STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

PATRICIA W. AHO
COMMISSIONER

December 16, 2014

Mr. David Colter, President
General Alum New England
34 Kidder Point Road
Searsport, Maine 04974

Re: GAC Chemical, 34 Kidder Point Road, Searsport: Voluntary Response Action Program (VRAP) Comments on Investigation, Remedial Work Plan, and Public Communications Plan

Mr. Colter:

The Maine Department of Environmental Protection (the "Department") has received and reviewed the documents you submitted as part of your continuing participation in the Voluntary Response Action Program ("VRAP"). The documents include:

- *Investigations Summary Report, Voluntary Response Action Program, 34 Kidder Point Road, Searsport, Maine,* dated November 2014, and prepared by CES, Inc.
- *Remediation and Shoreline Stabilization Plan, Voluntary Response Action Program, 34 Kidder Point Road, Searsport, Maine,* dated November 2014, and prepared by CES, Inc.
- *Public Communication Plan, Voluntary Response Action Program, 34 Kidder Point Road, Searsport, Maine,* dated November 2014, and prepared by CES, Inc.

This letter provides comments on each of these documents.

Investigations Summary Report

The area of interest that will be addressed through VRAP is a portion of Lot 83 known as the former sulfuric acid plant. The report provides a good summary of the incremental investigations conducted on this portion of the property, characterizing current conditions and identifying the source materials for the low pH groundwater.

Attached is a memo from VRAP Project Geologist Troy Smith, which has comments that pertain to both the *Investigations* report and *Remediation* plan.

Remediation and Shoreline Stabilization Plan

The remedial approach seems appropriate, given the identification of the previously undiscovered subsurface sulfur layer during the investigations. Removal of the sulfur layer alone

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would remove the continuing source of low pH, thereby resulting in an expected increase of the pH over time, and the addition of an alkaline fill (i.e. limestone) in the excavation, as proposed, would likely speed that process up. The plan should, however, evaluate other potential effects of the proposed actions, such as the release of iron and potential staining on the beach as the pH changes, for example.

The follow-on monitoring of the pH within the intertidal areas is important to insure that the remedial objectives have been met. However, the detail provided in Section 5 of the plan was insufficient; please provide a more descriptive plan of the frequency and number of locations, as well as a description of qualitative observations/inspections you plan during the follow-on monitoring events. Also, VRAP staff would like to be present during the initial follow-on monitoring events.

The attached memo from Project Geologist Troy Smith speaks to elements of the plan, as well.

It is VRAP's understanding that GAC will be or currently is submitting a "Permit by Rule" to the Department to conduct the shoreline stabilization.

Public Communication Plan

The VRAP agrees with the conclusion that this site would be appropriately classified as a Tier I site, but is pleased that GAC chose to follow the Tier II guidelines of the *Public Communications Decision Matrix.* The VRAP is particularly pleased that Dr. Mark Green of Saint Joseph's College was sought out to provide an independent review of the *Investigation* and *Remediation* documents. No revision of this document is considered necessary.

Please let me know if you would like to discuss our comments in greater detail. Once the comments are adequately addressed and VRAP is comfortable with the plan, a "No Action Assurance" letter would be issued approving of the plan. Once the plan is demonstrated to have been successfully implemented, a Commissioner's Certificate of Completion would be issued by VRAP.

Sincerely,

Nicholas J. Hodgkins
Voluntary Response Action Program
Division of Remediation

pc: Dennis St.Peter, CES, Inc.
Troy Smith, Maine DEP

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Remediation and Solid Waste Management
Division of Technical Services

MEMORANDUM

TO: Nicholas Hodgkins, VRAP Coordinator, Division of Remediation

FROM: Troy Smith, Troy Smith, Certified Environmental Hydrogeologist, GE502, Technical Services Division

DATE: December 10, 2014

PROGRAM: Voluntary Remedial Action Program

SITE: General Alum Chemical, Searsport

REMEDIATION NUMBER: REM01170

SUBJECT DOCUMENTS: Investigations Summary Report, Voluntary Response Action Program, 34 Kidder Point Road, Searsport, Maine; prepared by CES, Inc., November 2014.

Remediation and Shoreline Stabilization Plan, Voluntary Response Action Program, 34 Kidder Point Road, Searsport, Maine; prepared by CES, Inc., November 2014.

Public Communication Plan, Voluntary Response Action Program, 34 Kidder Point Road, Searsport, Maine; prepared by CES, Inc., November 2014.

The purpose of this memo is to provide comments and recommendations for your consideration on the subject document submitted as part of the VRAP Application. Please contact me if you have any questions or concerns.

In addition to the subject documents I have reviewed portions of the 1984 E.C. Jordan investigation completed on Lot 83, in the vicinity of the former sulfuric acid plant. This document contains valuable hydrogeologic information that supports the proposed remedial plan.

I am in agreement with the remedial plan as proposed and I offer the following comments and recommendations based on the information provided by CES and the proposed remedial plan.

1.0 Comments

The conceptual site model (CSM) is an important tool that facilitates the selection of remedial alternatives and to evaluate the effectiveness of remedial actions in reducing the exposure of environmental receptors to contaminants (ASTM E1689-95(2014)). The CSM is an opportunity for the author to focus the reader on the important aspects of the problem that need to be addressed in a concise manner that utilizes that available scientific data. The subject documents provide a table summarizing the preliminary CSM (investigation report) and revised CSM (remediation plan) but does not provide any text to explain the authors interpretation. Without supporting text in the CSM the reader must interpret the relationships between the source(s), migration pathways, and receptors. This may lead to the reader misunderstanding the problem, which will affect the readers understanding of the proposed remedy.

The CSM table includes low pH as a parameter, but does not include any contaminants of concern or how they might be related to the low pH conditions. The presence of sulfur in the shallow subsurface facilitates the biologically mediated lowering of pH. The lowering of the pH has effects on the geochemistry that are not addressed in the CSM. Without understanding the contaminants of concern and their relationship to the low pH condition, the selection of a remedy and evaluation of a remedy will be incomplete. This may lead to complications when the remedy is implemented.

2.0 Recommendations

The CSM should be further developed to provide the reader a better understanding of the source material present (sulfur in shallow surface soils); the biologically mediated reduction in pH; the effect on the geochemical equilibrium; and the migration pathway (groundwater transport of plume) to the identified receptors. A more complete CSM will facilitate the selection of remedial alternatives and provide the information needed to evaluate the effectiveness of the remedial actions. This can be done using the existing information contained in the 1984 E.C. Jordan investigation and the additional information contained in the subject documents.

CES may want to consider the benefits of completing a small demonstration test (pilot test) prior to completing the full scale remedial action. The pilot test could be setup in a controlled container at the site using site soils and site groundwater along with the proposed soil amendment (alkaline product). Soils in the affected area would be placed in the container after the visible

sulfur is removed following the proposed plan. The soil would be mixed with the appropriate amount of alkaline product as described in the plan. Groundwater from SB-102 can be pumped into the container (using a peristaltic pump) such that it is allowed to infiltrate the soils and discharge out of the container. The rate of pumping will be appropriate given the scale of the pilot project so that it does not flood the test container. The discharge volume and pH of the discharge water can be monitored relative to the number of pore volumes flushed through the container. Additionally, the discharge water can be analyzed for the appropriate parameters to make sure that the proposed plan does not have adverse impacts on the intertidal zone when the full scale remedial action is completed. If any adjustments in the calculated alkaline product needed to neutralize the remaining soils and groundwater plume can be made prior to full scale implementation.