

The State of New Hampshire

Department of Environmental Services

Thomas S. Burack, Commissioner

*Celebrating 25 Years of Protecting
New Hampshire's Environment*

November 26, 2012



*Burack
63*



His Excellency, Governor John H. Lynch
and the Honorable Council
State House
Concord, New Hampshire 03301

Sole Source

REQUESTED ACTION

Authorize the Department of Environmental Services (Department) to amend a **sole source** contract (#101496) with Woodard & Curran Environmental Services, Inc., (VC #153120), Portland, ME, for continued environmental cleanup services at the Keefe Environmental Services (Keefe) Superfund Site in Epping, by extending the contract completion date from December 31, 2012 to March 31, 2014 and increasing the amount by \$205,000 from \$4,824,706 to \$5,029,706 effective upon Governor & Council (G&C) approval. This contract was last approved by G&C on August 10, 2011, item # 63. Funding is 58% General Funds and 42% Federal Funds.

Funding is available in the accounts as follows, with the authority to adjust encumbrances in each of the State Fiscal years through the Budget Office if needed and justified. Funding for FY 2014 is contingent upon appropriation and availability of funds.

	<u>FY13</u>	<u>FY14</u>
03-44-44-444010-2589-102-500731	\$48,000	\$72,000
Dept Environmental Services, CERCLA Maintenance, Contracts for Program Services		

	<u>FY13</u>	<u>FY14</u>
03-44-44-444010-2590-102-500731	\$70,000	\$15,000
Dept Environmental Services, CERCLA Programs, Contracts for Program Services		

EXPLANATION

The purpose of the requested action is to evaluate the response in groundwater contaminant concentrations following the groundwater treatment system shutdown, conduct a 5-year review, and evaluate monitored natural attenuation. This request is **sole source** as utilizing another contractor at this time would require a significant technical learning curve in understanding site characteristics and treatment system components, including familiarization with several years of past work, and would add unnecessary delay and expense to the project. The contract amendment is greater than 10% of the original contract amount. Woodard and Curran has been the State's lead contractor at Keefe for nineteen years, and they are thoroughly familiar with the operation and maintenance issues at the site. The treatment system was originally shut down in

December 2006, and a contaminant rebound study was subsequently conducted. Based on increasing trends in certain areas at Keefe, the groundwater treatment facility was turned back on in the spring of 2009. The groundwater treatment facility was again shutdown in the fall of 2011, and a second 2-year contaminant rebound study is currently underway.

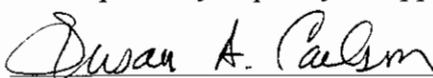
The U. S. Environmental Protection Agency (EPA) placed the Keefe Site on the National Priorities List in September 1983. EPA issued a Record of Decision (ROD) in 1988 and an Explanation of Significant Differences (ESD) in 1990, outlining the remedy for the site. The final remedy, as outlined in the ESD, consists of the extraction and treatment of groundwater both on and off-site. A groundwater treatment plant was constructed in 1992 and 1993. In 1993, the Department advertised locally, regionally, and nationally for firms to provide operation and maintenance services for the groundwater treatment facilities at Keefe. Following procurement procedures in accordance with RSA 21-I: 22 and 40 CFR 35.6565 for architect/engineer qualifications-based procurement, Woodard & Curran Environmental Services, Inc., received the highest scores and was selected. The procurement provided that the selected contractor could be retained for successive contract periods, as long as the quality of the services provided was acceptable to the Department and the negotiated cost was reasonable and reflected fair market value according to procedures outlined in 40 CFR 35.6565.

The original contract, approved by G&C on September 16, 1993 (Item #102), provided labor, technical assistance, utilities, and supplies to properly operate and maintain the groundwater pump and treat system. Amendments #1 through #17, approved by G&C between August 24, 1994 and August 22, 2007 authorized continued operations and maintenance of the groundwater pump and treat system and provided for the evaluation, design, installation and operation of a new treatment system component capable of treating 1,4-dioxane in groundwater. Amendment #18, approved by G&C on January 30, 2008 (Item #30) authorized engineering services to complete a 5-year review for the Keefe site. Amendments #19 through #23, respectively approved by G&C on September 3, 2008 (Item #51), August 19, 2009 (Item #98), October 21, 2009 (Item #48), December 8, 2010 (Item #104) and August 10, 2011 (Item #63), authorized continued labor, technical assistance, utilities, and supplies to operate and maintain the pump and treat system for the remediation of 1,4-dioxane in groundwater.

The budget increase is necessary to fund work scope adjustments in an existing contract to evaluate the response in groundwater contaminant concentrations following the second system shutdown, complete a 5-year review and evaluate monitored natural attenuation. The attached Exhibit A contains the scope of work in which Woodard & Curran will provide all required labor and technical assistance for the site. Exhibit B provides a detail of costs for the work.

Woodard and Curran has been responsive and professional with regard to conducting Department work, and their costs of services reflect fair market value. This contract amendment has been approved as to form, substance and execution by the New Hampshire Department of Justice.

We respectfully request your approval.



Susan A. Carlson, Chief Operations Officer
Department of Environmental Services

AMENDMENT NO. 24

This agreement (hereinafter "Amendment No. 24"), dated this 10th day of September 2012, by and between the State of New Hampshire, Department of Environmental Services, Waste Management Division (herein after "State") and Woodard & Curran, Inc. (hereinafter "Contractor").

WHEREAS, pursuant to an agreement between the State and the Contractor dated September 1, 1993, and approved by the Governor and Council on September 16, 1993, (hereinafter "Agreement"), the Contractor agreed to perform certain services in connection with the Keefe Environmental Services site in Epping, New Hampshire upon the terms and conditions specified in the Agreement and in consideration of payment by the State of certain sums specified therein: and

WHEREAS, pursuant to the provisions of Paragraph 17 of the Agreement, the Agreement may be amended, waived or discharged only by an instrument executed by the parties thereto; and

WHEREAS, the Contractor and the State have agreed to amend the Agreement in certain respects;

NOW THEREFORE, in consideration of the foregoing, and the covenants and conditions contained in the Agreement and set forth herein, the parties hereby agree as follows:

1. Amendment and modification of Agreement:

The Agreement is hereby amended as follows:

(a) The Scope of Work pursuant to this Agreement shall be modified to include site O&M activities as presented in Exhibit A of this Amendment.

(b) The price limitation governing the Agreement as set forth in Paragraph 4.2 of the general provisions of the Agreement and Exhibit B to the Agreement, shall be increased by and amount to \$205,000, representing the cost of operation and maintenance activities for the treatment system for the period through March 31, 2014.

2. Modification of Contract Price:

Exhibit B to the Agreement is modified to reflect the payment of \$205,000, representing the costs for monitoring and/or operation of the facility through March 31, 2014. The estimated allocation of the total cost is detailed on revised Exhibit B hereto.

3. Effective Date of Amendment:

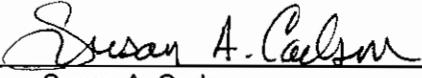
This Amendment shall be effective as of the date of its approval by the Governor and Executive Council of the State New Hampshire.

4. Continuance of Agreement:

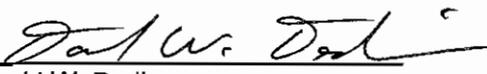
Except as specifically amended and modified by the terms and conditions of this Amendment, the Agreement and obligations of the parties there under shall remain in full force and effect with the terms and conditions set forth therein.

IN WITNESS WHEREOF, the parties set their hands as of the day and year first above written.

THE STATE OF NEW HAMPSHIRE
Department of Environmental Services

Date: 11.26.12 By: 
Susan A. Carlson,
Chief Operations Officer

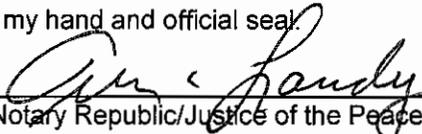
WOODARD & CURRAN, INC.

Date: 9/10/2012 By: 
David W. Dedian,
Vice President

ACKNOWLEDGMENT

On this 10th day of September 2012, before the undersigned officer, personally appeared DAVID W. DEDIAN and acknowledges himself to be the vice president of Woodard & Curran, Inc., who executed the foregoing instrument for the purposes therein contained

and WITNESS THEREOF, I hereunto set my hand and official seal.


Notary Republic/Justice of the Peace

ALBERT N. LANDRY
NOTARY PUBLIC, MAINE
MY COMMISSION EXPIRES 10/25/12

Approval by the New Hampshire Office of the Attorney General:

This Amendment is hereby approved as to its form, substance and execution.

Date: 11/27/2012 By: 
Attorney

Approved by the Governor and Executive Council of the State of New Hampshire, _____ day
_____, 2012.

EXHIBIT A

(AMENDMENT 24)

SCOPE OF WORK

Background

Under the transition from long-term response action (LTRA) to operation and maintenance (O&M) by the State of New Hampshire (State), Woodard & Curran (W&C) prepared an O&M action plan that outlined the scope of work for activities to be conducted at the Site due to the discovery of a new contaminant of concern (COC), 1,4-dioxane. The tasks listed under that action plan addressed the actions required to convert the existing treatment system (air stripping) to a system capable of treating the 1,4-dioxane which was detected in the groundwater in many on-site and off-site monitoring wells. The following actions, at a minimum, were completed during the LTRA transition: 1) a system to treat 1,4-dioxane was selected and bench tested, 2) the existing treatment system was modified/upgraded to include the new unit process (for treating 1,4-dioxane), 3) the system was started-up and tested to confirm operation and 4) the treatment system was optimized to improve on-site capture of 1,4 dioxane and to reduce future O&M costs. The LTRA transition plan anticipated that the operation of the new system would be needed for approximately 2 years to determine the efficiency of the system and to determine groundwater restoration trends. The new system operated as directed in the O&M plan from January 1, 2005 through December 6, 2006 when it entered the planned rebound period in the second year of State funded O&M. Based on sampling events conducted from the fall 2006 through spring 2008 (i.e., November 2006, March 2007, November 2007 and May 2008) the rebound study was extended through the end of the third year of O&M (August 31, 2008) and into the fourth year of O&M by the State (September 1, 2008 through August 31, 2009).

However, based on an evaluation of the data from the sampling events through November 2008 it was evident that the levels of some Site contaminants were increasing (rebounding) and for some areas of the Site these levels threaten to and/or exceed the conditions of the groundwater management permit (GMP). In particular, the COC 1,4-dioxane was rebounding to levels that exceeded action levels at some GMP boundary monitoring wells. As a result, the EPA in consultation with the State, requested that the system be placed back on-line. EPA also authorized a second optimization effort to 1) improve capture of 1,4-dioxane, 2) fund year round system operation (in lieu of seasonal operation), 3) improve the treatment system remote monitoring and 4) enhance the GMP boundary monitoring well network. The optimization effort called for the system to operate for two years prior to shutting down for an additional (second) rebound evaluation. In the spring 2009 the treatment system was placed back in service and in October 2009 the EPA optimization work was initiated. The treatment system remained in service (year round) throughout this optimization period and was run continuously through December 2011 (when it was shut down for a second rebound evaluation). The evaluation of sampling events from November 2009 and 2010 were reviewed and utilized to determine the start of the next rebound evaluation. This rebound evaluation commenced after completing the fall 2011 GMP sampling event. The rebound period continued through the spring 2012 sampling event and is planned to continue through the fall 2012 and spring 2013 sampling events. In spring 2013 the fifth 5-year review evaluation will be conducted and the report will present the basis for either a system re-start, the continued rebound evaluation and/or a potential remedy change. The treatment plant is anticipated to remain in a rebound state through March 31, 2014.

This scope-of-work is comprised of two key components:

- 1) System O&M throughout the rebound period including:
 - a) Site monitoring, security and mothball inspections to maintain integrity of the system;
 - b) Sampling in the spring and fall 2013 in accordance with the GMP; and

- c) Providing the annual 2012 and 2013 analytical reports along with a summary memo on the spring 2013 sampling event.
- 2) Evaluation of the site and completion of the fifth 5-year review which will consist of the following subtasks:
 - a) updating the ground water model developed for the site to include bedrock data;
 - b) evaluating fate and transport for 1,4-dioxane and total VOCs;
 - c) evaluating the site for monitored and natural attenuation factors; and
 - d) completing the five year review and report.

The following provides a more detailed description of these two components of the scope of work for the period from January 1, 2013 through March 31, 2014.

SYSTEM O&M / SHUTDOWN/REBOUND MONITORING

1.01 Commencing on January 1, 2013, or such other mutually acceptable date agreed to in writing between W&C and the State (the "Effective date"), W&C will provide all routine operation, maintenance and monitoring of the Keefe Groundwater Treatment Facility through March 31, 2014, as defined in the 2005 O&M plan, as modified, and in accordance with the groundwater management permit (GMP) for the site. Operation of the system ceased in December 2011 for an extended rebound evaluation. Beginning January 1, 2013 through March 31, 2014, Woodard & Curran will perform shutdown and mothball monitoring operations and provide long-term monitoring of the facility to maintain the treatment system in an operable condition.

1.02 W&C will provide 1 part-time employee to staff the facility (an average of 6.0 hours per week), who shall be a properly trained site operator, and W&C shall provide a Project Manager, Principal and other supervision and technical support as necessary to carry out the work. Backup services will be provided by W&C corporate personnel. In addition, W&C will be on call 24 hours per day, 7 days per week for emergency situations. W&C will provide an operator for an average of six hours per week while the system off-line for inspections at the site to ensure security and integrity of the site while the system is in continued rebound. W&C shall provide employees to perform all services required by this Amendment and in such situation, W&C shall be deemed to be an independent contractor for purposes of applicable wage, fringe benefit, and worker compensation laws.

1.03 W&C shall communicate with the designated State liaison, Robin Mongeon P.E. or her designee, regarding decisions and other matters related to the operation of the Facility. In addition, W&C shall advise the State and serve as the State's liaison to local government agencies, businesses and residents in matters related to the operation of the Facility.

1.04 W&C will monitor the facility during the second rebound period, both physically and through the supervisory control and data acquisition (SCADA) system to ensure all equipment remains operational and functional and the building is maintained at proper temperatures. The first system rebound period ended in April 2009 when the system restarted and operated through December 2011, when the second rebound period commenced. This rebound period is expected to continue through March 31, 2014.

1.05 Pursuant to its roles as contract operator, W&C may purchase utilities, chemicals, and supplies on behalf of the State and administer transportation and disposal of the State's sludge and residues. In carrying out these functions, W&C is acting as an Agent of the State, at the State's expense, and if appropriate, will employ the State's tax free status, and in no event shall assume ownership or chain-of-custody responsibilities for sludge or residues.

1.07 While the facility is in a rebound evaluation no process control testing will be required. W&C will perform two rounds of groundwater monitoring, spring 2013 and fall 2013, and one round of drinking water

sampling, fall 2013. For the analytical testing performed for the groundwater quality evaluation the NHDES lab or the EPA lab in Chelmsford, MA will be used including the new requirements for low level 1,4-dioxane testing (0.35 ug/l), as appropriate. Costs for laboratory analytical testing will be paid directly by the NHDES or EPA.

1.08 W&C will perform process and environmental data management and provide an annual data summary report / groundwater quality evaluation report. This evaluation report will be consistent with past reports and discuss the results of the most recent sampling events. The groundwater quality evaluation report will discuss the effects of the Site operating conditions and/or rebound conditions, as necessary. Two reports will be provided as part of this scope-of-work. The 2012 GMP/Water Quality Evaluation report will be submitted by March 15, 2013 and the 2013 GMP/Water Quality Evaluation report will be submitted by March 15, 2014.

1.09 W&C will prepare an annual O&M report as required by state and federal regulatory agencies and will maintain all records deemed useful by W&C and the State.

1.10 All Facility records, data, software and information including but not limited to operation reports, laboratory data and budgetary and financial information shall remain the property of the State. All site-specific operating procedure guidelines, preventive maintenance and safety programs, and plant evaluation reports shall upon termination of this Agreement, remain the property of the State.

1.11 W&C shall provide such engineering and technical services required to identify, evaluate, and prepare recommendations and advice necessary to support its staff for the proper operation and maintenance of the Facility, to the extent budgeted in Exhibit B.

1.12 W&C shall comply with all requirements for affirmative action and the Americans with Disabilities Act of 1990.

1.13 Additional operation and maintenance services not considered routine, or which are required as a result of flood, fire, Act of God, or other Force Majeure, civil disturbance, terrorism or other reasons beyond W&C's control, are not covered within the scope of this Agreement. If requested, W&C will assist the State in obtaining or providing the operation and maintenance so required and W&C will be paid for such assistance in accordance with Exhibit B. W&C shall make reasonable efforts to secure the Facilities at appropriate times, within the limits of the security devices provided by the State, to protect against vandalism and intrusion. To the extent possible, W&C shall keep buildings and gates locked and will have on-site staff coordinate with public safety officials on behalf of the State with respect to security for buildings and property, in so doing making reasonable efforts to prevent break-ins and vandalism. W&C shall rely on the State's security system and local public safety staff for ultimate control and responsibility for the security of property and equipment.

1.14 W&C will provide and maintain at all times during the term of this Agreement the following minimum insurance coverage:

- (a) Workers compensation Insurance in compliance with the statutes of the state of New Hampshire, which has jurisdiction of W&C employees engaged in the performance of services hereunder, to a limit of **FIVE HUNDRED THOUSAND DOLLARS (\$500,000.00)**;
- (b) Comprehensive General Liability Insurance with a minimum combined single limit of **ONE MILLION DOLLARS (\$1,000,000.00)**, including the broad form property damage endorsement; and,
- (c) Automobile Liability Insurance (owned, non-owned, or hired units) minimum combined single coverage limit of **ONE MILLION DOLLARS (\$1,000,000.00)**.

- (d) Errors and omissions coverage under W&C's corporate professional liability insurance, with a minimum coverage of one year's fee, and up to W&C's professional liability insurance limit of **(ONE MILLION DOLLARS (\$1,000,000.00))**.

W&C will furnish the State with Certificates of Insurance as evidenced that policies providing the required coverage's and limits are in full force and effect. In addition, W&C shall name the State as additionally insured on the general liability policy and automobile liability policy. Such policies shall provide that no less than thirty (30) days advance notice of cancellation, termination, or alteration shall be sent directly to W&C and the State.

2.0 SITE EVALUATION AND FIVE YEAR REVIEW

2.1: UPDATES TO THE GROUNDWATER FLOW AND TRANSPORT MODEL

A groundwater flow and transport model was previously developed for the KES site using data obtained during the RI/FS phase and data collected thereafter to support the selected RA. This model was developed with the intent of using it as a tool to understand the capture zones and fluid dynamics associated with each extraction well, the infiltration trench, and the collection trench components to the RA. The model was created using the USGS's MODFLOW platform (MacDonald, Harbough, 1989) combined with a particle track simulator, MODPATH (Pollock, 1989) to simulate groundwater flow within the hydrogeologic boundaries of the KES site, with an emphasis on evaluating extraction well capture zones and groundwater travel times to the extraction wells comprising the containment network. The original model was constructed using a two layer convention consisting of the glacial till and outwash deposit hydrogeologic units.

The initial model did not include a representation of the underlying bedrock aquifer, due to the predominant distribution of site contaminants within the unconsolidated till and outwash units. Recent monitoring data suggests vertical groundwater flow into the underlying bedrock unit may be occurring. As part of this task, Woodard & Curran proposes to add a third unit, representative of bedrock, to the model and perform a series of groundwater flow simulations. To do so, the following information will be needed to adequately characterize the underlying bedrock:

- **Well Survey:** The services of a professional land surveyor will be enlisted to provide the horizontal location and vertical elevation measurements of the GMZ Boundary wells installed in 2009 along with select bedrock-specific wells for which survey measurements do not exist.
- **Synoptic Groundwater Elevation Measurements:** Up to two rounds of site-wide synoptic groundwater elevation measurements will be obtained to support groundwater model calibration and subsequent flow simulations.
- **Hydraulic Conductivity Testing:** A series of in-well slug tests will be performed at select bedrock wells to assign a range of representative hydraulic conductivity values to the groundwater model. In-well tests are proposed from up to six bedrock wells located in the vicinity of the central area of the site and from each of the four new bedrock-specific monitoring wells installed in 2009. This data will be statistically evaluated to reduce potential model uncertainties as part of the model verification process.
- **Borehole Geophysics:** A suite of borehole geophysical logging will be conducted by a geophysical subcontractor using two on-site open boreholes. The objective of geophysical logging activities is to characterize overall bedrock lithology, and identify key fracture zones by recording fracture density and orientation. Borehole logging results will also be used to select zones for isolated in-well hydraulic testing using an in-well straddle-packer assembly. The suite of geophysical logs will include the

following: 3-arm caliper, acoustic televiewer (ATV), fluid temperature, single-point resistivity, and operation of a heat-pulse flow meter (HPFM) under ambient and stressed (i.e. pumping) conditions.

- Residential Well Inventory: Well completion records associated with private water supply wells located in the vicinity of the KES site will be obtained and reviewed. These records will be used to evaluate total well depth and identify well yield and capacity information to determine if the vertical boundaries of the groundwater model require expansion to support groundwater flow simulations.

The data obtained as part of this task will be summarized in the upcoming Five-Year Review. The updated groundwater model will be reviewed during a meeting with NHDES and EPA representatives to discuss groundwater model refinement, calibration, the resulting particle track simulations performed under different scenarios (i.e. pumping vs. ambient), and the implications for long-term monitoring.

2.2: CONTAMINANT FATE AND TRANSPORT EVALUATIONS

Once the flow model is calibrated, a contaminant fate and transport model will be developed to support the Five-Year Review. The model will use the MODFLOW model as the base and will use MT3D (Zheng, 1990) as the fate and transport component. MT3D is a flexible modeling platform offering a variety of solution options used to solve the three-dimensional advective-dispersive-reactive equations. The model will allow the simulation of VOCs in the subsurface at the site. Given the budgetary constraints, this exercise will focus on the fate and transport of 1,4-dioxane. Total VOCs will also be considered in this simulation.

In order to provide the basis for the MT3D model simulations, interpreted distributions of site related contaminants in the subsurface will be developed and used as "targets" for simulation. Isoleth maps of total VOCs and 1,4-dioxane will be constructed using contaminant data representative of the alternating treatment system operation and rebound study periods to develop these time-series "snapshots". Treatment system operational data (i.e. wells and trenches and their associated flow rates) will also be incorporated into the modeling exercise to simulate the distribution of modeled contaminants in the subsurface. Multiple data sets will be used to calibrate and benchmark the model to allow for its use in subsequent forward-looking model simulations to evaluate long-term options for justifying plant shutdown while maintaining the protectiveness of human health and the environment.

2.3: MONITORED NATURAL ATTENUATION EVALUATIONS

Monitored natural attenuation (MNA) continues to be regarded as a viable remedial approach especially at sites where source reduction and control have been maintained as part of more aggressive remedies, as in the case of the KES site. Specifically, where selected as an alternative, MNA relies on a systematic approach to first monitor natural processes and then use these datasets to predict future conditions in the aquifer. With regard to the KES site, performance monitoring activities have been on-going for several years, which have resulted in a robust data-set of VOC (including 1,4-dioxane) concentrations and inorganic analyses. These data, along with a discussion of the potential attenuation process at work (i.e. biodegradation, dispersion, dilution, adsorption, etc.) have been presented as part of previous annual site reports. These evaluations have confirmed that these processes are likely "at work", however the alternating system operation and rebound periods have made it somewhat difficult to identify the process(es) responsible for attenuation and the magnitude of these trends.

As part of this task, the existing site dataset will be reviewed and subsequently inventoried to denote these different operational scenarios to enhance data comparison. A series of Mann-Kendall evaluations using the VOC and 1,4-dioxane data will be conducted for the entire dataset (and further limited to wells consistently sampled on an annual and/or semi-annual basis) included with supplementary analysis using only data representative of system shut-down. This data will be subsequently compared with the isopleth maps prepared

as part of Task 2.2 for further evaluation of spatial trends. As part of the recent annual groundwater reports, site data has been evaluated using six geographic areas to assess contaminant trends. This data is further supplemented by a series of inorganic geochemical analysis collected from monitoring wells which are designated as source, intermediate, and downgradient. This approach will be expanded to assess both VOC and inorganic trends along the inferred "centerline" of the groundwater contaminant plume, as determined from the updated groundwater model exercise. Data associated with peripheral wells will be reviewed to assess degradation rates. Lastly, the combined dataset will be entered into the EPA's BIOCHLOR screening model using solute transport and first-order decay processes. This data will be compared with the results of Task 2.2 to derive accurate conclusions regarding attenuation processes at the KES site.

2.4: Five-year Review and Report

This section identifies the elements of the project and the tasks, the approach to completing these tasks, and a description of the work products to be submitted to the NHDES and USEPA. These tasks will be performed consistent with guidance available in the USEPA document "Comprehensive Five-Year Review Guidance" dated June 2001. This scope of work is subdivided into seven tasks listed below and described in the subsequent subheadings to this section:

- 2.4.1: Document Review
- 2.4.2: Standards Review (ARARs)
- 2.4.3: KES site Interviews
- 2.4.4: KES site Inspection/Technology Review
- 2.4.5: Community Relations
- 2.4.6: Five-Year Review Report
- 2.4.7: Work Assignment Close-Out

2.4.1: DOCUMENT REVIEW

This task involves reviewing the existing documentation for the KES site in order to develop an understanding of the KES site history, the implemented remedy, and cleanup status. It is necessary to develop this understanding to evaluate effectiveness of remedial actions performed to date and the protectiveness of the KES site. The following is a list of documents to be reviewed, at a minimum:

- RI/FS
- Previous Five-Year Review Reports (2003 and 2008)
- The OU1 ROD (11/15/1983) and the OU2 ROD (3/21/1988) for the KES site,
- The ESD for OU2 (6/8/1990)
- The ESD for 1,4-dioxane and Soil Spoil Area Decommissioning (6/2005)
- RA Work Plans,
- Operations and Maintenance (O&M) reports,
- Groundwater monitoring reports,
- Groundwater Management Permit (GMP) annual reports submitted to NHDES,
- NHDES Residential Well Data

- Operations and Maintenance Plan (6/2005); and
- Applicable state and local documentation regarding groundwater data/classification/water supply plans.

The availability of these documents at the public repositories for the KES site will be checked. In addition to the documents discussed above, Woodard & Curran will review the risk assessment completed as part of the RI for the KES site and updated during the past Five-Year Review process. The review will consist of a comparison of the method(s) used to perform the risk assessment at the time of the RI compared with the supplemental RA and current USEPA Guidance for risk assessments. The purpose of this review is not to redo the risk assessment but to strictly determine if the methods of risk assessment previously used maintain commensurate levels of protectiveness towards human health and the environment.

At the conclusion of the document review process a summary of the material available and material reviewed by Woodard & Curran will be provided as part of the applicable monthly progress report. The summary will include the storage location of the material that was reviewed.

2.4.2: STANDARDS REVIEW (ARARs)

Woodard & Curran will work with NHDES and EPA to review the ARARs presented in the RODs and ESD and Federal, state, or local public health or environmental regulations that have been promulgated subsequent to the RODs and ESDs for changes in standards. The intent of this review is to establish if there have been changes in the standards or in toxicity (or other contaminant characteristics) of the KES site indicator compounds since the issuance of the RODs and ESDs. Included within this task is one four-hour meeting at the KES site or mutually-agreed upon location to discuss the ARAR review and how this information will be presented in the Five-Year Review Report. Subsequent to this meeting, a meeting memorandum will be prepared to document agreements reached and changes to the ARAR review. A review of USEPA's Integrated Risk Information System and the Superfund Risk Assessment Tools of the Trade web pages will be included in this task.

2.4.3: KES SITE INTERVIEWS

Woodard & Curran will conduct interviews with KES site treatment plant operators, outside cleanup contractors, and federal, state, and local government personnel knowledgeable about the KES site and the selection and implementation of the remedy for the KES site. Interviews will be conducted with but not limited to the O&M Manager, O&M Staff, State Remedial Project Manager, Town of Epping Administer and Economic Development Coordinator, local emergency response personnel if appropriate, and local code enforcement or public health officials as appropriate. Prior to each interview, the interviewer will inform the interviewee that the interviewer is a contractor to the NHDES and USEPA. A list of persons interviewed during task three will be provided to the NHDES and USEPA. A copy of interview notes will also be provided. The information gathered during the interview process will be utilized to review the rationale for selecting the remedy for the KES site and to help determine if the implementation of the remedy is consistent with the rationale.

2.4.4: KES SITE INSPECTION/TECHNOLOGY REVIEW

The KES site inspection completed under this task will be performed consistent with the guidance document for performing Five-Year Reviews. This will include a management system review and a compliance evaluation of the RA required to maintain the protectiveness of human health and the environment. The groundwater extraction and treatment system components will be discussed relative to the ability to attain ROD/ESD specified cleanup standards, efficiencies, and cost effectiveness. Similarly, conditions associated with periods of scheduled treatment system shut-downs to evaluate contaminant rebound trends will be reviewed. The goal of the KES site inspection is to document the KES site's status, KES site conditions, condition of the remedy, and surrounding area. The supporting documentation (i.e. O&M Manual, KES site HASP, waste disposal

agreements, etc.) for remedy operation and future long-term monitoring will be evaluated to determine current applicability. At the conclusion of task four a summary memorandum will be issued to the NHDES and USEPA that reviews the current KES site operation (and/or rebound status), maintenance and management conditions and the technology employed at the KES site to meet the ROD clean-up goals.

2.4.5: COMMUNITY RELATIONS

Woodard & Curran will assist the NHDES and USEPA in the community relations aspect of the Five-Year Review. Local residents, health agencies, public officials, and community leaders will be notified that the five-year review is in progress for the KES site. Additionally, Woodard & Curran will assist the NHDES and USEPA in the preparation of two fact sheets and/or press releases: one to announce the start of the Five-Year Review process, and a second that discusses the conclusions of the report. Woodard & Curran anticipates revising the USEPA Five-Year Review announcement fact sheet and providing KES site-specific information and graphic art. Additionally, Woodard & Curran will prepare the second fact sheet discussing the findings of the report. An open house will also be scheduled at the conclusion of the Five-Year Review report.

2.4.6: FIVE-YEAR REVIEW REPORT

A Five-Year Review report will be prepared that presents the results of the review and discusses whether the groundwater remedy satisfies the completion requirements and is protective of human health and the environment. The protectiveness evaluation is a key element to the report and will be included in the discussion and conclusions. A draft report will be prepared and submitted to the NHDES and EPA for review after internal QA checks have been conducted. The final report will be submitted to the NHDES and EPA three weeks after receipt of USEPA comments on the draft report. Woodard & Curran will maintain communications with the NHDES and USEPA during the preparation of the report to resolve problems should they arise during preparation of the report. The report will be prepared in accordance with Appendix F of OSWER No. 9355-7-03B-P, "Comprehensive Five-Year Review Guidance", June 2001. Consistent with the OSWER guidance, the report shall include discussions of the following:

- An introduction including background information, project objectives, and a review of ARARs,
- Description of KES site conditions including KES site chronology, description, history, summary of KES site visits, summary of interviews, clean-up activities completed to date, and discussion of areas of ARAR non-compliance,
- Discussion of remedy selection, implementation optimization and system operations (rebound),
- Discussion recommendations from the last five-year review,
- Protectiveness evaluation including recommendations,
- Technical assessment of the remedy with regards to whether the remedy is functioning as intended, if exposure assumptions remain valid, and new and/or relevant KES site information,
- Discussion of issues identified during the technical assessment,
- Recommendations,
- Discussion on the reliance of institutional controls for protectiveness,
- Summary of findings, conclusions, and a general statement of protectiveness, and
- If necessary, a summary of requirements to serve as the basis for subsequent five-year reviews.

At the conclusion of task six the NHDES and EPA will be issued a draft Five-Year Review Report for review and comment. A final report will be issued within three weeks from receipt of comments.

2.4.7: WORK ASSIGNMENT CLOSEOUT

This task involves closing out all aspects of the project and consists of the following items:

- Return of documents to the NHDES and EPA,
- File duplication, distribution, and storage,
- File archiving, and
- Preparation of a Work Assignment Close-out Report (WACR)

Woodard & Curran's project manager will be available to meet with the NHDES and EPA personnel at the conclusion of the work assignment to review the process. The meeting findings will be summarized in the WACR.

EXHIBIT "B"

Contracts:

- A. For services performed, the DES shall pay the Contractor on a time-charge plus expense basis, monthly as charges accrue, the sum of the following:
1. Direct on-site O&M labor salaries times a multiplier of 2.345
 2. Direct engineering/hydrogeology technical support labor salaries times a multiplier of 3.265
 3. Other direct costs times a multiplier of 1.00; communications fee on labor of 3.0%.
- B. Direct labor salaries are wages paid to personnel for time chargeable to the project.
- C. Other direct costs include power, fuel, chemicals, routine maintenance, subcontracts, and other costs.
- D. Estimated allocation of total contract cost:

On-site labor	=	\$29,055
Engineering/hydrogeology labor	=	\$120,361
Travel	=	\$2,450
Utilities	=	\$13,000
Chemicals and Carbon	=	\$0
Normal maintenance	=	\$4,450
Sludge and Carbon disposal	=	\$500
Office, Laboratory supplies, Postage and Safety	=	\$9,259
Subcontracts	=	\$21,950
Property insurance	=	\$0
Miscellaneous costs	=	<u>\$3,975</u>
Contractor costs subtotal	=	\$205,000
Non-routine maintenance	=	<u>\$0</u>
Subtotal Contract	=	\$205,000
Total Contract	=	\$205,000

State of New Hampshire Department of State

CERTIFICATE

I, William M. Gardner, Secretary of State of the State of New Hampshire, do hereby certify that Woodard & Curran, Inc. a(n) Maine corporation, is authorized to transact business in New Hampshire and qualified on January 15, 1991. I further certify that all fees and annual reports required by the Secretary of State's office have been received.



In TESTIMONY WHEREOF, I hereto set my hand and cause to be affixed the Seal of the State of New Hampshire, this 13th day of September, A.D. 2012

A handwritten signature in cursive script, appearing to read "William M. Gardner".

William M. Gardner
Secretary of State



**CERTIFICATION OF CORPORATE AUTHORITY
WOODARD & CURRAN INC.**

The undersigned, Bruce S. Nicholson, Secretary of Woodard & Curran Inc. (the "Company"), HEREBY CERTIFIES as follows:

He is the duly elected Secretary of the Company, a Maine corporation.

At a meeting of the Board of Directors of the Company, the following resolution was adopted:

RESOLVED: That any Officer of this corporation, acting singly, be and hereby is authorized at any time and from time to time, to enter into contracts for the provision of services by the corporation as follows:

1. Vice Presidents (VP) and Senior Vice Presidents (SVP) are authorized up to the amount of \$50,000 or as delegated.
2. Group Managers (GM), Service Line Managers (SLM), Corporate Service Directors (CSD), and the Vice President of Finance are authorized up to the amount of \$250,000.
3. Group Leaders (GL), Market Leaders (ML), Service Line Leaders (SLL), Area Managers (AM), Senior Consultants (SC) and Senior Client Managers (SCM) are authorized up to the amount of \$1,000,000.
4. Business Center Managers (BCM) and the Treasurer are authorized up to the amount of \$3,000,000.
5. President, the CEO and the Chairman of the Board are authorized up to the amount of \$10,000,000.
6. The Company's Board of Directors must authorize contracts over the amount of \$10,000,000.

RESOLVED: That the CEO is authorized at any time to execute surety bonds in connection with the conduct of the Company's business, whether alone, or in joint venture with others not named herein. Furthermore that the CEO is also authorized any time prior or subsequent to the execution of any such bonds, to execute any and all indemnity agreements, subordination agreements or any other associated agreements relating to such bonds or to any collateral that may have been or may be required to be deposited with the surety in connection with said bonds. The CEO's signing authority with respect to surety bonds is limited to the current levels of bonding as set forth in the Company's approved bonding agreement. Bonds above this approved amount must be authorized by the Board of Directors.

According to the records of the Company in my possession as of this date, the above is a true and correct copy of said resolution, said resolution has not been amended or repealed, and is in full force and effect. According to the records of the Company in my possession as of this date, the following is a list of the duly elected Officers of the Company and their respective management positions in the Company.

<u>Name</u>	<u>Title</u>
Douglas J. McKeown	CEO and Chairman of the Board
Guy Wm. Vaillancourt	President
David W. Remick	Treasurer
Thomas L. Francoeur	Business Center Manager
Steven F. Niro	Business Center Manager
Bruce S. Nicholson	Secretary



CERTIFICATION OF CORPORATE AUTHORITY
WOODARD & CURRAN INC.

Senior Vice Presidents

Glenn T. Almquist (ML and SCM)
Carlos J. Ayala-Diaz (SLM)
Joseph C. Barbagallo (SSL)
Alan A. Benevides (SCM)
Brent M. Bridges (SCM)
Lisa J. Campe
Eric T. Carlson (ML and SCM)
Anthony C. Catalano (SCM)
Frank J. Cavaleri (AM)
James P. Chaplick (SLL)
Michael J. Chemiak (AM)
R. Duff Collins (GL and SCM)
Michael J. Curato (GL)
Albert R. Curran (SC)
David W. Dedian (AM)
Paul A. Dombrowski
James D. Ekedahl (GM)
Thomas R. Eschner
Thomas L. Francoeur (BCM)

Daniel Garson
Helen T. Gordon (GL and SCM)
Jeffrey A. Hamel (GM)
Nicholas A. Hastings (SCM)
Stephen B. Holtman (SCM)
Mary E. House
Bruce A. Hunt (SLL)
Karl D. Kasper (GL and SCM)
Leroy E. Kendricks, Jr (SLL)
William P. Luksha (AM)
David R. MacDonald (ML and SCM)
Douglas J. McKeown (CEO)
Peter E. Nangeroni (SLL and SCM)
Bruce S. Nicholson (CSD)
Steven F. Niro (BCM)
Tracy L. Planinsek (GM)
James J. Rivard (SLL and SCM)
Paul P. Roux (AM)
Thomas K. Scelfo (SCM)

Joseph D. Shea (SLL)
Jay G. Sheehan (ML)
Barry S. Sheff (SCM)
Lloyd K. Snyder
Adam H. Steinman (SC)
Thomas E. Stoughton (SLL)
Eric P. Teittinen (AM)
Randy E. Tome (GM)
Hugh G. Tozer
Guy Wm. Vaillancourt (President)
Michael J. van der Heijden (SCM)
Donald J. Weeks
Bert J. Wesley
Steven N. Whipple
David A. White (SLM)
James D. Wilson
Steven N. Whipple

Vice Presidents

Michael Battistelli
Kelly C. Begin
Kenneth J. Bird
Craig E. Blake
Brian E. Bzdawka
Kelly V. Camp (SLM)
Gregory G. Cataldo
Robert C. Chapell
Phillip F. Cross (AM)
Shannon L. Daigle
John L. Daniels
Saeed T. Darian (SCM)
Susan F. Dubuque (CSD)
Steven R. Ewing
Shannon J. Eyler
Seth W. Garrison
Tedd M. Gifford
Peter Goodwin (SCM)
James W. Gorman (VP of Finance)
Janice M. Greenwood

Jennifer M. Andrews
Carol A. Harris
Ronald H. Hidu
Jason R. House
Eric E. Hultstrom
Joseph A. Hurley
MaryKristin Ivanovich (SLM)
Daniel L. Kelley (SLL)
Robert J. Kunze
Robert S. Little (SLM)
Zareh Y. Maserejian
Althea F. Masterson
Robert W. McGrath
Nathan McLaughlin
J. Patrick Moore (AM)
Maria C. Morrissette (CSD)
Sarah S. Nicholson
Paul J. O'Brien
Patrick F. O'Hara
Paul J. Porada

Anne E. Proctor (SLM)
Robert J. Rafferty
David W. Remick (CFO)
Janet E. Robinson
Thomas P. Roche
Gilbert S. Ryan
Thomas C. Schwartz
Douglas Spicuzza
Michael A. Stein
James P. Sturgis
Brent Sutter
Douglas L. Tirrell
Marc G. Thomas (AM)
Patricia A. Thomes
John A. Thompson
Miles L. Walker (ML)
Daniel H. Winograd
Daniel M. Wolfram

DATED September 17, 2012


Bruce S. Nicholson, Secretary

**JOINT BOARD OF LICENSURE AND CERTIFICATION
STATE OF NEW HAMPSHIRE**

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Concord, N.H. 03301-8518

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Louise Lavertu • Executive Director

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Landscape Architects
Court Reporters
Home Inspectors
Accountancy
Manufactured Housing Parks



Friday, December 16, 2011

WOODARD CURRAN INC
41 HUTCHINS DR
PORTLAND ME 04102-

CERTIFICATE

This is to certify that the above named **business organization** is authorized to practice engineering in the State of New Hampshire under the provisions of RSA 310-A:20.

This Authorization shall expire on **December 31, 2012** unless renewed by application prior to that date.

This Authorization is issued by the Board of Professional Engineers on the basis of information in the application filed with the Board.

Board of Professional Engineers

Certificate # 00683

