



April 11, 2014

Angela Emerson, EP
KAS, Inc.
368 Avenue D, Suite 15
P.O. Box 787
Williston, Vermont 05495

Via Electronic Mail

Re: Request for Proposal for Risk Characterization Services
28 Archibald Street
Burlington, Vermont
KAS Job #509130312

Dear Ms Emerson:

As requested, I am providing the following proposed scope of work ("SOW") and budget estimate for the subject Site. The SOW and budget estimate are based on my review of the Brownfields Phase II Environmental Site Assessment Report (dated March 10, 2014), a subsequent e-mail exchange with you and Alan Liptak (Vice president of KAS) and our phone conversation on April 10th of 2014. The proposed SOW is for a focused characterization of human health risks associated with continued use of the subject Site as a community garden which assumes certain deeded restrictions are implemented and maintained at the Site. The purpose of this characterization of human health risk is to provide you and your client, the Chittenden County Regional Planning Commission (CCRPC), with health risk information pertinent to current and potential future Site use.

Please review the SOW and budget estimate to ensure that all of you and your clients needs are addressed. I look forward to working with you on this project.

Sincerely,

James S. Smith, Jr. (electronic signature)

James S. Smith, Jr., Ph.D.
President & Toxicologist

PRIVILEGED AND CONFIDENTIAL INFORMATION

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BUDGET ESTIMATE & SCOPE OF WORK

OAK CREEK, Inc, (OCI) is pleased to provide the following budget estimate and scope of work (“SOW”) to KAS Environmental Science & Engineering, Inc. (KAS) for a focused characterization of human health risk at the property located at 28 Archibald Street in Burlington, Vermont (Site).

OCI proposes to conduct a focused characterize human health risk at the subject Site to determine whether the current and proposed future property use, as a community garden, poses risk of harm to human health to persons using the Site. Specifically, the focused characterization of human health risk will assume the implementation and maintenance of a deeded restriction or other conveyance to ensure that the subject Site will remain a community garden, that no portion of the Site will be set aside for use as a children’s play area, that the planting, growth, and harvesting of produce will not occur outside of appropriately constructed raised garden beds, and that Site maintenance will not result in persons having prolonged direct contact with exposed soil. Furthermore, OCI will assume that the high soil lead concentration (880 mg/kg) located at SB-3 (0-2 feet in depth) will be removed from subject Site for off-site treatment and/or disposal.

OCI will produce a letter report describing the characterization of human health risk at the subject Site, including any and all of the assumptions inherent in the resulting risk estimates. Where appropriate or necessary, OCI will provide recommendations for the mitigation of unacceptable human health risks.

OCI makes no direct or implied guarantee as to the specific outcome of the proposed risk characterization.

BUDGET ESTIMATE

The following budget estimate is for focused characterization of human health risk of the subject Site. OCI estimates a “not-to-exceed” budget of \$4,800 based on the SOW described below and implementation and maintenance of an appropriate deeded restriction or other conveyance limiting current and future use of the subject Site as detailed in the SOW.

This budget estimate reflects a total of 24 hours of work at a rate of \$200.⁰⁰ an hour

Budget Detail

Phase	Task	Hours	Cost
Risk Characterization			
	Development of EPC	...4	\$ 800.00
	Dose Response/Toxicity Assessment	2	\$ 400.00
	Risk Calculations	8	\$ 1,600.00
	Report Preparation	8	\$ 1,600.00
	Client Revisions	2	\$ 400.00
	Total	24	\$4,000.00
Budget Total		24	\$4,800.00

The actual cost associated with the completion of these tasks may be less. Changes in the SOW may significantly increase or decrease project cost. OCI will not undertake additional out-of-scope work/tasks without the prior written approval of an appropriate KAS representative.

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SCOPE OF WORK

The following SOW describes OCI's technical approach to completion of the specific tasks required in the characterization of human health risk at the subject Site.

The SOW is based on my review of the Brownfields Phase II Environmental Site Assessment Report (dated March 10, 2014), our subsequent e-mail exchanges and phone conversation in April of 2014. The SOW also assumes implementation and maintenance of a deeded restriction or other conveyance limiting current and future Site use to that of a community garden, prohibiting use of any area of the Site as a children's play area, and to prohibit the planting, growth, and harvesting of produce outside of appropriately constructed raised garden beds, and that Site maintenance will not result in persons having prolonged direct contact with exposed soil. The SOW also assumes that the high soil lead concentration (880 mg/kg), located at SB-3 (0-2 ft bgs), will be removed from subject Site for off-site treatment and/or disposal.

Purpose

The purpose of this characterization of human health risk is to determine whether persons using the subject Site as a community garden are subject to increased risk of harm to health as a result of their potential contact with residual contaminants existing in Site soils. The result of this work may direct or determine which response actions or additional deeded restrictions may be necessary for mitigating health risks at the Site. OCI will evaluate the human health risk associated with restricted use of the subject Site using U.S. Environmental Protection Agency (U.S. EPA) guidance, methodologies, and appropriate exposure and toxicity values.

Preliminary Steps in an MCP Risk Characterization:

Several preliminary steps are considered in the performance of a complete MCP Method 3 risk characterization. These include the identification of current and future site uses, the establishment of background levels, and any assumptions regarding the use of deeded restrictions of other conveyances designed to mitigate potential human exposure.

Identify Current and Reasonably Foreseeable Use of the Site

This characterization of human health considers only the current and potential future use of the subject Site as a community garden. Implementation and maintenance of a deeded restriction, or other conveyance, is required to limit potential future uses and activities at the subject Site to those considered in this risk characterization. Namely, that the subject Site will remain a community garden, that no portion of the Site will be set aside for use as a children's play area, and that the planting, growth, and harvesting of produce will not occur outside of appropriately constructed raised garden beds, and that Site maintenance will not result in persons having prolonged direct contact with exposed soil. Under such restrictions, OCI assumes that potential persons using the subject Site (i.e., receptors) will be limited to individuals visiting the subject Site to garden and that their exposure will be limited to Site surface soils between 0 and 2 feet in depth. Receptors of specific interest are young children having direct contact with Site soils while parents/guardians garden.

Establish Background

OCI will compare contaminate soil concentrations with available area background concentrations. While several contaminants in Site soils may be consistent with area background concentrations, and

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might be eliminated from consideration in risk characterization as adding to aggregate receptor health risks, OCI will not exclude these contaminants from consideration in this characterization of human health risk. The inclusion of these compounds of potential concern (CoPC) will provide KAS and CCRPC with a complete understanding of the health risk associated with planned use of the subject Site. A subsequent discussion of these health risks by OCI will include an apportionment of the total health risks posed by these CoPC that will allow for further mitigation of health risk, should that be required.

Assumptions Concerning Activity and Use of the Subject Site

In this characterization of human health risk, OCI assumes that a deeded restriction, or other conveyance, is implemented and maintained for the purpose of limiting potential future uses and activities at the subject Site to only those considered in this risk characterization. Namely, that the subject Site will remain a community garden, that no portion of the Site will be set aside for use as a children's play area, that the planting, growth, and harvesting of produce will not occur outside of appropriately constructed raised garden beds, and that Site maintenance will not result in persons having prolonged direct contact with exposed soil.

Human Health Risk Characterization

The characterization of human health risk integrates five separate components: hazard identification, dose response assessment, exposure assessment, risk characterization, and uncertainty analysis.

Hazard Identification

Hazard identification describes the nature of a substance that causes it to be of regulatory concern and identifies the effects of substances determined to cause adverse effects in humans (U.S. EPA 1989). In this section, OCI will identify the CoPC that are to be carried through risk characterization.

Identify Contaminants of Potential Concern

CoPC identified in environmental media are tentatively identified as all contaminants detected in Site soils assessed and reported in the KAS Brownfields Phase II Environmental Site Assessment Report (KAS Report).

Elimination of Contaminants of Potential Concern

OCI may eliminate CoPC from consideration in the risk characterization if they meet one of the following three criteria (US EPA 1992).

- Present at low frequency of detection and in low concentrations;
- Present at levels which are consistent with "background" concentrations for the area and there is no evidence that their presence is related to activities at the site (i.e., metals);
- Present as a field or laboratory contaminant.

OCI will not eliminate any contaminant using these criteria, considering all detected CoPC as within this characterization of human health risk. OCI will identify those CoPC which may be eliminated on the basis that they meet one or more of the criteria above and will determine the potential of those CoPC to contribute to the overall estimate of human health risk derived.

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Dose Response/Toxicity Assessment

Toxicity profiles for CoPC will consist solely of a tabled summary of the critical cancer and non-cancer toxicity value(s) and supporting reference(s). OCI will not present toxicity profiles for CoPC evaluated in this risk characterization as such toxicity profiles are easily obtained from the U.S. EPA (USEPA 2014a). OCI will reference the source of all toxicity information used in the risk characterization.

Compound-specific chronic oral reference dose (RfD) and cancer slope factor (CSF) toxicity values will be obtained from the U.S. EPA's Integrated Risk Information System ("IRIS")(USEPA 2014a), U.S. EPA Region III Risk-Based Concentration Table (USEPA 2014b) or the Risk Assessment Information Service (RAIS 2014). These later two sources include toxicity values reported in the U.S. EPA Health Effects Assessment Summary Tables ("HEAST") and Provisional toxicity values determined by U.S. EPA Program Offices for use at specific SuperFund sites.

Identify Applicable and Suitably Analogous Standards

There are no applicable and suitably analogous regulatory standards ("ARARS") identified for soils.

Exposure Assessment

Exposure assessment involves identifying potential routes of exposure; characterizing the populations exposed; and determining the frequency, duration, and magnitude of exposure to site-related contaminants (USEPA 1989). OCI will clearly identify exposure parameters, their source, and rationale for use in this characterization of human health risk.

Exposure Scenario/Profile

OCI will characterize the human health risk posed by current and potential future use of the Site as a community garden. Exposure scenarios consistent with this Site use include the incidental or accidental ingestion of and dermal contact with existing surface soils at the subject Site. Soils used within the raised garden beds are assumed to be clean and are not evaluated in this risk characterization.

Exposure Assumptions

Exposure factors consistent with the appropriate land use scenario will be obtained from appropriate guidance (USEPA 1989, 2008, 2011).

Exposure Point Concentrations

Exposure point concentrations ("EPC") for individual CoPC in soil and airborne particulate will be determined as the mean of CoPC concentrations described in analytical data collected from the Site. OCI will not consider the high concentration of lead identified in Site soils (880 mg/kg) at SB-3 (0-2 feet) as this soil is to be removed for treatment and/or disposal at an offsite location.

Quantitative Exposure Estimates

Quantitative exposure estimates will be determined in accordance with U.S. EPA guidance (USEPA 1989).

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Risk Characterization

Quantitative characterization of both carcinogenic and non-carcinogenic risks will be determined in accordance with US EPA guidance (USEPA 1989, 1991). OCI will briefly discuss the results of this risk characterization with respect to acceptable target risks.

Uncertainty Analysis

OCI will briefly discuss the uncertainty inherent in risk characterization (USEPA 1989).

Conclusions

OCI will succinctly state all conclusions regarding the potential risk or absence of risk in a brief letter report. OCI's discussion of the resulting human health risk estimates will include risk drivers, potential mitigating actions, and the uncertainty inherent in such a characterization.

REFERENCES

- RAIS. 2014. Toxicity and Chemical Specific Factors. Available Online at: http://risk.lsd.ornl.gov/cgi-bin/tox/TOX_select?select=nrاد.
- USEPA. 1989. Risk Assessment Guidance for Superfund. EPA 540/1-89/002. Volume I - Human Health Evaluation Manual (Part A): Washington, DC.
- USEPA. 1991. OSWER Directive 9285.6-03. Memorandum: Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors." Timothy Fields, Jr. Acting Director, Office of Emergency and Remedial Response, and Bruce Diamond, Director, Office of Waste Programs Enforcement.
- USEPA. 2008. Child-Specific Exposure Factors Handbook. EPA/600/R-06/096F. Environmental Protection Agency (EPA). National Center for Environmental Assessment, Office of Research and Development. September.
- USEPA. 2011. Exposure Factors Handbook: 2011 Edition. EPA/600/R-090/052F: Office of Research and Development. U.S. Environmental Protection Agency. Washington, D.C. September.
- USEPA. 2014a. Integrated Risk Information System (IRIS). U.S. Environmental Protection Agency, National Center for Environmental Assessment, Cincinnati, OH. Environmental Protection Agency (EPA). Available Online at: Available Online at: <http://www.epa.gov/ngispgm3/iris/indexhtml>.
- USEPA. 2014b. Risk-Based Concentration Table. Environmental Protection Agency (EPA). Region III. Philadelphia, PA. Available Online at: Available Online at: <http://www.epa.gov/reg3hwmd/risk/riskmenu.html>. January.

DELIVERABLE

OCI will provide a fully referenced and clearly written report describing all of the assumptions, values, and calculations performed in this characterization of human health risk. Where available and appropriate, OCI will reference existing and "in preparation" reports to minimize the unnecessary and redundant description of the Site, its history, and/or previous Site investigation activities.

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Deliverables will consist of one electronic draft (MS WORD 2003 file format), which OCI will provide to KAS for comment, and a final electronic deliverable incorporating KAS client revisions will be provided in an Adobe Acrobat pdf file format. A hard copy of the draft and/or final report will be made available upon request. Revisions to the final deliverable will be limited in nature by the SOW, unless agreed to in advance by the contracting parties.

SCHEDULE

OCI will make a client draft of the deliverable available to KAS within 15 business days (three weeks) following receipt of authorization to proceed under an agreed contractual arrangement. Final deliverables will be delivered within 4 business days of receipt of client revisions.

Work can begin immediately upon receipt of a contractual arrangement and authorization to proceed. Please provide written conformation of authorization to proceed by signing this proposal (Task 01) on the lines provided below and return.

CONTRACT REQUIREMENT

I have attached an OAK CREEK general consulting agreement (KAS-14) for your review. Please review the agreement and if acceptable, have an appropriate company officer sign and return the original by mail. I will return a signed copy to you.

Please also provide written confirmation of authorization to proceed in the performance of the proposed SOW (Task 01) by having an appropriate corporate officer sign this proposal page on the line below and returning to me.

This proposal will remain viable for 30 days from the date of issuance.

Confirmation of Authorization to Proceed:

Position: _____

Company: _____

Please call me at (207) 929-0856 with any question you have regarding the general consulting agreement, Fee Schedule, SOW, schedule, deliverable, budget or any aspect of the proposed work.

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