Sole Source Justification Form

Bulletin Reference Number	B-53090
Requesting Agency/University	Illinois Department of Agriculture

Sole Source Justification Form - Part I

Section I - General Information

Department/Bureau/Section:	Illinois Department- Bureau of Environmental Programs
Need Identified Date:	Jun 23, 2026
Supply/Service Need By Date:	Jul 8, 2026
Project Title:	Sole Source: AGR-EP-Gas Chromatograph with Triple Quadruple
Vendor:	Agilent Technologies

This instrument must include the GC system with a Multimode Inlet, LN2 or Air Cooling, Helium Conservation Module, backflushing module, autoinjector that includes: transfer turret, 16-sample turret, mounting post, parking post for GC. 10ul syringe, and solvent
bottles, sample tray (150 vial includes three removable), Gas Clean Carrier Gas filter kit, HP-5MS Ultra Inert 15m, 0,25mm, 0,25um column, the latest NIST MS Library Bundle including over 350K EI spectra for over 300K compounds (40K increase) and GC Methods/Retention indices library with 139K compounds, and Quadrupole MS/MS EI Bundle detector includes MS/MS mainframe, High Efficiency EI source, software suite that supports efficient data acquisition, qualitative data analysis, mass spectral library management, quantitative data analysis, easy access, and reporting of spectral data, CPU, and monitor. Also, installation and familiarization must be included, along with on site training. And any other items need to be included to ensure the instrument is properly functioning and capable of performing needed work. This instrument must have the capability of detecting part-per-billion concentrations as part of regulatory investigations conducted by the Department pursuant to the Illinois Pesticide Act (415 ILCS 60/1 et seq.) and the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).
This new models GC/MS/MS must have two primary new features for money savings, which are a helium conservation module and backflushing module. The shortage of helium gas, which is used for mobility of samples within the GC/MS/MS, has skyrocketed its cost. The helium module switches to a cheaper gas during non-run times and can reduce gas costs by as much as 30%. The back flushing module prevents contaminants from entering the instrument's detector. This significantly reduces the downtime required to dismantle the detector for cleaning and additionally can eliminate the high cost of repairs or replacement of a contaminated detector. Backflushing works by reversing the carrier gas flow at a point designated in the method. The reversed carrier gas through column 1 ensures all heavy matrix components are flushed out the hot inlet and split vent. This eliminates the need for long high temperature bake out after the analytes have eluted from the column.

New models of GC/MS/MS must have the technology that provides a self-cleaning ion source that greatly reduces the need to remove and clean the ion source. The manual removal of an ion source causes unnecessary lab downtime. This technology must be consistent with a controlled flow of hydrogen that keeps the ion source free from contamination.

New models of GC/MS/MS must contain an ionization source made with a non-coated, ultra-inert material that is very robust, keeps material from

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Provide a description of the supplies or services required:

adhering to hot metal surfaces, and gives sharper peaks that are late eluting, programmable to 350C. The ultra-inert material cannot be damaged or removed from multiple cleanings because it is not a coating.

The GC/MS/MS must be able to help with the limitations of fringe field effects by directly injecting the ions from the source into the first quadrupole by the entrance lens. Voltage on this lens is dynamically ramped synchronously with analyzer voltage to focus maximum ion signal for every m/z into the center of the quadrupole field (the quadrupole sweet spot). This ensures maximum transmission of ions from the source into the mass analyzer.

The GC/MS/MS must contain a hexapole that is best for optimal ion transmission over a large mass range. The collision cells have a hexapole design to maximize ion transmission. The collision cells also have linear acceleration technology so that ions are accelerated throughout the cells. Acceleration ensures no crosstalk can occur (even at 0.5 msec dwell time) and very fast MRM (up to 800 transitions/sec) are possible. And contain high-temperature, gold-plated monolithic quartz quadrupoles. The quartz monolith guarantees perfect alignment of hyperbolic surfaces throughout the life
of the MS. Gold surfaces stay clean and maintenance free in high temperatures.

The GS/MS/MS instrument detection limit (IDL) is a more accurate indication of true sensitivity (minimum
detectable quantity) than signal-to-noise (S/N), particularly when background noise levels are
very low, as with MS/MS measurements when only standard is injected. IDL verification uses
statistical terms to provide a more extensive measure of total system performance, based on
the standard deviation of eight replicate injections applied to a Student's t-test. IDL specs must be demonstrated at installation: EI MRM IDL 0.5 fg or less octafluoronaphthalene
(OFN).

The GC/MS/MS must have a multimode inlet that provides the flexibility of a standard split/splitless inlet,
combined with programmable temperature vaporizing capabilities which allow for large volume
injection. Cool injections are also possible for improved signal response.
-Temperature range of -160C to 450C
-Temperature programming of up to 10 ramps at up to 900 °C/min
-Maximum temperature 450°C
-Injection Modes: Hot S/SL, Cold S/SL, all in pulsed mode, solvent vent mode, residue removal mode
-EPC pressure range 0 to 100 psi

The GC/MS/MS must have the capability to run simultaneous dynamic MRM and scan mode takes advantage of the excellent dwell time savings from dMRM, and enables a scan to be run in the background. The added scan provides additional confidence in the data by offering a path for secondary confirmation through a library search while also looking for anything else possibly there. This gives the option to review the data at time of analysis or months down the line, dMRM/scan data enables retrospective analysis without any need for re-injection. It also must use tMRM, which is designed

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to provide increased confidence in identified compounds and allow for the identification and distinguishment of very similar analytes by using the collection of MR ion ratios. With tMRM, you will have the ability to add up to 10 transitions per analyte in the acquisition method.

The Gas Chromatograph with a triple quadruple (GC/MS/MS) must contain the following:
-GC system
-Multimode Inlet
-LN2 or Air Cooling
-Helium Conservation Module
-backflushing module
-autoinjector that includes: transfer turret, 16-sample turret, mounting post, parking post for GC, 10ul syringe, solvent bottles
-sample tray (150 vial includes three removable)
-Gas Clean Carrier Gas filter kit
-HP-5MS Ultra Inert 15m, 0,25mm, 0,25um column
-the latest NIST MS Library Bundle including over 350K EI spectra for over 300K compounds (40K increase)
-GC Methods/Retention indices library with 139K compounds
-Quadrupole MS/MS EI Bundle detector includes MS/MS mainframe
-High Efficiency EI source
-High-temperature, gold-plated monolithic quartz quadrupoles (Quadrupoles can be heated to and operated at up to 200 °C.)
-software suite that supports efficient data acquisition, qualitative data analysis, mass spectral library management, quantitative data analysis, easy access, and reporting of spectral data
-CPU and monitor
-a high efficiency EI source (HES) for > 10x more ions formed
-mass range of 10 to 1050 m/z
-scan speed up to 20,000 u/s
-minimum MRM dwell time of 0.5 msec
-He quench gas in collision cell
-proprietary, monolithic, hyperbolic, Au-plated quadrupoles
-triple axis – HED-EM detector with dynamically ramped iris up to 106 linear dynamic range
-the technology that provides a self-cleaning ion source
-an ionization source made with a non-coated, ultra-inert material an ionization source made with a non-coated, ultra-inert material
-Ion source is constructed with high temperature, non-coated, ultra-inert material

Value:	Estimated	Value of Initial Term, this Change Order or Amendment:	300,000

Will this Sole Source amend a Professional or Artistic Services contract? ☐ Yes ☒ No

*Sole Source may not be used for amendments for Professional or Artistic Services if the amendment would increase the value by more than 5% of the initial award or extend the term by more than 60 days.

Type:	New Sole Source

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Requesting Agency/University: Illinois Department of Agriculture

Section II - Proposed Term

☐ One-Time Purchase ☒ Term Contract

Estimated Contract Begin Date: Jul 15, 2026

Estimated Contract End Date: Jul 14, 2027

Number of Potential Renewals:

Length of Each Renewal in Months:

Total Value of All Renewals:

If a Term Contract, does the term, including renewals, exceed 12 months? ☐ Yes ☒ No

Section III - Funding Source

Select the type of funding to be used (Check all that apply): ☐ State Appropriate Funds ☐ Federal Funds ☐ Other (Explain):

Section IV - Sole Source Justification

This purchase is economically only available from a single source **primarily** because it is: (If "Other" explain in one sentence)

Compatibility of Equipment, Accessories, Replacement Parts or Service

Are there secondary justification(s) for this sole source? ☐ Yes ☒ No

Section V - Purchase History

Has the Agency or University Purchased these supplies or services in the past? ☒ Yes ☐ No

Term	Term From	Term To	Value	Description	Contract Number	Type
1	06/28/2024	06/30/2024	189,983.75	Gas Chromatograph	24-406AGR-NATRE-P-	Sole Source
2						
3						
4						
5						
6						
7						
8						
9						
10						

If more than 10, or if other comments, explain:

Section VI - Business Rationale

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1. Provide a detailed explanation of the need for the supplies or services:

IThe Illinois Department of Agriculture (IDOA), under the authority of the Illinois Pesticide Act (415 ILCS 60/1 et seq.), and in accordance with a performance partnership grant agreement with the U.S. Environmental Protection Agency (EPA) under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), serves as the state lead agency for regulating pesticide use in Illinois. A Gas Chromatograph with a triple quadruple (GC/MS/MS) is essential for the determination of pesticides from groundwater samples within the Illinois Department of Agriculture's Pesticide laboratory

2. Provide a list and describe in detail the specifications required to satisfy the need:

The Gas Chromatograph with a triple quadruple (GC/MS/MS) must contain the following:
-GC system
-Multimode Inlet
-LN2 or Air Cooling
-Helium Conservation Module
-backflushing module
-autoinjector that includes: transfer turret, 16-sample turret, mounting post, parking post for GC, 10ul syringe, solvent bottles
-sample tray (150 vial includes three removable)
-Gas Clean Carrier Gas filter kit
-HP-5MS Ultra Inert 15m, 0,25mm, 0,25um column
-the latest NIST MS Library Bundle including over 350K EI spectra for over 300K compounds (40K increase)
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-Quadrupole MS/MS EI Bundle detector includes MS/MS mainframe
-High Efficiency EI source
-High-temperature, gold-plated monolithic quartz quadrupoles (Quadrupoles can be heated to and operated at up to 200 °C.)
-software suite that supports efficient data acquisition, qualitative data analysis, mass spectral library management, quantitative data analysis, easy access, and reporting of spectral data
-CPU and monitor
-a high efficiency EI source (HES) for > 10x more ions formed
-mass range of 10 to 1050 m/z
-scan speed up to 20,000 u/s
-minimum MRM dwell time of 0.5 msec
-He quench gas in collision cell
-proprietary, monolithic, hyperbolic, Au-plated quadrupoles
-triple axis – HED-EM detector with dynamically ramped iris up to 106 linear dynamic range
-the technology that provides a self-cleaning ion source
-an ionization source made with a non-coated, ultra-inert material an ionization source made with a non-coated, ultra-inert material
-Ion source is constructed with high temperature, non-coated, ultra-inert material

3. Provide detail explaining the justification selected in Section IV to explain why the requested supplies or services are the only ones available that can satisfy the agency or university requirements?

The laboratory requires a redundant system that is 100% identical to the 2024 unit. In the event of a mechanical failure or high-vacuum leak on the primary unit, samples can be shifted to the backup unit immediately without re-validating the chemical methods. Analytical methods developed on Agilent software (MassHunter) are optimized for specific Agilent hardware parameters (source temperatures, collision energies, and gain settings). Using a different manufacturer would require months of labor to "re-optimize" and validate the state's 100+ pesticide methods. Agilent's proprietary Retention Time Locking (RTL) allows the lab to match retention times exactly between two identical instruments, ensuring that "Instrument A" and "Instrument B" produce identical chromatographic fingerprints. Maintaining a single brand allows the lab to share a single inventory of high-cost parts (filaments, electron multipliers, columns, and liners), reducing total overhead. Staff are already trained on the Agilent MassHunter software and hardware maintenance. Purchasing a different brand would necessitate a significant expenditure for new training and a steep learning curve, delaying critical misuse investigations.

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4. What are the unique features of the supplies or services that are not available in any other product or by any other vendor? Provide specific quantifiable factors/qualifications:

Agilent is the sole source economically feasible for proprietary factory recommended software updates/upgrades, engineering upgrades and maintenance procedures. Agilent is the sole source for factory authorized service from factory-trained and -certified representatives. Only Agilent representatives and Agilent authorized service providers are able to attend factory training, including update trainings, and to receive ongoing service notes in order to remain certified and authorized. Further, only factory-authorized representatives are backed by
Agilent's factory, engineering, and global product support infrastructure. Current, up-to-date factory
training records are available on demand from Agilent covering all specific Agilent instrument
models listed on a bid or quotation.

5. Has the Agency or University considered alternative supplies or services to satisfy their need? ☐ Yes ☒ No

5a. If no, why weren't alternatives evaluated?

If sole source would be granted with this instrument, software would already be familiar with lab staff and would not need to be completely trained on new software from another company. All current methods would be easily transferable to the new system and would not need to be redeveloped. All current data would still be viewable on the new system and would not be lost if changed to a new company. This is saving a lot of time and costs within the lab in training and redeveloping new methods.
Due to the high-stakes nature of regulatory enforcement, having an identical instrument is a technical requirement. Since the department already owns a new one bought in 2024, a secondary, identical platform ensures uninterrupted testing capacity during instrument downtime and allows for the seamless overflow of samples during peak seasons. Introducing a different manufacturer would require extensive, costly re-validation of established methods and would jeopardize the legal defensibility of the data through lack of standardization

6. Are there resellers or distributors?

☐ Yes ☒ No ☐ N/A

7. What efforts were made to get the best possible price (i.e. did the agency/university negotiate) and how did you determine the price for this purchase is considered fair and reasonable?

Top-tier models equipped with advanced autosamplers and specific ionization sources can range from $250,000 to $500,000. The gas chromatograph from Agilent will cost around $ 300,000.00, which makes the price fair, since it falls on the lower side of the average.

8. Will this purchase obligate the State to this vendor for future purchases such as maintenance, licensing or continuing need?

☒ Yes ☐ No

8a. If yes, please provide details regarding future obligations and/or needs:

The current Gas Chromatograph with a triple quadruple (GC/MS) will require maintenance contract agreements with Agilent each year to keep the instrument and software up to date, provide phone support on proprietary hardware and software, genuine Agilent parts, travel, and labor cost on all necessary repairs. Repairs must be performed by an Agilent qualified service engineer.
If instruments are not repaired in a timely manner, it is likely that the results of forensic samples collected could pose a potential human health risk. The Department would also not be able to meet requirements of USEPA grant agreements and could lose various federal funds.

9. What will be the financial or other impact to the State if this sole source is not approved and a competitive bid is required?

If the agency is forced to purchase a different manufacturer's instrument through a competitive bid, the initial purchase price might be lower, but Federal and State quality standards require that every chemical method be "validated" on each specific instrument. Validating a complex multi-residue pesticide method on a new platform can cost between $15,000 and $35,000 in staff time, high-purity standards, and laboratory consumables. Staff are already proficient in Agilent's MassHunter software. A new system would require specialized training for multiple chemists, costing approximately $5,000–$10,000 in tuition plus weeks of lost productivity during the learning curve. The lab would be forced to double its inventory of high-cost maintenance parts (filaments, vacuum oil, specialized columns, and liners) to support two different brands, tied up in thousands of dollars of "dead" stock.

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10. Is there any additional information you would like to add to justify this sole source?

N/A

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Section VII

Requesting Department Signature Required

I know and understand the contents of this Sole Source Justification and attest that all statements are true and correct and the fairness and reasonableness of the price was adequately confirmed.

Requesting Department Representative: Leke Hoxha Digitally signed by Leke Hoxha Date: 2026.06.23 14:19:17 -05'00' | Phone Number: 217-790-1356 | Date: 06/23/2026

Printed Name: Leke Hoxha | E-mail Address: Leke.A.Hoxha@Illinois.gov

State Agency Bureau/Division Head or University Purchasing Director Approval and Signature Required

I know and understand the contents of this Sole Source Justification and attest that all statements are true and correct and the fairness and reasonableness of the price was adequately confirmed. (All prior form fields will lock once this e-signature is completed)

Agency Bureau/Division Head or University Purchasing Director and Not a Designee: Michelle Grimsley Digitally signed by Michelle Grimsley Date: 2026.07.06 13:34:49 -05'00' | Phone Number: 217-524-7030 | Date: Jul 7, 2026

Printed Name: Michelle Grimsley | E-mail Address: Michelle.Grimsley@illinois.gov

SPO Approval and Signature Required

☒ I have reviewed and understand the contents of this Sole Source Justification and agree with the State Agency or University determination.

☐ I have reviewed and understand the contents of this Sole Source Justification and do not agree with the State Agency or University determination. As a result, the State Agency or University must explore other sourcing methods to satisfy their need.

State Purchasing Officer Signature: Abigail K Bailey Digitally signed by Abigail K Bailey Date: 2026.07.07 11:02:22 -05'00' | Phone Number: 217-720-7077 | Date: Jul 7, 2026

Printed Name: Abigail Bailey | E-mail Address: Abigail.K.Bailey@Illinois.gov

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Sole Source Justification Form - Part II

Section I - General Information

Project Title	
Vendor	
Initial Date of Procurement Bulletin Posting	

Was a Sole Source hearing held per 30 ILCS 500/20-25?

- ☐ Yes - Complete Section II and III below (Section II will only be visible when this option is selected)
- ☐ No - Section II not required, go to Section III below

Section III - CPO Approval and Signature Required

- ☐ Based on my review, I authorize the Agency/University to proceed in accordance with the published Notice referenced above.
- ☐ Based upon my review, I authorize the Agency/University to proceed with the following Changes.
- ☐ Based on my review, the Agency/University is not authorized to proceed with this sole source as presented and my recommendation is that it be cancelled.
- ☐ Other

CPO Signature		CPO Phone	
Printed Name		Date	
CPO E-mail			