Ord. # 138-4-14

OBM FACT SHEET

- ☐ CONTRACTS BETWEEN $5,000 AND $15,000
- ☑ CONTRACTS $100,000 AND UNDER
- ☐ PROFESSIONAL SERVICE CONTRACTS $25,000 AND UNDER
- ☐ CONTRACT MODIFICATION WITHIN 10%
- ☐ FUNDING APPROVAL FOR MULTI YEAR CONTRACT

Ex. 46

ORIGINATOR: P.J. Becker // Sue Corcoran	DATE: March 18, 2014
DEPARTMENT: Environmental Health & Safety	CONTACT PERSON: Tracy Pedersen
TYPE OF CONTRACT: Professional Services	PHONE NUMBER: 789-2116, Extension 2626
CONTRACT INDEX # :	FISCAL IMPACT: $65,000.00

DESCRIPTION / JUSTIFICATION:

A groundwater evaluation/investigation at the ash impoundments.

PLEASE LIST SUPPORTING DOCUMENTATION (I.E., CONTRACT, AGREEMENT, CHANGE ORDER, BID BOOK, ETC.)

Attached is a Professional Services Agreement from Andrews Engineering, Inc.

CONTRACTOR / VENDOR NAME: Andrews Engineering, Inc.		VENDOR NO: VC0000001936
CONTRACT TERM: 1 Year		CHANGE IN SCOPE: ☐YES ☐NO
CONTRACT AMOUNT: $65,000	CHANGE ORDER # :	ADDITIONAL AMOUNT:
METHOD OF PURCHASE (CHECK ONE)		PREVIOUS ORDINANCE #'s:
☐ LOW BID	☐ SOLE SOURCE	
☐ ONLY BID	☑ PROFESSIONAL SERVICES	IS PURCHASING AGENT APPROVAL REQUIRED: ☐ YES ☐ NO
☐ LOW BID MEETING SPECIFICATIONS	☐ STATE CONTRACT	
☐ PROPOSALS: LOW – ONLY – LOW EVALUATED	☐ OTHER	

ACCOUNTING INFORMATION (IF MORE THAN FOUR ACCOUNTS, PLEASE ATTACH LIST)

EXPENDITURE					
FUND	DEPT	UNIT	ACTIVITY	OBJECT	AMOUNT
102	400	FD	3272	2306	$65,000.00

SUPERVISOR(s) APPROVAL (Initials Only)

GENERAL MANAGER: DATE

FUNDS CHECKED BY: DATE

CITY PURCHASING AGENT: DATE

COMMODITY CODE: 92546

OBM DIRECTOR SIGN OFF: _____

Resp. to 2nd RTP
CWLP - 27096

ANDREWS
ENGINEERING, INC.

March 17, 2014

Ms. Sue Corcoran, Engineer II
Environmental Health and Safety
City Water Light and Power
East Lake Shore Drive
Springfield, Illinois 62712

Re: City Water Light and Power
Groundwater Evaluation/Investigation at the Facility Ash Impoundments

Dear Ms. Corcoran:

Pursuant to our recent communication, provided herein is a proposal for consulting services to:

- Complete the tasks identified by the Illinois Environmental Protection Agency (Illinois EPA) as part of its Ash Impoundment Strategy and in response to its correspondence dated February 20, 2014
- Apply the groundwater quality regulations defined pursuant to 35 Illinois Administrative Code (Ill. Adm. Code) 620.250 to the power plant ash impoundments
- Apply applicable sections of the pending Coal Combustion Waste (CCW) regulations identified as 35 Ill. Adm. Code Part 841.

Project Background

The Illinois EPA, Bureau of Water, implemented a state-wide Ash Impoundment Strategy that required assessment of ash impoundments at coal-fired power plants. As a result, City Water, Light and Power (CWLP) designed a plan to characterize the local hydrogeologic conditions specific to the impoundments, evaluate the potential for constituent migration from the impoundments, and identify potable water supply wells within 2,500 feet of the impoundments. Results from implementation of the plan were submitted to the Illinois EPA in August 2010.

Subsequently, the Illinois EPA required the submittal of a Groundwater Monitoring Program, which included the proposed locations for the installation of an additional background well, replacement of two downgradient wells, collection of data, and derivation of statistical background concentrations for groundwater quality evaluation. The subject Groundwater Monitoring Program was submitted to the Illinois EPA on November 18, 2011 and approved December 29, 2011.

Installation of the new background well and well replacements were completed in January and February 2012. The monitor well network currently consists of six wells, two upgradient (AP-4 and AP-5) and four downgradient wells (AW-3, AP-1, AP-2, and AP-3).

Pursuant to the approved Groundwater Monitoring Program, statistically derived site-specific background concentrations were based on four quarters of data collected from each well beginning the first quarter 2012 and ending the fourth quarter 2012. Data from both upgradient wells, AP-4 and AP-5, were combined for purposes of statistical derivation of the background concentrations. Several parameters in upgradient well AP-5 exhibited significant decreasing

3300 Ginger Creek Drive, Springfield, Illinois 62711 ◆ 217.787.2334 fax 217.787.9495 www.andrews-eng.com

trends during the background sampling events. Utilizing these data would artificially elevate the background concentrations due to a large standard deviation within the statistical formula. Since the groundwater quality in well AP-5 did not stabilize, additional quarterly data for the subject parameters are being collected through fourth quarter 2013 in order to obtain data representative of background conditions. Once statistically valid data have been collected, revised background concentrations for the referenced parameters will be submitted to the Illinois EPA Bureau of Water. The revisions to the specific background concentrations have not yet been submitted. These background concentrations will be used to further evaluate the site groundwater quality.

Scope of Work

The groundwater quality has been compared to the statistically derived background concentrations. Four parameters potentially associated with the facility impoundments were detected in specific downgradient wells that exceeded the statistically derived background concentrations.

The Illinois EPA requires the completion of additional activities to fully assess the extent and nature of impacts to groundwater, based on available and ongoing groundwater monitoring results. An additional assessment will be necessary to evaluate the extent and nature of affects to the groundwater with respect to four wells, AP-1, AP-2, AP-3, and AW-3. The Illinois EPA recommended that any assessment should address the conditions contained in 35 Ill. Adm. Code 620.250 (Groundwater Management Zone) as well as the pending CCW regulations (R2014-010 [35 Ill. Adm. Code Part 841]).

The Scope of Work and related estimates provided below detail items needed to perform the assessment consistent with 35 Ill. Adm. Code 620.250, the pending CCW regulations, and the Illinois EPA correspondence dated February 20, 2014. It is possible the regulations could be revised pursuant to review by the Pollution Control Board. The pending CCW regulations have integrated sections of the existing 35 Ill. Adm. Code 620 regulations. Incorporation of 35 Ill. Adm. Code 620.250 within the CCW regulations implies implementation of corrective action as stated in 35 Ill. Adm. Code 620.25.a.1. A groundwater management zone cannot exist without approval and implementation of corrective action.

The tasks listed below are presented in an order that provides pertinent information for completion of the subsequent task necessary to comply with specific sections of 35 Ill. Adm. Code 620, and/or the pending 35 Ill. Adm. Code Part 841 regulations, and/or the Illinois EPA February 20, 2014 correspondence. For purposes of this proposal, it is assumed that corrective action will be required (Task 3). However, without completing Task 2, the necessity of corrective action has not been determined.

Task 1 – Review and Update Previous Investigations and Plans

Pursuant to Section 841.130, the compliance period begins one year from the effective date of the rule. By the beginning of the compliance period, the owner shall conduct a hydrogeologic site characterization, establish background groundwater quality, develop a groundwater monitoring system and groundwater monitoring plan. Pursuant to Section 841.145, previous investigations, plans, and programs can be used for compliance with Section 841.130.

Such investigations and plans have already been submitted to the Illinois EPA. However, consistent with the pending CCW regulations, the investigations and plans must be updated to include all required information identified in the pending regulations; Section 841.200

(Hydrogeologic Site Characterization), Section 841.205 (Groundwater Monitoring System), and Section 841.210 (Groundwater Monitoring Plan). The Groundwater Monitoring System and Groundwater Monitoring Plan inherently include Sections 841.205 (Chemical Constituents and other Data to be Monitored), 841.220 (Determining Background Values), 841.225 (Statistical Methods), and 841.230 (Sampling Frequency). New information obtained from additional well installations, sampling, etc., should be used to update and re-evaluate the previous submittals.

A cursory review of the existing reports and plans indicates revisions will be needed to demonstrate compliance with the pending rules and Illinois EPA correspondence. This will include:

1. Potentiometric surface maps with new well data
2. Evaluation of well spacing
3. Evaluation of the well network (possibly adding other wells in the vicinity of the impoundment)
4. Evaluation of statistical background concentrations (applicable groundwater quality standards)
    a. Potential revisions to the interwell values
    b. Evaluate the need for intrawell values
5. Modification of the parameter list (all 35 Ill. Adm. Code 620 parameters referenced in Section 841.215 seem unnecessary but are presently required)
6. Maintenance Plan for the Groundwater Monitoring System

In addition to the items listed above, Task 1 will also include client and Illinois EPA teleconferences and/or meetings.

Task 2 – Evaluation of Groundwater Quality

The existing groundwater quality will be evaluated based on current background concentrations or as modified by Task 1 above. This evaluation may also include data from the monitor wells near the impoundments. For purposes of cost estimation, it is assumed an Alternate Cause Demonstration will be necessary for specific parameters that are not related to the impoundments, but likely related to spatial variability of the monitored zone or other sources on or near the site. The Alternate Cause Demonstration will be completed pursuant to Section 841.305 upon finalization, unless the Illinois EPA requires such demonstrations before then.

Specific parameters may exhibit concentrations in excess of the applicable standards, requiring further evaluation or triggering corrective action. Costs have been included for preparation and attendance for meetings with CWLP personnel, and subsequently the Illinois EPA to discuss the existing groundwater quality. Task 2 also includes the recalculation of background concentrations as described in the June 21, 2013 Background Groundwater Concentrations correspondence for five parameters.

Task 3 – Corrective Action Plan

For purposes of this proposal, and in order to illustrate the potential impacts of the 35 Ill. Adm. Code 620.250 regulation and pending CCW regulations, it is assumed there will be a small number of parameters where verification of an exceedence of an applicable groundwater quality standard/background concentration is attributable to the impoundment(s). 35 Ill. Adm. Code Part

841, Subpart C (Corrective Action), provides two avenues in the event an exceedence is confirmed; (1) close the unit(s) or (2) perform corrective action. It is assumed that CWLP will not pursue closure of the impoundment(s); therefore, a Corrective Action Plan will be derived, permitted, and implemented.

The pending CCW regulations state the Corrective Action Plan requires the owner or operator to mitigate impacts to the groundwater and to address impacts to potable water wells. Previous site investigations indicate there are no potable water wells immediately downgradient to the site. Illinois EPA personnel have concurred there are no potable water supply wells in the vicinity (hydraulically downgradient) to the facility. Therefore, mitigation of affected groundwater will be the focus of the Corrective Action Plan.

The Corrective Action Plan will be dependent upon the extent of the affects from the subject parameters and the hydrogeologic characteristics of the affected area. This can be determined either by conducting a contaminant transport model or by conducting a physical subsurface investigation. Given the geometry of the impoundments with respect to the potentiometric surface, including the meandering characteristics of the old creek, the accuracy of the computer model will require additional hydrogeologic information at the lateral model boundaries. This could include installation of additional piezometers to better define the hydrogeologic conditions near the creek and, preferably, across the creek to the west and north. The creek may be a model boundary, restricting the distance constituent migration occurs in the downgradient direction. This is advantageous to the site; however, model calibration, including the additional fieldwork described above will be needed. If additional fieldwork will be needed, a physical investigation will likely be more cost effective and more accurate. In addition, considering the time and costs incurred to design and operate a corrective action system, accurate hydrogeologic conditions should be known and not estimated through modeling. A physical investigation can identify the extent of effects as well as obtain additional information that will aid in a potential design of the corrective action system. A probable extent investigation is detailed below.

Andrews Engineering has a substantial history conducting hydrogeologic site investigations and contaminant transport modeling for purposes of regulatory compliance and remediation systems design. A summary of our subject capabilities is provided in Attachment A.

Investigation of Extent

The extent of the affected area will be demarcated by the transition of constituents of concern (COC) concentrations from above the applicable standard/background value to below the applicable value. This transition will be identified based on Geoprobe (dual-wall direct push technology, or similar) borings located along the periphery of the specific affected monitoring wells, which may include areas across the creek (north and/or west). Based on the impoundment geometry with respect to the potentiometric surface, approximately 8 to 10 borings will be needed to define the extent. Each boring shall advance into the deposit most likely to promote constituent migration, near the bedrock surface. This will be consistent with the screened intervals of the monitor wells in the current Groundwater Monitoring System. Discrete groundwater samples will be collected and analyzed from each borehole for any COC, as identified in Task 2. One-inch piezometers will be placed in borings where such data are deemed relevant for potential corrective action design. Dependent upon the results, this may need to be implemented in more than one phase. Once the extent has been identified, specific corrective action can be evaluated. Costs have been included in this proposal to conduct an investigation to identify the extent of affected groundwater, which include:

1. Propose investigation plan to CWLP
2. Propose investigation plan to Illinois EPA for approval
3. Drilling contractor
4. Field oversight
   a. Logging of soils samples
   b. Surveying will be conducted by CWLP personnel
5. Groundwater sampling
6. Laboratory analyses
7. Documentation/Reporting

The cost does not include a second mobilization in the event Phase 1 does not completely identify the extent. Direct-push drilling technology has limitations. In the event drilling becomes difficult or the migration pathway is too deep, conventional drilling techniques (hollow stem auger) may be necessary, resulting in higher drilling and oversight costs. It is also assumed the drilling company will be a subcontractor to Andrews Engineering.

Corrective Action Plan

Based on the results of the Investigation of Extent, Andrews Engineering will evaluate varying corrective action methods for feasibility of implementation, remedial effectiveness, and economic considerations. A summary of the evaluation will be provided to CWLP with recommendations for the Corrective Action Plan. Costs include the evaluation, and accounts for multiple meetings with CWLP personnel and the Illinois EPA. Because potential effects to the groundwater are not known at this time, the corrective action method to be employed cannot be determined. Therefore, the cost estimate does not include the actual Corrective Action Plan to be submitted to the Illinois EPA, implementation, or operation and maintenance of a corrective action system.

Section 841.315 of the pending CCW regulations implies the corrective action system will include a groundwater collection system and permitted groundwater discharge system (Section 841.320). This may or may not be necessary. The Technical Support Document to the pending regulations states, "Corrective action plans are designed to control the migration of contaminated groundwater using pumping wells or collection trenches to capture the impacted groundwater..." However, a Groundwater Management Zone can be approved without employing active groundwater extraction. Varying source control measures, constructed groundwater barriers, or even natural attenuation may be possible when considering constituent concentrations, the site's hydrogeology, and lack of potable water supply wells. 35 Ill. Adm. Code 620.250 implies the corrective action plan is at the discretion of the Illinois EPA.

Additionally, the Groundwater Management Zone will require compliance monitoring at the periphery of the zone. Well installation, sampling, analyses, and reporting costs have not been included given the hypothetical nature of the Corrective Action Plan.

Depending upon the form of corrective action chosen, additional field investigation may be necessary to appropriately design the corrective action. Costs for such activities are not included in this proposal.

Costs

Task 1 – Review and Update Previous Investigations and Plans	$15,000
Task 2 – Evaluation of Groundwater Quality	$10,000
Task 3 – Corrective Action Plan	$40,000

At this stage in the process, including because some tasks depend on the results of tasks not yet performed, the reporting, investigation, and potential corrective action can be taken in more than one direction. All scenarios cannot be addressed in this proposal. As such, the estimated costs are approximate and may change as the process is refined. Proposals and or estimates can be revised for each task as necessary. Consistent with work conducted previously for CWLP, Andrews Engineering incurs costs on a time-and-materials basis pursuant to our Standard Schedule of Charges for Professional Services (provided in Appendix B). Our Professional Services Agreement for the subject Tasks is contained in Appendix C.

Please contact me with any questions or comments. Thank you for your consideration.

Sincerely,

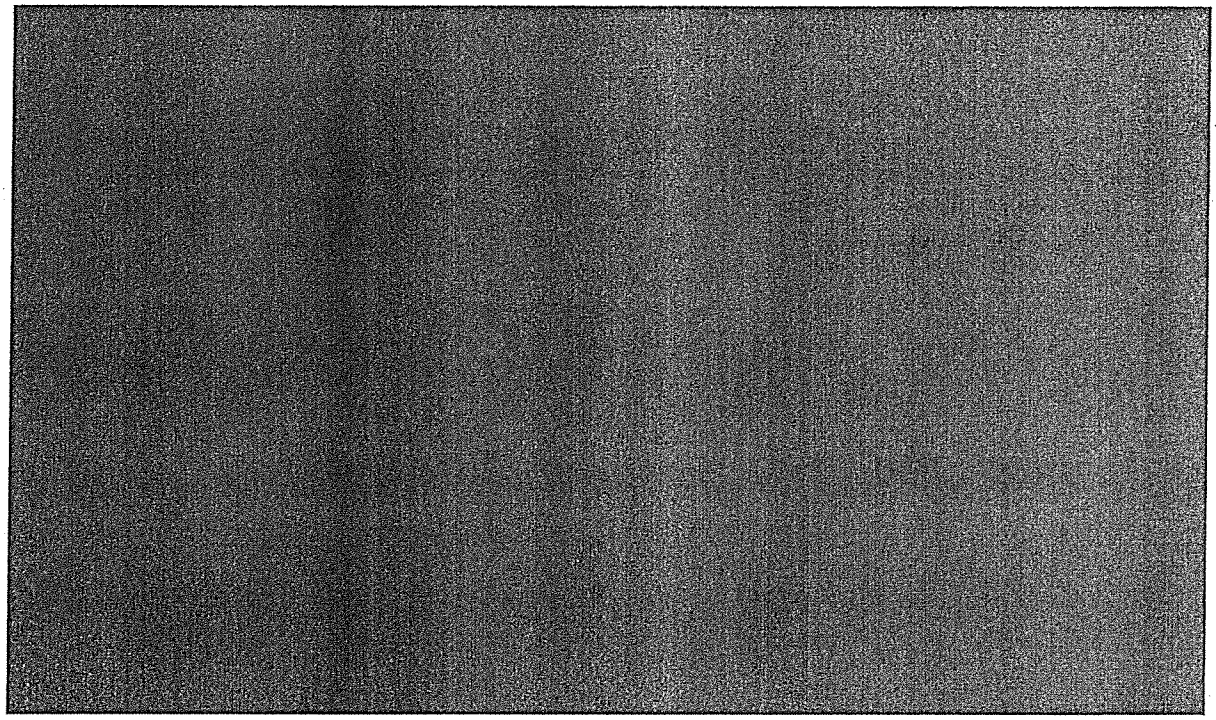
Brad J. Hunsberger, LPG
Director of Hydrogeological Services

BJH:bjh:sjb

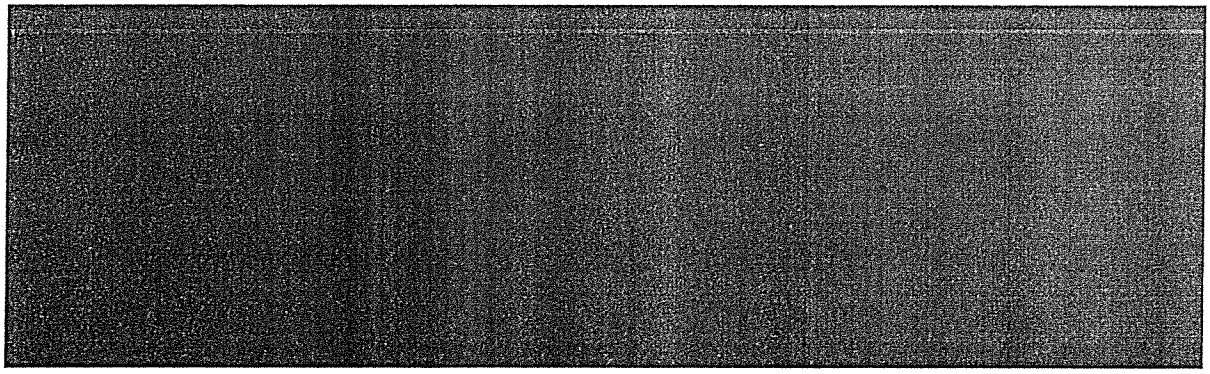
Attachment(s)

ATTACHMENT A

Summary of Andrews Engineering's Capabilities



Hydrogeologic Services



ANDREWS
ENGINEERING INC

3300 Ginger Creek Drive
Springfield, Illinois 62711
(217) 787-2334
www.andrews-eng.com

Resp. to 2nd RTP
CWLP - 27104

Andrews Engineering At-a-Glance

Andrews Engineering, Inc. (AEI) is pleased to submit a summary of capabilities for hydrogeologic services. Our goal at AEI is to provide innovative solutions for our clients by integrating the experience, expertise and integrity of our team with a focus on process and cost efficiencies. We look forward to working with you and invite you to contact your AEI representative directly for more information on how Andrews Engineering can benefit your operation.

SAM Registration:		Yes
DUNS No.:		109283671
Cage Code:		1DRJ8
EMR:		0.85
ISNetworld		ID# 400-144115
Firm Size:	**Staff:**	57
	Revenue:	$9M

Federal NAICS Service Codes:
(Andrews Engineering is a small business entity for all NAICS codes shown)

238910	Site Preparation Contractors
541330	Engineering Services
541360	Geophysical Surveying & Mapping Services
541370	Surveying & Mapping (except Geophysical) Services
541380	Testing Laboratories
541620	Environmental Consulting Services
541690	Other Scientific and Technical Consulting Services
541990	All Other Prof., Scientific, & Technical Services
562211	Hazardous Waste Treatment & Disposal
562212	Solid Waste Landfill
562219	Other NonHaz Waste Treatment & Disposal
562910	Remediation Services

Industries Served:

- Federal & State Government
- Local/Municipal Government
- Solid Waste
- Manufacturing
- Industrial
- Oil/Chemical Production
- Transportation
- Agriculture
- Mines
- Recreation
- Waterway/Conservation
- Commercial and Retail
- Residential
- Institutional/Not-for-Profit

Primary Point of Contact:

Brad J. Hunsberger, L.P.G.
Director of Hydrogeological Services
bhunsberger@andrews-eng.com
(217) 787-2334

Office Locations

Corporate Headquarters
Springfield Regional Office
3300 Ginger Creek Dr.
Springfield, IL 62711
(217) 787-2334

Chicago Regional Office
1701 Quincy Ave., Suite 25
Naperville, IL 60540
(630) 544-3332

Pontiac Regional Office
215 West Washington St.
Pontiac, IL 61764
(815) 842-2042

St. Louis Regional Office
101 E. Walton, Suite 201
Warrenton, MO 63383
(636) 456-6387

Indianapolis Regional Office
7172 Graham Road, Suite 125
Indianapolis, IN 46250
(317) 595-6492

Directors

President
Andrew A. Rathsack, P.E.

Vice President of Operations
Director, Springfield Office
Kenneth W. Liss, L.P.G.

Director, Chicago Office
Brian J. Wozniak, P.E.

Director, Pontiac Office
Michael C. Friend, P.E.

Director, Indianapolis Office
William G. Paraskevas, P.E.

Resp. to 2nd RTP
CWLP - 27105

STATEMENT OF CAPABILITIES

Executive Summary

Andrews Engineering, Inc. (AEI) appreciates this opportunity to submit a Statement of Capabilities for hydrogeologic services to **City Water, Light and Power** of Springfield, Illinois. This brief overview highlights our firm's geologic and hydrogeologic services and is not intended to be all-inclusive of AEI's full service capabilities. For more information about the full range of services AEI provides, we invite you to contact the AEI representative shown below, who serves as your primary point of contact for this submission.

Brad J. Hunsberger, L.P.G.
Director of Hydrogeological Services
3300 Ginger Creek Drive
Springfield, IL 62711
(217) 787-2334
bhunsberger@andrews-eng.com

As Director of AEI's Hydrogeological Services area, Mr. Hunsberger is able to answer any questions you may have concerning the firm's background and experience in this and other areas of the firm's service capabilities.

AEI brings a strong background in assisting companies with civil and environmental engineering design, permitting and construction management/oversight services on a wide range of projects. We are proud to be a current consultant to CWLP and look forward to continuing our professional relationship with your organization.

Company Overview

AEI is an Illinois corporation established in 1974 to provide engineering and environmental consulting services to public and private sector clients. We are an employee-owned professional consulting firm providing a wide range of environmental and civil engineering design, permitting and support services. Building on four decades of specialized experience, we offer comprehensive services in the following areas of discipline:

- Environmental Engineering
- Civil Engineering
- Geotechnical Engineering
- Water/Wastewater/Stormwater Engineering
- Remediation Services
- Construction Services
- Site Design & Development
- Land Surveying
- Waste Management
- Environmental Services
- Geological/Hydrogeological Services

Headquartered in Springfield, Illinois, AEI provides services nationwide from five regional office locations. These locations allow for efficient deployment of staff and resources and where necessary, AEI maintains strategic alliances with both small/disadvantaged and large business teaming partners to ensure streamlined project management. We use a combination of internal resources and local workforces to ensure all project needs are met efficiently and cost-effectively. AEI office locations are included in the **Andrews Engineering At-A-Glance section** of this submission.

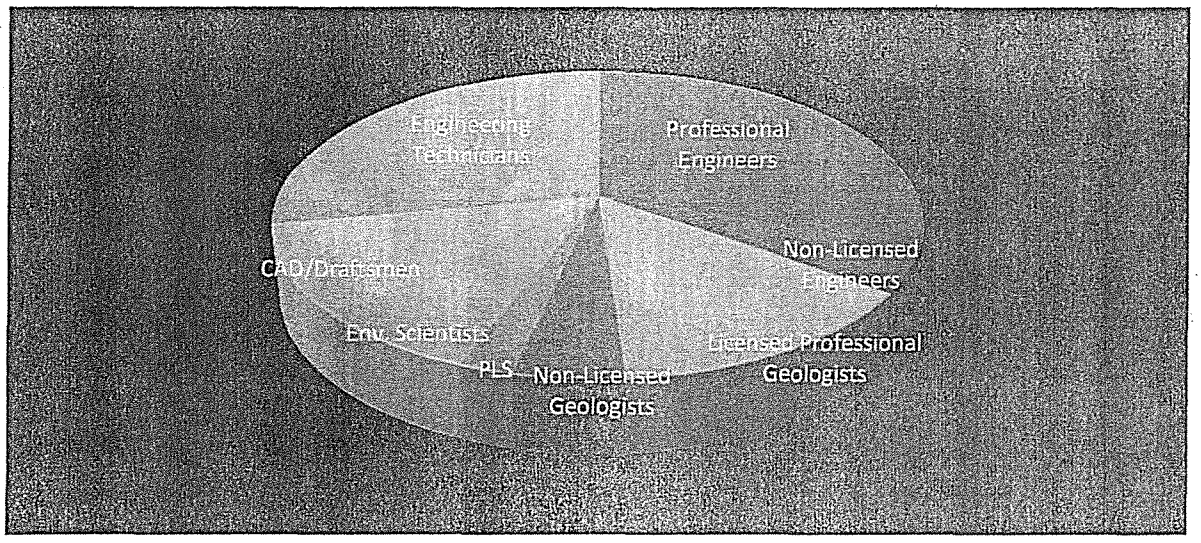
AEI's leadership team consists of senior engineering and environmental professionals who possess extensive technical expertise, regulatory insight and innovative design experience. Our management approach focuses on the use of common sense principles to develop innovative, effective solutions to the engineering and environmental challenges our clients face in their daily operations. We listen carefully to our clients' needs, evaluating all requirements, goals and objectives, and we maintain this focused, accessible, hands-on approach for the duration of a project.

Our management team leads a multi-disciplinary staff of approximately 60 professionals whose focus is on achieving results. AEI employees are dedicated to providing our clients quality services with commitment and professional integrity. Our licensed and experienced personnel include:

- Civil Engineers
- Environmental Engineers
- Geotechnical Engineers
- Geologists
- Hydrogeologists
- Environmental Scientists
- Land Surveyors
- Survey Crews
- Field Technicians
- Administrative Staff

Our management and project team members are actively involved and participate as industry advocates in the development and interpretation of policy and regulations by their involvement with and appointments to several prestigious organizations, often serving as a conduit between our clients and the regulatory community. Several of AEI's key staff members worked for various government oversight agencies prior to their employment at AEI, benefitting our clients with integral working knowledge of a wide range of federal, state and local laws, regulations and permitting and reporting process protocols.

The following chart provides a visual overview of our professional/technical staff composition.



OUR COMMITMENT TO CLIENTS

Our Commitment to Health & Safety

AEI is committed to and maintains an excellent record for safety and health practices as part of our overall project approach. The firm currently boasts an Experience Modification Rate (EMR) of 0.85. We maintain a company-wide health and safety plan that is routinely monitored by an internal Safety Committee as well as on-staff safety professionals. Our staff members regularly update required OSHA, MSHA and other safety training, as well as attend monthly staff safety meetings. AEI also performs Job Hazard Analysis for each job in order to ensure staff and subcontractors are qualified to perform task requirements. This information is used to create job- and site-specific health and safety plans and to monitor job safety over the course of a project.

AEI provides engineering and environmental services to the federal government and many large national and international clients. These entities have internal oversight agencies and third-party administrators to evaluate contractor information such as health and safety, insurance, training and recordkeeping and other information to assure that contractors meet stringent internal and government requirements. AEI has successfully completed compliance record management and reporting reviews with federal government oversight agencies, ISNetworld, Browz, and other companies retained by our clients for evaluation purposes.

Resp. to 2nd RTP
CWLP - 27108

Our Commitment to Quality Assurance

AEI maintains a company-wide Quality Assurance/Quality Control plan implemented to assure that project work is completed within the company's defined quality standards. Our plan incorporates procedures for environmental sampling and analyses, materials testing, surveying and all other technical work performed by the firm. The directive of the QA/QC program is to establish a solid foundation for data generation, analyses and interpretation; work product preparation; and review/approval. Corporate and program management are structured to provide QA/QC on a continuing basis and to redirect appropriate resources when necessary to improve program quality.

Our Commitment to Small, Minority & Disadvantaged Business Enterprises

While AEI makes every effort to provide required services using in-house resources, the need for subcontractors for a variety of activities is sometimes necessary. When working as a prime consultant, AEI is focused on the successful completion of our clients' goals and objectives, with the needs of the project being top priority when selecting external resources. However, AEI makes every effort to employ local small and/or disadvantaged business concerns capable of meeting project requirements as partners on projects when outside services are required. We are proud of the professional relationships we maintain with reputable industry partners. As a Federal small business firm, AEI is committed to assisting other small and disadvantaged businesses with work opportunities and to supporting local workforces whenever possible.

Teaming with Andrews means you will be working with a recognized leader in civil and environmental engineering consulting. We have a long history of successfully completing complex engineering and environmental projects and a proven track record of meeting demanding time and cost schedules. Our team members are qualified, competent, knowledgeable professionals dedicated to peak performance and customer service. We have the depth and resources available to manage projects efficiently and cost-effectively to achieve client objectives and goals. If your goals and objectives require a highly qualified firm with a strong commitment to quality and professional integrity, we hope you will consider working with Andrews Engineering, Inc.

Overview of Hydrogelogic Services

AEI is a well-qualified, full service civil and environmental consulting firm with extensive and wide-ranging hydrogeologic experience. AEI employs an experienced staff of geologists, hydrogeologists, and environmental scientists who provide an array of geologic and hydrogeologic services for environmentally sensitive sites, including solid waste disposal facilities, solid waste management units, industrial/manufacturing and agrichemical production facilities, energy production facilities, surface and subsurface mine facilities and RCRA, CERCLA, UST/LUST sites. Our expertise includes regulatory compliance support for clients through program planning, permit application and work plan development, and field implementation.

AEI provides stand-alone and integrated geologic/hydrogeologic services that include, but are not limited to:

- Hydrogeologic Computer Simulations (Modeling)
- Subsurface Investigations, Studies & Reporting
- Groundwater Risk Assessment
- Groundwater Monitoring Plan Design
- Geophysical Remote Sensing and Site Investigation Services
- Seismic Designs, Soundings and Studies
- Karst Investigations
- Soil/Rock Boring Program Planning & Development
- Borehole Logging and Oversight
- Groundwater Monitoring Well Installation Oversight
- Gas Monitoring Probe Installation Oversight
- Soil Studies
- Data Management Services

Our expertise includes design of subsurface investigations, groundwater modeling, field classification of soil and rock, aquifer characterization, oversight of monitoring well installation and other subsurface detection devices and the design and implementation of various types of monitoring programs.

HYDROGEOLOGIC COMPUTER SIMULATIONS

AEI staff members possess extensive experience with computer simulation of groundwater flow and contaminant transport in both saturated and unsaturated conditions. Computer simulations are powerful tools in hydrogeologic site investigations. The programs are capable of simulating a broad range of problems and the results can be provided in formats that are easily understood and interpreted. Some applications completed by AEI include:

- **Regional and site-specific models of existing groundwater systems.** These models can be used to show that a conceptual design is feasible, determine the associated groundwater flowpaths and travel times, and show which additional field tests will most effectively establish critical parameters.

- **Optimizing the parameters in a proposed activity.** Once conceptual models have been established, additional field-testing or research can be conducted if necessary to fine-tune the models to be as representative as possible. The models are calibrated to appropriate field measurements and re-evaluated to new information once available. Examples include additional installation of extraction wells and modifications to pumping rates of wells in a pump and treat contaminant remediation system. This same modeling process has been used at landfill facilities to modify the design and further enhance leachate removal from waste disposal sites.

- **Determining the likely impact of proposed activities on a hydrogeologic system.** Examples include the evaluation and design or expansion of water supply systems and related impacts to the aquifer and evaluation of mine dewatering activities on aquifer systems with respect to local groundwater supplies. Evaluation of such impacts typically include interface with local governments and communities for zoning and siting issues and include assessment of legal ramifications.

- **Determining the likely fate and transport of solutes that are dissolved in the groundwater.** Groundwater flow modeling is utilized in conjunction with fate and transport of solutes to predict contaminant plumes from a multitude of sources.

Most computer simulations begin with development of a conceptual model followed by the construction and analysis of a representative computer model. An appropriate conceptual model is consistent with all available observations and the basic principles of groundwater behavior. The selected computer program should be capable of simulating the conceptual model without introducing unnecessary complexity.

The majority of modeling conducted by AEI pertains to waste disposal units regulated by the Illinois Environmental Protection Agency. Computer modeling must be conducted to show operating waste units will not adversely impact groundwater quality beyond 100 feet from the waste unit boundary within 100 years after closure of such unit in order to be issued a permit. Similar modeling is conducted to evaluate and permit corrective action scenarios for units with confirmed releases.

Our Approach to Computer Modeling

AEI is experienced with a wide range of groundwater models. The selection of which model to utilize is dependent upon the client's goals, and the site's hydrogeologic conditions.

Under some circumstances, a simple one-dimensional model such as POLLUTE will be sufficient. Typically, a two-dimensional model will be necessary. We use the model MIGRATE for most two-dimensional model scenarios.

AEI also uses more complex models that provide more flexibility and accuracy. Under certain conditions, using these more complex models can mean the difference between showing compliance with water quality standards and exceeding those standards. When necessary, MODFLOW and the associated fate and transport programs are used. The MODFLOW program was developed by the U.S. Geological Survey for the general simulation of groundwater systems. The program is versatile in that it can handle a very broad variety of problems, but it is also flexible in that features that are not part of a system need not be included in the model. MODPATH operates on the output of a MODFLOW simulation to find the associated flowpaths and travel times. MT3D is a companion program that calculates the fate and transport of solutes that are dissolved in the groundwater. MODFLOW, MODPATH, and MT3D are core programs in the Visual-MODFLOW® package available from Waterloo Hydrogeologic, Inc.

Additionally, AEI utilizes the model VS2DT to simulate transport through unsaturated media. Many sites and/or waste units are located above the potentiometric surface of the water-bearing zone. Illinois regulations and policy require the unsaturated zone to be modeled as saturated unless appropriate models are utilized. This is overly conservative and many times leads to predicted exceedences of groundwater quality standards. Utilization of an unsaturated flow model can make the difference between predicted compliance or exceedence of the standard.

Resp. to 2nd RTP
CWLP - 27112

GROUNDWATER RISK ASSESSMENT AND MODELING

Should the need for groundwater assessment arise, our hydrogeologists and other risk assessment professionals work together to evaluate fate and transport issues and develop groundwater protection standards based on background concentrations of inorganics, safe drinking water maximum contaminant levels or risk-based criteria. AEI can evaluate the appropriateness of using risk-based groundwater protection standards as a means of deriving more site-specific criteria that are realistic under current and future land use considerations. The risk-based approach for deriving groundwater protection standards, outlined in Subtitle D of RCRA guidelines, allows the same flexibility in arriving at groundwater protection standards that are both health protective and relevant to the site.

Risk Assessment Services

- Work Plans
- Sampling Plans
- Health and Safety Plans
- Quality Assurance Project Plans
- Soil and Water Sampling and Monitoring System Installation
- Ambient Air Quality Sampling and Monitoring
- Hydrogeologic Assessment of Contaminant Transport
- Aquifer Testing and Evaluation of Water and Soil
- Risk Assessment

Remedial Investigations and Feasibility Studies

- Pilot-and Bench-Scale Treatability Testing
- Remedial Design
- Linear Contaminant Remediation Systems (LCRS)
- Remedial Action Cost Estimates
- Remedial Action Plans and Implementation
- Brownfields Development
- Corrective Measures Assessments
- Corrective Action Plans

A recognized risk-based, decision-making framework is central to the process. By using an accepted framework from the beginning, during project scoping, and throughout risk evaluation, the AEI project team ensures that decisions for "no action" are made as early as possible. Early screening minimizes sampling and analysis requirements, and the use of detailed baseline risk assessment techniques are then limited to cost effectively minimize remediation.

AEI has experience and success in demonstrating how innovative remedial solutions such as natural attenuation and containment may be effectively employed, using risk-based decision criteria. We have also been successful in reducing monitoring requirements at certain sites by moving from quarterly to semiannual sampling periods.

Resp. to 2nd RTP
CWLP - 27113

At sites where a detailed baseline risk assessment becomes necessary, AEI's approach allows the risk assessment to be as site-specific and realistic as possible, focusing only on contaminants posing the greatest potential for adverse health and environmental effects at a site. This approach allows cleanup issues to be clearly defined within the context of the site, rather than on generic assumptions that lead to overprotective cleanup solutions.

Using the risk-based, decision-making framework provides decision-makers with the information necessary to answer the three primary questions of the cleanup process: (1) Is remediation needed? (2) What residual level of contamination can remain on site? and (3) Is a particular option effective in reducing risks to public health and the environment?

Risk Assessment Investigations

AEI assists owners and operators of commercial and industrial facilities in evaluating and fulfilling their environmental responsibilities. Our risk assessment investigations define the probable impact to the environment or to humans as a result of exposure to any contaminants of concern. These risk assessments are used to develop the scope of remediation at the site and/or closure of the site as it relates to the actual health and environmental risks that exist.

AEI professionals can provide environmental risk assessment and toxicology services for our clients. These services include:

- Assessments of Human Health and Ecological Effects
- Evaluation of Hazardous Waste Fate and Transport
- Establishment of Health Based Clean-Up Goals
- Development of Applicable or Relevant and Appropriate Requirements
- Provide Expert Testimony, as needed

The concise risk assessment document compiles and synthesizes the data from the investigation and presents a description of the hydrogeologic environment and extent of soil and groundwater impacts. Recommendations regarding the need for remedial action, if necessary, are plainly and concisely presented to the client. The information obtained during the site investigation is evaluated and describes the hydrogeologic environment and the extent of soil and groundwater impacts at the site. These documents can be utilized as legal and public meeting briefing documents.

GROUNDWATER MONITORING AND DATA MANAGEMENT

AEI's environmental monitoring team successfully manages groundwater monitoring programs at approximately 50 facilities nationwide, including remediation sites, surface impoundments, hazardous and solid waste landfills, restricted waste sites and industrial facilities. By integrating the abilities of our field staff, computer scientists, statisticians, hydrogeologists, engineers, and risk assessment professionals, we are able to provide cost-effective data management and reporting services that ensure regulatory compliance.

Our sampling/monitoring and reporting services include, but are not limited to:

- Groundwater Monitoring Network System Design
- Groundwater and Soil Sampling and Reporting
- Surface Water Sampling and Reporting
- Leachate Monitoring
- Emissions Reporting & Compliance Assistance
- SCS Monitoring
- Analytical Data Management
- Statistical Analysis
- Routine Permit Compliance
- Closure/Post-closure Updates
- Facility Annual Reports
- Operating permit renewals
- Subtitle D Monitoring and Compliance
- Risk-Based Monitoring Criteria Option

Our personnel are experienced in developing, reviewing, and implementing environmental water quality sampling and analysis plans. AEI has developed relationships with a variety of quality-oriented laboratories. Coordination with the sampling laboratory is key to ensuring quality data and interpretation.

As demand for specialized groundwater monitoring programs has increased, AEI has developed an electronic data management system linked directly to the laboratories. The system is adaptable to either customized or preprogrammed platforms for analysis (i.e., statistical tests, data comparisons, quality assurance checks and risk assessment). Our system enables analytical data to be directly downloaded into the firm's data management system ensuring that end users have rapid data access to site data without concern for transcription errors.

AEI's data management team has streamlined the process of data receipt, management and reporting. We have the ability to manage environmental monitoring programs from the initial coordination with the laboratory to the submission of final reports to the Illinois EPA.

Resp. to 2nd RTP
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Representative Projects

AEI has conducted groundwater flow and/or fate and transport modeling for a variety of project locations throughout the nation. Many of these sites required several models, each dependent upon the number of water-bearing zones and liner configurations. We have provided several representative projects highlighting the firm's modeling experience below. If more information about our extensive experience in this area is desired, we invite you to contact your AEI representative for more details.

Site: **Confidential Waste Disposal Facility / Central Illinois**
Client: **Confidential Client**

AEI is responsible for quarterly groundwater evaluations and surface methane scans at this waste disposal facility. The firm was contracted to conduct a corrective action measures assessment to evaluate boron exceedences in certain monitoring wells resulting from a former ash pond located within a permitted solid waste unit at the site. We performed three phases of field investigations to define the extent of contamination. The information was used to conduct a three-dimensional integrated flow model using MODFLOW and a fate transport model using MT3D. The flow model accounted for a major drainage ditch running through the site affecting the upper layers of the flow model. The model results were used to propose a corrective action program for the site to the Illinois EPA, which is currently under review with the Agency.

Site: **Peoria Disposal Hazardous Waste Site / Peoria, Illinois**
Client: **Peoria Disposal Company**

AEI provided consulting services pertaining to the hydrogeologic aspects of the proposed expansion application for this hazardous waste site in Peoria, Illinois. This included peer review of the hydrogeologic report and groundwater monitoring programs completed by Peoria Disposal personnel. Andrews Engineering personnel utilized the HELP program to determine the expected flux of leachate through the landfill liner. Staff also completed the contaminant transport model utilizing VS2DT to simulate solute movement through the Vadose zone and saturated media. A three-dimensional MODFLOW + MT3D model was used the simulate flow within the aquifer. Andrews Engineering personnel provided expert testimony to the Peoria County board pertaining to the existing site hydrogeology, simulated solute movement, and groundwater and leachate chemistry.

Site: **Livingston Landfill / Pontiac, Illinois**
Client: **Republic Services, Inc.**

AEI conducted several groundwater impact assessments that included contaminant transport models of the landfill site using MODFLOW, MODPATH, and MT3D. Multiple liner and aquifer configurations were encountered at this site. The models showed the importance of the numeric value assigned to the molecular diffusivity in predicting the likely environmental impact of the landfill. This was resolved with an innovative evaluation of cores of in-situ clay from directly beneath the landfill wastes *(MSW Management, Barrows and Hunsberger, 2004).* The project resulted in a five-year permit extension and a 100-acre expansion of the waste disposal area. The full article outlining this modeling work is available upon request.

Site: **Lincoln Stone Quarry / Joliet, Illinois**
Client: **Midwest Generation, LLC**

Midwest Generation, LLC operates a 57-acre solid waste and non-hazardous special waste disposal facility located in an unlined abandoned dolomite quarry in Will County, Illinois, on the Des Plaines River. This disposal facility receives bottom ash and slag generated from the two Midwest Generation coal-fired generating stations in Joliet, Illinois. The closed portion of the waste facility contains fly ash and is monitored for potential impacts to groundwater.

As part of the application for the facility permit renewal, AEI developed a comprehensive hydrogeologic site study which included exploratory boreholes, core studies, monitoring wells, aquifer tests, geochemical analysis, and long-term groundwater monitoring. We developed an innovative transient three-dimensional groundwater flow and solute transport model using the MODFLOW, MODPATH, and MT3D programs which interfaced with the surface water in the quarry. Karst fracture flow was simulated with connected sheets of high conductivity material. The model clearly demonstrated the complexity of the groundwater system and predicted the effects of various development scenarios.

AEI also assisted with compliance monitoring for Midwest Generation's groundwater flow and water quality reporting to the Illinois EPA Bureau of Land. As part of the water quality reporting, AEI contributed to the preparation of assessment monitoring reports required by the facility operating permit, which included QA/QC of the available groundwater data and researching background groundwater quality in the region.

Site: **Carus Disposal Area No. 2 and No. 3 / Ottawa, Illinois**
Client: **Carus Corporation**

Carus Disposal Area No. 2 is a solid waste disposal facility located near Ottawa, Illinois. The facility was designed and permitted by AEI exclusively for the acceptance of manufacturing residues. The contaminant transport model for a vertical expansion of Area No. 2 was completed by utilizing VS2DT, a computer model designed specifically for transport in unsaturated media. This is the first time the model had been used for a solid waste disposal unit with the Illinois EPA. The bottom of the liner system was located approximately 80 feet above the static water level in the upper-most aquifer. Because of the requisites from the Illinois EPA Groundwater Assistance Unit, the typical models utilized (MIGRATE or POLLUTE) will appear to be located directly within the upper-most aquifer. By accounting for the unsaturated thickness below the liner with VS2DT, the contaminant transport occurred much slower, resulting in a successful impact assessment.

AEI also prepared a hydrogeologic model for Carus's Disposal Area No. 3 as part of the application process to develop the waste disposal unit from a Greenfield site. Due to liner configuration variations, MIGRATE was used to prepare the model.

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CWLP - 27117

Key Personnel

Name: **Kenneth W. Liss, L.P.G**
Position: **Vice President of Operations**
Springfield Office Director

Mr. Liss is a seasoned licensed professional geologist with 30 years of regulatory and environmental consulting experience. In his role as Vice President of Operations and Director of AEI's Springfield office, Mr. Liss has served as principal and program manager on many large-scale solid waste and environmental/remediation projects undertaken by the firm. His expertise in groundwater and geologic investigations includes providing peer reviews and expert witness testimony for hydrogeologic investigations, groundwater monitoring programs and groundwater impact assessments.

Mr. Liss has significant experience with regulatory matters. Prior to his joining the firm, he was the manager of the Groundwater Assistance Unit in the Permit Section of Bureau of Land at the Illinois Environmental Protection Agency (Illinois EPA). His experience includes permitting for hazardous and non-hazardous facilities and determining appropriate responses to environmental impacts.

Mr. Liss has held both technical and administrative roles in the development of new legislation and rule making at the state level. These roles have included preparation of dockets for risk-based decision making (TACO), utility coal combustion wastes, and modification to existing non-hazardous landfill rules, the Part 620 groundwater rules, and corrective action/remediation programs. He was appointed to the first Board of Licensing for Professional Geologists in Illinois and was also an expert witness for the Illinois EPA as part of enforcement, rule-making and public hearing proceedings.

He is also currently under appointment from the Illinois Governor's office to the Illinois Site Remedial Advisory Committee (SRAC) where he serves as both a member and Ethics Officer. In that capacity, he is still actively involved in the development of policies and regulations for the waste industry in the state of Illinois.

Name: **Bradley J. Hunsberger, L.P.G.**
Position: **Director of Hydrogeological Services**

Mr. Hunsberger has over 26 years of experience in solid waste management consulting in Illinois. He is responsible for all aspects of the design, permitting, and implementation of hydrogeologic site investigations and studies at environmentally sensitive sites, including solid waste disposal facilities, Brownfield areas, Underground Storage Tank (UST) and Leaking Underground Storage Tank (LUST) sites, industrial facilities and agri-chemical facilities. His expertise includes field classification of soil and rock, aquifer characterization, computer modeling for fate and contaminant transport, design and implementation of various types of monitoring programs, as well as remedial investigation and design. Mr. Hunsberger has also provided expert testimony pertaining to hydrogeologic investigations for solid waste disposal facilities, groundwater monitoring programs, and contaminant transport modeling.

Mr. Hunsberger has provided hydrogeologic services for over 80 landfill facilities, including operating sites (35 IAC 811-815) and those in post-closure care, pursuant to both the pre-Subtitle D rules (35 IAC Part 807). He has used his knowledge of the rules to streamline monitoring systems, thereby lowering costs for routine and/or assessment activities. Mr. Hunsberger also oversees AEI's data management team, which includes staff members dedicated to database management, data transfer, data QA/QC, and analyses and reporting for over 50 permitted and non-permitted disposal facilities.

Name: **Timothy A. Bannister, L.P.G.**
Position: **Senior Hydrogeologist**

Mr. Bannister has more than 30 years of professional experience in hydrogeology and engineering geology. He specializes in groundwater flow and contaminant transport modeling and has extensive experience with Visual MODFLOW, MIGRATE and POLLUTE. He has managed hydrogeologic projects for groundwater monitoring and reporting, monitoring well network design, non-landfill source demonstrations, contamination issues and landfill permitting. Mr. Bannister has conducted and managed hydrogeologic studies for water supply projects including long-term, basin-wide computer simulations for groundwater basin characterization, well field designs and wellhead protection area delineations. He also has experience with deep waste injection wells and dam seepage investigations and remediation.

ATTACHMENT B

Standard Schedule of Charges for Professional Services

ANDREWS
ENGINEERING INC

- 2014 STANDARD SCHEDULE OF CHARGES FOR PROFESSIONAL SERVICES -

TECHNICAL SERVICES

For services rendered directly related to the Project, Andrews Engineering Inc. (the CONSULTANT) will be paid at the hourly rates listed below effective January 1, 2014:

PROJECT COORDINATORS AND DIRECTORS

Project Coordinator I	$95.00
Project Coordinator II	$110.00
Project Coordinator III	$120.00
Project Coordinator IV	$140.00
Project Director I	$140.00
Project Director II	$157.00
Senior Project Director	$164.00

ENGINEERS

Staff Engineer I	$62.00
Staff Engineer II	$66.00
Staff Engineer III	$68.00
Engineer I	$75.00
Engineer II	$82.00
Engineer III	$88.00
Project Engineer I	$96.00
Project Engineer II	$102.00
Project Engineer III	$110.00
Project Engineer IV	$115.00
Senior Project Engineer	$125.00
Principal Engineer	$178.00

HYDROGEOLOGISTS

Hydrogeologist I	$66.00
Hydrogeologist II	$75.00
Hydrogeologist III	$90.00
Hydrogeologist IV	$115.00
Senior Hydrogeologist	$130.00

SCIENTISTS AND SPECIALISTS

Environmental Scientist I	$54.00
Environmental Scientist II	$62.00
Environmental Scientist III	$72.00
Technical Specialist I	$77.00
Technical Specialist II	$88.00
Technical Specialist III	$94.00
Soil Scientist	$100.00
Associate Land Surveyor	$85.00
Professional Land Surveyor I	$105.00
Professional Land Surveyor II	$125.00
Senior Land Surveyor	$140.00

Resp. to 2nd RTP
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ANDREWS ENGINEERING INC

- 2014 STANDARD SCHEDULE OF CHARGES FOR PROFESSIONAL SERVICES -

TECHNICAL SERVICES (Continued)

SUPPORT STAFF

CAD Technician I	$69.00
CAD Technician II	$84.00
CAD Technician III	$95.00
Engineering Technician I	$63.00
Engineering Technician II	$72.00
Engineering Technician III	$78.00
Engineering Technician IV	$89.00
Technical Aide I	$38.00
Technical Aide II	$45.00
Technical Aide III	$52.00
Technical Aide IV	$65.00
Survey Crew Chief	$89.00
Staff Assistant I	$35.00
Staff Assistant II	$40.00
Staff Assistant III	$52.00
Staff Assistant IV	$59.00
Technical Assistant I	$55.00
Technical Assistant II	$67.00

EXPENSES

For expenses incurred directly related to the Project, the CONSULTANT will be paid at cost plus ten percent (10%) for travel, lodging, and other related travel expenses or a per diem. Miscellaneous expenses and outsourced printing/reproduction will also be billed at cost plus ten percent (10%). Other direct project related expenses, such as express/shipping, etc. will be billed at cost. Mileage will be billed at fifty-seven cents (57¢) per mile -- subject to possible daily minimums and a fuel surcharge if gas prices surge significantly. Computer charges for CAD and modeling will be $10.00/hr.

SUBCONTRACTUAL SERVICES

For services rendered by others under Subcontract to the CONSULTANT, the CONSULTANT will be paid at Cost plus fifteen percent (15%).

BILLING AND PAYMENT SCHEDULE

The CONSULTANT'S services under this Schedule will be billed monthly for services rendered during the preceding month. Payment for said service is due within thirty (30) days. A Finance Charge (Late Fee) of one and one-half percent (1.5%) per month, which is an annual percentage rate of eighteen percent (18%), will be added to delinquent accounts.

NOTES:

1. Testing and Equipment Rates and Miscellaneous Charges are available upon request.
2. A premium rate of one and one-half (1.5) times the regular rate shown will be billed for services rendered on Sundays, Holidays and Holiday weekends.
3. A surcharge of twenty percent (20%) will be added for expert witness testimony and preparation for testimony.
4. Certain specialty services may be subject to minimum charges.
5. This schedule of charges is subject to change without notice.

Resp. to 2nd RTP
CWLP - 27122

ATTACHMENT B

Professional Services Agreement

ANDREWS ENGINEERING INC.
PROFESSIONAL SERVICES AGREEMENT

PROJECT INFORMATION (If information is incorrect, please type correct information and initial)

Project Name: Power Plant Ash Impoundment

Project Location: East Lake Shore Drive, Springfield, Illinois

Property Owner: City Water, Light and Power (City of Springfield)

Description of Professional Services:
Professional services include TASK 1 - review and update previous investigations and plans, TASK2 – evaluation of groundwater quality, and TASK 3 – corrective action plan.

A specific description of the referenced services is provided in the main body of the cover letter to this Agreement – dated March 17, 2014.

Charges for Professional Services:

Unless specifically indicated otherwise, payment shall be on a time and expense basis in accordance with the Andrews Engineering, Inc. Standard Schedule of Charges for Professional Services in effect at the time the services are performed. A maximum (not to exceed) cost for the subject services is presented as part of this Professional Services Agreement.

CLIENT INFORMATION (If information is incorrect, please type correct information and initial)

Contact Person: Sue Corcoran
Company Name: Environmental Health and Safety, City Water, Light and Power
Street Address: 201 East Lake Shore Drive
City, State, and Zip: Springfield, Illinois 62712
Telephone: (217) 757-8610 (Ext. 1108)

BILLING INFORMATION (If information is incorrect, please type correct information and initial)

Contact Person: Sue Corcoran
Company Name: Environmental Health and Safety, City Water, Light and Power
Street Address: 201 East Lake Shore Drive
City, State, and Zip Code: Springfield, Illinois 62712
Telephone: (217) 757-8610 (Ext. 1108)

ACCEPTED BY:

CITY WATER, LIGHT & POWER

Authorized Signature: _____
Name and Title (printed or typed): _____
Date: _____

ANDREWS ENGINEERING INC.

Authorized Signature: Andrew A. Rathsack
Name and Title (printed or typed): Andrew A. Rathsack, President
Date: 3/17/14

Professional Services will be performed in accordance with the Terms and Conditions on the reverse side.

Agreement No. 2011-127

Resp. to 2nd RTP
CWLP - 27124

Project Name: Power Plant Ash Impoundment **Location:** East Lake Shore Drive, Springfield, Illinois
Client/Company Name: City Water, Light and Power (City of Springfield)

TERMS AND CONDITIONS

SCOPE OF SERVICES -- Andrews Engineering Inc. (hereinafter called CONSULTANT) shall perform the services described on this Professional Services Agreement. Additional, continuing, or other services requested or approved by the CLIENT but not specifically described in this or another contract document shall also be performed under the terms and conditions of this Agreement. This Agreement may be terminated by either party upon written notice. CONSULTANT will be paid for all services and expenses rendered to the date of termination.

LIMITATION OF SERVICES -- The scope of services to be performed by the CONSULTANT shall not include safety engineering, structural, mechanical, and/or electrical design; property boundary surveys; environmental impact reports; research studies; special documentation; special studies; or other services or activities not specifically included in the Project's "Description of Professional Services" or otherwise agreed upon in writing by the CONSULTANT. In addition, the CLIENT shall be responsible for the Project's compliance with local ordinances and other Local, State, and Federal Laws/Regulations and in the securing of all permits and/or licenses pertaining to the Project unless, and to the extent that, such services are specifically included in the Project's "Description of Professional Services" or otherwise agreed upon in writing by the CONSULTANT.

PAYMENT FOR SERVICES -- Unless specifically stated otherwise elsewhere in this Agreement, payment for the CONUSLTANT's services shall be in accordance with the CONSULTANT'S Standard Schedule of Charged for Professional Services in effect at the time the services are performed and due 30 days from the CONSULTANT'S invoice date. In the event of any disputed invoice, the CLIENT shall notify the CONSULTANT of the nature of the dispute in writing within 21 days of the invoice date. If CLIENT fails to make full payment of an invoice by its due date, CONSULTANT may charge a 1.5% monthly interest charge from the due date on any remaining unpaid balance. Any payment will be credited first to any interest owed and then to principal. Also, after giving seven days written notice to CLIENT, CONSULTANT may suspend services under this Agreement until CLIENT has paid in full all amounts due for services, expenses and other related charges. CLIENT waives any and all claims against CONSULTANT for any such suspension. Finally, if any costs are incurred by CONSULTANT to secure delinquent payment from CLIENT, (including but not limited to attorney fees and court costs) CLIENT shall reimburse CONSULTANT these costs.

STANDARD OF PERFORMANCE -- The standard of care for all professional and related services performed or furnished by CONSULTANT under this Agreement will be the care and skill ordinarily used by members of the CONSULTANT'S profession practicing under similar circumstances at the same time and in the same locality. CONSULTANT makes no warranties, expressed or implied, under this Agreement or otherwise, in connection with these services.

SUPPLEMENTAL INFORMATION AND DEFECTS -- The CLIENT shall provide the CONSULTANT all information that is known or readily accessible by or to him which may be reasonable and/or necessary for completion of the CONSULTANT'S services In addition, the CLIENT shall examine the CONSULTANT'S submissions and give written notice promptly to the CONSULTANT whenever the CLIENT observes or otherwise becomes aware of any defect in the submittal. An appropriate authorized person of the CLIENT shall promptly sign, date, and return to CONSULTANT all permit applications and/or other documents necessary for CONSULTANT to complete its services under this Agreement or to secure payment for them.

OPINIONS OF QUANTITIES, COSTS & TIME -- Opinions of quantities, costs, and time which may be provided by the CONSULTANT at the request of the CLIENT or as is appropriate or necessary for a complete submission on behalf of the CLIENT are approximations which may be based upon information provided by others and/or whose actual values may be dependent upon persons or conditions on which the CONSULTANT has little or no control. Therefore, the CLIENT agrees not to construe or use the CONSULTANT'S opinions of probably quantities, costs and time as absolute or exact values.

REUSE OF DOCUMENTS -- All Drawings, Specifications, and other product of the CONSULTANT (and CONSULTANT'S independent professional associates and consultants) prepared or furnished pursuant to this Agreement are instruments of service of the Project and the CONSULTANT shall retain an ownership and property interest therein whether or not the Project is completed. The CLIENT may make and retain copies for information and reference in connection with the use and occupancy of the Project by the CLIENT and others; however, such documents are not intended or represented to be suitable for reuse by the CLIENT or others on extensions of the Project or on another project. Any reuse without written verification or adaptation by the CONSULTANT for the specific purpose intended will be at the CLIENT'S sole risk and without liability or legal exposure to the CONSULTANT, or to the CONSULTANT'S independent professional associates or consultants, and the CLIENT shall indemnify and hold harmless the CONSULTANT and the CONSULTANT'S independent professional associates and consultants from all claims, damages, losses, and expenses including attorney's fees arising out of or resulting therefrom.

LIABILITY -- The CONSULTANT'S liability to the CLIENT for injury or damage to persons or property arising out of services performed for the CLIENT and for which legal liability may be found to rest upon the CONSULTANT, other than for professional errors and omissions, will be limited to our general liability insurance coverage. An insurance certificate will be furnished upon request. If increased insurance coverage and/or greater responsibility is required by the CLIENT, we, if specifically directed by the CLIENT, will take out additional insurance (if procurable) to protect us, at CLIENT'S expense. We shall not be responsible for property damage from any cause, including fire and/or explosion, beyond the amounts of coverage or our insurance. For any damage on account of any error, omission, or other professional negligence, the CLIENT agrees to limit the CONSULTANT'S liability to the CLIENT and/or any third parties such that the total aggregate liability of the CONSULTANT to all parties shall not exceed the total sum of the engineering fees paid to the CONSULTANT for his services on the Project. Further, the CLIENT agrees to indemnify and hold harmless the CONSULTANT of all liability related to errors, omissions, and negligence of the CONSULTANT, its employees, and agent(s) where the CONSULTANT'S services are terminated prior to the completion of the Project. In the event the CLIENT makes a claim against the CONSULTANT, at law or otherwise, for any alleged error, omission, or other act arising out of the performance of professional services, and the CLIENT fails to prove such claim, then the CLIENT shall pay all costs incurred by the CONSULTANT defending itself against the claim.

WASTE DISPOSAL CONSULTING -- Where the CONSULTANT'S services includes review of analysis and/or preparation of paperwork for waste disposal, it shall be the responsibility of the Waste Generator to provide the CONSULTANT with a representative waste sample(s), including taking into account expected variations or a copy of the results of an appropriate analysis on such a sample. The CONSULTANT'S conclusions and/or paperwork for waste disposal of specific waste streams shall not be construed to relieve the Waste Generator of his responsibility to determine whether the subject waste(s) are defined as "hazardous" by current law or regulation. If the Waste Generator is someone besides the CLIENT, the CLIENT shall include this or a similar clause in an agreement with the Waste Generator or, for purposes of this Agreement, shall assume the responsibilities of the Waste Generator.

CERTIFICATIONS -- Regulatory agencies may require certification(s) by a Registered Professional Engineer and/or a Registered Professional Geologist which attest that various aspects of the Project have been developed or constructed in accordance with its approved plan or permit(s). Where the CONSULTANT'S services includes providing such certification(s), the CONSULTANT shall make visits to the project site as the CONSUTANT feels necessary during or after construction of the Project to collect sample(s) for required testing and/or to observe the development to evaluate its conformance with the subject approved plan or permit(s). Further, the CONSULTANT shall provide a written report of his observations and required test results to the regulatory agency requesting the certification. However, it shall be understood that the scope of such a report shall be limited to the specific samples tested and/or the actual portions of the development or construction visually observed by the CONSULTANT at the time of his site visit. It shall not constitute acceptance of the work, nor shall it be construed to relieve the Contractor, CLIENT, or Operator from their responsibilities to develop and construct the Project in accordance with its approved plan or permit(s). Further, since the CONSULTANT will not have direct control nor provide continuous scrutiny of the work requiring certification; a favorable CONSULTANT'S report to the regulatory agency shall not be construed as an expressed or implied warranty or guarantee that the work requiring certification is in complete or total compliance with its approved plan or permit(s). In addition, the CLIENT agrees to defend, indemnify, and hold harmless the CONSULTANT from all claims, damages, and expenses including attorney's fees resultant from any party construing such a warranty or guarantee by the CONSULTANT.

CONCEALED CARRY -- The CLIENT is a unit of local government; therefore, all persons are prohibited from carrying a concealed weapon(s) onto the CLIENT'S property. Violators will be prosecuted under the law, and the CLIENT may immediately declare the CONSULTANT in default and terminate this Agreement.

AFFIRMATIVE ACTION COMPLIANCE -- The CONSULTANT agrees to adhere to the provisions of Chapter 93 of the City of Springfield Code of Ordinances, as amended, and particularly Section 93.13 thereof which shall constitute the Affirmative Action program of this Agreement.

NON-BARRING FROM BIDDING -- The CONSULTANT certifies that it is not barred from bidding on any contract offered for bid by the State of Illinois or any unit of the local government as a result of a conviction violating Section 33E-3 or 33E-4 of the Illinois Criminal Code.

NON-DELINQUENCY -- The CONSULTANT certifies that it is not delinquent in the payment of any tax administered by the Illinois Department of Revenue.

FEDERAL, STATE AND LOCAL LAWS -- All applicable federal, state, county and municipal laws, ordinances, rules and regulations and codes of all authorities having jurisdiction shall apply to this Agreement and the services hereunder and are deemed to be included herein the same as though herein written in full.

RIGHT OF ENTRY -- CLIENT shall provide for CONSULTANT'S right to enter property owned by CLIENT and/or others in order for CONSULTANT to fulfill the scope of services for this Project. CLIENT understands that use of exploration equipment may unavoidably cause some damage, the correction of which is not part of this Agreement.

AQUIFER CONTAMINATION -- Subsurface sampling may result in contamination of certain subsurface areas, as when a probe or boring device moves through a contaminated area, linking it to an aquifer, underground stream, or other hydrous body not previously contaminated and capable of spreading hazardous substances or pollutants off-site. Because subsurface sampling may be a necessary aspect of the work which CONSULTANT will perform on CLIENT'S behalf, CLIENT waives any claim against CONSULTANT, and agrees to defend, indemnify, and hold CONSULTANT harmless from any claim or liability for injury or loss that may arise as a result of alleged cross-contamination caused by sampling.

PURCHASE ORDERS -- If the CLIENT uses a purchase order as a mechanism to retain the CONSULTANT and there is a contradiction, the terms and conditions of this document shall prevail over those of the purchase order unless specifically agreed upon otherwise.

SUCCESSOR AND ASSIGNS -- The CLIENT and CONSULTANT each is hereby bound and the partners, successors, executors, administrators, and legal representatives of the CLIENT and CONSULTANT are hereby bound to the other party to this Agreement and to the partners, successors, executors, administrators, and legal representatives (and said assigns) of such other party, in respect of all covenants, agreements, and obligations of this Agreement.

CONFIDENTIALITY -- The CONSULTANT agrees to hold in confidence all information not in the public record which comes to its knowledge concerning the CLIENT and its operations and not to disclose to others, at any time during or after termination of this Agreement, such information or the results of the CONSULTANT'S activities hereunder without the prior consent of the CLIENT unless required to do so by law.

GOVERNING LAW / VENUE -- This Agreement shall be governed in accordance with the Laws of the State of Illinois and the venue for all actions arising under the Agreement shall be the state or federal courts located in Sangamon county, Illinois.

LIMITATION OF FEES -- This Agreement does not authorize expenditure of City funds in excess of the amount presented in the attached documents without prior approval by authorized city of Springfield (Illinois) officials as required by statute or applicable rules. The CONSULTANT acknowledges proceeding with work incurring costs in excess of the approval amount prior to approval shall be done at its own risk with no guarantee of payment for the subject exceedences.

_____ (CLIENT INTIALS)

Resp. to 2nd RTP
CWLP - 27125