budget:** $80,000
Type of Project: PHASE II/Development Assistance	**Completion:** 2016
Key Personnel Involved: Tom Hahne, Carol Nissen, Brian Campbell	

Reference Information

Client: Village of River Forest
Contact: Mr. John Anderson, Public Works Director
Address: 400 Park Avenue, River Forest, IL 60306 **Telephone No.:** 708-366-8500

Description of Project

River Forest Cleaners is an active dry cleaner located at 7613 West Lake Street within a commercial strip mall. The site was entered into the Site Remediation Program under the Illinois Dry Cleaner Environmental Response Fund in 2001. Various investigation activities were conducted by the owner under the supervision of the IEPA from 2001 through 2008. The investigations identified soil contamination associated with the outside storage of spent tetrachloroethylene (PCE) and under the building slab near the dry cleaning machine and sewer lines.

In 2009, the U.S. EPA responded to local concerns related to the presence of PCE in soil and possibly in occupied nearby buildings including a school north of Lake Street. The U.S. EPA conducted emergency investigation including extensive soil gas investigations under slabs and within nearby buildings. PCE and other related volatile organic compounds (VOC) were identified in both subslab and in-building air samples that exceeded either short or long term risk criteria. Abatement activities were conducted in cooperation with the owner at several locations and are ongoing.

Also in 2009, Tetra Tech conducted an investigation of soil in groundwater in nearby Village-owned right of ways (ROW) to evaluate whether concerns extended into and/or beyond the ROW and posed a risk to residents or Village workers. The investigation identified some contamination, but contamination was limited to soils near a storm sewer line discharging from near the back of the site building. Another component of the investigation was to evaluate the potential incremental costs associated with addressing known contamination during site redevelopment. A mixed use development that would occupy the former dry cleaning facility and the area round it was considered; however, the development was not implemented due to the owner's wish to continue his site operations.

Tetra Tech continued investigation of the offsite concerns with additional sampling in 2014 to evaluate whether contamination present within the Village owned ROW posed an environmental or economic risk to the Village. The Village is continuing to evaluate the potential concern and is considering options for site redevelopment and cleanup to address contamination and revitalize the commercial area.

Project Title: Midway Pointe Village	**Time Period of Project:** 2014 to 2017
Location of the Project: Oak Park, Illinois	**Project Budget:** $50,000
Type of Project: SRP Cleanup	**Completion Date:** 2017
Key Personnel Involved: Tom Hahne, Carol Nissen, Dave Franc	

Reference Information

Client: Perlmark Development Corporation
Contact: James Perlman
Address: 601 Skokie Boulevard, Suite 501, Northbrook,IL **Telephone No.:** (847) 562-9235

Description of Project

The Midway Pointe Village property has been redeveloped as a Senior Housing Center. The site was formerly used for commercial and residential activities and had up to 5 historic underground storage tanks (UST) associated with a former service station. These USTs had been closed in place and no record of removal was available.

Site investigation activities were undertaken to locate former USTs, piping, and other subsurface features using ground penetrating radar (GPR) and a magnetometer. USTs were not identified, although areas of subsurface anomalies were identified.

Existing structures were abated to remove asbestos and demolished and existing subsurface structures were removed to allow for construction of subsurface foundation systems.

Soil remediation was negotiated with the site owner to allow for the supervised removal of contamination from the former UST area and under the building foundations. Prior to this work, a remedial action plan (RAP) was approved by the IEPA to address the contamination in these areas. Soil was removed in targeted areas but areas of refuse were encountered in some areas as well as Chicago fill which had to be characterized and removed as non-special waste or clean construction demolition debris (CDDD). In addition utility corridors in the adjacent streets were excavation and soil was managed accordingly including some offsite contamination related to prior site use.

The site was fully redeveloped as a senior center and part of the development included the design and construction of subslab venting as a preventative measure to minimize potential future liability. These systems were installed as part of the building vertical construction and keyed into the subsurface foundation system.

The site received a comprehensive no further remediation (NFR) letter and is currently being occupied as senior housing.

Summary of Challenges and Resolution

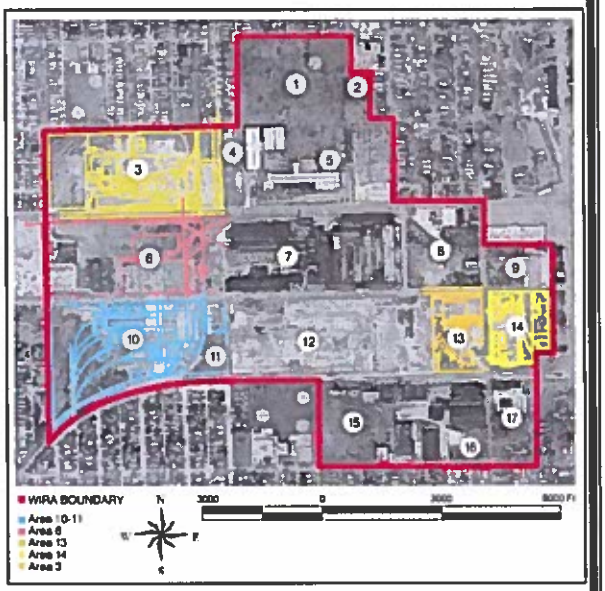
The biggest challenge of this project was to find a way to manage the large volume of contaminated soil within the footprint of the development. Tetra Tech worked with the contractor to minimize the waste removed from the site and to allow for soil reuse under the existing parking lot..

Project Title: Brownfields Redevelopment Services for the West Pullman Industrial Redevelopment Area	**Time Period of Project:** 1998 to 2012
Location of the Project: Chicago, Illinois	**Project Budget:** Over $2,000,000
Type of Project: Site Investigation and Remediation	**Completion Date:** Completed
Key Personnel Involved: Carol Nissen	

Reference Information

Client: City of Chicago, Fleet and Facility Management
Contact: Mr. David Graham, Project Manager
Address: 30 North LaSalle Street, 25th Floor, Chicago, Illinois **Telephone No.:** (312) 742-3639

Description of Project



The West Pullman Industrial Redevelopment Area (WIRA) consists of 17 separate former industrial and commercial parcels that are being evaluated and remediated pursuant to the Illinois SRP. This area is undergoing a Brownfield Assessment to allow for full reuse. Former operations within the WIRA study area include metal fabrication facilities, equipment manufacturing operations, lead oxide manufacture, and other former industrial operations.

Tetra Tech has conducted Phase I and Phase II environmental site assessment investigations and site remediation activities at many of these sites and is in the planning stages at several more sites. As parcels are evaluated and the full extent of contamination quantified, they are entered in the SRP. Tetra Tech prepared comprehensive site investigation (CSI) work plans for the Illinois Environmental Protection Agency (IEPA) review and approval. Following IEPA approval, the CSIs were performed at three separate parcels within the WIRA study area. Investigative activities include Geoprobe soil and groundwater sampling, shallow groundwater flow direction determination, underground vault and tunnel inspections, waste characterization and disposal, and asbestos assessments.

Tetra Tech worked with the U.S. EPA and a private developer to redevelop the portion of the site that is now redeveloped as a solar power generating facility by Sun Power. Tetra Tech has assisted in addressing environmental issues as they arise and in evaluating potential worker exposure during the redevelopment or end-use management activities, which are located adjacent to residential areas. Tetra Tech continues to assist the City in overseeing remediation activities undertaken by other large property owners, developing site-specific remediation objectives based on the contamination present and based on likely future-use scenarios. The remediation objectives are protective of human health and will require less active remediation for the property. Tetra Tech performed a regional geology and groundwater characterization by drilling three deep soil borings around the WIRA area. Tetra Tech is assisting the City of Chicago in obtaining "no further remediation" status for each of the 17 separate parcels using deed restrictions or engineered barriers to allow redevelopment of the area into an industrial park.

Project Title: Amforge Redevelopment	**Time Period of Project:** 1998 to 2012
Location of the Project: Chicago, Illinois	**Project Budget:** over $1,000,000
Type of Project: Site Investigation and Remediation	**Completion Date:** 2012
Key Personnel Involved: Carol Nissen, PE, PG	

Reference Information

Client: City of Chicago, Fleet and Facility Management
Contact: Mr. David Graham, Project Manager
Address: 30 North LaSalle Street, 25th Floor, Chicago, Illinois **Telephone No.:** (312) 742-3639

Description of Project

Tetra Tech Inc., (Tetra Tech) performed SRP investigation, reporting, and remediation activities at the City of Chicago W.E. Davis Company site, the Former AmForge site, designated as Study Area No. 3 of the West Pullman Industrial Redevelopment Area project in Chicago, Illinois. The site occupies 18 acres within a primarily industrial area of the City of Chicago, Cook County, Illinois. Funding assistance for the initial investigations and remediation were provided by a Brownfields Grant from the U.S. EPA and the IEPA.

The site was historically used for heavy industry in the manufacture of rail car brakes. Previous on-site facilities included a die shop, die storage area, finishing and shipping area, grinding area, cleaning area, forging storage area, heat-treating area, forge shop, shearing area, welding area, pickling area, shell forging area, and a 158,000-gallon aboveground storage tank (AST) for furnace fuel. An office, laboratory, boiler rooms, transfer house, storage rooms, blowers, switch rooms, engine rooms, cooling tank, oil pump house, laboratories, oxygen control building, and shell inspection building were also located at the site. A steel craneway was constructed across the site to move raw and manufactured materials. Five transformer areas and 14 USTs were present on the site, along with lubrication oil storage areas, two 50,000-gallon belowground oil storage tanks, and service tunnels. Two of the transformers reportedly contained elevated levels of PCBs.Site investigations and remedial activities have occurred at the site from 1998 through 2011. Tetra Tech collected soil and groundwater samples to evaluate the nature and extent of contamination at the site from previous operations. Remedial activities included removal of concrete slabs and crushing the concrete on site for reuse in the redevelopment. In addition, Tetra Tech removed USTs, piping, and soil containing PCBs exceeding TSCA regulations. Also, Tetra Tech removed soil containing concentrations of polynuclear aromatic hydrocarbons and lead exceeding TACO regulations. Dewatering was necessary to remove the 2 50,000-gallon concrete USTs, thus, Tetra Tech obtained environmental remediation wastewater special discharge authorization from the Metropolitan Water Reclamation District of Greater Chicago to allow discharge of pre-treated water at the site. Tetra Tech also obtained a construction permit from the IEPA Division of Water Pollution Control to allow pretreatment equipment to be constructed at the site. Tetra Tech prepared Notice of Intent for the Illinois General NPDES permit and a Storm Water Pollution Prevention Plan for IEPA approval. Tetra Tech performed a vapor intrusion evaluation for the future site development and received IEPA approval. Soil remediation is complete, USTs are removed and engineered barriers are currently installed. Site closure was obtained from IEPA using engineered barriers and institutional controls.

Funding for the remediation was obtained by the Tax Reactivation Program (TRP), and a settlement from the previous site operator holding company. Further funding for the property redevelopment was obtained by a State grant from the Department of Commerce and Economic Opportunity, escrow from the property purchaser, and a grant from the Ray and Joan Kroc Foundation. The site is redeveloped as a community center. Tetra Tech worked with the development team to develop a property redevelopment design that minimized costs and ensured safety of the property end users.

Project Title: Maywood Redevelopment Projects	**Time Period of Project:** 2005 to 2014
Location of the Project: Maywood, IL	**Project Budget:** $400,000
Type of Project: Site Assessment and Cleanup	**Completion Date:** 2014
Key Personnel Involved: Tom Hahne, Carol Nissen, Kris Schnoes, Dave Franc	

Reference Information

Client: Village of Maywood
Contact: Mr. David Myers, Village Manager
Address: 40 Madison Street, Maywood, IL 60153 **Telephone No.:** (708) 450-6300

Description of Project

Tetra Tech has conducted site assessment has conducted various Phase I Environmental Site Assessments, Asbestos materials surveys, Phase II Environmental Site Assessments, Remediation, and Site Closure under the Site Remediation Program

Tetra Tech has provided environmental consulting for the acquisition and redevelopment of Brownfields site in the Lake Street Corridor, Main Street Redevelopment Area, and Madison Street Redevelopment area. Phase I ESAs were conducted prior to site acquisition in all of these areas. When recognized environmental concerns (REC) or other environmental concerns were noted, Tetra Tech conducted Phase II environmental site assessments to investigate the extent of releases of petroleum or hazardous constituents. In some cases underground storage tanks (UST), leaking underground storage tank (LUST) incidents, or other environmental concerns (such as dry cleaning releases) required the investigation and closure under IEPA programs. In other cases, where RECs were not identified but other environmental concerns, such as asbestos containing materials were noted, asbestos building materials were surveyed prior to abatement and building demolition.

Tetra Tech is currently working on completing remediation activities under the Site Remediation Program (SRP) in the Lake Street Corridor. Several parcels near First Avenue and Lake Street were formerly operated as service stations or automobile repair; a parcel to the north was operated as a dry cleaner. Tetra Tech entered the four parcel area at the intersection of Lake Street and First Avenue into the SRP, prepared and supported site investigation report (SIR), remediation objectives report (ROR), and remedial action plan (RAP) and implemented remediation. Remediation included the removal of USTs and contaminated soil and the consolidation of LUST incidents into the SRP program. The site is awaiting additional funding to address minor residual soil contamination and then will be ready for redevelopment.

A dry cleaning facility located to the north on First Avenue was also entered into the SRP and underwent investigation and site closure. After the completion of remediation, which included in-situ treatment, Tetra Tech assisted the Village as owner's representative. Issues relating to soil management during site development were evaluated and costs associated with residual environmental concerns were quantified. The site development is still in progress as a mixed used residential/commercial building.

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3.0 INSURANCE COVERAGE

Tetra Tech carries AAA rated insurance with the following limits: (a) General Liability up to $4 million aggregate, (b) Automobile Liability of $2 million, (c) Excess/Umbrella Liability of $5 million, (d) Worker's Compensation and Employers' Liability of $1 million, and (e) Professional Pollution and E&O Legal Liability of $5 million aggregate.

4.0 PROPOSED PROJECT TEAM, TEAM QUALIFICATIONS, AND POINT OF CONTACT

As a major engineering and consulting firm and one of the largest environmental engineering firms in the country, Tetra Tech employs over 60 scientists, geologists, and engineers in the Chicago area.. .

From these resources, Tetra Tech has selected key and support personnel to be used for this contract with the education, training, and experience needed to ensure that all the needs of the commission's goals are met.

- Tom Hahne, Program Manager, CPG – Mr. Hahne will act as the program manager providing supervision for this project. Mr. Hahne is a licensed professional geologist and has successfully assisted numerous clients with Brownfields program support, the redevelopment of former industrial and commercial properties, remediation management, site closure under the state voluntary cleanup program, and owner's representative services to municipalities or developers in the greater Chicago area. Mr. Hahne has over 25 years of experience in the investigation, cleanup, and redevelopment of environmentally distressed properties.

- David Franc, Geologist and Field Team Leader, PG – Mr. Franc will act as the field team leader responsible for supervision of all subcontract work in the field. Mr. Franc is an Illinois licensed professional geologist and has 15 years of extensive experience conducting site investigations for municipalities and IEPA. He has been the project manager for numerous groundwater, stormwater, and remediation projects over the years that include site assessment, oversight of remediation, and subsequent report preparation and delivery prepared specifically to meet the client's needs.
- Matt Villicana, Geologist. Mr. Matt Villicana has over 7 years of experience supervising field investigation activities and subcontractors. Mr. Villicana is familiar with sampling all media and has extensive experience investigating right of ways.
- Jack Brunner, Operations Manager will provide corporate support to the project and ensure that the right resources are committed to the project.
- Carol Nissen, PE, PG. Ms Nissen will provide certification of waste and CCDD as required by the project.

TABLE 2
TETRA TECH PERSONNEL MATRIX

Personnel	Site Closure	Right of Way Assessment	Soil Management	Phase I and II Assessment	Waste Management	Remediation Management
Thomas Hahne, PG	●	●	●	●	●	●
Carol Nissen, PE, PG	●	●	●	●	●	●
Jack Brunner, CHMM	●	●	●	●	●	●
Dave Franc, PG	●	●	●	●	●	●
Matt Villicana	●	●	●	●	●	●

ATTACHMENT

RESUMES

Tetra Tech is proposing to use all local staff to support this contract. Resumes for key individuals and for selected staff available to support the contract are provided in the following pages.

TETRA TECH

Tom W. Hahne

Program Manager/Senior Hydrogeologist

EXPERIENCE SUMMARY

Mr. Hahne currently serves as a program manager or technical lead for a number of municipal, state, and private clients. Mr. Hahne has managed projects involving the investigation and remediation of contaminated sites including federal and state Superfund sites as well as former manufacturing or industrial sites undergoing cleanup and closure under State programs. Mr. Hahne has over 30 years experience investigating and cleaning up sites contaminated with coal tar residues, polychlorinated biphenyls (PCB), metals, petroleum hydrocarbons, and chlorinated volatile organic compounds (CVOC). Mr. Hahne has negotiated and overseen remediation projects including residential remediation and restoration projects and has worked closely with the IEPA and IDEM to move projects through the site investigation, design, cleanup, restoration, and site cleanup in Illinois and Indiana. Mr. Hahne is familiar with state and federal requirements and has interacted closely with clients and regulators to accomplish required remedial action objectives. Mr. Hahne has also played an active role in negotiated cleanups, representing the site owners as an owners representative to accomplish these goals in a litigative or cooperative environment.

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RELEVANT EXPERIENCE

Site Investigation, Remediation, and Regulatory Closure

Project Manager - Demolition of PCB Contaminated Buildings, Soil and Sediment Remediation, Outboard Marine Corporation, Waukegan, Illinios, USEPA, 2010 – 2016. Mr. Hahne currently is managing an approximately $35 MM cleanup of the former Outboard Marine Corporation Plant 2 Site. The work included remedial actions to demolish PCB-contaminated buildings after abatement of asbestos, recycling of PCB-contaminated steel, removal and reuse of PCB-contaminated slab, footings, and soil, and remediation of PCB-contaminated soil, concrete, building materials and sediment. Followon activities have include installation of engineered barriers, relining and retrofitting sewers using cured in place piping (CIPP), and diver assisted dredging of contaminated waterways. The work has also included conducting a threatened and endangered species assessment and dune and habitat restoration activities. The project has addressed over 400,000 tons of soil, sediment, and concrete contaminated with PCBs, PAH, and VOCs.

Project Manager, Lead Hydrogeologist, Former Modine Manufacturing Facility, Logansport, IN, 2014-Current. Mr. Hahne has served as the project manager and lead hydrologist for a a former authomotive component manufacturing facility. The facility historically had used 1,1,1-trichlroethane and trichlorothene for parts degreasing. A historic release was discovered during sampling for Brownfields redevelopment. Modine assumed responsibility for the contamination and Tetra Tech has

EDUCATION

B.S. Geology, Beloit College, 1981

Environmental Engineering, Masters Candidate, Illinois Institute of Technology, 1998 to 2001

AREAS OF EXPERTISE

Site Investigation andRemediation

Residential Cleanup

Federal and State Superfund Sites

Coal tar sites

Metals

Owners Representative

Brownfields

Due Diligence\Regulatory

REGISTRATIONS/ AFFILIATIONS

Professional Geologist, Illinois, No. 8850

Certified Professional Geolgist, AIPG 196000203

Member, GSA, since 1985

KEY TRAINING/ CERTIFICATIONS

40 Hour OSHA Training 1987

40 Hour Construction Management, 2010

OSHA Refresher (Current)

Red Cross CPR 2015

OFFICE

Chicago, Illinois

YEARS OF EXPERIENCE: 30+

installed over 30 shallow and deep bedrock wells, investigating the nature and extent of contamination. Tetra Tech is currently evaluating source area remediation and is implementing a pilot scale treatment study for implementing insitu remediation of chlorinated solvents in fractured limestone. The pilot scale treatment involving the use of persulfate has successfully reduced contamination without adversely affecting nearby residential properties and full scale implementation will be implemented to accomplish site closure and to address the vapor intrusion concerns. Implementation of insitu oxidation is being evaluated and groundwater monitoring to evaluate effectiveness is ong0ing.

Project Manager, Senior Hydrogeologist Cleanup of Modine Manufacturing Facility in LaPorte Indiana, 2005 –Current. Mr. Hahne has been assisting Modine Manufacturing with the assessment and cleanup of a former automobile radiator fin manufacturing plant. Mr. Hahne managed the remediation of over 3,000 CY of lead contaminated soils by using insitu chemical stabilization and offsite disposal. Mr. Hahne is also assisting Modine in implementing natural attenuation of chlorinated solvent contamination in groundwater. Plume stability has been demonstrated using 3-D visualization of the primary contaminants (CT, TCE and TCA) and their degradation byproducts as well as Mann-Kendall statistical analysis of over 12 years of groundwater monitoring data. Additional work is being conducted to evaluate the extent of offsite contamination associated with a neighboring upgradient property. The IDEM is currently evaluating Tetra Tech's assessment activities, including evalution of potential vapor intrusion concerns at the active industrial facility and adjacent residential properties. Ongoing activities include the seasonal investigation of vapor intrusion within the industrial property and the evaluation of source area remediation to accelerate cleanup.

Modine Manufacturing, Support to Corporate Environmental Program, Racine, Wisconsin, Ongoing: Mr. Hahne is providing support to corporate Environmental Health and Safety (EH&S) programs for legacy environmental sites. Mr. Hahne provides oversight and management of consultants conducting investigation and remediation of sites in Tennessee and Kentucky. For these sites, Tetra Tech evaluates progress, reviews reports, assists in communication with state agencies, and provides corporate support in terms of financial and risk management reports to management.

Curtiss Wright Site Assessment and Remediation, Fremont, IN, 2016-Current: Mr. Hahne is providing technical support and remediation management for an active industrial surface coatings facility. The site is being evaluated for release of surface coating material as a result of site operations. Material has been released to surficial soils as a result of housekeeping issues. The site is being remediated to mitigate ongoing sources and to address contamination of the onsite air vents, roof, sewer system, and soils.

Project Manager and Owners Representative, Former Manufactured Gas Plant, Skokie, IL, 2010 – 2016. Mr. Hahne has acted as an expert and owners representative of the Metropolitan Water Reclamation District of Greater Chicago (District) for the negotiated cleanup of a former manufactured gas plant (MGP) located in w commercial and park use area. The plant operated from the late 1800s until about 1950 to manufacture gas from the anaerobic combustion of coal. Over 500,000 tons of coal tar residuals, contaminated soil, and concrete has been removed for this site and disposed of off the site to date. The site cleanup included the installation of perimeter sheet piling, supporting utilities while removing contaminated soils, removal of site structures and conveyances, insitu treatment of hazardous soil, and site restoration.

Former Manufactured Gas Plant, Oak Park, IL. 2001 – 2010. Mr. Hahne provided expert witness support and owners representative support for the 10 year investigation and cleanup of the former Barrie Park MGP. Cleanup involved the remediation of a former manufactured gas plant (MGP) located in a park in a residential community. The cleanup started with the park and proceeded to two surrounding residential areas, with over 60 properties underoing investigation, cleanup and restoration under the IEPA's site remediation program (SRP). The cleanup of the Park i involved the installation of a railroad siding and intermodal facility to allow for shipping contaminated soils and residuals to minimize impacts to the community, remediation of over 400,000 tons of coal tar residuals and soil, removal of underground storage tanks (UST), and the redevelopment of Barrie Park and nearby residential properties. Mr. Hahne interacted with the community, representing the Village of Oak Park in litigation and public meetings and worked with the responsible parties and regulators to accomplish remediation goals

Program Manager, IEPA Multi Site Contract, Various Illinois Superfund and Voluntary Remediation Sites. 2000-2015. Mr. Hahne has served as the program manager since 2000. Under this contract, Tetra Tech has provided technical services to review environmental submittals and to support the investigation and and remediation of State Superfund and other sites. This has included the former Indian Refinery, the former Premcor Refinery, the Joppa Creosote site, former MGPs, and numerous sites throughout Illinois. Mr. Hahne has assisted the IEPA in evaluating alternative remediation strategies, contaminant models, engineered barriers, and statistical evaluation of data used to determine local or regional background or site remediation standards.

Project Manager, Former Wood Treating Site , Joppa, IL. 2008 – Current. Mr. Hahne represented the IEPA in overseeing the investigation and remediation of an approximate 700-acre site used to manufacture railroad ties using the creosote pressure treatment process. The site has undergone extensive investigation of soil, groundwater, surface water and sediment. Investigation included the use of LIF investigation to identify heavily contaminated subsurface soils. Remedaition activities are focusing a former creosote lagoon.

Project Manager and Lead Hydrogeologist, Actown Electrocoil, Spring Grove, Illinois, 2005 – 2010. Mr. Hahne conducted site investigation, remediation, site closure, and litigation support for contaminated groundwater at this industrial property. The project involved then investigation of the source and extent of PCE and degredation compunds in shallow groundwater on the site, upgradient of the site, and downgradient of the site. The investigation determined that the site was contaminated by an adjacent manufacturing facility. Litigation was conducted to determine responsibility, which resulted in the Clients success and site closure under the voluntary Site Remediation Program in Ilinois.

Development Site, River Forest, IL. Mr. Hahne has represented the Village of River Forest in assessing the extent and cost of cleanup of a former dry cleaner as part of planned development in central River Forest. The site includes a former dry cleaner with extensive subsurface contamination with tetrachloroethylene (PCE). The site has been undergoing closure under the Dry Cleaner Fund; however, the U.S. EPA became involved with the site in 2011 as a result of concerns of vapor intrusion within the commercial area of the site and at a nearby school. As a result of public concerns and regulator involvement, the Village is proceeding with the cleanup an redevelopment of the site to address potential risks and improve the property. The work included a comprehensive investigation of soil gas, groundwater, and soil, 3-D visualization, and remediation cost estimates to support the use of Tax Incremental Funding of the cleanup.

Project Manager, Former State of Illinois Mental Health Facility, Tinley Park, IL, 2014-2015. Mr. Hahne worked with the Village of Oak Park to evaluate all environmentl concerns related to the purchase of a former State of Illinois mental institution. The facility had 49 former structures, associated steam tunnels, a power plant, water treatment facilities, a fueling facility, and other operations including fill areas that were investigated for potential release of hazardous constituents and asbestos containing maerials. Over 50 soil boring were advanced and soil samples and groundwater samples were collected. Test pitting was conducted in fill areas; an asbestos quantification survey was conducted; and evalution of universal wastes. Tetra Tech estimated costs for site remediation, asbestos abatement, and demolition which assisted the Village in evaluating acquisition of this 280-acre property. The State of Illinois and Tinley Park are still evaluating a potential sale of the property that would result in implementation of an approximate 10 million cleanup prior to redevelopment.

Senior Hydrogeologist, Lead Environmental Investigator, Northern Indiana Public Service Company (NIPSCO), Natural Gas Distribution System Upgrades, Gary, IN, 2015. Tetra Tech is providing technical support to NIPSCO for their planned system upgrades, which include the installation of a 30-inch main pipeline and 8 and 4 inch distribution lines throughout Gary. As part of this activity, Tera Trech is evaluating potential environmental concerns and management of those concerns during design, permitting, and construction.

Program Manager and Technical Lead, Various Sites, Phase II Contract, Metropolitan Water Reclamation District of Greater Chicago, IL 2011-2015. Mr. Hahne providied technical support to investigate a variety of concerns on District owned properties throughout Chicago. Tetra Tech has conducted soil, gas, groundwater, sediment, and air investigations at former industrial properties. Properties have included issues related to purifier waste (fromer former manufactured gas production operations), historic tire dumping, sediment accumulation in

water management areas, natural gas associated with former landfills, and other concerns. Tetra Tech has assisted the District with negotiations with potentially responsible parties, tenants, and regulators.

Former Dor-O-Matic Manufacturing Plant, Harwood Heights, IL. 2006 – 2009. Mr. Hahne represented the Harwood Library District in investigating and remediating the former manufacturer of electronic door components. The removal activiites in cluded the removal of solvent and petroleum underground storage tanks, closure of the site under the voluntary site remedaiton program (SRP) and the subsequent redevelopment of the site into a New Public Library. Remediation activities included the installation of alternative engineered barriers.

Former Lake River Terminal, Forest View, IL. 2012 – 2014. Mr. Hahne directed the investigation of a large former chemical and petroleum terminal and repackaging facility. The facility formerly had over 100 aboveground storage tanks, bulk transfer operations, and repackaging (canning) operations for the commercial sale of bulk and drummed chemicals and petroleum products including solvents, paints, laquers, pesticides, herbicides, and petroleum byproducts. The facility is undergoing extensive investigation of soil and groundwater in anticipation of remediation under the SRP.

Various Superfund Sites in Illinois, Ohio, Michigan, and Nebraska. 1986 – 2000. Mr. Hahne provided a variety of project management and technical services for the remedial investigation and remedial design for cleanup of superfund sites. The sites included a former grain elevator that contaminated soil and groundwater with ethylene dibrmoide, battery cracking sites which had been contaminated with lead and battery acid, a solvent reclamation facility, former landfills, drum burial sites, manufacturing osites, and other sites listed on the National Priority List (NPL).

Various Manufactured Gas Plant Sites in Illinois and Indiana. 1990 – 2002. Mr. Hahne provided projectmanagement and technical support to the investigation and cleanup of over 20 former MGP sites in Indiana and Illinois. This included the remediation of coal tar residuals and soil, removal of purifier waste, removal of USTs, and removal of contamination under Sprung-like structures. In most cases removals were conducted as interim actions. In some cases the removals were part of the closure of the sites under State Voluntary Remedaition Programs. Remediation activities included soil and sediment remediation, installation of temporary containment structures, and the implementation of shoring or sheet piling near adajacent waterways.

Fernald Environmental Management Program, Fernald, OH, USEPA. 1997 – 2000. Mr. Hahne provided project management and technical oversight for the USEPA for the investigation and cleanup of the former Department of Energy manufacturer of uranium billets. Investigation and cleanup activities included a former waste storage silo, former manufacturing and refining operations, and disposal areas throughout the over 3,000 acre facility.

Marmon Group, Soil Contamination Site Cleanup, Chicago, Illinois. 1995 – 1997 For Engineered Controls, Inc. in Chicago, Mr. Hahne oversaw remediation of an area of soil contamination associated with formerly abandoned USTs as well as remediation of process pits and petroleum-contaminated scrap metal piles. Using risk-based cleanup criteria, the volume of soil requiring excavation was reduced by at least one-half to 2,000 cubic yards while leaving the property successfully remediated.

IEPA, Program Manager, Hazardous Waste Services A&E Contracts, 2004 – 2015,.

Brownfield Redevelopment

Northwest Indiana Regional Development Authority (RDA), 2015 to current. Mr. Hahne is the project manager for the U.S. EPA Brownfield Pilot Assessment that includes the RDA and participating communities – Hammond, East Chicago, and Gary. Under this program, Tetra Tech is providing site assessment support at seven identified potential Brownfield Redevelopment sites in East Chicago.

West State Street Redevelopment Area, Rockford IL. 2006 – 2013. Mr. Hahne managed the Brownfield Assessment of the State Street corridor fromdowntownRockford to the western city limits. Assessment activities included site screening for use of petroleum or hazardous materials, Phase I Environmental Site Assessment,

Phase II assessment ofpetroleum properties, and site closure through the SRP. Activities were undertaken under USEPA Brownfield Assessment Grants issued in 2007 through 2010.

Lake Street Redevelopment Area, Oak Park, IL. Mr. Hahne has assisted the Oak Park in the redevelopment of properties formerly used as a coal-fired power plant, public works facility, former service stations, and a former bulk petroleum storage facility. tiesservice stations. The properties have been cleaned up to meet residential and/or commercial criteria and are part of a mixed residential and commercial use area. Mr. Hahne provided alternative approaches to managing soils that had low levels of PAHs, above residential use criteria. This included the use of a soil management zone (SMZ) in elevated courtyard areas within the site. The use of a SMZ allowed for reuse of site soil and minimized the amount of soil requiring removal, transportation, and off site disposal. The redevelopment activities were funded through Tax Incremental Fundijng initiatives and in one case were partially funded using Brownfields Tax Credits from the State of Illinois.. The sites were subsequently closed under the SRP.

West Pullman Industrial Redevelopment Area (WIRA), Chicago, IL. 2004 – 2009, Mr. Hahne served as the program manager and technical lead for the investigation, remediation, and redevelopment of properties within the WIRA area. This included a former lead oxide manufacturing plant and other former manufacturing operations in the 25 subparcels. Redevelopment included the construction of a solar farm and commercial facilities.

Saint Charles and Lake Street Redevelopment Corridor, Maywood, IL, 2005 – 2014. Mr. Hahne has provided site assessment and remediation support for the City of Maywood within a large TIF District. The TIF District was created to facilitate redevelopment of an underutilized portion of Maywood. Investigation activities have included the assessment of former service stations, dry cleaners, and manufacturing areas. Remediation activities are currently being undertaken in the First Avenue and Lake Street Area. This area is undergoing closure under the SRP.

Compliance, Permitting, Due Diligence and Plant Decommissioning

Compliance Assessments, Indiana and Illinois, 1995 – 2000 – Mr. Hahne acted as a project manager and as a technical consultant for the inspection of over 200 industrial sites pursuant to the Resource Conservation Recovery Act (RCRA). Under these projects, Mr. Hahne supervised a team of inspectors who conducted assessments of RCRA active treatment, storage, or disposal (TSD) facilities and facilities that generated small and large quantities of RCRA waste. Mr. Hahne would work with state and or federal regulators for facilities to attain compliance. In addition, Mr. Hahne has worked with a team representing the owner of leased industrial facilities to evaluate compliance with environmental regulations and to assist those facilities in attaining compliance.

Site Cleanup and Facility Decommissioning Project, IL - Mr. Hahne oversaw the decommissioning of an integrated circuit board manufacturing facility in Illinois. He supervised the decommissioning of process trenching, tanks, and pits at the site. He also supervised the remediation of a former drum storage area contaminated with chlorinated solvents and assessed its potential contamination with process chemicals. Mr. Hahne was able to negotiate cleanup levels with private party representatives, and the property was cleaned up to risk-based levels based on the soil to groundwater pathway and sold to another manufacturer.

Combined Operating License Application (COLA) Suppport, Florida Power and Light Nuclear Power Plant, Turkey Point, FL. 2008. Mr. Hahne provided support to Sections 2.4.12 and 2.4.13 of the COLA application for the proposed Turkey Point Units 6 and 7 nuclear reactors. Mr. Hahne evaluated release scenarios for radionuclides that are associated with the Westinghouse AP1000 nuclear reactor cooling water system. As required in the COLA application, a theoretical release from the AP1000 system of coolant is modeled to evaluate the potential extent of contamination and the theoretical dose that could be received by downgradient receptors. This assessment included evaluating the bioaccumulation of contaminants in mussels and fish in accordance with RESRAD protocol. In addition, Mr. Hahne supported the groundwater modeling effort that was required to evaluate for future water quality associated with the proposed cooling water system and for potential releases from the units.

Multi-site Due Diligence of Industrial Properties. 2002 – 2003 – Mr. Hahne has assisted large industrial companies in evaluating due diligence issues prior to sale or refinancing of industrial portfolios. For Liquid Container Corporation, Mr. Hahne oversaw the evaluation, investigation, and where necessary, cleanup at 11 industrial sites throughout the U.S.

Due Diligence, Nationwide, 1997 – 2014. Mr. Hahne has provided due diligence services related to the acquisition, sale, refinancing, and development of commercial and industrial facilities nationwide. This has included determining company-wide and site specific due diligence for Fortune 50 chemical, refining, and manufactuirng companies. In addition, Mr. Hahne has directed, overseen, or participated in due diligence of **individual redevelopment sites and nationwide portfolios for Real Estate Investment Trusts, shopping** centers, commercial petroleum distribution facilities, dry cleaners, service stations, and other facilities. This has included all phases of investigation, remediation, and site closure.

Insurance Company Support, Nationwide. Mr. Hahne has worked with a number of insurers including ACE Environmental, Excel, and others to provide portfolio risk assessment and management. Mr. Hahne has also assisted insurers with evaluating environmental claims and overseeing the implementation of cleanup and closure.

Investigation of Bedrock Landfill Soil Gas and Leachate Contamination, Chicago, IL 2013 – 2014. Mr. Hahne completed the investigation of landfill-related soil gas and leachate discovered during the pre-design activities for the installation of a Disinfection Treatment Facility at the MWRDGC North Side Water Plant. Mr. Hahne coordinated the investigation and hiring of a chemical fingerprinting expert to determine the nature of observed methane and leachate in bedrock at the site. Mr. Hahne helped the MWRDGC to determine the likely source – a nearby former landfill, and to determine and mitigate potential risks for the proposed construction activities.

Expert Witness Support. Various, IL 2002 – 2012. Mr. Hahne has provided expert witness support for three litigation projects. Mr. Hahne acted as the expert witness for an industrial client in a RCRA Citizen's lawsuit against an industrial neighbor that has a release of tetrachloroethylene (PCE) in groundwater. This matter was settled in 2011. Mr. Hahne also provides expert support to a law-firm that represents the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) in their lawsuit against the Utilities (Nicor and ComEd) that operated a former manufactured gas plant (MGP) on MWRDGC property in Skokie, Illinois. Mr. Hahne is supporting a federal lawsuit that is asking the Utilities to cleanup the property and allow for MWRDGC reuse of the property. The matter has been largely settled with both parties proceeding with site cleanup under a settlement agreement that was finalized in 2011. Mr. Hahne also provided expert witness support for the Village of Oak Park in the cleanup relating to a former manufactured gas plant (MGP) in the Barrie Park Area and in surrounding residential properties. This cleanup was completed in 2010.

Former Chrome Plating Facility, Gary Indiana. 2007. Mr. Hahne provided expert support to a large insurer in evaluating the costs to decontaminate and remediate a former chrome plating facility. Support included conducting technical negotiations, soliciting bids for alternative remediation approaches, technical oversight of remediation, and reviewing cost and remediation design documen

EMPLOYMENT HISTORY

1997 – Present	Project Manager, Program Manager, Hydrogeolist, Tetra Tech, Chicago, IL
1995 – 1997	Environmental Services Manager, Hygienetics, Chicago, IL
1988 – 1995	Hydrogeologist, Project Manager, PRC EMI (Tetra Tech), Chicago, IL
1984 – 1988	Hydrogeologist, Project Manager, Versar, Inc, Springfield, VA

TETRA TECH

David J. Franc, PG
Project Manager/Geologist

EXPERIENCE SUMMARY

Mr. Franc is a project manager and geologist and has over twenty-one years of experience conducting Phase II environmental assessments, hazardous waste identification and sampling, and site investigation and remediation activities. His areas of expertise include planning and implementation of site investigations in support of the SulTRAC joint venture, ten-year, $350 million Remedial Action Contract (RAC) for EPA Region 5; recommendation, evaluation, and design of remedial actions for RAC (including permeable reactive barriers [PRB], in-situ chemical reduction [ISCR] and oxidation [ISCO]; compliance monitoring; Illinois Site Remediation Program (SRP) projects, geology, hydrogeology and Brownfield's redevelopment. He has also served as project manager or geologist for private industry and municipal stakeholders.

RELEVANT EXPERIENCE

Site Investigation and Remedial Action

Tar Lake Site, Mancelona, Michigan, U.S. EPA, 2010 to Present. Project Manager and Geologist for a technical assistance project for the Tar Lake site which is being conducted under Superfund for U.S. EPA. Activities have included development of project plans to support a multimedia investigation to assess current site conditions and provide potential additional remedy recommendations for further actions at the site. The project is currently in the remedial design phase for additional soil excavation and biosparge system expansion.

Aircraft Components Site, Berrien County, Michigan, U.S. EPA, 2007 to Present. Project Manager and Geologist for a long-term remedial action project for the Aircraft Components site which is being conducted under Superfund for U.S. EPA. Activities have included development of project plans, in-situ chemical oxidation (ISCO) design and implementation using PersulfOx®, groundwater monitoring to determine ISCO remedy progress, and preparation of monitoring reports.

Peerless Plating Facility, Muskegan, Michigan, U.S. EPA, 2007 to Present. Project Manager and Geologist for a long-term remedial action project for the Peerless Plating facility which is being conducted under Superfund for U.S. EPA. The site contained a groundwater pump and treat system consisting of six extraction wells, air stripping, metals co-precipitation, and sludge dewatering. Activities have included long term groundwater quality and hydraulic monitoring, development of risk assessments and feasibility study, project plans, in-situ chemical reduction (ISCR) and permeable reactrive barrier (PRB) design and implementation using EHC-M®, groundwater monitoring to determine ISCR and PRB remedy progress, and preparation of monitoring reports.

EDUCATION

B.S., Geology, Southern Illinois University, Carbondale, IL, 1995

AREA OF EXPERTISE

Project management

Technical reporting/review

Field geology/sampling

Hydrogeology

REGISTRATIONS/ AFFILIATIONS

Licensed Professional Geologist, IL, No. 196.001232

Geological Society of America, 2009-present

Association of Environmental & Engineering Geologists, 2013-present

TRAINING/ CERTIFICATIONS

40-hour OSHA HAZWOPER with 8-hour Refreshers

CPR and Standard First Aid

ICS 200 and 300

Niton XRF Training

OFFICE

Chicago, IL

YEARS OF EXPERIENCE

21

CONTACT

312-201-7778
dave.franc@tetratech.com

Manistique Harbor Site, Manistique, Michigan, U.S. EPA, 2007 to 2009. Project Manager and Geologist for a sampling and analysis project for the Manistique Harbor site which is being conducted under Superfund for U.S. EPA. included fish and sediment sampling in Manistique, Michigan. Project work included fish and sediment sample collection, performing statistical analyses on collected data, and profiling sediment elevations (including sediment deposition and erosion) through bathymetric surveys. The site consists of a 1.7 mile long reach of the Manistique River and Harbor containing sediments contaminated with polychlorinated biphenyls primarily from industrial and paper milling operations.

Waukegan Harbor Site, Waukegan, Illinois, USACE, 2016 . Mr. Franc was project manager for this project that included sediment sampling activities in Lake Michigan. Specific responsibilities included coordination with the USACE project manager on technical issues, development and implementation of the field sampling plan, and ensuring project schedule compliance. Data collected during the sampling investigation was used to help USACE quantify the amounts of nutrients and contaminants of concern present near the Waukegan Harbor and determine the nutrient and contaminant loading to Lake Michigan during proposed dredging operations.

Hegewisch Marsh Ecosystem Restoation, Chicago, Illinois, Chicago Department of Environment, Chicago, Illinois, 2004 to 2012. For Chicago Department of Environment, Mr. Franc served as project hydrogeologist on a project to prepare and implement a comprehensive site design and ecological restoration plan for the 130-acre Hegewisch Marsh, which will serve as the home of the Ford Calumet Environmental Center, a hub for environmental education, stewardship, and ecological rehabilitation. This $530,000 project included preparation of a site plan, design plans and specifications, design of a water level control structure, and stakeholder coordination. As project hydrogeologist for the Hegewisch Marsh project, Mr. Franc conducted sampling of groundwater, surface water, soil, and sediments to support the ecosystem restoration planning and design effort.

Wolf Lake Aquatic Ecosystem Restoration, USACE, Hammond, Indiana, 2003 to 2004. Mr. Franc was Field Manager for sediment and surface water sampling activities and was responsible for leading and coordinating day-to-day field activities. Specific responsibilities included coordination with the project manager on technical issues, development and implementation of the field sampling plan, and ensuring project schedule compliance. Data collected during the sampling investigation was used to help USACE quantify the amounts of nutrients and contaminants of concern present in the proposed borrow areas of Wolf Lake (including both the surficial sediment layer and the underlying sand layer), obtain elutriate data for contaminants of concern in the borrow material, determine the nutrient and contaminant loading to the lake that will result from dredging, determine whether a statistical difference exists between the acute toxicity of the dredged material elutriate and that of the dilution water, and obtain Section 401 water quality certification for the dredging project from the State of Indiana.

Hofmann Dam Site, Riverside, Illinois, USACE, 2011 . Mr. Franc was project manager for this project that included sediment sampling activities on the Des Plaines River. Specific responsibilities included coordination with the USACE project manager on technical issues, development and implementation of the field sampling plan, and ensuring project schedule compliance. Data collected during the sampling investigation was used to help USACE quantify the amounts of nutrients and contaminants of concern present near the dam and determine the nutrient and contaminant loading downstream if the dam is notched.

Bautsch-Gray Mine Superfund Site, Galena, Illinois, US EPA Region 5 Superfund Remedial Division, 2014-present. The Bautsch-Gray Mine Superfund Site contaminated soil, groundwater, and a creek with arsenic, cadmium, copper, lead, and zinc after a mine tailings pile was abandoned by a bankrupted company. Mr. Franc conducted subsurface soil sampling as part of the remedial investigation.

ARMCO Hamilton Site, Berrien County, Michigan, U.S. EPA, 2009. Project Manager for a remedial investigation/feasibility study oversight project for the ARMCO Hamilton site which is being conducted under Superfund for U.S. EPA. Activities have included oversight and review of the potentially responsible party's (PRP) RI/FS and human health risk assessment.

St. Regis Paper Company Site, Cass County, Minesota, U.S. EPA, 2007. Geologist for a remedial investigation/feasibility study project for the St. Regis site which was conducted under Superfund for U.S. EPA.

Activities included oversight and review of PRP sampling and reports, independent fish sampling, and groundwater modeling.

Duck, Otter, and Sibley Creeks, Toledo and Oregon, Ohio, U.S. EPA, 2006 to 2009. Field Lead for sampling and characterization of three creeks in Ohio for U.S. EPA. Activities included project plan preparation, sediment and surface water sampling, and preparation of final reports.

Little Scioto River, Marion, Ohio, U.S. EPA, 2009 to 2010. Geologist for RI/FS project for the Little Scioto River site which was conducted under Superfund for U.S. EPA. Activities included project plan preparation, sediment and surface water sampling, and preparation of final reports.

Calumet Container Site, Hammond, Indiana, U.S. EPA. Mr. Franc performed x-ray fluorescence (XRF) screening and confirmation sampling for metals contamination during a removal action at a former drum storage facility. Contaminated soil was excavated to a depth of two feet below ground surface at targeted excavation areas throughout the site. The base of each excavation area was screened utilizing a XRF and PID. An action level of 1,000 ppm was established for lead. If the soil was below this action level, excavation was finished and the area was ready for backfill. If an area tested to be above the action level of 1,000, excavation was continued to a deeper depth and the soil was retested using the XRF until a level below the action level was achieved. Once the excavation was complete, Mr. Franc used a GPS to document the extent and provide volume calculations. Over 100 XRF readings were collected during the removal.

Former Premcor Refinery Site, IEPA, Blue Island, Illinois. Mr. Franc participated in the Valero Refinery (formerly known as Premcor) remedial investigation/feasibility study (RI/FS) oversight project. The site was an active refinery from the early 1900s until 2000. Under IEPA's Multi-Site Consultant Services Agreement, Mr. Franc provided RI/FS oversight support to IEPA by reviewing Valero documents such as work plans, QAPPs, FSPs, and HASPs. In addition, Mr. Franc provided RI/FS negotiation support by attending meetings and helping IEPA negotiate the final scope of work for the RI/FS. Mr. Franc also conducted oversight of RI field activities and collected split soil, surface water, and groundwater samples on behalf of IEPA. Mr. Franc oversaw drilling of soil borings and collection of over 400 soil samples. Mr. Franc also oversaw installation of temporary monitoring wells, collection of groundwater samples from the temporary wells, and collection of surface water samples from the Calumet-Saginaw Channel.

Owner's Representative, Barrie Park MGP Cleanup, Oak Park, IL. Mr. Franc has provided oversight to the Village of Oak Park for the cleanup of a former MGP located in a residential area within Oak Park. Over 150,000 tons of highly contaminated coal tar residue (source material) and soil was removed, blended, and transported by rail to offsite disposal facilities. The project had an estimated budget of about 50 million and was among the largest MGP cleanups in the U.S. The scope of the cleanup included removal of contaminated soil from a park, surrounding streets, and residential property as well as replacement of water lines, gas lines, and other Village infrastructure that was within the area of contamination. Mr. Franc has also participated in several redevelopment and UST/LUST removal/reimbursement projects for the Village.

Brownfield's and Site Redevelopment

Targeted Brownfields Assessment, Calumet Region Area Wide Planning Project, Chicago, Illinois, U.S. EPA, 2015 to present. Mr. Franc is project manager for the Calumet Region Area Wide Planning Project TBA site. This project will provide information that is critically needed to effectively transform Calumet area Brownfields into world class public parks and recreational areas (multiple Chicago Park District-owned properties). Specifically, this effort will help to develop a strategic transportation and development plan, evaluate reuse of existing infrastructure, further prioritize and inventory area Brownfields sites, provide supplemental environmental assessment work, evaluate opportunities for open space preservation and recreation and evaluate

other property reuse strategies. The project focuses on seven southeast-Chicago sites - Park 564 (Big Marsh), Park 566 (USX), Steel Workers Park, Park 562 (Van Vlissengen Prairie), Indian Ridge Marsh, Hegewisch Marsh, and Whitford Pond/O'Brien Lock. These sites have undergone different levels of remediation and development over the past 20 years, based on recommendations of previous plans.

Project work involves multiple levels of community outreach, including

- the organization of executive and focus groups made up of stakeholders and others based on expertise
- implementation and attendance of executive and focus group meetings
- advertisement and announcements of open house meetings open to the public
- conducting open house meetings that present existing information for the sites while also collecting public opinion in an open forum setting

The proposed outcome of this project is development of a *comprehensive plan* that:

- Considers and celebrates accomplishments and outcomes of past regional planning and restoration efforts
- Develops a community-supported vision for southeast Chicago as a connected region of strong neighborhoods and a destination for visitors.
- Outlines strategies and recommendations for land use and transportation strategies that result in implementation of a connected network of ecological, cultural, and recreational resources—easily accessed locally, regionally, and nationally.

Targeted Brownfields Assessment, Teledyne, West Allis, Wisonsin, U.S. EPA, 2017 to present. Mr. Franc is project manager for the Teledyne TBA site. The project involves the preparation of site-specific planning documents (sampling and analysis plan, quality assurance project plan, health and safety plan), completion of a Phase II ESA and of property proposed for rederemedial action plan for a property proposed for potential redevelopment.

Targeted Brownfields Assessment, General Services Building, Gary, Indiana, U.S. EPA, 2016 to 2017. Mr. Franc was project manager for the General Services Building TBA site. The project involved the preparation of site-specific planning documents (sampling and analysis plan, quality assurance project plan, health and safety plan), completion of a Phase I and Phase II ESA, and a hazardous materials survey of property proposed for redevelopment into a community art center and professional office space.

Targeted Brownfields Assessment, Swayze Apartments, Flint, Michigan, U.S. EPA, 2014 to 2015. Mr. Franc was project manager for the Swayze Aaprtments TBA site. The project involved the preparation of site-specific planning documents (sampling and analysis plan, quality assurance project plan, health and safety plan), completion of a Phase I and Phase II ESA, and a hazardous materials survey of five parcels of land proposed for residential redevelopment.

Targeted Brownfields Assessment, Dort Motor Co., Flint, Michigan, U.S. EPA, 2014 to 2015. Mr. Franc was project manager for the Dort Motor Co. TBA site. The project involved the preparation of site-specific planning documents (sampling and analysis plan, quality assurance project plan, health and safety plan), completion of a Phase I ESA, and a hazardous materials survey of a former horseless carriage production facility. The property included two parcels proposed for residential redevelopment.

Targeted Brownfields Assessment, Highland Park Model T., Highland Park, Michigan, U.S. EPA, 2014 to 2017. Mr. Franc was project manager for the Highland Park Model T TBA site. The project involved the preparation of site-specific planning documents (sampling and analysis plan, quality assurance project plan,

health and safety plan), Documentation of Due Care Compliance, Final Assessment and Closure Reports, and a hazardous materials survey of a former Ford Model T production facility. The property is proposed for redevelopment into a museum.

Brownfield's Redevelopment of the Former AmForge and Gano Park sites, Chicago, Illinois, City of Chicago, 2000 to 2011. Mr. Franc was an integral part of the project team for the Brownfield's Redevelopment of the AmForge and Gano Park sites. The project involved remediation of a former heavy manufacturing facility for redevelopment as a community center and recreational fields. The remediation included removal of USTs, piping, and soil containing PCBs exceeding Toxic Substance Control Act (TSCA) regulations. In addition, soil contains concentrations of polynuclear aromatic hydrocarbons and lead exceeding Illinois Administrative Code Part 742, Tiered Approach to Corrective Action Objectives (TACO) regulations. Demolition of former building concrete structures was performed to provide redevelopment construction backfill. The site was redeveloped and incorporated a soil management zone to reduce the need for soil export. On site clay was used to construct the soil engineered barrier, reducing the need for imported soil. The Gano Park portion of the project was redeveloped as recreational fields, based on a risk assessment and hot spot removal. Soil remediation is complete, USTs removed and engineered barriers installed. PCB removal reports were submitted to IEPA and USEPA, and approvals were obtained. Site closure was obtained from IEPA using engineered barriers and institutional controls. **This project was awarded the Phoenix Award for Brownfields Revitilization for 2011 for all three categories: People's Choice, Region 5 Award, and the National Award.**

Brownfield's Redevelopment of the West Pullman Industrial Redevelopment Area (WIRA), Chicago, Illinois, City of Chicago, 2000 to 2011. Mr. Franc was an integral part of the project team for the Brownfield's Redevelopment of the WIRA. Mr. Franc conducted site investigations and prepared work plans, site investigation reports, remediation objectives reports, remedial action plans, and remedial action completion reports. In addition, develops appropriate remedial strategies for each site, directs remedial activities, conducts remediation oversight, and confirmation sampling. Site closure is being sought from the IEPA Site Remediation Program by use of no engineered barriers and limited remediation.

Brownfield's Redevelopment, Dutch Boy/National Lead site, Chicago, Illinois, City of Chicago. 2000 to 2011. Mr. Franc performed soil sampling to evaluate the current conditions at the site. The project included removal of lead-contaminated soil and debris that exceeds the toxicity criterion for hazardous waste. A RCRA Remedial Action Plan Permit (RAPP) application was prepared and submitted for IEPA review to obtain a permit to treat the hazardous waste debris to render it non hazardous prior to off-site transportation and disposal. The RCRA RAPP was approved and remedial actions were completed. Closure of the Corrective Action Management Unit (CAMU) was obtained from IEPA.

Brownfield's Redevelopment, Various Sites, Illinois. 2000 to Present. Geologist for various Brownfield's redevelopment projects in Chicago and neighboring municipalities. Performs field investigations and conducts oversight during remediation or engineered barrier installations. Develops remedial action plans and determines potential extent of contamination migration in order to obtain no further remediation status for the site.

Coonley Elementary Site, Chicago, Illinois, Public Building Commission of Chicago. 2013 to 2014. Mr. Franc was project manager for this project that included development and review of environmental specifications, construction contractor oversight, and soil screening and sampling prior to off-site disposal. The project included removal of over 2,800 tons of soil, debris, and recyclable materials to either a Subtitle D landfill, a clean construction and debris disposal facility, or a recycling facility.

Phase II Environmental Site Assessments (ESA)

Various Phase II ESAs, Illinois, Indiana, Iowa, and Michigan. 200 – Present. Project Manager and Geologist for Phase II ESAs of industrial, commercial, or residential properties to evaluate soil and groundwater conditions. Designs the investigative scope of work, performs the soil and groundwater sampling, evaluates the data, and

prepares the Phase II ESA reports. Phase II ESAs are performed for properties undergoing transfer, or in anticipation of site excavation or development.

Emergency Response

U.S. Environmental Protection Agency Superfund Technical Assessment and Response Team (START). 2000 to 2007 and 2014 to Present. In support of U.S. EPA, Mr. Franc has provided technical assistance in responding to environmental emergency responses in the field, including air, soil, sediment and water sampling. Mr. Franc has also conducted several site assessments, cost estimates, and removal actions (RA) for USEPA under START, and participated in several BioWatch drills for Region 5. Mr. Franc has also assisted other Regions under START, including the BioWatch program in Region 3 and a fire department emergency response assessment in Region 7. Mr. Franc currently supports Tetra Tech's START IV contract as project manager for various Targeted Brownfields Assessment (TBA) sites in Michigan and by providing technical review assistance as site Geologist. Under TBA, he is also project manager for an area-wide environmental and recreational plan for the Chicago Park District for the southeast side of Chicago.

ADDITIONAL EXPERIENCE

gINT, Surfer

EMPLOYMENT HISTORY

2000 – Present	Project Manager/Geologist, Tetra Tech, Inc., Chicago, Illinois
1995 – 2000	Field Technician, Environmental Monitoring and Technologies, Inc., Morton Grove, Illinois

TETRA TECH

Carol L. Nissen, PG, PE
Environmental Engineer

EXPERIENCE SUMMARY

Ms. Nissen works in the Tetra Tech Chicago office, and has more than 30 years of experience conducting Phase I environmental assessment, underground storage tank (UST) removals, Phase II environmental assessment, and remediation activities. Her areas of expertise include Brownfield's redevelopment, environmental engineering, geology and hydrogeology. She has served as project manager and engineer or geologist for remedial actions, site investigations, and compliance monitoring for government projects, private industry, and municipal stakeholders. She also has served as project manager and resident engineer for asbestos abatement, demolition, containment cell construction, engineered barrier installation, and sediment and soil remediation projects.

RELEVANT EXPERIENCE

Brownfield's Redevelopment

Brownfield's Redevelopment of the Former AmForge and Gano Park sites, Chicago, Illinois, City of Chicago, 1998 to 2011. Ms. Nissen was the Project Manager for the Brownfield's Redevelopment of the AmForge and Gano Park sites. The project involved remediation of a former heavy manufacturing facility for redevelopment as a community center and recreational fields. The remediation included removal of USTs, piping, and soil containing PCBs exceeding Toxic Substance Control Act (TSCA) regulations. In addition, soil contains concentrations of polynuclear aromatic hydrocarbons and lead exceeding Illinois Administrative Code Part 742, Tiered Approach to Corrective Action Objectives (TACO) regulations. Demolition of former building concrete structures was performed to provide redevelopment construction backfill. The site was redeveloped and incorporated a soil management zone to reduce the need for soil export. On site clay was used to construct the soil engineered barrier, reducing the need for imported soil. The Gano Park portion of the project was redeveloped as recreational fields, based on a risk assessment and hot spot removal. Ms. Nissen obtained environmental remediation wastewater special discharge authorization from the Metropolitan Water Reclamation District of Greater Chicago to allow discharge of pre-treated water at the site. Obtained construction permit from the IEPA Division of Water Pollution Control to allow pretreatment equipment to be constructed at the site. Prepared Notice of Intent for the Illinois General NPDES permit and a Storm Water Pollution Prevention Plan for IEPA approval. Soil remediation is complete, USTs removed and engineered barriers installed. PCB removal reports were submitted to IEPA and USEPA, and approvals were obtained. Site closure was obtained from IEPA using engineered barriers and institutional controls. **This project was awarded the Phoenix Award for Brownfields**

EDUCATION

M.S., Environmental Engineering, Illinois Institute of Technology, Chicago, IL, 1992

B.S., Geology, University of Illinois, Urbana-Champaign, IL, 1985

AREA OF EXPERTISE

Project management

Brownfield's Redevelopment Projects

Soil and Groundwater Assessment

Technical reporting/review

Resident Engineer

REGISTRATIONS/ AFFILIATIONS

Professional Engineer, IL No. 062-052115 , IN No. 10707893, NE No. E-9469

Professional Geologist, IL, No. 196.000346, WI No. 530-13

TRAINING/ CERTIFICATIONS

40-hour OSHA HAZWOPER with 8-hour Refreshers

30-hour OSHA Construction Training

CPR and Standard First Aid

Illinois-Certified Class K Wastewater Treatment Operator

Lake County Illinois Designated Erosion Control Inspector

OFFICE

Chicago, IL

YEARS OF EXPERIENCE

30

CONTACT

312-201-7411
carol.nissen@tetratech.com

Revitilization for 2011 for all three categories: People's Choice, Region 5 Award, and the National Award.

Brownfield's Redevelopment, USEPA Targeted Brownfields Assessment Grant Program, Region 5, 2014 to Present. Ms. Nissen is the Point of Contact to the USEPA START contract Targeted Brownfields Assessment (TBA) program projects. Ms. Nissen coordinates site assessment and area-wide planning projects. She develops sampling and analysis plans and quality assurance project plan addendums and reports under the contract. Ms. Nissen consults with the USEPA and the stakeholders to identify the goals of the project. Ms. Nissen provides TBA program management, and manages many of the projects. She reviews reports and performs the ACRES database entries for each site.

Brownfield's Redevelopment of the West Pullman Industrial Redevelopment Area (WIRA), Chicago, Illinois, City of Chicago, 1998 to 2011. Ms. Nissen is the Project Manager for the Brownfield's Redevelopment of the WIRA. Ms. Nissen conducts site investigations and prepares work plans, site investigation reports, remediation objectives reports, remedial action plans, and remedial action completion reports. In addition, develops appropriate remedial strategies for each site, directs remedial activities, conducts remediation oversight, and confirmation sampling. Site closure is being sought from the IEPA Site Remediation Program by use of no engineered barriers and limited remediation. Directs preparation of risk assessments for the sites based on end user exposure scenarios

Brownfield's Redevelopment, Dutch Boy/National Lead site, Chicago, Illinois, City of Chicago. 1998 to 2011. Ms. Nissen was the project manager for the project which is enrolled in the IEPA SRP. Ms. Nissen performed soil sampling to evaluate the current conditions at the site. The project included removal of lead-contaminated soil and debris that exceeds the toxicity criterion for hazardous waste. A RCRA Remedial Action Plan Permit (RAPP) application was prepared and submitted for IEPA review to obtain a permit to treat the hazardous waste debris to render it non hazardous prior to off-site transportation and disposal. The RCRA RAPP was approved and remedial actions were completed. Closure of the Corrective Action Management Unit (CAMU) was obtained from IEPA. Ms. Nissen also performed oversight of site investigations conducted by previous site operators.

Brownfield's Redevelopment, Various Sites, Illinois. 1998 to Present. Environmental engineer for various Brownfield's redevelopment projects in Chicago and neighboring municipalities. Develop proposals, cost estimates, work plans, and SRP reports for projects involving former light manufacturing or retail petroleum facilities to be redeveloped into residential units or industrial-commercial properties. Performs field investigations and conducts oversight during remediation or engineered barrier installations. Develops remedial action plans and determines potential extent of contamination migration in order to obtain no further remediation status for the site. Provides remedial strategies that complement redevelopment design.

Brownfield's Redevelopment, Ohio Site, U.S. EPA. Project manager for review of design documents to redevelop a landfill in Ohio into a parking lot for an automobile manufacturing company. Attends planning and status meetings, reviews design documents, and performs oversight of site activities to ensure compliance with design plan.

Review and Evaluation Licensed Professional Engineer (RELPE)

RELPE, Various Sites, Illinois, Municipal Clients, Private Clients, and IEPA as Client. 2000 to Present. Professional Engineer for review and evaluation licensed professional engineer (RELPE) projects, providing technical review of reports submitted to the IEPA SRP. Prepares technical review comments of the SRP reports for use by the IEPA project managers. The review comments are used by the IEPA project manager to approve or reject a report and to grant a remedial applicant no further remediation status. In addition, Ms. Nissen reviews Tier 3 Evaluations to include alternative engineered barriers and potential impacts to surface water. Ms. Nissen has provided RELPE services on more than 15 sites in the Chicago Area.

Expert Witness Testimony

Dutch Boy, Chicago, Illinois, City of Chicago. 2007 – 2009. Provided Expert Witness Testimony as an Affidavit for a lead-contaminated property. The property was formerly used for lead-oxide manufacture. Ms. Nissen provided technical review of data collected at the property by previous site operators, regulatory agencies, and Tetra Tech. In addition, Ms. Nissen was project manager for soil sampling investigations performed at the site. The Affidavit was prepared to summarize the existing conditions at the site which included lead-contaminated soil and materials exceeding the toxicity criterion for hazardous waste.

Resident Engineer

Outboard Marine Company (OMC) Demolition and Soil Remediation, Waukegan, Illinois. U.S. EPA. 2009 – Present. Provides resident engineer oversight for the OMC Plant 2 remediation project. The project involves ACM abatement, demolition, sediment and soil remediation, storm sewer remediation and rehabilitation and sediment and soil cap installation. Building materials, sediment and soil are PCB contaminated. Estimates and confirms ACM quantities. Prepared specifications and bidding documents for the project. Ensures adherence to project specifications. Project includes protection of endangered species. Confirms and documents change order items. Collects confirmation sediment and soil samples from excavations. Prepared final report for the remedial action.

OMC Containment Cell and Utility Corridor Cap Remedial Action, Waukegan, Illinois. U.S. EPA. 2012 – Present. Ms. Nissen is project manager for the design and construction of a containment cell and utility corridor caps. The containment cell includes a vertical barrier wall, a cap, dewatering system, and conveyance piping to an on-site wastewater treatment plant. Ms. Nissen prepared design plans, site-specific plans, and specifications for the remedial construction. In addition, Ms. Nissen provides resident engineer oversight for the remediation construction project and prepared the final remedial action completion report and an operations and maintenance manual for the cell.

Spill Prevention Control and Coutnermeasures Plan

Various Industrial and Fueling Stations, Illinois, Private and Municipal Clients. 2007 – Present. Prepares Spill Prevention Control and Countermeasures (SPCC) plans for industrial and fleet fueling stations. Performs inspections and provides recommendations to maintain compliance and updates plans to comply with changes in regulations.

Leaking Underground Storage Tank (LUST) Projects

LUST Pilot Program, Illinois, IEPA. 1998 – 2002. Project Manager for a former retail petroleum site owned by the City of Chicago, was planned for redevelopment as a residential property. The project was one of three sites funded by a federal grant and was the only one completed. The project was presented by IEPA at the Brownfield's 2000 conference held in Chicago, Illinois. Prepared work plans, developed the remedial action plan, performed oversight of soil excavation and sampling, and prepared the corrective action closure report. The site achieved compliance with TACO guidance and was assigned no further remediation status within budget and within the established short turn around deadline.

UST Removal and Remediation, Fort Sheridan, Illinois. U.S. EPA. 2002 – 2004. Environmental engineer for a UST removal at a building being redeveloped for residential use a Guaranteed Fixed Price Remediation (GFPR) project. Performed oversight of removal of a heating oil UST and collected confirmation soil samples from the walls and base of the excavation. Arranged for landfill disposal of the soil and prepared 20- and 45-day reports and the final corrective actions completion report for UST closure. Served as environmental engineer for a soil remediation project at the former motor pool of the Fort Sheridan GFPR site. Prepared the work plan for the remediation of soil contaminated with petroleum hydrocarbons from gasoline, diesel, fuel oil, and kerosene USTs, for U.S. EPA approval. Performed oversight of soil remediation activities and collected confirmation soil samples from the excavation. Prepared the Corrective Action Completion Report for the site. Site Closure is obtained.

Multifacility Project, Chicago, Illinois. City of Chicago. 1998 to 2002. Project manager for a multifacility project, removing 17 USTs from 10 city of Chicago-owned facilities. Prepared the competitive proposal, obtained permits, performed oversight of the UST removals and sampling, and prepared the associated LUST reports.

Private Retail Petroleum Corporations. Illinois. 1998 – 2001. Project manager for two private retail petroleum corporations, providing site investigation and remediation activities at about 20 separate retail petroleum facilities. Prepared proposals, cost estimates, reports in accordance with the IEPA LUST guidance. Performed soil and groundwater sampling, report preparation, pilot-scale testing, remedial system design, oversight of soil remediation, oversight of groundwater remediation system installation, and operations and maintenance of soil and groundwater remediation systems, such as soil venting, high-vacuum extraction, and groundwater pump and treat.

5-Year Review of Corrective Measures

Former Manufacturing Facility, Houston, Texas, U.S. EPA. Engineer for completion of a five-year review of the corrective measures implementation at a former manufacturing facility. The five-year review was conducted to meet the statutory mandate under CERCLA 121c. Performed a site inspection, review of relevant and applicable regulations, and a review of relevant documents to determine if site is in compliance with the Record of Decision and current regulations. Completed the five-year review report for the facility.

Long-Term Remedial Action Project

Peerless Plating Facility, Muskegan, Michigan. U.S. EPA. Project Manager and Engineer for a long-term remedial action project for the Peerless Plating facility which is being conducted under Superfund for U.S. EPA. The site contained a groundwater pump and treat system consisting of six extraction wells, air stripping, metals co-precipitation, and sludge dewatering. The project includes groundwater sampling and collection of groundwater elevation data. Ms. Nissen evaluated the groundwater quality and hydraulic data and evaluated the system's performance. The project included design and installation of a sewer discharge line to reroute the treated system discharge from the adjacent creek to the publicly-owned treatment works. Design documents, bidding specifications, and discharge permit applications were prepared under her direction. The sewer discharge line was installed and operational on schedule and on budget.

Phase I Environmental Site Assessments (ESA)

Various Phase I ESAs, Illinois, Indiana, Michigan, Wisconsin. 1987 – Present. Project Manager and Engineer for Phase I Environmental Site Assessments (ESA) of industrial, commercial, or residential properties to identify environmental issues associated with the property. Performs the site inspection, conducts historical document and environmental database reviews, and prepares the Phase I ESA reports. Phase I ESAs are performed for property transfer and identify potential ACM, possible presence of underground storage tanks, site historical operations, vapor intrusion conditions, and environmental conditions of the property.

Phase II Environmental Site Assessments (ESA)

Various Phase II ESAs, Illinois, Indiana, Michigan, Wisconsin. 1987 – Present. Project Manager and Engineer for Phase II ESAs of industrial, commercial, or residential properties to evaluate soil and groundwater conditions. Designs the investigative scope of work, performs the soil and groundwater sampling, evaluates the data, and prepares the Phase II ESA reports. Phase II ESAs are performed for properties undergoing transfer, or in anticipation of site excavation or development.

RI/FS Compliance Monitoring

Unregulated Disposal Site, Claypool, Indiana, U.S. EPA. Project manager for compliance monitoring of the landfill, groundwater containment system, and wetland mitigation area construction for an unregulated disposal site in Claypool, Indiana. Provided technical review of PRP reports and specifications, and oversight of landfill and wetland mitigation area construction, and groundwater and soil sampling. The project involved grading, multilayer cap construction, installation of a slurry wall, steel-pile trenching, and a groundwater extraction and treatment system. Performed technical review of the potentially-responsible party (PRP) submittals, and provided technical review comments. Assisted the EPA project manager at site meetings and inspections of the landfill.

Manuracturing Facility, Chicago, Illinois. U.S. EPA. Project manager for remedial investigation (RI) report review for a former manufacturing facility in Chicago, Illinois. Performed a TACO Tier 1 assessment of RI data collected at the facility. Project involved a Phase II RI and a risk assessment.

Drum Disposal Site, Franklin, Wisconsin. U.S. EPA. 1987 – 1989. Project manager for remedial investigation/feasibility study (RI/FS) compliance monitoring of a drum disposal site in Franklin, Wisconsin, under CERCLA guidelines. Project involved a risk assessment, technical review of RI/FS work plans, compliance monitoring of RI field activities, and co-location sample collection. Conducted compliance monitoring of RI field activities including a geophysical survey, soil boring sample collection, and groundwater monitoring well installation. Monitoring was performed to assure compliance with RI/FS work plans.

Landfill in Dunn, Wisconsin. U.S. EPA. 1987 – 1989. Project manager for remedial investigation/feasibility study (RI/FS) oversight of a landfill in Dunn, Wisconsin. Project involved compliance monitoring of RI field activities and participation in community public relations meetings. Conducted compliance monitoring of a geophysical survey and landfill cover survey to assure compliance with the RI/FS work plan.

RFI/CMS Compliance Monitoring

Solvent Distribution Facility, South Bend, Indiana, U.S. EPA. 1987 – 1989. Project provided technical review of RFI report, CMS work plan, and oversight of corrective measures implementation. The project involved soil, groundwater, and municipal well contamination due to past facility operations.

Plating Company, Freeport, Illinois, U.S. EPA. 1987 – 1989. Project manager provided technical review of RCRA Facility Investigation (RFI) and Corrective Measure Study (CMS) work plans. Conducted compliance monitoring/drilling oversight of RFI field activities to assure compliance with the RFI/CMS work plan and RCRA regulations.

Various Facilities, Illinois and Indiana, U.S. EPA. 1987 – 1989. Project geologist performing RCRA Facility Assessments (RFA) of various facilities in Indiana and Illinois for the U.S. EPA. Collected soil, groundwater, surface water, and sludge samples for chemical analysis to determine if hazardous waste releases have occurred. Reviewed technical documents and records. Prepared RFA sampling and data evaluation reports. Provided sample packaging and forwarded to contract laboratory program laboratories according to U.S. EPA chain-of-custody procedures.

Manufacturing Facility, North Vernon, Indiana, U.S. EPA. 1987 – 1989. Project geologist directing installation of groundwater monitoring wells for a RFA of a manufacturing facility's settling ponds. Installed wells according to RCRA and IDEM regulations. Described physical properties of soil borings to determine nature of subsurface materials. Collected soil boring and groundwater samples for chemical analysis to determine if hazardous waste releases occurred.

Landfill and Manufacturing Facilities, Defiance and Salem, Ohio, U.S. EPA. 1987 – 1989. Project geologist conducting technical review and gathering on-site documentation and geological information to assess the placement of monitoring wells near Solid Waste Management Units (SWMU) and determine compliance with RCRA regulations. Conducted groundwater sampling and analysis monitoring in compliance with RCRA requirements for a county landfill in Defiance, Ohio and an industrial manufacturer in Salem, Ohio.

Potentially Responsible Party (PRP) Search

PRP Search, Highland, Michigan, U.S. EPA, 1987 – 1988. Project manager performing PRP search for the U.S. EPA involving the review of local, state, federal, and site records, a title search of the property, a financial status assessment of the PRP, and interviews with individuals who had knowledge of the facility operation, for a metal fabricating company in Highland, Michigan. Also prepared final report.

Water Distribution Plant Operator

Northwest Suburban Minicipal Joint Action Water Agency (NSMJAWA) system, Chicago, Illinois. 1985 – 1987. Metro operator for the 100 million gallon per day main water pumping station of the NSMJAWA system which provides Lake Michigan water to seven suburban communities of Chicago. Monitored and maintained high quality water supply, measured water flows to subscriber communities, determined proper fees, and developed operations and maintenance manuals for the plant.

ADDITIONAL EXPERIENCE

MS Excel, MS Word, MS Outlook

EMPLOYMENT HISTORY

1997 – Present	Environmental Engineer, Tetra Tech, Inc., Chicago, IL
1990 - 1997	Engineering Manager/Senior Environmental Engineer, ERD Environmental, Inc., Bensenville, IL
1989 - 1990	Project Manager/Hydrogeologist, Chem-Bio Corporation, Naperville, IL
1987 - 1989	Geologist, Metcalf & Eddy, Inc., Arlington Heights, IL
1985 - 1987	Metro Operator, Metcalf & Eddy Services, Inc., Chicago, IL

TETRA TECH

Matt Villicana

Environmental Scientist\Field Team Leader

EXPERIENCE SUMMARY

Mr. Villicana is a project scientist with over seven years of experience as an environmental scientist, and provides technical support as an environmental scientist for clients in the government and private sectors. Project support includes project and task management; technical report writing; GIS analysis; environmental field sampling; project planning; sustainability; data analysis; and client communication.

RELEVANT EXPERIENCE

Preliminary Environmental Site Assessments (PESAs)

Illinois Department of Transportation, Various Locations, (2009-2012). While working for the Environmental Site Assessment Section at the Illinois State Geological Survey (ISGS), Mr. Villicana functioned as a project manager, completing several PESAs for the Illinois Department of Transportation. Mr. Villicana was responsible for conducting site inspections, researching site histories, conducting regulatory file reviews, and report preparation.

Phase I and II Environmental Site Assessments (ESAs)

Hertz, Various Locations, (2012 to 2014). Mr. Villicana completes Phase I and Phase II Environmental Site Assessments for future Hertz property acquisitions. Activities included: site investigations, soil core logging, soil sampling, residential well sampling, groundwater sampling, and report preparation.

Bank of America, Various Locations, (2013-Present). Mr. Villicana regularly completes Phase I and Phase II ESAs for various properties currently owned by Bank of America. Activities included: site investigations, soil core logging, soil sampling, groundwater sampling, and report preparation.

Jones Lang LaSalle, Various Locations, (2013-Present). Mr. Villicana completes Phase I ESAs for various properties owned by Jones Lang LaSalle. Activities included: site investigations, additional regulatory file review, GIS analysis, report preparation, and technical reviewing of reports.

Modine, Logansport, Indiana, (2014-2015). Mr. Villicana provides support for a Phase II Site Assessment of the Modine Site in Logansport, Indiana. Activities included oversight of bedrock drilling and monitoring well installation, bedrock core logging, soil core logging, soil sampling, groundwater sampling, and monitoring well slug testing.

Water Reclamation District of Greater Chicago, (2012-2014). Mr. Villicana provides support for Phase II Environemtnal Site Assessments at the Former Lake River Terminal and North Plant sites. Activities included oversight of bedrock drilling and monitoring well installation, soil core

EDUCATION

M.A., Environmental Studies, University of Illinois, Springfield, IL 2011

B.A., Environmental Biology, Illinois College, Jacksonville, IL 2007

AREAS OF EXPERTISE

Emergency Response

Phase I and II ESAs

PESAs

Technical Report preparation and review

Data and technical analysis

Field Geology: Core logging, groundwater, surface water, sediment, soil and air sampling

Sustainability

GIS

KEY TRAINING/ CERTIFICATIONS

40-Hour OSHA HAZWOPER with 8-Hour Refrshers

FEMA ICS 100, 200, 300, 400, 700, and 800

OSHA 10-Hour Construction

OFFICE

Chicago, Illinois

YEARS OF EXPERIENCE

7

CONTACT

312.201.7430

matt.villicana@tetratech.com

logging, soil sampling, groundwater sampling, and monitoring well slug testing.

Emergency Response

Toledo Landfill Fire, Toledo, Ohio (2014). Mr. Villicana served as the field technical lead for the emergency response at the Stickney Recycling Landfill Fire in Toledo, Ohio. Responsibilities during the emergency response included air monitoring and sampling, water quality monitoring, GIS analysis, and oversight support for USEPA.

Knoxville College Abandoned Science Building, Knoxville, Tennessee (2014). Mr. Villicana served as the field technical lead for the emergency response at the A.K. Stewart Science Building on the Knoxville College campus in Knoxville, Tennessee. Responsibilities during the emergency response included air monitoring and sampling, hazard chategorization (HAZCAT), lab packing, GIS analysis, and oversight support for USEPA.

Olympic Oil – Oil Release, Cicero, Illinois (2014). Mr. Villicana served as the project manager and field technical lead for the oil release emergency response at the Olympic Oil site in Cicero, Illinois. Responsibilities during the emergency response included air monitoring, product sampling, surface water sampling, soil sampling, oil sheen net sampling, GIS analysis, and oversight support for USEPA.

Olympic Oil – Antifreeze Release, Cicero, Illinois (2015). Mr. Villicana served as the project manager and field technical lead for the antifreeze release at the Olympic Oil site in Cicero, Illinois. Responsibilities during the emergency response included air monitoring, product sampling, surface water sampling, groundwater sampling, soil sampling, GIS analysis, and oversight support for USEPA.

Jacamar House Fire, Springboro, Ohio (2015). Mr. Villicana served as the field technical lead for the cleanup efforts at a residence found to contain several thousands of bottles containing chemicals including acids, bases, mercury, flammables, and poisons. Responsibilities during the emergency response included air monitoring using USEPA's VIPER system, unknown product sampling, GIS Analysis, and oversight support for USEPA.

Ford Heights Tire Fire, Ford Heights, Illinois (2016). Mr. Villicana served as the project manager and field technical lead for emergency response efforts at a tire fire in Ford Heights, Illinois. Responsibilities during the emergency response included air monitoring, surface water sampling, soil sampling, GIS analysis, and oversight support for USEPA.

35th Place Abandoned Box Trailer, Chicago, Illinois (2016). Mr. Villicana served as the project manager and field technical lead for emergency response efforts at an abandoned box trailer full of hazardous materials in Chicago, Illinois. Responsibilities during the emergency response included air monitoring and oversight support for USEPA.

Lincoln Elementary Mercury Spill, Green Bay, Wisconsin (2016). Mr. Villicana served as the project manager and field technical lead for emergency response efforts at a residential and school mercury spill in Green Bay, Wisconsin. Responsibilities during the emergency response included air monitoring and oversight support for USEPA.

Project Management

Bautsch-Gray Mine Site, Galena, Illinois (2014-2015). Mr. Villicana serves as the project manager for the Bautsch-Gray Mine Site under the USEPA Superfund Technical Assessment and Response Team (START) contract. Responsibilities include work plan preparation, site-specific plan preparation, air monitoring, and oversight support for USEPA.

Finatec Site, LaPorte, Indiana (2014-2015). Mr. Villicana serves as the project manager for the Finatec Site under the USEPA START contract. Responsibilities include work plan preparation, site-specific plan preparation, air monitoring, unknown material sampling, drum sampling, soil sampling, groundwater sampling, report preparation, GIS analysis, and oversight support for USEPA.

Field and Oversight Support

Aircraft Components, Benton Harbor, Michigan (2012 to Present). Mr. Villicana provides field support for the Aircraft Components site under the USEPA Remedia Action Contract (RAC). Responsibilities include quarterly groundwater sampling, soil-gas sampling, soil core logging, soil sampling, and providing oversight of in-situ chemical oxidation injections.

Bautsch-Gray Mine Site, Galena, Illinois (2014-2015). Mr. Villicana provided field support for the Bautsch-Gray Mine Site under the USEPA Remedial Action Contract (RAC). Responsibilities included surface water sampling, sediment sampling, soil sampling, and conducting field metals analyses on soil samples using an Olympus X-Ray Fluorescence (XRF) analyzer.

British Petroleum (BP), Whting, Indiana, (2012-2013)

Mr. Villicana provided support for a study being conducted on final filters within the wastewater treatment plant. Activities included oversight of streamlined mercury variance (SMV) sampling and collection of sediment samples at the final filter tanks.

Enbridge Pipeline Company, Various Locations, (2013)

Mr. Villicana conducted geomorphic assessments of slope and water crossings of Enbridge pipelines. Activities included assessing locations where Enbridge pipelines crossed navigable waterways looking for evidence of significant erosion potential that may expose or damage the pipelines. Activities also included assessing locations where Enbridge pipelines crossed or ran parallel with slopes greater than 12 degrees looking for evidence of potential for mass failure that may expose or damage the pipelines.

Grand Traverse Overall Supply Site (GTOS), Grelickville, Michigan (2012 to 2015). Mr. Villicana provides field support for the GTOS site under the RAC contract. Responsibilities include quarterly groundwater sampling, soil-gas sampling, and vertical aquifer sampling.

Jacobsville Neighborhood Residential Soil Cleanup, Evansville, Indiana (2013). Mr. Villicana provided field support for the Jacobsville Neighborhood Residential Soil Cleanup site under the USEPA RAC contract. Responsibilities included air sampling and providing oversight support for USEPA.

New Carlisle Landfill Site, New Carlisle, Ohio (2012 to Present). Mr. Villicana provides field support for the New Carlise Landfill site under the USEPA RAC contract. Responsibilities include groundwater sampling, soil-gas sampling, sub-slab sampling, sub-slab soil gas probe installation, soil-gas probe installation, monitoring well installation, soil core logging, and report preparation.

Oshkosh Ricin House, Oshkosh, Wisconsin (2014). Under the USEPA START contract, Mr. Villicana functioned as the field team leader for the site assessment and removal action at the Oshkosh Ricin House. Responsibilities included field team management, wipe and microvac sample collection, decontamination of the residence, and assisting the USEPA On-Scene Coordinator in clearance determination for the residence.

Ott-Story-Cordova, Muskegon, Michigan (2014). Mr. Villicana provides field support for the Ott-Story-Cordova site under the USEPA RAC contract. Responsibilities include groundwater sampling, air monitoring, vertical aquifer sampling, membrane interface probe (MIP) investigation support, and providing oversight support for USEPA.

Outboard Motor Company (OMC) Plant 2, Waukegan, Illinois (2014). Mr. Villicana provides field support for the OMC Plant 2 site under the USEPA RAC contract. Responsibilities include providing oversight support for USEPA.

Peerless Plating Facility, Muskegon, Michigan (2012 to 2014). Mr. Villicana provided field support for the Peerless Plating Facility site under the USEPA RAC contract. Responsibilities included quarterly groundwater sampling.

West Troy Contaminated Aquifer Site, Troy, Ohio (2015 to Present). Mr. Villicana functioned as the field manager and lead for the remedial investigation work at the West Troy Contaminated Aquifer site. Responsibilities included vertical aquifer sampling, soil gas sampling, monitoring well installation and development, groundwater sampling, surveying, and field staff management.

Human Health Risk Assessment Support

Lusher Street Groundwater Contamination site, Elkhart, Indiana, US EPA Region 5 Superfund Division, (2012-2013). Mr. Villicana provided support by creating and organizing the EPA Risk Assessment Guidance for Superfund: Part D (RAGS D) tables for the Lusher Street Contamination Site.

ADDITIONAL TRAINING/CERTIFICATIONS

Tetra Tech PM Level 1 Training

Tetra Tech PM Level 2 Training

OSHA 10-Hour General Industry Worker Training

Current Transportation Worker Identification Credential (TWIC)

American Heart Association Basic Life Support

First Aid for First Responders

ADDITIONAL EXPERIENCE

ArcGIS 10, MS Excel, MS Word, MS Outlook, MS Access, Adobe Illustrator, Adobe Photoshop

EMPLOYMENT HISTORY

2012 – Present	Environmental Scientist, Tetra Tech EM Inc., Chicago, Illinois
2009 – 2012	Environmental Scientist, Illinois State Geological Survey, Champaign, Illinois
2007 – 2009	Technical Writer, Illinois Environmental Protection Agency, Springfield, Illinois
2006 – 2007	Teacher's Assistant, Illinois College, Jacksonville, Illinois

TETRA TECH

Jack D. Brunner, LEED AP, CHMM

Senior Project/Program Manager and Chicago Operations Manager

EXPERIENCE SUMMARY

Mr. Brunner has been employed as an environmental scientist and program/project manager with Tetra Tech for 26 years. He has managed several major environmental programs for federal, sate, municipal, and commercial clients, including U.S. Army programs providing planning, investigation, and engineering services and for installations nationwide as well as mission support programs for the EPA Great Lakes National Program Office. Mr. Brunner has also managed many large-scale projects, including contaminated sediment and radioactive waste site remediation projects with budgets >$20 million, inter-disciplinary ecological restorations, multi-site hazardous waste compliance and site assessment projects, the development of hazardous waste management plans for DoD located in the U.S. and abroad, many field sampling efforts of various environmental media and waste streams, flora and fauna surveys, and endangered species surveys and management plans.

Mr. Brunner's technical experience includes natural resources management, including ecosystem restoration planning and design, planning level surveys for fauna and flora, NEPA environmental assessments, and endangered species management. He also has Great Lakes Legacy Act sediment cleanup experience as well as CERCLA and RCRA program experience for EPA, DoD, and private clients, working on sites nationwide. Under CERCLA, he has managed and been a key staff member on projects involving pre-remedial site assessments, remedial investigations and feasibility studies, remedial designs, remedial actions, and human health and ecological risk assessments. Under RCRA, he has conducted more than 200 compliance and waste management inspections throughout the Midwest and has been involved with various phases of the corrective action process at several facilities. His experience also includes providing green remediation and sustainable redevelopment strategies for site cleanups and Brownfield redevelopment, multi-media compliance inspections, waste minimization and pollution prevention, ozone depleting substance management and compliance, site assessment and hazard ranking system scoring, evaluation of hazardous waste treatment technologies, and environmental education.

Mr. Brunner is also a LEED AP, a certified hazardous materials manager (CHMM), a Certified Naturalist, and a Tetra Tech quality control coordinator (QCC). As QCC, Mr. Brunner has reviewed hundreds of RCRA, CERCLA, and other environmental program documents for completeness, consistency, and technical adequacy before their delivery to clients. Since 2012, Mr. Brunner has also been the Operations Manager for Tetra Tech's Chicago office and its satellite locations in Cleveland and Detroit.

EDUCATION

M.S. Environmental Science, School of Public and Environmental Affairs, Indiana University, 1990

B.S. Biology, Elmhurst College, 1988

AREAS OF EXPERTISE

Project and Program Management

Ecosystem Restoration

Natural Resources Management

Invasive Species Management

Great Lakes Issues

Sediment Remediation

Waste Management

Regulatory Compliance

REGISTRATIONS/ AFFILIATIONS

LEED AP, 2008

SAME 2002 – present (No. 214255)

Naturalist Certificate, Morton Arboretum, 1999

MDEQ Certified WWTP Operator, 1997 (No. 4708)

CHMM, 1992 (No. 3925)

OFFICE

Chicago, IL

YEARS OF EXPERIENCE

26

CONTACT

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RELEVANT EXPERIENCE

Program Management

Program Manager, U.S. Army Corps of Engineers, Chicago District, 2008 – 2014. Mr. Brunner served as the Program Manager for Tetra Tech's $5 million contract to provide A-E services support to USACE Chicago District. Scope of work areas under the contract include ecosystem restoration planning and design, Great Lakes shoreline structures, flood risk management, and navigational and civil works structures. In addition to his technical work on this contract, his responsibilities included responding to requests for proposals, negotiating task orders, overseeing work by technical staff, monthly reporting, and financial tracking and invoicing.

Natural Resources Management, NEPA, and Ecological Restoration

Calumet Area Restoration Planning, Chicago, Illinois, Chicago Park District, 2013 – Present. For the Chicago Part District, Mr, Brunner is providing technical and planning support several ecological projects in the Calumet Area of Chicago on properties owned by the City of Chicago Park District. This technical support includes site specific environmental assessment and risk assessment to support recreational land use initiatives, including the development of human health risk-based screening levels consistent with Illinois Environmental Protection Agency's Tiered Approach to Corrective Action Objectives (TACO) protocol.

Indian Ridge Marsh (IRM) Ecosystem Restoration Engineering Design During Construction (EDDC), Calumet Area, U.S. Army Corps of Engineers, 2010 – 2014. For the U.S. Army Corps of Engineers, Chicago District, Mr. Brunner is project manager for the EDDC of the Section 1135 ecosystem restoration for IRM in the Calumet area of Chicago, Illinois, Indiana. This project involves addressing technical assistance requests (TAR) from the field, reviewing construction contractor submittals, and determining that the intent of the design is reflected in the construction of the project through periodic site visits.

Asian Carp Rapid Response and Control Strategy Support, IDNR, Illinois, 2009 – Present. Mr. Brunner is providing management and technical support to a Tetra Tech Team supporting EPA GLNPO in its efforts to control the spread of the Asian Carp, an aquatic invasive species (AIS) of particular concern to the Great Lakes and its food chain. Mr. Brunner assisted in preparing the a Rapid Response Plan (RRP) in accordance with the National Incident Management System (NIMS) and will use an Incident Command System (ICS) for a bi-national, multi-jurisdictional response effort that required collaboration from the USACE, IDNR, EPA, USCG, FWS, local governments, and partner stakeholders. He also provided on-site field support during the response, contributed to the development of the "Asian Carp Control Strategy Framework," and supported public hearings and subsequent actions in support of the framework.

Indian Ridge Marsh Ecosystem Restoration Plans and Specifications, U.S. Army Corps of Engineers, Chicago District, 2008 – 2011. For the U.S. Army Corps of Engineers, Chicago District, Mr. Brunner managed the Section 1135 ecosystem restoration design for Indian Ridge Marsh in Chicago, Illinois. The selected restoration plan includes restoration of existing and creation of wetland, woodland, savannah, prairie, and aquatic habitat through invasive species management. Other restoration features and activities include two water level control structures, debris removal, site fencing and trails, and a boardwalk. The habitat needs of the black-crowned night heron, a state-listed endangered species, were considered in the design. This project involved preparing a quality control plan (QCP), design plans, specifications using SPECSINTACT, a construction cost estimate using MII, design analysis and utility coordination reports, a real estate map and associated surveying, a construction schedule, and engineering considerations and instructions to field personnel. Independent technical review and quality assurance reviews and responses were coordinated using DrChecks. Mr. Brunner also facilitated local agency coordination and public meetings regarding the project. To support the design, surface water, sediment, and soils were also sampled and evaluated for potential ecological risks using the Calumet Ecotox Protocol.

Wolf Lake Aquatic Ecosystem Restoration Engineering Design During Construction (EDDC), Wolf Hammond, Indiana, U.S. Army Corps of Engineers, 2006 – 2010. For the U.S. Army Corps of Engineers, Chicago District, Mr. Brunner managed the EDDC of the Section 206 aquatic ecosystem restoration of Wolf Lake in Hammond, Indiana. This project involved addressing technical assistance requests (TAR) from the field, reviewing construction contractor submittals, and determining that the intent of the design is reflected in the construction of the project through periodic site visits. In addition, Mr. Brunner is responsible for prepared a report documenting lessons learned from the field and prepared the operation and maintenance manual for the project.

Calumet Area Ecotoxicology Protocol, Calumet Area, City of Chicago, 2004 – 2007. For the City of Chicago, Mr. Brunner participated in the Calumet Area Ecotoxicity Roundtable to develop a protocol to provide guidance for investigating, evaluating, and rehabilitating sites in the Calumet Area of Chicago, where industrialized lands and valuable wetland habitats co-exist. The sites will ultimately be part of the approximately 4,800-acre Calumet Open Space Reserve. The protocol includes determining site status and land use, conducting sampling investigations, evaluating sampling site data using benchmark and threshold ecotoxicological risk values, and developing and evaluating rehabilitation options.

Hegewisch Marsh Ecological Rehabilitation, Chicago, Illinois, Chicago Department of Environment, 2004 – 2009. For the Chicago Department of Environment, Mr. Brunner is managed a project to develop a comprehensive site design for ecological rehabilitation of Hegewisch Marsh in the Calumet Area of Chicago, Illinois. This project involved facilitating a series of meetings with local stakeholders to identify the goals, opportunities and constraints of the site planning; ecotoxicological and human health evaluation associated with past contamination of the site; developing the site plan; preparing ecological rehabilitation design plans and specifications based on the site plan; and providing owner's representative support for rehabilitation activities that began in January 2007. Hegewisch Marsh will be the location of the Ford Calumet Environmental Center, the design of which was selected as part of an international competition, and a hub for environmental education, stewardship, and ecological rehabilitation for the Calumet area. Sampling of site soil, vegetation, and invertebrates (odonates) was also conducted to evaluate potential ecolotoxicological risks from historical contamination at the site, and Mr. Brunner developed the sampling strategies and protocol, accordingly. Mr. Brunner and the project team also prepared the design plans and specifications for the water level control system at the marsh and provided oversight of its construction.

Indian Ridge Marsh Ecosystem Restoration Feasibility Study and Preliminary Design, Chicago, IL, U.S. Army Corps of Engineers, Chicago District, 2001. For the U.S. Army Corps of Engineers, Chicago District, and its local sponsor, the Chicago Department of Environment, Mr. Brunner managed a multi-disciplinary project to prepare the ecosystem restoration report (ERR) and conduct the associated ecological analysis for the long-term rehabilitation and ecological restoration of Indian Ridge Marsh (IRM). This project contributes to City of Chicago's goal of sustainable development for the Lake Calumet region that can be achieved through the combination of brownfield redevelopment and ecological rehabilitation. To selected a restoration alternative, Tetra Tech developed an ecological quality index to estimate the ecological benefits of the abiotic, biotic, and ecological diversity components of the alternatives; compared implementation costs and real estate acquisition issues; and evaluated the incremental costs of each alternative using IWR-PLAN. The selected alternative enhances existing aquatic, wetland, and woodland areas; creates new habitat features, including sand prairie, black oak savanna, and shrub carr; meets all project objectives, including public access and a trail system; protects ecological habitat features from off- and on-site sources of pollution using a phytoremediation berm, storm water management wetlands, and transposing existing soils at the site; and contributes significantly to the Calumet Ecological Management Strategy. For the recommended alternative, the project team also prepared detailed plans for implementation, as well as sufficient design details and cost breakdown to proceed to the final engineering and design phase. To support the study, Tetra Tech also (1) conducted land boundary and hydrographic surveys, (2) prepared a set of real estate drawings, (3) conducted a seed germination study to evaluate the suitability of on

site soils for the vegetative communities proposed for the site, and (4) supported preparation of the supplemental environmental assessment for the project, including coordination with local stakeholders.

Hazardous and Solid Waste Management Program and Sustainability Experience

Ottawa Radiation Areas, Remedial Action, Ottawa, IL, U.S. EPA, 2012 – present. Mr. Brunner is responsible for managing technical support for a multi-site $20 million remedial action to mitigate Radium-226 contamination in Ottawa, IL, including health and safety, quality, schedule, budget, procurement, subcontractor management, client management, inter-governmental relations, value engineering, and technical development related to construction and health physics. Specific technical activities to date have included preparation of a focused feasibility study; proposed plan and ROD amendment development support; risk assessment; stakeholder coordination and other support for environmental covenant development; site investigation, including radon testing in local residences and pre-design trenching investigations to determine the extent of contamination; remedial design; and procurement and construction management for a remedial action that includes the excavation, transport, and disposal of more than 30,000 tons of radium-226 contaminated soil and debirs. Mr. Brunner has also worked with U.S. EPA, Illinois EPA, the Illinois Emergency Management Agency, and disposal facilities in developing guidelines for alternate disposal options that would afford substantial remedial action cost savings.

Integrated Solid Waste Management Plans (ISWMP), Japan, JED, 2005 – 2006. For JED, Mr. Brunner was the technical reviewer for the ISWMPs and associated best management practices (BMPs) and solid waste management action items for U.S. Army Garrison – Japan and Kadena Air Base. For these projects, Mr. Brunner reviewed work products and provided technical advice to the project team for all aspects of the ISWMPs, including solid waste characterization; source reduction; recycling; composting; storage, collection, and disposal; and associated regulatory requirements such as training, record keeping, reporting, and contingency planning.

SCIENTIFIC/TECHNICAL PUBLICATIONS AND PRESENTATIONS

Brunner, Jack et al. "Habitat Restoration and Community Revitalization: Grand Calumet River and Roxana Marsh." Presented at Society for Ecological Restoration - Midwest-Great Lakes Chapter Meeting. May 2015.

Brunner, Jack et al. "Ecosystem Restoration Case Studies from the West Coast, East Coast, and the Great Lakes." Presented to USACE Chicago District. February 2014.

Brunner, Jack. "Contaminated Sediment Remediation and Habitat Restoration: Grand Calumet River and Roxana Marsh." Presented at 56th Annual International Association for Great Lakes Research (IAGLR) Conference. June 2013.

EMPLOYMENT HISTORY

1990 - Present	Environmental Scientist/Project and Program Manager/Operations Manager, Tetra Tech Inc. – EMI Division, Chicago, IL