AMENDMENT # 003

THIS AMENDMENT, entered into between the State of Florida, Department of Health, hereinafter referred to as the "department" and Hazen and Sawyer, P.C., hereinafter referred to as the "provider", amends contract # CORCL as follows:

1. Attachment I.B.1.a), first paragraph, final sentence is amended to read:

   Following the task and deliverable descriptions is a table (Table I) summarizing the estimated cost components by deliverable and funding phase.

2. Attachment I.B.1.a), second paragraph is amended to read:

   Some tasks are identified to occur in subsequent years. As funding is authorized by the legislature from year to year, the department will authorize the provider to proceed with the individual tasks in writing.

3. Attachment I.B.1.a), Task A, Sub-task and Deliverables 10, second paragraph, final sentence is amended to read:

   Deliverable: Innovative system application (per technology).

4. Attachment I.B.1.a), Task A, Sub-task and Deliverables 11, second paragraph, final sentence is amended to read:

   Deliverable: Additional information resulting in an innovative permit by the department (per technology if additional information is requested by the department).

5. Attachment I.B.1.a), Task A, Sub-task and Deliverables 17, second paragraph, first sentence is amended to read:

   Specification reports, materials list and cost and as-built diagrams of the treatment systems to be tested as part of PNRS II, one for the in-tank PNRS II testing and one for the in-situ testing.

6. Attachment I.B.1.a), Task A, Sub-task and Deliverables 25, first paragraph, final sentence is amended to read:

   Sampling events subsequent to the number in the budget for Phase 2 of this task are subject to available funding and the department shall authorize the provider in writing to perform each additional sampling event.

7. Attachment I.B.1.a), Task A, Sub-task and Deliverables 27, first paragraph, second sentence, is amended to read:

   For each nitrogen reduction technology tested at the GCREC pilot facility a technical description will be prepared that includes name, supplier, operating principles, salient physical description, flow sequence, pertinent design details, manufacturer or designer claims of treatment goals, and operating recommendations.

8. Attachment I.B.1.a), Task A, Sub-task and Deliverables 28, first paragraph, first sentence, is amended to read:

The department will gather comments on the draft report from RRAC and FDOH review and transmit such comments to the provider within one month of receiving the draft.

9. Attachment I.B.1.a), Task A, Sub-task and Deliverables 29, first paragraph, first sentence, is amended to read:

   The provider will submit a draft final report summarizing the results of the technology classification, ranking and prioritization efforts in Task A and the conclusions from PNRSII and provide recommendations for onsite nitrogen reduction technologies for Florida.

10. Attachment I.B.1.a), Task B, Sub-task and Deliverables 1, first paragraph, fifth sentence is amended to read:

    Written homeowner agreements will specify the arrangements in regards to responsibility for application for permits, modifications, operation, maintenance, monitoring, inspections, removal or leaving the system in place at study termination.

11. Attachment I.B.1.a), Task B, Sub-task and Deliverables 1, first paragraph, final sentence is amended to read:

    Up to ten (10) home sites at various locations in Florida (e.g. Wekiva Study Area, Wakulla and south Florida) will be identified for potential testing under this task.

12. Attachment I.B.1.a), Task B, Sub-task and Deliverables 2, first paragraph, final sentence is amended to read:

    Up to 2 vendors will be identified for testing under this task.

13. Attachment I.B.1.a), Task B, Sub-task and Deliverables 7, sub-task title is amended to read:

    Field Systems Monitoring Report (per system, per event)

14. Attachment I.B.1.a), Task C, Sub-task and Deliverables 3, fifth paragraph, final sentence is amended to add:

    HOWEVER, AMENDMENTS TO THE QAPP MAY CONTINUE THROUGHOUT THE PROJECT.

15. Attachment I.B.1.a), Task C, Sub-task and Deliverables 5, second paragraph, final sentence is amended to add:

    HOWEVER, AMENDMENTS TO THE QAPP MAY CONTINUE THROUGHOUT THE PROJECT.

16. Attachment I.B.1.a), Task C, Sub-task and Deliverables 11, first paragraph, final sentence is amended to read:

The amount paid will be the total documented Task C construction cost less the amount paid to provider in subtask C-10 above.

17. Attachment I.B.1.a), Task C, Sub-task and Deliverables 19, first paragraph, third sentence is amended to read:

    Monitoring at the sites will be used to assess the current level of nitrogen reduction obtained by Florida soils, to assess groundwater impacts due to conventional systems, and to provide data for parameter estimation, and verification and validation of models developed in Task D.

18. Attachment I.B.1.a), Task C, Sub-task and Deliverables 19, first paragraph, fifth sentence is amended to read:

    Specifically, key conditions of importance will be the hydraulic loading regime, the rate of effluent discharged to the soil, and the effluent quality (e.g. BOD, nitrogen) discharged to the soil.

19. Attachment I.B.1.a), Task C, Sub-task and Deliverables 19, second paragraph, second sentence is amended to read:

    It is anticipated that up to seven (7) field sites will be identified for potential inclusion in the study.

20. Attachment I.B.1.a), Task C, Sub-task and Deliverables 23, first paragraph, final sentence is amended to read:

    A monitoring installation report will be provided by the provider for each of up to four (4) individual home sites describing the monitoring system.

21. Attachment I.B.1.a), Task C, Sub-task and Deliverables 24, second paragraph, final sentence is amended to read:

    Deliverable: Sampling event report (per sampling event, per site).

22. Attachment I.B.1.a), Task C, Sub-task and Deliverables 25, second paragraph, final sentence is amended to read:

    Deliverables: Data Summary Reports (per sampling event, per site).

23. Attachment I.B.1.a), Task C, Sub-task and Deliverables 26, sub-task title is amended to read:

    Draft Site Summary and Close-out Memo (each site)

24. Attachment I.B.1.a), Task C, Sub-task and Deliverables 26, first paragraph is amended to read:

    The provider will prepare data tables summarizing the observations for each site, including site conditions, onsite system characteristics and soil and ground water concentrations and conditions found.

25. Attachment I.B.1.a), Task C, Sub-task and Deliverables 26, third paragraph is amended to read:

    A report will be provided to the department to document close-out of each home site. The draft close-out memos will be submitted to FDOH for review and comment.

26. Attachment I.B.1.a), Task C, Sub-task and Deliverables 26, fourth paragraph is amended to read:

    Deliverable: Draft Site Close-out memo.

27. Attachment I.B.1.a), Task C, Sub-task and Deliverables 27, sub-task title is amended to read:

    Final Site Close-out Memo (each site)

28. Attachment I.B.1.a), Task C, Sub-task and Deliverables 27, first paragraph is amended to read:

    Comments will be provided by the department within two weeks of receipt and the provider will prepare a final close-out memo.

29. Attachment I.B.1.a), Task C, Sub-task and Deliverables 27, second paragraph is amended to read:

    Deliverable: Final site close-out memo acceptable to FDOH.

30. Attachment I.B.1.a), Task D, first paragraph is amended to read:

    The objectives of Task D are:
    - Literature Review
    - Plan Development
    - Model Development
        - Simple soil tool to estimate nitrogen removal in Florida soils
        - Complex soil treatment module for input into the groundwater modeling tool
        - Analytical modeling tool to predict temporal and spatial concentrations and fluxes of nitrate in groundwater
        - Integration of complex soil treatment module with the groundwater analytical model
        - Incorporation of multiple spatial inputs (i.e., development scale model)
    - Performance Evaluation
        - Select existing site data for model-performance evaluation
        - Calibrate/corroborate models using existing site data (including from Task C)
        - Validate models
        - Conduct uncertainty analysis of model input parameters
    - Decision Support Framework
        - Guidance for determining model input parameters

- Risk-based approach for model selection

31. Attachment I.B.1.a), Task D, Sub-task and Deliverables 6, second paragraph is amended to add:

AMENDMENTS TO THE QAPP MAY CONTINUE THROUGHOUT THE PROJECT.

32. Attachment I.B.1.a), Task D, Sub-task and Deliverables 7 is amended to read:

Simple Soil Tools
The simple soil tools will be a series of look-up tables providing estimated nitrogen removal based on common OSTDS operating conditions. The tables will be generated from the complex soil model developed in subsequent tasks (subtask D8 through D13), or from existing numerical models (e.g., HYDRUS-2D). The model will be corroborated and calibrated for a subset of conditions for which data exist. The specific conditions included in the simple soil model tools will be limited (not to exceed 60 conditions) and agreed upon by FDOH.

Deliverable: Report describing simple soil tool development, tool use, and the look-up tables.

33. Attachment I.B.1.a), Task D, Sub-task and Deliverables 8 is amended to read:

Complex Soil Model
This subtask includes development of the conceptual framework for the complex soil model including the coding and code evaluation required to implement the theory. The complex soil model will be based on unsaturated soil transport mechanisms adapted to Florida-specific soil and climate data, but incorporated into a simplified approach (e.g., STUMOD programmed into a Microsoft Excel spreadsheet) that includes parameters representing dominant soil properties. The soil treatment module will enable estimation of site-specific soil treatment in the vadose zone with the model output being the loading at the water table (input to aquifer models). This soil-treatment module will be developed to account for evapotransporation, and the effect of high/seasonal variable water tables on nitrogen removal in the soil.

Deliverables: Complex Soil Model Specification Report including theory for coding and code evaluation progress.

34. Attachment I.B.1.a), Task D, Sub-task and Deliverables 9 is amended to read:

Complex Soil Model Performance Evaluation
The general user will most likely assess performance by comparing model output to field observations (e.g., simplified comparison of values). Similar implementation checks will be performed using robust field data sets (as available). Performance evaluation will also include corroboration/calibration to better understand the quality and quantity of data required by comparing simulated parameter values to the corresponding measured values (calibration targets). Calibration targets will include nitrogen concentrations (weighted equally in space) and mass loading of contaminant from the OSTDS. In addition, a parameter sensitivity analysis will be performed to identify the most relevant model parameters. An uncertainty analysis

will also be performed where probability-based ranges for model input parameters will be used to generate probable model outcomes.

A more rigorous performance evaluation approach is required for technical users. For this case, the model-performance assessment will be conducted by using model-evaluation statistics to determine whether the model can appropriately simulate the observed data. Multiple methods for evaluating the model performance will be used to ensure model quality assurance evaluation that is not hindered by the specific limitations of a single calibration statistic or identify if further evaluation of the model is warranted.

Deliverable: Report describing performance evaluation methods and results with the draft model in electronic format (e.g., Microsoft Excel spreadsheet).

35. Attachment I.B.1.a), Task D, Sub-task and Deliverables 10 is amended to read:

Validate/Refine Complex Soil Model
Based on the results from subtask D9, the complex soil model will be revised/improved. As additional data is available from Task C, the model will be revised to incorporate more complex mechanisms. Validation will be used to compare the corroborated/calibrated model to actual field data. Model validation ensures that the model meets the intended requirements and identifies the range of appropriate conditions (e.g., capabilities and limitations). Data from Task C home sites as well as other available data sources will be used to validate the model.

Deliverable: Complex Soil Model report, nomographs for conditions represented in D7, and the final complex soil model in electronic format (e.g., Microsoft Excel spreadsheet).

36. Attachment I.B.1.a), Task D, Sub-task and Deliverables 11 is amended to read:

Aquifer Model Combined with Complex Soil Model Development
A steady state or non-steady state aquifer model will be developed, possibly by revising an existing model, to simulate nitrogen concentrations and mass flux in space and time from a single OSTDS source, or a surface area that can be estimated as a single OSTDS source. This aquifer model and the complex soil model (D.10) will be integrated together to produce groundwater output predictions for nitrogen concentration or mass flux from a single OSTDS source. The integration will allow for utilization of simple soil model output as input for the aquifer model.

Deliverables:

a. Aquifer Model Specification Report describing review and development of the aquifer model (subtask is 50% complete).
b. Aquifer-Complex Soil Model Specification Report describing progress status for integrating the two models (subtask is 75% complete).
c. Draft integrated model in electronic format (subtask is 100% complete).

37. Attachment I.B.1.a), Task D, Sub-task and Deliverables 12 is amended to read:

Aquifer-Complex Soil Model Performance Evaluation

Performance evaluation of the aquifer-complex soil model will include implementation checks, corroboration/calibration, parameter sensitivity analysis and an uncertainty analysis. Data sets from Florida identified during subtask D3 and Task C will be used. Metrics will include comparisons of average concentration in the plume or mass flux crossing a boundary between actual field data (as available) and model output, the range in calibrated parameter set values that result in similar agreement between model results and data, model-parameter correlation and bias, and the potential for different parameter combinations to achieve the same agreement between model results and data.

Similar to the complex soil model, a more rigorous performance evaluation is also required. Model-evaluation statistics will be used to determine whether the model can appropriately simulate the observed data. Multiple methods for evaluating the model performance will be used to ensure model quality assurance evaluation that is not hindered by the specific limitations of a single calibration statistic or identify if further evaluation of the model is warranted.

Deliverables:

a. Aquifer-Complex Soil Model Specification Memo describing progress status for performance evaluation (subtask is 50% complete).
b. Report describing performance evaluation methods and preliminary results (subtask is 100% complete).

38. Attachment I.B.1.a), Task D, Sub-task and Deliverables 13 is amended to read:

Validate/Refine Aquifer-Complex Soil Model with Data Collection from Task C
Based on the results from subtask D12, the integrated aquifer and complex soil model will be revised/improved using site-scale field data collected from Task C. Validation will be used to compare the corroborated/calibrated model to actual field data. The validation/refinement procedure will be an iterative process and may suggest revisions in the data collection plan or in the model itself (parameterization or improvements). Data from Task C home sites as well as other available data sources will be used to validate the model.

Deliverable: Integrated Aquifer-Complex Soil Model report and the final integrated model in electronic format (e.g., Microsoft Excel spreadsheet).

39. Attachment I.B.1.a), Task D, Sub-task and Deliverables 14 is amended to read:

Development of Aquifer-Complex Soil Model for Multiple Spatial Inputs
A model will be developed, possibly by revising an existing model, to simulate nitrogen concentrations and mass flux in space and time from several OSTDS in a development-scale area. The model will be calibrated using existing data from a development-scale plume, based on metrics such as average concentration in the plume or mass flux crossing a boundary.

Deliverable: Aquifer-Complex Soil Model for Multiple Spatial Inputs report and the model in electronic format (e.g., Microsoft Excel spreadsheet).

40. Attachment I.B.1.a), Task D, Sub-task and Deliverables 15 is amended to read:

Decision-Making Framework Considering Uncertainty
A methodology will be developed to describe how planners can include the uncertainty associated with both calibrated and non-calibrated models in the decision-making process. The report will be in the form of a guidance manual to guide users through the assessment of parameters, tool selection, and how to use those tools.

Deliverable: Modeling decision-making framework report.

41. Attachment I.B.1.a), Task D, Sub-task and Deliverables 16 is amended to read:

Task D Guidance Manual (Draft)
The Task D draft final report will be developed based on a compilation of Task D reports, progress reports, and technical memos to summarize the results of the Task D modeling. The report will be in the form of a Guidance Manual and User's Guide providing a decision support framework (Task D.15), model development, input parameter selection, and uncertainty assessment. The Guidance Manual will provide an introduction to each tool, assumptions/limitations of the tool, and how to use the tools. The complementary User's Guide will provide detailed technical data including fundamental assumptions that were incorporated into tool development, description of the tool development, and description of parameters that affect nitrogen reduction performance.

Deliverable: Draft Task D Guidance Manual.

42. Attachment I.B.1.a), Task D, Sub-task and Deliverables 17 is amended to read:

Task D Guidance Manual (Final)
The department will gather comments on the draft guidance manual from RRAC and any other interested parties and transmit such comments to the provider within one month of receiving the draft. The provider will address these comments in preparing final deliverables within one month of receiving comments.

Deliverable: Final Task D Guidance Manual with final models in electronic format.

43. Attachment I.B.1.a), Task D, Sub-task and Deliverables 18 is amended to read:

Change-order Allowance
From time to time the Department may find it necessary to make minor changes or adjustments to activities under this task based on results that indicate a potential improvement to the project by making a change. Examples of such changes include additional or revised sample locations or parameters, minor modifications to test systems or field activities based on problems encountered, or conditions that develop requiring expedient actions to correct a potentially serious problem. Up to $10,000 will be allocated from the contract budget for such minor changes to research activities under this task. Upon determination by the Department the changes should be made, all or a portion of these funds may be authorized by written notification from the Department to the Provider directing specific changes to research activities be made, and the amount budgeted for the changes specified.

Deliverable: As specified in the authorization.

44. Attachment I.B.1.a), Task D, Sub-tasks and Deliverables 19 - 29 are removed from the contract.

45. Attachment I.B.1.a), Task E, third bullet is amended to read:

    Attend and make presentations to RRAC and TRAP meetings

46. Attachment I.B.1.a), Task E, Sub-task and Deliverables 2 sub-task title is amended to read:

    PM - Project Progress Reports (per bimonthly report)

47. Attachment I.B.1.a), Task E, Sub-task and Deliverables 2, first paragraph, first sentence is amended to read:

    Bimonthly progress reports will be provided that summarize the general status of each task, progress during the reporting period, activities planned in the next reporting period, and any issues, problems or decisions with significant effect on project implementation.

48. Attachment I.B.1.a), Task E, Sub-task and Deliverables 5, first paragraph is amended to read:

    Project Advisory Committee (PAC) review panel will be assembled and a project review meeting coordinated with the project team. Prior to the review meeting, PAC members will be provided information concerning the background and motivation for this project, goals, methods, and initial results. At the review meeting project team members will present the technical approach and findings such that the PAC can critique the project work. A summary report that documents PAC input and team response will be provided.

49. Attachment I.C.1. the paragraph entitled Fixed Price Presentation, is amended to add:

    Shaded line items are items that have been completed prior to Amendment 3.

50. Attachment I pages 39-41 of the original contract are replaced by the attached Exhibit 1.

51. The provider agrees to utilize the U.S. Department of Homeland Security's E-Verify system, https://e-verify.uscis.gov/emp, to verify the employment eligibility of all new employees hired during the contract term by the Provider. The Provider shall also include a requirement in subcontracts that the subcontractor shall utilize the E-Verify system to verify the employment eligibility of all new employees hired by the subcontractor during the contract term. Contractors meeting the terms and conditions of the E-Verify System are deemed to be in compliance with this provision.

52. The Provider agrees to refrain from any of the prohibited business activities with the Governments of Sudan and Iran as described in s.215.473, F.S. Pursuant to ss.287.135(5), F.S., the department shall bring a civil action against any company that falsely certifies its status on the Scrutinized Companies with Activities in Sudan or the Iran Petroleum Energy Sector Lists. The provider agrees that the department shall take

civil action against the provider as described in ss. 287.135(5) (a), F.S., if the provider fails to demonstrate that the determination of false certification was made in error.

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This amendment shall begin on December 10, 2011, or the date on which the amendment has been signed by both parties, whichever is later.

All provisions in the contract and any attachments thereto in conflict with this amendment shall be and are hereby changed to conform with this amendment.

All provisions not in conflict with this amendment are still in effect and are to be performed at the level specified in the contract.

This amendment and all its attachments are hereby made a part of the contract.

IN WITNESS THEREOF, the parties hereto have caused this 11 page amendment with 4 page exhibit to be executed by their officials thereunto duly authorized.

PROVIDER: Hazen and Sawyer, P.C.

SIGNED BY: Damann L. Anderson

NAME: Damann L. Anderson
TITLE: Vice President

DATE: 1/3/2012

FEDERAL ID NUMBER:

13-2904652

STATE OF FLORIDA
DEPARTMENT OF
HEALTH

SIGNED BY:

NAME: Steven Harris, M.D., M.Sc.
TITLE: Deputy Secretary of Health

DATE: 5 January 2012

TASK NO.	Task	Per Deliverable Subtotal	No. of Deliverables			Total Cost			
			PH1	PH2	PH3	PH1	PH2	PH3	Total
A	Task A: Technology Selection & Prioritization					$352,144	$336,514	$35,480	$724,138
A.1	Draft Literature Review Report	$ 13,796.00	1	0	0	$13,796	$0	$0	$13,796
A.2	Final Literature Review Report	$ 6,092.00	1	0	0	$6,092	$0	$0	$6,092
A.3	Draft Classification of Technologies Report	$ 12,830.60	1	0	0	$12,831	$0	$0	$12,831
A.4	Draft Technology Ranking Criteria Report	$ 10,096.00	1	0	0	$10,096	$0	$0	$10,096
A.5	Draft Priority List for Testing Report	$ 14,858.60	1	0	0	$14,859	$0	$0	$14,859
A.6	Technology Classification, Ranking and Prioritization Workshop	$ 18,242.60	1	0	0	$18,243	$0	$0	$18,243
A.7	Final Classification of Technologies Report	$ 5,044.00	1	0	0	$5,044	$0	$0	$5,044
A.8	Final Technology Ranking Criteria Report	$ 7,944.00	1	0	0	$7,944	$0	$0	$7,944
A.9	Final Priority List for Testing Report	$ 7,786.60	1	0	0	$7,787	$0	$0	$7,787
A.10	Draft Innovative Systems Applications Report (per technology)	$ 11,655.00	0	1	0	$0	$11,655	$0	$11,655
A.11	Final Innovative Systems Applications Report (per technology)	$ 9,219.00	0	1	0	$0	$9,219	$0	$9,219
A.12	Identification of Test Facility Sites (per site agreement)	$ 2,538.25	2	0	0	$5,077	$0	$0	$5,077
A.13	Draft PNRS II QAPP	$ 13,170.50	1	0	0	$13,171	$0	$0	$13,171
A.14	Recommendation for Process Forward (per meeting)	$ 6,236.50	1	0	0	$6,237	$0	$0	$6,237
A.15	Final PNRS II QAPP	$ 4,496.00	1	0	0	$4,496	$0	$0	$4,496
A.16	Materials Testing for FDOH Additives Rule	$ 4,000.00	2	2	0	$8,000	$8,000	$0	$16,000
A.17	PNRS Specification Reports	$ 18,715.00	1	1	0	$18,715	$18,715	$0	$37,430
A.18	PNRS II Test Facility Design 50%	$ 11,721.48	1	0	0	$11,721	$0	$0	$11,721
A.19	PNRS II Test Facility Design 100%	$ 16,200.50	1	0	0	$16,201	$0	$0	$16,201
A.20	PNRS II Test Facility Construction Support and Administration (2 deliverables, 50% at start, 50% at completion)	$ 16,601.00	2	0	0	$33,202	$0	$0	$33,202
A.21	PNRS II Test Facility Construction 50% (2 deliverables, start and 50% complete)	$ 25,000.00	2	0	0	$50,000	$0	$0	$50,000
A.22	PNRS II Test Facility Construction 100% (cost reimbursable)	$ 40,000.00	1	0	0	$40,000	$0	$0	$40,000
A.23	PNRS II Test Facility Construction Substantial Completion	$ 10,000.00	1	0	0	$10,000	$0	$0	$10,000
A.24	PNRS II Test Facility Accept Construction	$ 9,650.00	1	0	0	$9,650	$0	$0	$9,650
A.25	Monitoring and Sample Event Reports (per sample event)	$ 28,985.00	1	6	0	$28,985	$173,910	$0	$202,895

A.26	Data Summary Report (per sample event)	$ 3,365.00	0	7	0	$0	$23,555	$0	$23,555
A.27	Draft PNRS II Report	$ 34,220.00	0	1	0	$0	$34,220	$0	$34,220
A.28	Final PNRS II Report	$ 17,240.00	0	1	0	$0	$17,240	$0	$17,240
A.29	Draft Task A Final Report	$ 26,000.00	0	0	1	$0	$0	$26,000	$26,000
A.30	Task A Final Report	$ 9,480.00	0	0	1	$0	$0	$9,480	$9,480
A.31	Change-order Allowance	$ 40,000.00	0	1	0	$0	$40,000	$0	$40,000
B	Task B: Field Testing of Technologies					$50,202	$599,610	$529,243	$1,179,054
B.1	Identification of Home Sites (per homeowner agreement)	$ 9,341.67	1	9	0	$9,342	$84,075	$0	$93,417
B.2	Vendor Agreement Report (per vendor agreement)	$ 7,580.00	2	0	0	$15,160	$0	$0	$15,160
B.3	Draft QAPP for Field Testing	$ 25,700.00	1	0	0	$25,700	$0	$0	$25,700
B.4	Recommendation for Process Forward (per meeting)	$ 6,780.00	0	1	0	$0	$6,780	$0	$6,780
B.5	Final QAPP Field Testing	$ 11,060.00	0	1	0	$0	$11,060	$0	$11,060
B.6	Field Systems Installation Report (per system)	$ 37,900.00	0	4	3	$0	$151,600	$113,700	$265,300
B.7	Field Systems Monitoring Report (per system, per event)	$ 8,402.33	0	32	24	$0	$268,875	$201,656	$470,531
B.8	Field Systems Operation, Maintenance and Repairs Report (per system)	$ 8,630.00	0	0	7	$0	$0	$60,410	$60,410
B.9	Technical Description of Nitrogen Reduction Technology Report	$ 17,271.00	0	0	1	$0	$0	$17,271	$17,271
B.10	Acceptance of System by Owner Report (per system)	$ 4,758.00	0	0	7	$0	$0	$33,306	$33,306
B.11	LCCA Template Report (draft template and user guidelines)	$ 18,140.00	0	1	0	$0	$18,140	$0	$18,140
B.12	LCCA Template Report (final template and user guidelines)	$ 9,080.00	0	1	0	$0	$9,080	$0	$9,080
B.13	LCCA Report (per system)	$ 5,040.00	0	0	7	$0	$0	$35,280	$35,280
B.14	Draft Task B Final Report	$ 45,120.00	0	0	1	$0	$0	$45,120	$45,120
B.15	Task B Final Report	$ 22,500.00	0	0	1	$0	$0	$22,500	$22,500
B.16	Change-order Allowance	$ 50,000.00	0	1	0	$0	$50,000	$0	$50,000
C	Task C: Evaluation of Nitrogen Reduction by Soils & Shallow GW					$216,164	$1,095,977	$598,860	$1,911,001
C.1	Draft Literature Review on Nitrogen Reduction in Soil Report	$ 11,300.00	1	0	0	$11,300	$0	$0	$11,300
C.2	Final Literature Review on Nitrogen Reduction in Soil Report	$ 6,900.00	1	0	0	$6,900	$0	$0	$6,900
C.3	Draft QAPP Evaluation of N Reduction by Soils & Shallow GW	$ 38,939.50	1	0	0	$38,940	$0	$0	$38,940
C.4	Recommendation for Process Forward (per meeting)	$ 5,906.50	1	0	0	$5,907	$0	$0	$5,907
C.5	Final QAPP Evaluation of N Reduction by Soils & Shallow GW	$ 9,189.73	1	0	0	$9,190	$0	$0	$9,190
C.6	S&GW Test Facility Design 50%	$ 26,470.50	1	0	0	$26,471	$0	$0	$26,471
C.7	S&GW Test Facility Design 100%	$ 26,570.50	1	0	0	$26,571	$0	$0	$26,571

C.8	S&GW Test Facility Design Final	$ 21,207.00	1	0	0	$21,207	$0	$0	$21,207
C.9	S&GW Construction Support & Administration (2 deliverables, 50% at start, 50% at completion)	$ 13,560.00	0	2	0	$0	$27,120	$0	$27,120
C.10	S&GW Test Facility Construction 50% (2 deliverables, start and 50% complete)	$ 15,000.00	2	0	0	$30,000	$0	$0	$30,000
C.11	S&GW Test Facility Construction 100% (cost reimbursable)	$ 40,000.00	0	1	0	$0	$40,000	$0	$40,000
C.12	S&GW Test Facility Construction Substantial Completion	$ 3,680.00	0	1	0	$0	$3,680	$0	$3,680
C.13	S&GW Test Facility Accept Construction	$ 7,480.00	0	1	0	$0	$7,480	$0	$7,480
C.14	Soils & Hydrogeologic and Monitoring Plan for S&GW Test Facility	$ 43,074.00	0	1	0	$0	$43,074	$0	$43,074
C.15	Tracer Testing at GCREC (per tracer test)	$ 18,910.00	0	3	0	$0	$56,730	$0	$56,730
C.16	S&GW Sample Event Reports (per sample event)	$ 47,523.28	0	3	3	$0	$142,570	$142,570	$285,140
C.17	S&GW Data Summary Report (per sample event)	$ 13,240.00	0	3	3	$0	$39,720	$39,720	$79,440
C.18	Test Facility Closeout Report	$ 13,080.00	0	0	1	$0	$0	$13,080	$13,080
C.19	Field Site Selection (per property owner agreement)	$ 9,932.67	1	6	0	$9,933	$59,596	$0	$69,529
C.20	Instrumentation of GCREC Mound System	$ 59,495.00	0.5	0.5	0	$29,748	$29,748	$0	$59,495
C.21	GCREC Mound Sample Event Report (per sampling event)	$ 38,290.00	0	4	0	$0	$153,160	$0	$153,160
C.22	GCREC Mound Data Summary Report (per sampling event)	$ 8,160.00	0	4	0	$0	$32,640	$0	$32,640
C.23	Instrumentation of Remaining Field Sites Report (per site)	$ 43,075.00	0	4	0	$0	$172,300	$0	$172,300
C.24	Field Sites Sample Event Reports (per sample event, per site)	$ 36,520.00	0	6	7	$0	$219,120	$255,640	$474,760
C.25	Field Sites Data Summary Report (per sample event, per site)	$ 4,840.00	0	6	7	$0	$29,040	$33,880	$62,920
C.26	Draft Site Summary and Close-out Memo (per site)	$ 8,680.00	0	0	5	$0	$0	$43,400	$43,400
C.27	Final Site Close-Out Memo (per site)	$ 2,670.00	0	0	5	$0	$0	$13,350	$13,350
C.28	Draft Task C Final Report	$ 40,040.00	0	0	1	$0	$0	$40,040	$40,040
C.29	Task C Final Report	$ 17,180.00	0	0	1	$0	$0	$17,180	$17,180
C.30	Change-order Allowance	$ 40,000.00	0	1	0	$0	$40,000	$0	$40,000
D	Task D: Nitrogen Fate and Transport Models					$74,357	$292,021	$441,644	$808,023
D.1	Draft Literature Review on Nitrogen Fate & Transport Model Report	$ 15,533.23	1	0	0	$15,533	$0	$0	$15,533
D.2	Final Literature Review on Nitrogen Fate & Transport Model Report	$ 5,211.08	1	0	0	$5,211	$0	$0	$5,211
D.3	Selection of Existing Data Set for Calibration Report	$ 15,092.20	1	0	0	$15,092	$0	$0	$15,092
D.4	Draft QAPP N Fate and Transport Models	$ 32,186.76	1	0	0	$32,187	$0	$0	$32,187
D.5	Recommendation for Process Forward (per meeting)	$ 6,334.00	1	0	0	$6,334	$0	$0	$6,334
D.6	Final QAPP N Fate and Transport Models	$ 15,657.38	0	1	0	$0	$15,657	$0	$15,657

D.7	Simple Soil Tools	$ 52,448.00	0	1	0	$0	$52,448	$0	$52,448
D.8	Complex Soil Model	$ 86,641.00	0	1	0	$0	$86,641	$0	$86,641
D.9	Complex Soil Model Performance Evaluation	$ 48,577.00	0	1	0	$0	$48,577	$0	$48,577
D.10	Validate/Refine Complex Soil Model	$ 72,132.04	0	1	0	$0	$72,132	$0	$72,132
D.11	Aquifer Model Combined with Complex Soil Model Development	$ 113,411.22	0	0	1	$0	$0	$113,411	$113,411
D.12	Aquifer-Complex Soil Model Performance Evaluation	$ 127,922.99	0	0	1	$0	$0	$127,923	$127,923
D.13	Validate/Refine Aquifer-Complex Soil Model with Data Collection from Task C	$ 95,733.70	0	0	1	$0	$0	$95,734	$95,734
D.14	Development of Aquifer-Complex Soil Model for Multiple Spatial Inputs	$ 25,371.84	0	0	1	$0	$0	$25,372	$25,372
D.15	Decision-Making Framework Considering Uncertainty	$ 52,638.54	0	0	1	$0	$0	$52,639	$52,639
D.16	Task D Guidance Manual (Draft)	$ 20,590.63	0	0.5	0.5	$0	$10,295	$10,295	$20,591
D.17	Task D Guidance Manual (Final)	$ 12,541.41	0	0.5	0.5	$0	$6,271	$6,271	$12,541
D.18	Change-order Allowance	$ 10,000.00	0	0	1	$0	$0	$10,000	$10,000
E	Task E: Project Management, Coordination, and Meetings					$90,695	$109,003	$178,085	$377,782
E.1	Project Kick-Off Meeting (conference call)	$ 7,724.00	1	0	0	$7,724	$0	$0	$7,724
E.2	PM-Project Progress Reports (per bimonthly report)	$ 9,298.00	6	8	8	$55,788	$74,384	$74,384	$204,556
E.3	RRAC or TRAP Presentation (per meeting)	$ 11,732.25	2	2	4	$23,465	$23,465	$46,929	$93,858
E.4	RRAC or TRAP Meeting Attendance (per meeting)	$ 3,718.05	1	3	4	$3,718	$11,154	$14,872	$29,744
E.5	PAC Meetings (per meeting)	$ 41,900.00	0	0	1	$0	$0	$41,900	$41,900
F	Task F: Other								
PROJECT TOTALS						**$783,562**	**$2,433,125**	**$1,783,312**	**$4,999,998**