STATE OF WASHINGTON
KING COUNTY SUPERIOR COURT

STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, Plaintiff, v. HEXCEL CORPORATION, Defendant.	NO. _____ CONSENT DECREE

TABLE OF CONTENTS

I.	INTRODUCTION	3
II.	JURISDICTION	4
III.	PARTIES BOUND	5
IV.	DEFINITIONS	5
V.	FINDINGS OF FACT	8
VI.	WORK TO BE PERFORMED	14
VII.	DESIGNATED PROJECT COORDINATORS	17
VIII.	PERFORMANCE	18
IX.	ACCESS	18
X.	SAMPLING, DATA SUBMITTAL, AND AVAILABILITY	19
XI.	RETENTION OF RECORDS	20
XII.	TRANSFER OF INTEREST IN PROPERTY	21
XIII.	RESOLUTION OF DISPUTES	21
XIV.	AMENDMENT OF DECREE	23
XV.	EXTENSION OF SCHEDULE	24
XVI.	ENDANGERMENT	25
XVII.	COVENANT NOT TO SUE	26
XVIII.	CONTRIBUTION PROTECTION	28
XIX.	INDEMNIFICATION	28
XX.	COMPLIANCE WITH APPLICABLE LAWS	28

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

XXI. REMEDIAL ACTION COSTS 30
XXII. IMPLEMENTATION OF REMEDIAL ACTION 31
XXIII. PERIODIC REVIEW 31
XXIV. PUBLIC PARTICIPATION 32
XXV. DURATION OF DECREE 33
XXVI. CLAIMS AGAINST THE STATE 33
XXVII. EFFECTIVE DATE 33
XXVIII. WITHDRAWAL OF CONSENT 34

EXHIBIT A Facility Diagram
EXHIBIT B Cleanup Action Plan
EXHIBIT C Scope of Work and Schedule

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

I. INTRODUCTION

1. The mutual objective of the State of Washington, Department of Ecology (Ecology) and the Hexcel Corporation (Hexcel) (Defendant) under this Decree is to provide for remedial action at a facility where there has been a release or threatened release of hazardous substances. This Decree requires Defendant to conduct a cleanup action at the Hexcel Kent Operable Unit of the BSB Diversified Co., Inc., Site (Site) in accordance with the Cleanup Action Plan (CAP), attached and incorporated in this Decree as Exhibit B, according to the schedule and other requirements identified in this Decree and all exhibits thereto.

2. Ecology has determined that these actions are necessary to protect human health and the environment.

3. The Complaint in this action is being filed simultaneously with this Decree. An Answer has not been filed, and there has not been a trial on any issue of fact or law in this case. However, the Parties wish to resolve the issues raised by Ecology's Complaint. In addition, the Parties agree that settlement of these matters without litigation is reasonable and in the public interest, and that entry of this Decree is the most appropriate means of resolving these matters.

4. By signing this Decree, the Parties agree to its entry and agree to be bound by its terms.

5. By entering into this Decree, the Parties do not intend to discharge non-settling parties from any liability they may have with respect to matters alleged in the Complaint. The Parties retain the right to seek reimbursement, in whole or in part, from any liable persons for sums expended under this Decree.

6. This Decree shall not be construed as proof of liability or responsibility for any releases of hazardous substances or costs for remedial action nor an admission of any facts; provided, however, that Defendant shall not challenge the authority of the Attorney General and Ecology to enforce this Decree.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

7. The Court is fully advised of the reasons for entry of this Decree, and good cause having been shown:

Now, therefore, it is HEREBY ORDERED, ADJUDGED, AND DECREED as follows:

II. JURISDICTION

1. This Court has jurisdiction over the subject matter and over the Parties pursuant to the Model Toxics Control Act (MTCA), RCW 70A.305.

2. Authority is conferred upon the Washington State Attorney General by RCW 70A.305.040(4)(a) to agree to a settlement with any potentially liable person (PLP) if, after public notice and any required hearing, Ecology finds the proposed settlement would lead to a more expeditious cleanup of hazardous substances. RCW 70A.305.040(4)(b) requires that such a settlement be entered as a consent decree issued by a court of competent jurisdiction.

3. Ecology has determined that a release or threatened release of hazardous substances has occurred at the Facility that is the subject of this Decree.

4. Ecology has given notice to Defendant of Ecology's determination that Defendant is a PLP for the Facility, as required by RCW 70A.305.020(26) and WAC 173-340-500.

5. The actions to be taken pursuant to this Decree are necessary to protect public health and the environment.

6. This Decree has been subject to public notice and comment.

7. Ecology finds that this Decree will lead to a more expeditious cleanup of hazardous substances at the Facility in compliance with the cleanup standards established under RCW 70A.305.030(2)(e) and WAC 173-340. This Decree also satisfies the requirements of WAC 173-303-646 through -64630.

8. Defendant has agreed to undertake the actions specified in this Decree and consents to the entry of this Decree under MTCA.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

III. PARTIES BOUND

1. This Decree shall apply to and be binding upon the Parties to this Decree, their successors and assigns. The undersigned representative of each party hereby certifies that they are fully authorized to enter into this Decree and to execute and legally bind such party to comply with this Decree. Defendant agrees to undertake all actions required by the terms and conditions of this Decree. No change in ownership or corporate status shall alter Defendant's responsibility under this Decree. Defendant shall provide a copy of this Decree to all contractors, and subcontractors retained to perform work required by this Decree, and shall ensure that all work undertaken by such contractors, and subcontractors complies with this Decree.

IV. DEFINITIONS

1. Unless otherwise specified herein, all definitions in RCW 70A.305.020 and WAC 173-340 shall control the meanings of the terms in this Decree.

A. Area of Concern (AOC): Refers to any area of the Facility where a release of dangerous constituents (including dangerous waste and hazardous substances) has occurred, is occurring, is suspected to have occurred, or threatens to occur.

B. BSB: Refers to B.S.B. Diversified Company, Inc., a Delaware corporation.

C. Cleanup Action Plan (CAP): Refers to the document issued by Ecology under WAC 173-340-380 which selects Facility-specific corrective measures and specifies cleanup standards (cleanup levels, points of compliance, and other requirements for the corrective measures) to be applied at the Hexcel Parcels.

D. Cleanup Standards: Refers to the standards promulgated under RCW 70A.305.030(2)(e) and include (1) hazardous substance concentrations (cleanup levels) that protect human health and the environment, (2) the location at the Facility where those cleanup levels must be attained (points of compliance), and (3) additional

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

regulatory requirements that apply to a cleanup because of the type of action and/or the location of the Facility.

E. Consent Decree or Decree: Refers to this Consent Decree and each of the exhibits to this Decree. All exhibits are integral and enforceable parts of this Consent Decree.

F. Corrective Action: Refers to any activities including investigations, studies, characterizations, and corrective measures, including actions taken pursuant to RCW 70A.305 and WAC 173-340, undertaken in whole or in part to fulfill the requirements of WAC 173-303-64620.

G. Corrective Measure: Refers to any measure or action to control, prevent, or mitigate release(s) and/or potential release(s) of dangerous constituents (including dangerous waste and hazardous substances) reviewed and approved by Ecology for the Facility and set forth in a Facility-specific CAP prepared in compliance with the requirements of WAC 173-340, including WAC 173-340-360. Corrective measures may include interim actions as defined by WAC 173-340. Interim actions will not necessarily be set forth in a Facility-specific CAP.

H. Dangerous Constituent or Dangerous Waste Constituent: Refers to any constituent identified in WAC 173-303-9905 or 40 C.F.R. part 264, appendix IX; any constituent that caused a waste to be listed or designated as dangerous under the provisions of WAC 173-303; and any constituent defined as a hazardous substance under RCW 70A.305.020(13).

I. Dangerous Waste: Refers to any solid waste designated in WAC 173-303-070 through -100 as dangerous or extremely hazardous or mixed waste. Dangerous wastes are considered hazardous substances under RCW 70A.305.020(13).

J. Dangerous Waste Management Facility: Used interchangeably in this document with the term "Facility."

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

K. Dangerous Waste Management Unit (DWMU): Refers to a contiguous area of land on or in which dangerous waste is placed, or the largest area in which there is a significant likelihood of mixing dangerous waste constituents in the same area, as defined in WAC 173-303-040.

L. Defendant: Refers to Hexcel Corporation, a Delaware corporation.

M. EPA: Refers to the United States Environmental Protection Agency and the Administrator, employees and designated agents, and representatives thereof.

N. Facility: Facility refers to the BSB DWMU controlled by BSB located at 8202 South 200th Street, Kent, Washington; all property contiguous to the DWMU also controlled by BSB, Carstens Carr Building LLC, and Hexcel; and all property, regardless of control, affected by release(s) or threatened release(s) of hazardous substances, including dangerous wastes and dangerous constituents, at and from these areas. *See* Exhibit A, Figure 6. "Facility" also includes the definition found in RCW 70A.305.020(8).

O. Hexcel Kent Operable Unit (Operable Unit or Hexcel Parcels): Refers to Parcels A, B, C, D, and E, which are currently owned by the Hexcel Corporation. *See* Exhibit A, Figure 3. The Operable Unit is part of the BSB Diversified Co. Inc. Site, and is located on the property that is bounded on the south by South 200th Street, on the east by 84th Avenue South (East Valley Road), on the north by South 196th Street, and on the west by 81st Avenue South.

P. Hytek: Refers to the Hytek Finishes Company.

Q. Parties: Refers to the State of Washington, Department of Ecology and Defendant.

R. Permit or Permitting Requirements: Unless otherwise specified, refers to the requirements of WAC 173-303 for applying for, obtaining, maintaining, modifying, and terminating Dangerous Waste Management Facility permits.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

S. RCRA: Refers to the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901–6992k.

T. RCRA Facility Assessment (RFA): Refers to the EPA-conducted investigation of release(s) and potential release(s) at the Dangerous Waste Management Facility and the information contained in the report entitled RCRA Facility Assessment, Hytek Finishes Company, WAD 076 655 182, September 30, 1986 (RFA Report). The RFA Report is incorporated into this Decree by this reference as if fully set forth herein.

U. Solid Waste Management Unit (SWMU): Refers to any discernible location at the Dangerous Waste Management Facility where solid wastes have been placed at any time, irrespective of whether the location was intended for the management of solid or dangerous waste. Such locations include any area at the Dangerous Waste Management Facility at which solid wastes, including spills, have been routinely and systematically released, and include regulated units as defined by WAC 173-303.

V. FINDINGS OF FACT

1. Ecology makes the following findings of fact without any express or implied admissions of such facts by Defendant.

A. Based upon factors currently known to Ecology, the Facility is generally located at 8202 South 200th Street, Kent, Washington as shown in the Facility Location Diagram (Exhibit A). The Facility is made up of seven parcels, designated as Parcels A through G. Exhibit A, Figures 3 and 6. The Defendant owns the parcels/property identified as Parcels A, B, C, D, and E (the Hexcel Kent Operable Unit). Parcels A through E are contiguous parcels located immediately north of and across South 200th Street from Parcels F and G. Parcels A through E are bounded on the south by South 200th Street, on the east by 84th Avenue South (East Valley Road), on the north by South 196th Street and on the west by 81st Avenue South. Parcel F is currently owned by Carstens Carr Building LLC (Carr). BSB currently owns Parcel G.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

B. From 1957 to 1985, Hytek Finishes Company (Hytek), a division of Criton Technologies, and its predecessor, Heath Plating, operated a metal finishing and electroplating plant on Parcels E and G. Criton Technologies also had an adjacent composite products manufacturing division named Heath Tecna Aerospace Company located at 19819 84th Avenue South, Kent, Washington.

C. Hytek owned and operated the Hytek Finishes Company as a Dangerous Waste Management Facility on or after November 19, 1980, the date which subjects facilities to RCRA permitting requirements, including interim status requirements pursuant to RCRA, 42 U.S.C. § 6925, and implementing regulations thereunder, and including authorized state regulations promulgated in WAC 173-303.

D. On November 13, 1980, on EPA Form 3, Hytek notified EPA of its dangerous waste management activities. In the notification, Hytek identified itself as managing the following dangerous wastes at the Hytek Finishes facility, Parcel G (BSB): K054 (900 pounds), D002 (400 pounds), D001 (100 pounds), F006 (315 tons), F007 (101 tons), F008 (2,250 pounds), F009 (60 tons), and the management units included containers, tanks, and surface impoundments.

E. Pursuant to a notification prior to November 1980, Hytek was issued identification number WAD 076655182 by EPA. The operator of the Plant 1 Kent facility located at the Hexcel Parcels was issued identification number WAD 045256971 prior to January 1990.

F. On November 14, 1980, Hytek submitted to EPA Part A of the RCRA permit application. In the Part A application, Hytek identified itself as managing dangerous wastes at the Hytek, Criton Technologies Facility located at the source area, Parcel G (BSB). No product or waste management units were identified in Parcels A through E, the Hexcel Parcels. The Site includes Parcels A through G, as well as other non-source/residual contamination portions of the Site where hazardous substances have

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

been deposited, stored, disposed of, placed, or otherwise come to be located, and former release locations of hazardous substances on Parcel G. The other non-source/residual contamination portions of the Site include the area east of the Hexcel Parcels.

G. On September 30, 1986, EPA performed an RFA at the Dangerous Waste Management Facility. The purpose of an RFA is to identify those areas at the Dangerous Waste Management Facility where release(s) of hazardous substances, as defined in RCW 70A.305.020(13), may have occurred or may be occurring.

H. In 1987, BSB obtained both the Hytek and Heath Tecna Aerospace divisions, and the property currently referred as Parcels A through G. In 1988, BSB sold the Heath Tecna Aerospace division and Parcels A through F to the Phoenix Washington Corporation. The Phoenix Washington Corporation subsequently changed its name to Heath Tecna Aerospace Company. BSB relocated Hytek's operations and sold the division in 1989, retaining ownership of Parcel G, the source area and Dangerous Waste Management Facility. All known SWMUs were historically located within former Parcel G.

I. Effective December 22, 1988, Ecology and EPA jointly issued Post Closure Permit WAD 07-665-5182 to Hytek (later BSB) under authority of the Washington Hazardous Waste Management Act, RCW 70.105 (now codified as RCW 70A.300), and RCRA. This Post Closure Permit identified the permitted facility as Parcels G and E, with recognition that Parcel E was subject to a pending transfer to Heath Tecna (later Hexcel). The Permit required groundwater corrective action and monitoring for Parcels A through G, designated a point of compliance at the downgradient property boundary of Parcel G, and required the achievement of concentration limits in groundwater along 84th Avenue South.

J. In 1997, the Defendant acquired the Heath Tecna Aerospace Company, including Parcels A through F. This property has been used for industrial purposes since

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

the mid-1950s. The Defendant sold Parcel F in August 2003 to Carr Prop II, LLC (who then later sold Parcel F to Carstens Carr Building, LLC).

K. Before 1988, Parcels A through G housed BSB's Hytek division and BSB's Heath Tecna Aerospace Company division. BSB's Hytek division provided metal finishing and electroplating services. BSB's Heath Tecna Aerospace Company division manufactured interior aircraft components. Parcels B, C, D, and E housed manufacturing buildings where hazardous substances were used. Historical waste disposal may have occurred on these parcels, potentially including pre-sanitary sewer connection waste disposal and waste disposal in areas outside of the current manufacturing building footprint. Pipes running under South 200th Street connected the manufacturing building located on Parcel E with, and carried hazardous substances to, Parcel G.

L. The Defendant continues to pursue aircraft parts manufacturing in the manufacturing buildings on Parcels B, C, D, and E. Groundwater flow in the area generally runs in a north-northeasterly direction from Parcel G (upgradient), under Parcels A through F (downgradient), and across 84th Avenue South (downgradient). Groundwater beneath the Hexcel Parcels is contaminated with chlorinated compounds, including (in various locations) TCE, vinyl chloride, and cis-1,2-DCE.

M. Pursuant to the RFA Report and other information, Ecology has identified the following SWMUs and AOCs at the Dangerous Waste Management Facility: no source areas (i.e., SWMUs, AOCs, OAs) were identified on the Hytek Finishes Company property, WAD 076 655 182, September 30, 1986 RFA Report for Parcels A through E (the Hexcel Parcels); all source areas identified are located on Parcel G (BSB Parcel); additional documentation supporting RFA information is the reference letter from Criton/Hytek April 1, 1985, to George Hofer, chief RCRA Permits Section EPA 10.

N. Parcels A through G were operated as a dangerous waste management facility on or after November 19, 1980, the date facilities became subject to permitting

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

requirements under RCRA, including authorized state regulations promulgated in WAC 173-303.

O. On November 10, 2005, Ecology entered into Agreed Order No. DE 2551 with BSB, which required BSB to investigate contamination found east of 84th Avenue South, Kent, Washington.

P. On November 10, 2005, Ecology issued Enforcement Order No. DE 2552 to the Defendant. The Enforcement Order required the Defendant to:

1. Complete and submit a Focused Remedial Investigation (FRI) Report to collect and evaluate sufficient information to allow selection of a cleanup action for the Hexcel Parcels.

2. Complete and submit a Focused Feasibility Study (FS) evaluating remedial alternatives for the Hexcel Parcels.

3. Pending a final remedial decision by Ecology, maintain current remedial actions by implementing the Hexcel Interim Action Plan at the Hexcel Parcels.

4. Perform the Groundwater Extraction System Separation Activities.

Q. On November 10, 2005, Ecology entered into Agreed Order No. DE 2553 with BSB and the Defendant, which required BSB and Defendant to investigate downgradient groundwater contamination found east of 84th Avenue South, Kent, Washington.

R. On April 16, 2006, the groundwater extraction system at the Facility was separated. Under their respective orders, the Defendant has assumed responsibility for operation of the groundwater extraction system on the Hexcel Parcels and BSB has assumed responsibility for operation of the system on other portions of the Site.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

S. On August 10, 2011, the King County Superior Court entered a Consent Decree with Ecology and BSB which required BSB to undertake the following action at Parcel G:

1. Install and maintain a slurry wall within the perimeter of Parcel G to form a containment area.

2. Install and maintain a cap over the containment area.

3. Perform gradient control within the containment area and treat groundwater using zero valent iron (ZVI) reactor vessels.

4. Implement institutional controls on Parcel G.

5. Provide for compliance monitoring of the Cleanup Actions implemented on Parcel G.

T. Pursuant to Enforcement Order No. DE 2552, Defendant has completed a draft FRI/FS Report to summarize existing remedial investigation results and develop and evaluate remedial alternatives for the Hexcel Parcels.

U. Pursuant to Agreed Order No. DE 2553, Defendant has completed an investigation of contamination found east of 84th Avenue South. Since 2008, the downgradient area groundwater sampling results from the monitoring wells east of the Hexcel Parcels demonstrated chlorinated solvent concentrations were below groundwater cleanup levels. In addition to the monitoring, as interim actions, the Defendant implemented remedial actions at the Site (e.g., groundwater extraction and in-situ (in place) bioremediation). Ecology oversees and reviews the results of these cleanup activities to ensure the implemented activities are appropriate.

V. Release(s) and/or potential release(s) of hazardous substances including, but not limited to chlorinated compounds, including TCE and daughter products, in the subsurface soils and groundwater under the Facility from SWMUs and AOCs at the Dangerous Waste Management Facility are documented and summarized in BSB's

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

Focused Remedial Investigation/Feasibility Study Report (FRI/FS Report) that summarized existing remedial investigation results and developed and evaluated remedial alternatives.

W. Hazardous substances may have been and might continue to be released from the Parcel G, BSB Dangerous Waste Management Facility into the environment including surface water drainage areas; groundwater beneath and beyond the Dangerous Waste Management Facility; air; human work areas; and floral and faunal habitats.

X. As documented in the Cleanup Action Plan (CAP) (Exhibit B), Ecology has chosen a final cleanup action to be implemented at the Facility.

VI. WORK TO BE PERFORMED

1. This Decree contains a program designed to protect human health and the environment from the known release, or threatened release, of hazardous substances or contaminants at, on, or from the Facility. All remedial action(s) conducted by Defendant at the Facility shall be done in accordance with WAC 173-340.

2. The Defendant shall implement the CAP (Exhibit B) in accordance with the Scope of Work and Schedule attached to this Decree (Exhibit C). Among other remedial actions, the CAP requires Defendant to:

a. Perform long-term monitoring of groundwater as set forth in the Compliance Monitoring Plan and CAP.

b. Implement institutional controls.

c. Maintain, operate, secure, and inspect the integrity of the remedy implemented and well network per the Compliance Monitoring Plan and contingency developed in the CAP and Enhanced In Situ Bioremediation Plan.

3. All plans or other deliverables submitted by Defendant for Ecology's review and approval under the CAP (Exhibit B) or Scope of Work and Schedule (Exhibit C) shall, upon Ecology's approval, become integral and enforceable parts of this Decree.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

4. If Defendant learns of a significant change in conditions at the Hexcel Parcels, including but not limited to a statistically significant increase in contaminant and/or chemical concentrations in soil and groundwater, Defendant, within seven (7) days of learning of the change in condition, shall notify Ecology in writing of said change and provide Ecology with any reports or records (including laboratory analyses, sampling results) relating to the change in conditions.

5. As detailed in the CAP, institutional controls are required at the Hexcel Parcels. An Environmental (Restrictive) Covenant will be used to implement the institutional controls.

A. In consultation with Defendant, Ecology will prepare the Environmental (Restrictive) Covenant consistent with WAC 173-340-440, RCW 64.70, and any policies or procedures specified by Ecology. The Environmental (Restrictive) Covenant shall restrict future activities and uses of the Facility as agreed to by Ecology and Defendant.

B. After approval by Ecology, Defendant shall record the Environmental (Restrictive) Covenant for affected properties it owns with the office of the King County Auditor as detailed in the Schedule (Exhibit C). Defendant shall provide Ecology with the original recorded Environmental (Restrictive) Covenants within thirty (30) days of the recording date.

C. If Ecology determines that institutional controls are required on properties not owned by Defendant, Defendant will make a good faith effort to procure an Ecology-approved Environmental (Restrictive) Covenant for each affected property. Upon a showing that Defendant has made a good faith effort to secure an Environmental (Restrictive) Covenant for an affected property and failed to do so, Ecology may assist Defendant. Defendant shall provide Ecology with the original recorded Environmental (Restrictive) Covenant within thirty (30) days of the recording date.

6. Unless otherwise directed by Ecology, Defendant shall submit to Ecology written Annual Progress Reports that describes the actions taken during the previous year to implement

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

the requirements of this Decree. All Progress Reports shall be submitted by the tenth (10th) day of the month in which they are due after the effective date of this Decree. Unless otherwise specified in writing by Ecology, Defendant shall send Progress Reports and any other documents submitted pursuant to this Decree by email to Ecology's project coordinator. The Progress Reports shall include the following:

A. A list of activities that have taken place at the Hexcel Parcels during the year.

B. Description of any sample results received during the year which deviate from the norm.

C. Detailed description of any deviations from required tasks not otherwise documented in project plans or amendment requests.

D. Description of all deviations from the Scope of Work and Schedule (Exhibit C) during the current year and any planned deviations in the upcoming year.

E. For any deviations in schedule, a plan for recovering lost time and maintaining compliance with the schedule.

F. Any raw data (including laboratory analyses) received during the previous year (if not previously submitted to Ecology), together with a detailed description of the underlying samples collected.

G. A list of planned activities for the upcoming year.

7. Financial Assurance

A. Financial assurance for corrective action is required by WAC 173-303-64620. Ecology's Financial Assurance Officer shall determine when Defendant's actions and submissions meet the requirements of WAC 173-303-64620.

B. Ecology's Financial Assurance Officer is:

Joanna Richards
Washington State Department of Ecology
P.O. Box 47600

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

Olympia, WA 98504-7600
Phone: 360-407-7220
Fax: 360-407-6715
Email: joanna.richards@ecy.wa.gov

9. Except in the case of an emergency, Defendant agrees not to perform any remedial actions at the Facility outside the scope of this Decree without prior written approval of Ecology. In the case of an emergency, Defendant must notify Ecology of the event and remedial action(s) as soon as practical, but no later than twenty-four (24) hours after discovery of the emergency.

VII. DESIGNATED PROJECT COORDINATORS

1. The project coordinator for Ecology is:

Valerie Cramer
15700 Dayton Avenue N.
P.O. Box 330316
Shoreline, WA 98133
425-698-5539
Email: vcra461@ecy.wa.gov

2. The project coordinator for Defendant is:

Katherine Garrison
19819 84th Ave S.
Kent, WA, 98032
253-437-2227
katherine.garrison@hexcel.com

3. Each project coordinator shall be responsible for overseeing the implementation of this Decree. Ecology's project coordinator will be Ecology's designated representative for the Facility. To the maximum extent possible, communications between Ecology and Defendant and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Decree shall be directed through the project coordinators. The project coordinators may designate, in writing, working level staff contacts for all or portions of the implementation of the work to be performed required by this Decree.

4. Any party may change its respective project coordinator. Written notification shall be given to the other party at least ten (10) calendar days prior to the change.

VIII. PERFORMANCE

1. Except as otherwise provided for by RCW 18.43 and 18.220, all geologic and hydrogeologic work performed pursuant to this Decree shall be under the supervision and direction of a geologist or hydrogeologist licensed by the State of Washington or under the direct supervision of an engineer registered by the State of Washington.

2. Except as otherwise provided for by RCW 18.43.130, all engineering work performed pursuant to this Decree shall be under the direct supervision of a professional engineer registered by the State of Washington.

3. Except as otherwise provided for by RCW 18.43.130, all construction work performed pursuant to this Decree shall be under the direct supervision of a professional engineer registered by the State of Washington or a qualified technician under the direct supervision of a professional engineer registered by the State of Washington.

4. As required by RCW 18.43 and 18.220, any documents submitted containing geologic, hydrogeologic, or engineering work shall be under the seal of an appropriately licensed professional.

5. Defendant shall notify Ecology in writing of the identity of any engineer(s) and geologist(s), contractor(s) and subcontractor(s), and others to be used in carrying out the terms of this Decree, in advance of their involvement at the Facility.

IX. ACCESS

1. Ecology or any Ecology authorized representative shall have access to enter and freely move about all property at the Facility that Defendant either owns, controls, or has access rights to at all reasonable times and with reasonable advance notice for the purposes of, *inter alia*: inspecting records, operation logs, and contracts related to the work being performed pursuant to this Decree; reviewing Defendant's progress in carrying out the terms of this Decree;

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

conducting such tests or collecting such samples as Ecology may deem necessary; using a camera, sound recording, or other documentary type equipment to record work done pursuant to this Decree; and verifying the data submitted to Ecology by Defendant. Such activities shall be coordinated with the Defendant and in accordance with Defendant's site security, health and safety, and other appropriate requirements.

2. Nothing in this Decree is intended by the Defendant to waive any right it may have under applicable law to limit disclosure of documents protected by the attorney work-product privilege and/or the attorney-client privilege. If Defendant withholds any requested records based on an assertion of privilege, it shall provide Ecology with a privilege log specifying the records withheld and the applicable privilege. No Facility-related data collected pursuant to this Decree shall be considered privileged.

3. If Ecology determines that Defendant must access properties within the BSB Diversified Co Inc. Facility not owned or controlled by Defendant, Defendant shall make all reasonable efforts to secure access rights for those properties, as required for remedial activities or investigations to be performed pursuant to this Decree.

4. Ecology or any Ecology authorized representative shall give reasonable notice before entering any Facility property owned or controlled by Defendant unless an emergency prevents such notice. All Parties who access the Facility pursuant to this section shall comply with any applicable security, health and safety plan(s). Ecology employees and their representatives shall not be required to sign any liability release or waiver as a condition of Facility property access.

X. SAMPLING, DATA SUBMITTAL, AND AVAILABILITY

1. With respect to the implementation of this Decree, Defendant shall make the results of all sampling, laboratory reports, and/or test results generated by it or on its behalf available to Ecology by submitting data as detailed in this section. Pursuant to WAC 173-340-840(5), all sampling data shall be submitted to Ecology in both printed and electronic formats in

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

accordance with Section VI.7 (Work to be Performed), Ecology's Toxics Cleanup Program Policy 840 (Data Submittal Requirements), and/or any subsequent procedures specified by Ecology for data submittal.

2. If requested by Ecology, Defendant shall allow Ecology and/or its authorized representative to take split or duplicate samples of any samples collected by Defendant pursuant to the implementation of this Decree. Defendant shall notify Ecology seven (7) days in advance of any sample collection or work activity at the Facility. Ecology shall, upon request, allow Defendant and/or its authorized representative to take split or duplicate samples of any samples collected by Ecology pursuant to the implementation of this Decree, provided that doing so does not interfere with Ecology's sampling. Without limitation on Ecology's rights under Section IX (Access), Ecology shall give Defendant reasonable advance notice prior to any sample collection activity unless an emergency prevents such notice.

3. In accordance with WAC 173-340-830(2)(a), all hazardous substance analyses shall be conducted by a laboratory accredited under WAC 173-50 for the specific analyses to be conducted, unless otherwise approved by Ecology.

XI. RETENTION OF RECORDS

1. During the pendency of this Decree, and for ten (10) years from the date this Decree is no longer in effect as provided in Section XXV (Duration of Decree), Defendant shall preserve all records, reports, documents, and underlying data in its possession relevant to the implementation of this Decree and shall insert a similar record retention requirement into all contracts with project contractors and subcontractors. Upon request of Ecology, Defendant shall make all records available to Ecology and allow access for review within a reasonable time.

2. Nothing in this Decree is intended by Defendant to waive any right it may have under applicable law to limit disclosure of documents protected by the attorney work-product privilege and/or the attorney-client privilege. If Defendant withholds any requested records based on an assertion of privilege, Defendant shall provide Ecology with a privilege log

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

specifying the records withheld and the applicable privilege. No Facility-related data collected pursuant to this Decree shall be considered privileged.

XII. TRANSFER OF INTEREST IN THE HEXCEL PARCELS

1. No voluntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Hexcel Parcels shall be consummated by Defendant without provision for continued operation and maintenance of any containment system, treatment system, and/or monitoring system installed or implemented pursuant to this Decree.

2. Prior to Defendant's transfer of any interest in all or any portion of the Hexcel Parcels, and during the effective period of this Decree, Defendant shall provide a copy of this Decree to any prospective purchaser, lessee, transferee, assignee, or other successor in said interest; and, at least thirty (30) days prior to any transfer, Defendant shall notify Ecology of said transfer. Upon its transfer of any interest, Defendant shall notify all transferees of the restrictions on the activities and uses of the Hexcel Parcels under this Decree and incorporate any such use restrictions into the transfer documents.

XIII. RESOLUTION OF DISPUTES

1. In the event that Defendant elects to invoke dispute resolution, Defendant must utilize the procedure set forth below.

A. Upon the triggering event (receipt of Ecology's project coordinator's written decision or an itemized billing statement), Defendant has fourteen (14) calendar days within which to notify Ecology's project coordinator in writing of its dispute (Informal Dispute Notice).

B. The Parties' project coordinators shall then confer in an effort to resolve the dispute informally. The parties shall informally confer for up to fourteen (14) calendar days from receipt of the Informal Dispute Notice. If the project coordinators cannot resolve the dispute within those fourteen (14) calendar days, then within seven (7) calendar days Ecology's project coordinator shall issue a written decision (Informal

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

Dispute Decision) stating: the nature of the dispute; the Defendant's position with regards to the dispute; Ecology's position with regards to the dispute; and the extent of resolution reached by informal discussion.

C. Defendant may then request regional management review of the dispute. Defendant must submit this request (Formal Dispute Notice) in writing to the Northwest Region Hazardous Waste and Toxics Reduction Section Manager within seven (7) calendar days of receipt of Ecology's Informal Dispute Decision. The Formal Dispute Notice shall include a written statement of dispute setting forth: the nature of the dispute; the disputing Party's position with respect to the dispute; and the information relied upon to support its position.

D. The Section Manager shall conduct a review of the dispute and shall issue a written decision regarding the dispute (Decision on Dispute) within thirty (30) calendar days of receipt of the Formal Dispute Notice.

E. If Defendant finds Ecology's Regional Section Manager's decision unacceptable, Defendant may then request final management review of the decision. Defendant shall submit this request (Final Review Request) in writing to the Hazardous Waste and Toxics Reduction Program Manager within seven (7) calendar days of Defendant's receipt of the Decision on Dispute. The Final Review Request shall include a written statement of dispute setting forth: the nature of the dispute; the disputing Party's position with respect to the dispute; and the information relied upon to support its position.

F. Ecology's Hazardous Waste and Toxics Reduction Program Manager shall conduct a review of the dispute and shall issue a written decision regarding the dispute (Final Decision on Dispute) within thirty (30) calendar days of receipt of the Final Review Request. The Hazardous Waste and Toxics Reduction Program Manager's decision shall be Ecology's final decision on the disputed matter.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

2. If Ecology's Final Decision on Dispute is unacceptable to Defendant, Defendant has the right to submit the dispute to the Court for resolution. The Parties agree that one judge should retain jurisdiction over this case and shall, as necessary, resolve any dispute arising under this Decree. Under RCW 70A.305.070, Ecology's investigative and remedial decisions shall be upheld unless they are arbitrary and capricious.

3. The Parties agree to only utilize the dispute resolution process in good faith and agree to expedite, to the extent possible, the dispute resolution process whenever it is used. Where either party utilizes the dispute resolution process in bad faith or for purposes of delay, the other party may seek sanctions.

4. Implementation of these dispute resolution procedures shall not provide a basis for delay of any activities required in this Decree, unless Ecology agrees in writing to a schedule extension or the Court so orders.

5. In case of a dispute, failure to either proceed with the work required by this Decree or timely invoke dispute resolution may result in Ecology's determination that Defendant is making insufficient progress in preparation of a deliverable, and may result in Ecology undertaking the work under Section XXII (Implementation of Remedial Action).

XIV. AMENDMENT OF DECREE

1. The Parties may agree to minor changes to the work to be performed without formally amending this Decree. Minor changes will be documented in writing by Ecology.

2. Substantial changes to the work to be performed shall require formal amendment of this Decree. This Decree may only be formally amended by a written stipulation among the Parties that is entered by the Court, or by order of the Court. Ecology will provide its written consent to a formal amendment only after public notice and opportunity to comment on the formal amendment. Such amendment shall become effective upon entry by the Court. Agreement to amend the Decree shall not be unreasonably withheld by any party.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

3. When requesting a change to the Decree, Defendant shall submit a written request to Ecology for approval. Ecology shall indicate its approval or disapproval in writing and in a timely manner after the written request is received. If Ecology determines that the change is substantial, then the Decree must be formally amended. Reasons for the disapproval of a proposed change to this Decree shall be stated in writing. If Ecology does not agree to the requested change, the disagreement may be addressed through the dispute resolution procedures described in Section XIII (Resolution of Disputes).

XV. EXTENSION OF SCHEDULE

1. Defendant's request for an extension of schedule shall be granted only when a request for an extension is submitted in a timely fashion, generally at least thirty (30) days prior to expiration of the deadline for which the extension is requested, and good cause exists for granting the extension. All extensions shall be requested in writing. The request shall specify:

A. The deadline that is sought to be extended.

B. The length of the extension sought.

C. The reason(s) for the extension.

D. Any related deadline or schedule that would be affected if the extension were granted.

2. The burden shall be on Defendant to demonstrate to the satisfaction of Ecology that the request for such extension has been submitted in a timely fashion and that good cause exists for granting the extension. Good cause may include, but may not be limited to:

A. Circumstances beyond the reasonable control and despite the due diligence of Defendant including delays caused by Ecology or third parties unrelated to Hexcel, such as (but not limited to) delays by Ecology in reviewing, approving, or modifying documents submitted by Defendant.

B. A shelter in place or work stoppage mandated by state or local government order due to public health and safety emergencies.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

C. Acts of God, including fire, flood, blizzard, extreme temperatures, storm, or other unavoidable casualty.

D. Endangerment as described in Section XVI (Endangerment).

3. However, neither increased costs of performance of the terms of this Decree nor changed economic circumstances shall be considered circumstances beyond the reasonable control of Defendant.

4. Ecology shall act upon Defendant's written request for extension in a timely fashion. Ecology shall give Defendant written notification of any extensions granted pursuant to this Decree. A requested extension shall not be effective until approved by Ecology or, if required, by the Court. Unless the extension is a substantial change, it shall not be necessary to amend this Decree pursuant to Section XIV (Amendment of Decree) when a schedule extension is granted.

5. At Defendant's request an extension shall only be granted for such period of time as Ecology determines is reasonable under the circumstances. Ecology may grant schedule extensions exceeding ninety (90) days only as a result of one of the following:

A. Delays in the issuance of a necessary permit which was applied for in a timely manner.

B. Other circumstances deemed exceptional or extraordinary by Ecology.

C. Endangerment as described in Section XVI (Endangerment).

XVI. ENDANGERMENT

1. In the event Ecology determines that any activity being performed at the Facility under this Decree is creating or has the potential to create a danger to human health or the environment, Ecology may direct Defendant to cease such activities for such period of time as it deems necessary to abate the danger. Defendant shall immediately comply with such direction.

2. In the event Defendant determines that any activity being performed at the Facility under this Decree is creating or has the potential to create a danger to human health or

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

the environment, Defendant may cease such activities. Defendant shall notify Ecology's project coordinator as soon as possible, but no later than twenty-four (24) hours after making such determination or ceasing such activities. Upon Ecology's direction, Defendant shall provide Ecology with documentation of the basis for the determination or cessation of such activities. If Ecology disagrees with Defendant's cessation of activities, it may direct Defendant to resume such activities.

3. If Ecology concurs with or orders a work stoppage pursuant to this section, Defendant's obligations with respect to the ceased activities shall be suspended until Ecology determines the danger is abated, and the time for performance of such activities, as well as the time for any other work dependent upon such activities, shall be extended, in accordance with Section XV (Extension of Schedule), for such period of time as Ecology determines is reasonable under the circumstances.

4. Nothing in this Decree shall limit the authority of Ecology, its employees, agents, or contractors to take or require appropriate action in the event of an emergency.

XVII. COVENANT NOT TO SUE

1. Covenant Not to Sue: In consideration of Defendant's compliance with the terms and conditions of this Decree, Ecology covenants not to institute legal or administrative actions against Defendant regarding the release or threatened release of hazardous substances at the Settlement Area, as detailed in Exhibit A, Figure 2, Settlement Area Diagram, which includes only the hazardous substances detailed in Section V.L (Findings of Fact). This Covenant Not to Sue does not cover any other hazardous substance(s) or area. Ecology retains all of its authority relative to any hazardous substance(s) or area not covered by this Decree.

This Covenant Not to Sue shall have no applicability whatsoever to:

A. Criminal liability.

B. Liability for damages to natural resources.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

C. Any Ecology action, including cost recovery, against PLPs not a party to this Decree.

2. Pursuant to RCW 70A.305.040(4)(c), the Court shall amend this Covenant Not to Sue if factors not known at the time of entry of this Decree are discovered and present a previously unknown threat to human health or the environment.

3. Reopeners: Ecology specifically reserves the right to institute legal or administrative action against Defendant to require it to perform additional remedial actions at the Settlement Area and to pursue appropriate cost recovery, pursuant to RCW 70A.305.050, under any of the following circumstances:

A. Upon Defendant's failure to meet the requirements of this Decree.

B. Failure of the remedial action to meet the cleanup standards identified in the CAP (Exhibit B).

C. Upon Ecology's determination that remedial action beyond the terms of this Decree is necessary to abate an imminent and substantial endangerment to human health or the environment.

D. Upon the availability of information previously unknown to Ecology regarding Settlement Area factors including the nature, quantity, migration, pathway, or mobility of hazardous substances, and Ecology's determination, in light of this information, that further remedial action is necessary at the Settlement Area to protect human health or the environment.

E. Upon Ecology's determination that additional remedial actions are necessary to achieve cleanup standards within the reasonable restoration time frame set forth in the CAP.

4. Except in the case of an emergency, prior to instituting legal or administrative action against Defendant pursuant to this section, Ecology shall provide Defendant with fifteen (15) calendar days' notice of such action.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

XVIII. CONTRIBUTION PROTECTION

1. With regard to claims for contribution against Defendant, the Parties agree that Defendant is entitled to protection against claims for contribution for matters addressed in this Decree, as provided by RCW 70A.305.040(4)(d).

XIX. INDEMNIFICATION

1. Defendant agrees to indemnify and save and hold the State of Washington, its employees, and agents harmless from any and all claims or causes of action (A) for death or injuries to persons, or (B) for loss or damage to property to the extent arising from or on account of negligent acts or omissions of Defendant, its officers, employees, agents, or contractors in entering into and implementing this Decree. However, Defendant shall not indemnify the State of Washington nor save nor hold its employees and agents harmless from any claims or causes of action to the extent arising out of the negligent acts or omissions of the State of Washington, or the employees or agents of the State, in entering into or implementing this Decree.

XX. COMPLIANCE WITH APPLICABLE LAWS

1. *Applicable Law.* All actions carried out by Defendant pursuant to this Decree shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits, except as provided in RCW 70A.305.090. At this time, no federal, state, or local requirements have been identified as being applicable to the actions required by this Decree. Defendant has a continuing obligation to identify additional applicable federal, state, and local requirements which apply to actions carried out pursuant to this Decree, and to comply with those requirements. As additional federal, state, and local requirements are identified by Ecology or the Defendant, Ecology will document in writing if they are applicable to actions carried out pursuant to this Decree, and the Defendant must implement those requirements.

2. *Relevant and Appropriate Requirements.* All actions carried out by Defendant pursuant to this Decree shall be done in accordance with relevant and appropriate requirements

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

identified by Ecology. At this time, no relevant and appropriate requirements have been identified as being applicable to the actions required by this Decree. If additional relevant and appropriate requirements are identified by Ecology or the Defendant, Ecology will document in writing if they are applicable to actions carried out pursuant to this Decree and the Defendant must implement those requirements.

3. Pursuant to RCW 70A.305.090(1), Defendant may be exempt from the procedural requirements of RCW 70A.15, 70A.205, 70A.300, 77.55, 90.48, and 90.58, and of any laws requiring or authorizing local government permits or approvals. However, Defendant shall comply with the substantive requirements of such permits or approvals. For permits and approvals covered under RCW 70A.305.090(1) that have been issued by local government, the Parties agree that Ecology has the non-exclusive ability under this Decree to enforce those local government permits and/or approvals. At this time, no state or local permits or approvals have been identified as being applicable but procedurally exempt under this section.

4. Defendant has a continuing obligation to determine whether additional permits or approvals addressed in RCW 70A.305.090(1) would otherwise be required for the remedial action under this Decree. In the event either Ecology or Defendant determines that additional permits or approvals addressed in RCW 70A.305.090(1) would otherwise be required for the remedial action under this Decree, it shall promptly notify the other party of its determination. Ecology shall determine whether Ecology or Defendant shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, Defendant shall promptly consult with the appropriate state and/or local agencies and provide Ecology with written documentation from those agencies of the substantive requirements those agencies believe are applicable to the remedial action. Ecology shall make the final determination on the additional substantive requirements that must be met by Defendant and on how Defendant must meet those requirements. Ecology shall inform Defendant in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Decree.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

Defendant shall not begin or continue the remedial action potentially subject to the additional requirements until Ecology makes its final determination.

5. Pursuant to RCW 70A.305.090(2), in the event Ecology determines that the exemption from complying with the procedural requirements of the laws referenced in RCW 70A.305.090(1) would result in the loss of approval from a federal agency that is necessary for the state to administer any federal law, the exemption shall not apply and Defendant shall comply with both the procedural and substantive requirements of the laws referenced in RCW 70A.305.090(1), including any requirements to obtain permits or approvals.

XXI. REMEDIAL ACTION COSTS

1. Defendant shall pay to Ecology costs incurred by Ecology pursuant to this Decree and consistent with WAC 173-340-550(2). These costs shall include work performed by Ecology or its contractors for, or on, the Facility under RCW 70A.305, including remedial actions and Decree preparation, negotiation, oversight, and administration. These costs shall include work performed both prior to and subsequent to the entry of this Decree. Ecology's costs shall include costs of direct activities and support costs of direct activities as defined in WAC 173-340-550(2). For all costs incurred, Defendant shall pay the required amount within (60) days of receiving from Ecology an itemized statement of costs that includes a summary of costs incurred, an identification of involved staff, and the amount of time spent by involved staff members on the project. A general statement of work performed will be provided upon request. Itemized statements shall be prepared quarterly. Pursuant to WAC 173-340-550(4), failure to pay Ecology's costs within ninety (90) days of receipt of the itemized statement of costs will result in interest charges at the rate of twelve percent (12%) per annum, compounded monthly.

2. In addition to other available relief, pursuant to RCW 19.16.500, Ecology may utilize a collection agency and/or, pursuant to RCW 70A.305.060, file a lien against real property subject to the remedial actions to recover unreimbursed remedial action costs.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

XXII. IMPLEMENTATION OF REMEDIAL ACTION

1. If Ecology determines that the Defendant has failed to make sufficient progress or failed to implement the remedial action, in whole or in part, Ecology may, after notice to Defendant, perform any or all portions of the remedial action or at Ecology's discretion allow the Defendant opportunity to correct. In an emergency, Ecology is not required to provide notice to Defendant, or an opportunity for dispute resolution. The Defendant shall reimburse Ecology for the costs of doing such work in accordance with Section XXI (Remedial Action Costs).

2. Except where necessary to abate an emergency situation or where required by law, the Defendant shall not perform any remedial actions at the Facility outside those remedial actions required by this Decree to address the contamination that is the subject of this Decree, unless Ecology concurs, in writing, with such additional remedial actions pursuant to Section XIV (Amendment of Decree). In the event of an emergency, or where actions are taken as required by law, Defendant must notify Ecology in writing of the event and remedial action(s) planned or taken as soon as practical but no later than within twenty-four (24) hours of the discovery of the event.

XXIII. PERIODIC REVIEW

1. So long as remedial action continues at the Facility, the Parties agree to review the progress of remedial action at the Facility, and to review the data accumulated as a result of monitoring the Facility as often as is necessary and appropriate under the circumstances. Unless otherwise agreed to by Ecology, at least every five (5) years after the initiation of cleanup action at the Facility the Parties shall confer regarding the status of the Facility and the need, if any, for further remedial action at the Facility. At least ninety (90) days prior to each periodic review, Defendant shall submit a report to Ecology that documents whether human health and the environment are being protected based on the factors set forth in WAC 173-340-420(4). Under Section XVII (Covenant Not to Sue), Ecology reserves the right to require further remedial

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

action at the Facility under appropriate circumstances. This provision shall remain in effect for the duration of this Decree.

XXIV. PUBLIC PARTICIPATION

1. Ecology shall maintain the responsibility for public participation at the Facility. However, Defendant shall cooperate with Ecology, and shall:

A. If agreed to by Ecology, develop appropriate mailing lists, prepare drafts of public notices and fact sheets at important stages of the remedial action, such as the submission of work plans, remedial investigation/feasibility study reports, cleanup action plans, and engineering design reports. As appropriate, Ecology will edit, finalize, and distribute such fact sheets and prepare and distribute public notices of Ecology's presentations and meetings.

B. Notify Ecology's project coordinator prior to the preparation of all press releases and fact sheets, and before meetings related to remedial action work to be performed at the Facility with the interested public and/or local governments. Likewise, Ecology shall notify Defendant prior to the issuance of all press releases and fact sheets related to remedial action work to be performed at the Facility, and before meetings related to remedial action work to be performed at the Facility with the interested public and/or local governments. For all press releases, fact sheets, meetings, and other outreach efforts by Defendant that do not receive prior Ecology approval, Defendant shall clearly indicate to its audience that the press release, fact sheet, meeting, or other outreach effort was not sponsored or endorsed by Ecology.

C. When requested by Ecology, participate in public presentations on the progress of the remedial action at the Facility. Participation may be through attendance at public meetings to assist in answering questions, or as a presenter.

D. When requested by Ecology, arrange and/or continue information repositories at the following locations:

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

i. Kent Library
212 2nd Avenue N
Kent, WA 98032

ii. Ecology's Northwest Regional Office
15700 Dayton Avenue N.
Shoreline, WA 98133

At a minimum, copies of all public notices, fact sheets, and documents relating to public comment periods shall be promptly placed in these repositories. A copy of all documents related to this Facility shall be maintained in the repository at Ecology's Northwest Regional Office in Shoreline, Washington.

XXV. DURATION OF DECREE

1. The remedial program required pursuant to this Decree shall be maintained and continued until Defendant has received written notification from Ecology that the requirements of this Decree have been satisfactorily completed. This Decree shall remain in effect until dismissed by the Court. When dismissed, Section XI (Retention of Records), and Section XVII (Covenant Not to Sue) shall survive.

XXVI. CLAIMS AGAINST THE STATE

1. Defendant hereby agrees that it will not seek to recover any costs accrued in implementing the remedial action required by this Decree from the State of Washington or any of its agencies; and further, that Defendant will make no claim against the State Toxics Control Account, the Local Toxics Control Account, the Environmental Legacy Stewardship Account, or a MTCA Cleanup Settlement Account for any costs incurred in implementing this Decree. Except as provided above, however, Defendant expressly reserves its right to seek to recover any costs incurred in implementing this Decree from any other PLP. This section does not limit or address funding that may be provided under WAC 173-322A.

XXVII. EFFECTIVE DATE

1. This Decree is effective upon the date it is entered by the Court.

XXVIII. WITHDRAWAL OF CONSENT

1. If the Court withholds or withdraws its consent to this Decree, it shall be null and void at the option of any party and the accompanying Complaint shall be dismissed without costs and without prejudice. In such an event, no party shall be bound by the requirements of this Decree.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

KATRINA LASSITER
Program Manager
Hazardous Waste and Toxics Reduction Program
360-407-6702

Date: _____

ROBERT W. FERGUSON
Attorney General

JOHN A. LEVEL, WSBA No. 20439
Assistant Attorney General
360-586-6753

Date: _____

HEXCEL CORPORATION

MICHAEL DICKERSON
Plant Manager – Hexcel Kent
800-227-2147

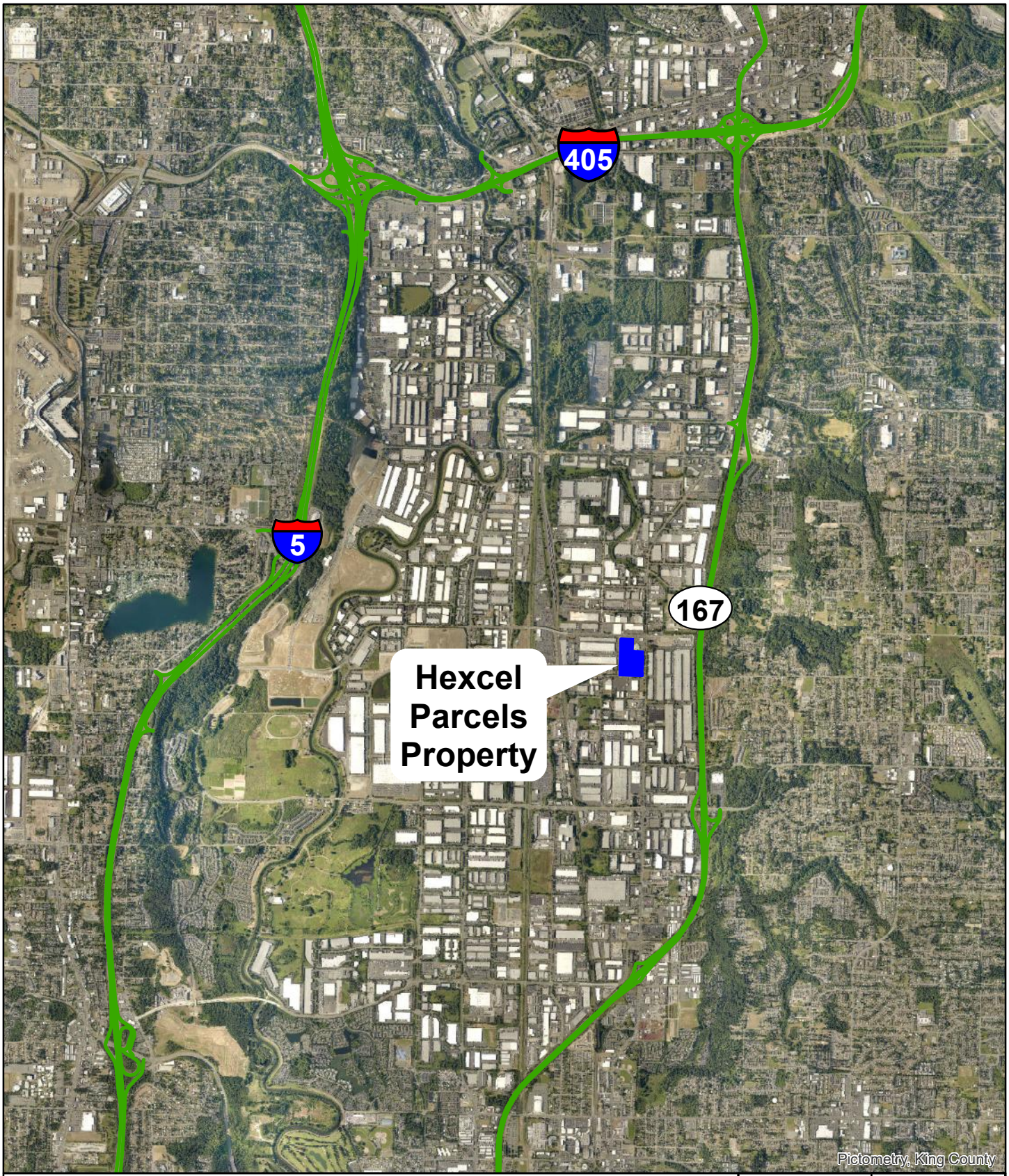
Date: _____

ENTERED this _____ day of _____ 2023.

JUDGE
King County Superior Court

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
360-586-6770

Exhibit A



0 2,000 4,000
Feet

CLEAR CREEK ASSOCIATES

File ID 273-007

Date 6/18/18

Projection: NAD 1983 State Plane Washington North FIPS 4601 Feet

FIGURE 1
Hexcel Property
Location Map

0 130 260
Feet

CLEAR CREEK ASSOCIATES

File ID 273-015

Date 6/18/18

FIGURE 2
Settlement Area Diagram

Projection: NAD 1983 State Plane Washington North FIPS 4601 Feet
Parcel data provided by permission of King County Source: King County GIS Data Portal (https://www5.kingcouny.gov/gisdataportal/)

Modified 1/21/2022 by WA State Dept. of Ecology

0 130 260
Feet

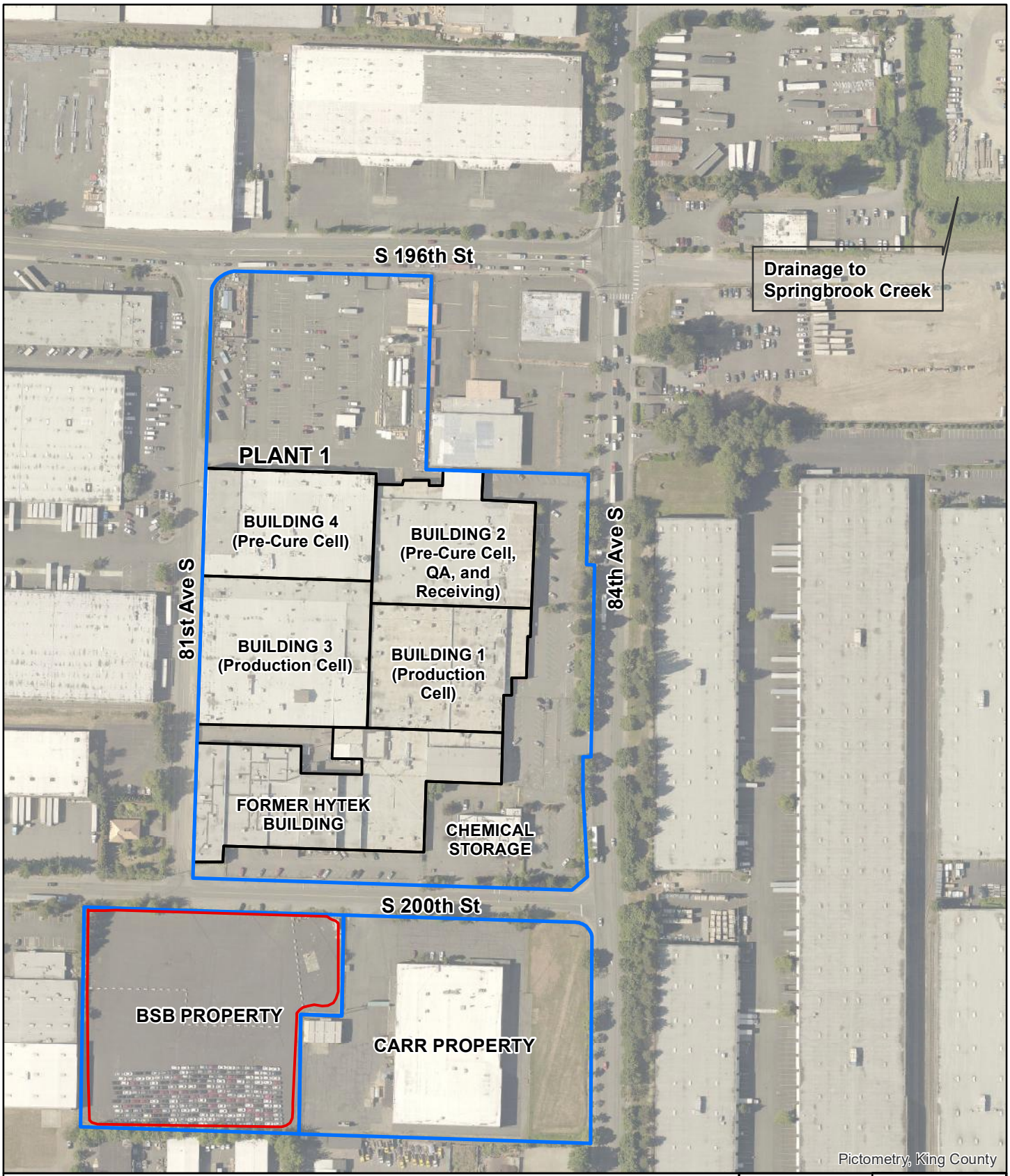
CLEAR CREEK ASSOCIATES

File ID 273-015

Date 6/18/18

Projection: NAD 1983 State Plane Washington North FIPS 4601 Feet
Parcel data provided by permission of King County Source: King County GIS Data Portal (https://www5.kingcouny.gov/gisdataportal/)

FIGURE 3
Historical Parcel Designations



Legend

- Parcel Boundaries
- Subsurface Soil-Bentonite Cutoff

0 150 300
Feet

CLEAR CREEK ASSOCIATES

File ID 273-009

Date 8/14/18

Projection: NAD 1983 State Plane Washington North FIPS 4601 Feet
Parcel data provided by permission of King County Source: King County GIS Data Portal
(https://www5.kingcouny.gov/gisdataportal/)

FIGURE 4
Building and
Property Map

This Historical Site Map delineates the extent of the subsurface area of contamination prior to the BSB soil-bentonite containment wall installation in 2011.

0 250 500
Feet

CLEAR CREEK ASSOCIATES

File ID 273-008
Date 6/18/18

FIGURE 5
Historical Site Map

Projection: NAD 1983 State Plane Washington North FIPS 4601 Feet

Modified 1/20/2022 by WA State Dept. of Ecology

2022 Site Map delineates the extent of the subsurface contamination after the BSB soil-bentonite containment wall installation in 2011.

0 250 500
Feet

CLEAR CREEK ASSOCIATES

File ID 273-008
Date 6/18/18

FIGURE 6
2022 Site Map

Projection: NAD 1983 State Plane Washington North FIPS 4601 Feet

Modified 1/20/2022 by WA State Dept. of Ecology

Exhibit B

Hexcel Kent Operable Unit of the BSB Diversified Co., Inc. Site

DRAFT CLEAN ACTION PLAN

Kent, Washington

Issued By:

Hazardous Waste and Toxics Reduction Program
Washington State Department of Ecology
Shoreline, Washington

July 2024

Publication Information

This document is available on the Department of Ecology's website at:
https://apps.ecology.wa.gov/cleanupsearch/site/2624

Related Information

- **Clean-up site ID**: 2624
- **Facility site ID:** 53292855

Contact Information

Hazardous Waste and Toxics Reduction Program

Department of Ecology
Northwest Region Office
15700 Dayton Ave. N
Shoreline, WA 98133-9715
Phone: 206-594-0000
Website[1]: Washington State Department of Ecology

ADA Accessibility

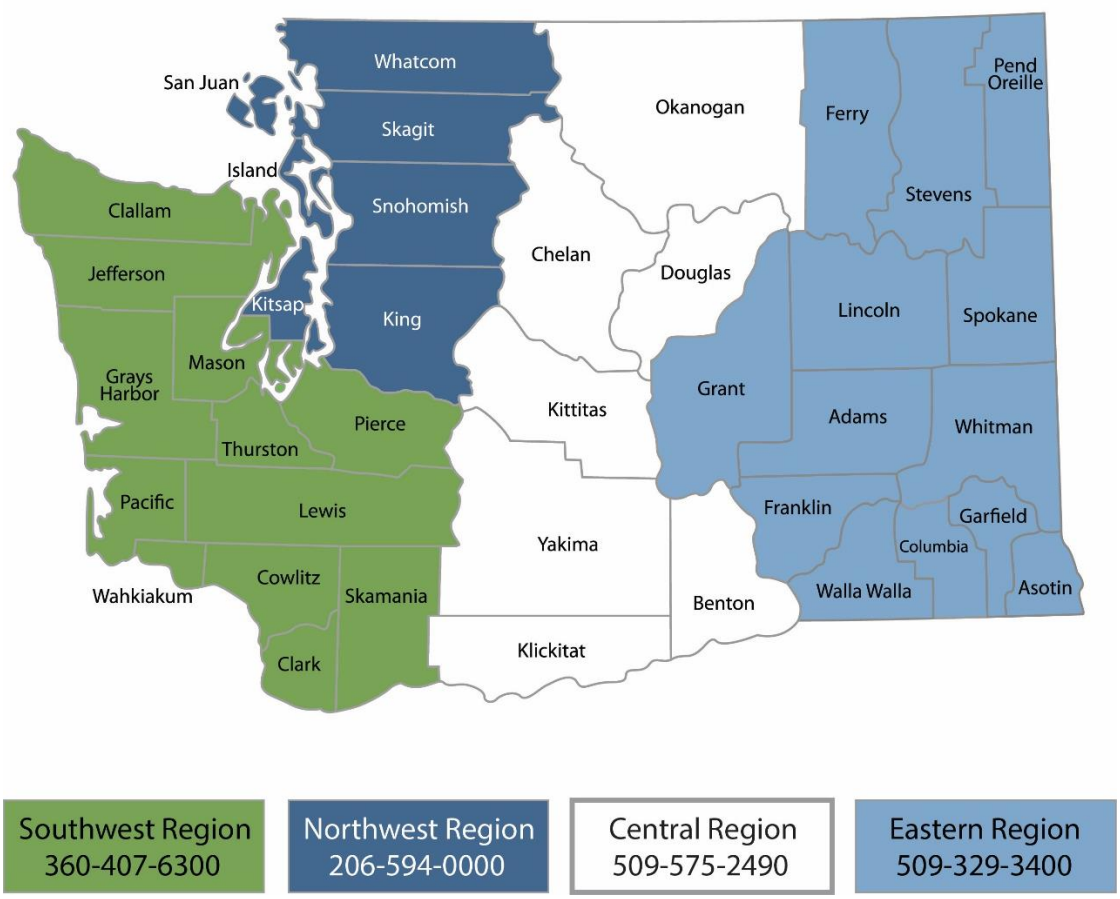
The Department of Ecology is committed to providing people with disabilities access to information and services by meeting or exceeding the requirements of the Americans with Disabilities Act (ADA), Section 504 and 508 of the Rehabilitation Act, and Washington State Policy #188.

To request an ADA accommodation, contact Ecology by phone at 360-407-7170 or email at Jennifer.reidmayer@ecy.wa.gov. For Washington Relay Service or TTY call 711 or 877-833-6341. Visit Ecology's website for more information.

[1] www.ecology.wa.gov/contact

Department of Ecology's Regional Offices

Map of Counties Served



Region	Counties served	Mailing Address	Phone
Southwest	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	P.O. Box 47775 Olympia, WA 98504	360-407-6300
Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	P.O. Box 330316 Shoreline, WA 98133	206-594-0000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 West Alder Street Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 North Monroe Spokane, WA 99205	509-329-3400
Headquarters	Statewide	P.O. Box 46700 Olympia, WA 98504	360-407-6000

Hexcel Kent Operable Unit of the BSB Diversified Co., Inc. Site

Cleanup Action Plan

Hazardous Waste and Toxics Reduction Program
Department of Ecology
Northwest Region Office

Shoreline, WA

July 2024

DEPARTMENT OF
ECOLOGY
State of Washington

Table of Contents

1 INTRODUCTION 1

1.1 Purpose 1
1.2 Document Organization 2
1.3 Declaration 2
1.4 Applicability 2
1.5 Administrative Record 3

2.0 BACKGROUND 4

2.1 Site Description 4
2.2 Property Description 4
2.3 Property Ownership History 5
2.4 Historical Waste Treatment Operations 5
2.5 Previous Investigations 7
2.6 Site Remediation 8

3.0 SITE CONDITIONS 10

3.1 Environmental Setting 10
3.2 Hydrogeology 10
3.3 Groundwater 12
3.3.1 Occurrence 12
3.3.2 Aquifer Properties 12
3.3.3 Flow Direction and Velocity 12
3.4 Surface Water 13

4.0 NATURE AND EXTENT OF CONTAMINATION 14

4.1 Soil 14
4.2 Groundwater 16
4.3 Surface Water 22

5.0 RISKS TO HUMAN HEALTH AND THE ENVIRONMENT 23

5.1 Contaminant Sources and Migration Mechanisms 23
5.2 Exposure Pathways and Receptors 23
5.3 Potential Hazardous Substances 23
5.4 Potential Sources of Hazardous Substances 24
5.5 Potentially Contaminated Media & Migration Mechanisms 24
5.6 Potential Exposure Pathways 24
5.6.1 Groundwater 25

5.6.2 Saturated Zone Soil 25
5.6.3 Site Conceptual Model Summary 26

6.0 CLEANUP STANDARDS 27
6.1 Identification of ARARS 27
6.2 Cleanup Levels 27
6.3 Points of Compliance 28

7.0 SUMMARY OF CLEANUP ACTION ALTERNATIVES EVALUATED 29
7.1 Cleanup Action Objectives 29
7.2 Process Overview & Conclusion 29
7.3 MTCA Threshold Requirement Evaluation of Cleanup Action Alternatives 30
7.3.1 Alternative 1 – Site-Wide Groundwater Extraction 30
7.3.2 Alternative 2 – Full-Scale Enhanced In Situ Bioremediation 31
7.3.3 Alternative 3 – Site-Wide Monitored Natural Attenuation (MNA) with contingency for supplemental Enhanced In Situ Bioremediation (EISB) 32
7.3.4 Alternative 4 – Monitored Natural Attenuation 33
7.4 Disproportionate Cost Analysis 34
7.5 Evaluation of Cleanup Action Alternatives 35
7.5.1 Reasonable Restoration Timeframe Analysis 35
7.5.2 Alternative 3 Selection Considerations 35
8.0 SELECTED CLEANUP ACTION 37
8.1 Selected Cleanup Action 37
8.1.1 Contingency Triggers and Implementation of Supplemental Enhanced In Situ Bioremediation 38
8.2 Overall Implementation Approach 38
8.3 Institutional Controls 39
8.4 Financial Assurances 39
8.5 Substantive Requirements 40
8.6 Work Plans 40
REFERENCES 41

List of Figures and Tables

LIST OF TABLES

Table 1: Vinyl Chloride results from Groundwater Monitoring Wells 2012-2018

Table 2: Applicable, Relevant and Appropriate Requirements (ARARs)

Table 3: Potential Groundwater Cleanup Levels for Vinyl Chloride

Table 4: Disproportionate Cost Analysis

LIST OF FIGURES

Figure 1: General Location Map

Figure 2: Site Map

Figure 3: Parcel Location Map

Figure 4: Groundwater Monitoring Well Locations

Figure 5: East-West Cross Section

Figure 6: North-South Cross Section

Figure 7: Contour Map of Shallow Groundwater Elevations

Figure 8: Potentiometric Surface, Upper Layer D

Figure 9: Potentiometric Surface, Lower Layer D

Figure 10: Historical Vinyl Chloride Concentrations in Shallow Aquifer Groundwater

Figure 11: Historical cis-1,2 Dichloroethene Concentrations in Shallow Aquifer Groundwater

Figure 12: Historical Trichloroethene Concentrations in Shallow Aquifer Groundwater

Figure 13: September 2021 cis-1,2 Dichloroethene Groundwater Concentrations

Figure 14: September 2021 Vinyl Chloride Groundwater Concentrations

Figure 15: Plots of vinyl chloride concentrations versus time for select groundwater monitoring wells

Figure 16: Plots of vinyl chloride concentrations versus time for select groundwater monitoring wells

Figure 17: Plot of vinyl chloride concentrations versus distance for select groundwater monitoring wells

LIST OF APPENDICES

Appendix A Enhanced In Situ Bioremediation Contingency Plan

Appendix B Compliance Monitoring Plan and Operation and Maintenance Plan Hexcel Parcels

Acronyms and Abbreviations

AO	Agreed Order
ARAR	Applicable or Relevant and Appropriate Requirement
bgs	below ground surface
BSB	B.S.B. Diversified Company, Inc. Property
CAP	Corrective Action Plan
CCA	Clear Creek Associates
cDCE	cis-1,2-dichloroethylene
CLARC	Cleanup Levels and Risk Calculation
CSM	Conceptual Site Model
CUL	Cleanup Level
Ecology	Washington State Department of Ecology
EISB	Enhanced In Situ Bioremediation
EO	Enforcement Order
FFS	Focused Feasibility Study
FRI	Focused Remedial Investigation
ft	Feet
Hexcel	Hexcel Corporation
Hexcel Parcels	Hexcel Parcels is inclusive of other non-source/residual contamination at the Site located hydraulically downgradient of Parcel G and north of South 200th Street
HGC	Hydro Geo Chem
Hytek	Hytek Finishes Company
gpm	gallons per minute
MCL	Maximum Contaminant Level
MDL	Analytical laboratory Method Detection Level
mg/kg	milligrams per kilogram (same as parts per million)
MNA	Monitored Natural Attenuation

MTCA	Model Toxics Control Act
O&M	Operations and Maintenance
Parcel G	Refers to B.S.B. Diversified, Inc. (BSB)
PCB	Polychlorinated Biphenyl
PV	Pore Volume
R	Retardation Factor
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
Site	Site means the same as “facility” (includes any area where a hazardous substance has come to be located)
SSPA	S.S. Papadopulos and Associates, Inc.
SVOC	Semi-volatile Organic Compound
TCE	Trichloroethene
TSDF	Treatment, Storage, Disposal Facility
EPA	Environmental Protection Agency
VC	Vinyl Chloride
VOC	Volatile Organic Compound
WAC	Washington Administrative Code
WISHA	Washington Industrial Safety and Health Act
µg/L	micrograms per liter (same as parts per billion)

1 INTRODUCTION

1.1 Purpose

This *Cleanup Action Plan* (CAP) was prepared by Geosyntec Consultants on behalf of Hexcel Corporation (Hexcel) (see **General Location Map, Figure 1**), submitted to the Washington State Department of Ecology (Ecology), and then revised by Ecology. The CAP specifies the remedy for the non-source contamination portions of the B.S.B. Diversified Co Inc (BSB) Site (Site) in Kent, Washington (see **Site Map, Figure 2**), which is principally on the Hexcel Plant 1 property and owned by Hexcel. The Hexcel Plant 1, located at 19819 84th Avenue South in Kent, Washington, includes Parcels A through E (see **Parcel Location Map, Figure 3**) and, is hydraulically downgradient of Parcel G, the BSB, which was historically the principal hazardous substances source area of the Site. Ecology previously selected a remedy for the BSB portion of the Site that has already been implemented. BSB is located on what is referred to as Parcel G[2].

This CAP specifies a remedy for the remediation of residual vinyl chloride (VC) in groundwater at the Hexcel Kent Operable Unit (Hexcel Parcels) of the Site. This portion of the Site is referenced in this document as the "Hexcel Parcels."[3] The selected remedy for the Hexcel Parcels consists of monitored natural attenuation (MNA) with contingency for supplemental Enhanced In Situ Bioremediation (EISB). The CAP has been developed in accordance with the Model Toxics Control Act (MTCA) under Chapter 70A.305 of the Revised Code of Washington (RCW) and Chapter 173-340 of the Washington Administrative Code (WAC). With the issuance of this CAP, a final remedy has been selected for the Hexcel Parcels.

The selected cleanup action is based on site-specific data provided in the Clear Creek Associates (CCA) 2018 Draft Focused Remedial Investigation (FRI) Summary Hexcel Plant 1, the 2018 Geosyntec Focused Feasibility Study (FFS) for Hexcel Plant, and documents referenced therein. The FRI and FFS documents are on file at Ecology's Northwest Regional Office located at 15700 Dayton Ave. N, Shoreline, Washington 98133-5910.

[2] Parcel G will be used in this document to refer to the parcel owned by B.S.B. Diversified, Inc. (BSB)

[3] For simplicity, except where specifically noted, reference in this document to contamination located on the Hexcel Parcels A through E is inclusive of other non-source contamination at the Site located hydraulically downgradient of Parcel G and north of South 200th Street.

1.2 Document Organization

The Cleanup Action Plan contains eight sections. The organization, structure, and the Hexcel Parcels description follow the format used in B.S.B.'s CAP (B.S.B. Diversified, 2011, Exhibit A, Cleanup Action Plan). A brief description of each section is presented below.

- **Section 1 – Introduction.** Section 1 contains an overview of the CAP.
- **Section 2 – Background.** Section 2 provides a summary of the Parcels A through G description and history, the investigations conducted, and the cleanup actions previously performed at the Hexcel Parcels and other areas addressed by this CAP.
- **Section 3 – Site Conditions.** Section 3 discusses the hydrogeology and groundwater conditions at the Hexcel Parcels.
- **Section 4 – Nature and Extent of Contamination.** Section 4 discusses the nature and extent of contamination in soil and groundwater at the Hexcel Parcels.
- **Section 5 – Risks to Human Health and the Environment.** Section 5 outlines contaminant sources, exposure pathways, and receptors to the Hexcel Parcels contamination.
- **Section 6 – Cleanup Standards.** Section 6 discusses the groundwater cleanup level (CUL) for VC, points of compliance, and areas exceeding the CUL.
- **Section 7 – Summary of Cleanup Action Alternatives Evaluated.** Section 7 presents the four cleanup action alternatives that were evaluated in the feasibility study.
- **Section 8 – Selected Cleanup Action.** Section 8 discusses the selected cleanup action, including the implementation approach and preliminary design considerations.

1.3 Declaration

In accordance with WAC 173-340-360(2)(a), the selected cleanup action meets the threshold requirements, is protective of human health and the environment, complies with applicable state and federal laws, and provides for compliance monitoring. The selected remedy is consistent with the preference of the State of Washington as stated in RCW 70A.305.030(1)(b) for permanent cleanup solutions.

1.4 Applicability

The cleanup standards and the selected cleanup action have been developed as an overall remediation process under Ecology oversight using MTCA authority.

1.5 Administrative Record

The documents used to make the decisions discussed in this CAP are part of the administrative record for the Site. The entire administrative record for the Site is available for public review by appointment at Ecology's Northwest Regional Office. To review or obtain copies of the above documents, contact Ecology's Northwest Regional Office's Public Disclosure Coordinator at 206-594-0000.

2.0 BACKGROUND

2.1 Site Description

The Site includes Parcels A through G, as well as other non-source contamination portions of the Site where Hazardous Substances have been deposited, stored, disposed of, placed, or otherwise come to be located and former release locations of hazardous substances on Parcel G. Parcels A, B, C, D, and E are currently owned and controlled by Hexcel Corporation, located at 19819 84th Avenue South in Kent, Washington. Parcel F is currently owned and controlled by Carstens Carr Building, LLC, located at 8311 South 200th Street in Kent, Washington. Parcel G is currently owned and controlled by BSB, located at 8202 S. 200th Street in Kent, Washington (*see* **Parcel Location Map, Figure 3**). The other non-source contamination portions of the Site include the area east of the Hexcel Parcels A-E (*see* **Site Map, Figure 2**).

Remedial action at the Site has been proceeding on different schedules, with different persons undertaking different remedial actions for different portions of the Site under three separate administrative orders. This remedial action work includes the source area and the non-source contamination portions of the Site.

Source area: The FRI, FFS, and CAP have been completed for Parcel G (BSB), which is a source area of contamination. Parcel G is covered by Consent Decree No. 11-2-27288-5 (King County Superior Court, entered August 10, 2011) and an Ecology Dangerous Waste Management Permit ID #WAD076655182 for Remedial Corrective Action.

Non-source contamination area: Hexcel's remedial action work at Parcels A through E was covered by MTCA Enforcement Order (EO) # DE 2552 for the FRI and FFS. Ecology entered into MTCA Agreed Order # 2553 with BSB and Hexcel for a Downgradient Area Groundwater Investigation for the non-source contamination portions of the Site outside of Parcels A-G.

The Hexcel FRI, FFS, and CAP cover the non-source contamination portions of the Hexcel Parcels.

2.2 Property Description

The property that makes up the Hexcel Parcels has been assigned King County Assessor's Office Parcel No. 012204-9061. The Hexcel Parcels (Parcels A, B, C, D, and E) are located in Township 22 North, Range 4 East, Section 1H (latitude 47° 25' 22" North and longitude 122° 13' 51" West) and are bounded on the south by South 200th Street, on the west by 81st Avenue South, on the north by South 196th Street, and on the east by 84th Avenue South. The area surrounding the Hexcel Parcels is topographically flat and is zoned "Limited Industrial." Commercial and industrial park properties are located around the Hexcel Parcels. The Carr

industrial facility (Parcel F) is located to the south of the Hexcel Parcels, and east and adjacent to Parcel G.

2.3 Property Ownership History

The Hytek Finishes Company (Hytek), a division of Criton Technologies, operated a metal finishing and electroplating plant at 8202 South 200th Street (now part of Hexcel). Criton Technologies also had an adjacent composite products manufacturing division named Heath Tecna Aerospace Company at 19819 84th Avenue South (also now part of Hexcel). This was an operating manufacturing facility.

The Hytek division ceased Treatment, Storage, and Disposal Facility (TSDF) operations regulated under the federal Resource Conservation and Recovery Act (RCRA) and Washington's Hazardous Waste Management Act in 1985.

In 1987, BSB obtained both the Hytek and Heath Tecna Aerospace divisions, currently referred as Parcels A through G (*see* **Parcel Location Map, Figure 3**). In 1988, BSB sold the Heath Tecna Aerospace division and Parcels A through F to the Phoenix Washington Corporation, a wholly owned subsidiary of Ciba-Geigy. The Phoenix Washington Corporation subsequently changed its name to Heath Tecna Aerospace Company. BSB relocated Hytek's operations and sold the division in 1989, retaining ownership of Parcel G.

In 1996, Hexcel acquired Heath Tecna Aerospace Company, including Parcels A through F, and assumed obligations of Heath Tecna regarding Parcels A through F. This property has been used for industrial purposes since the mid-fifties. Parcel F, located adjacent to Parcel G to the east, was sold by Hexcel in August 2003 to Carr Prop II, LLC (and then later sold to Carstens Carr Building, LLC).

2.4 Historical Waste Treatment Operations

A variety of industrial and hazardous wastes that were generated on Parcels A through E were formerly treated and stored in a waste treatment area located on Parcel G. The waste treatment area was located in the northeast and southern portions of Parcel G, and within a parking lot, located in the northwest portion of the parcel. Waste handling reportedly occurred on Parcel G between the mid-1950s, when electroplating operations were begun on Parcels A through E, and 1985, when Hytek TSDF activities ceased.

Wastewater generated on Parcels A through E was transferred to Parcel G through pipes under South 200th Street (Hytek, 1985a). The pipe run entered the northeast corner of Parcel G and discharged into an equalizing lagoon; the discharged wastewater contained metals and inorganics. In 1981, approximately 40,000 gallons of wastewater was generated daily.

Parcel G housed impoundments, lagoons, and units for managing waste through treatment and disposal, including hazardous wastes. The wastes at Parcel G included chlorinated solvents, such as trichloroethene (TCE). Parcel G closed the storage and disposal units before 1988 (PES Environmental, Inc. (PES), 2005).

Parcels A through G were operated as a dangerous waste management facility on or after November 1980, when the facilities became subject to permitting under RCRA. Pursuant to a Post Closure Permit issued in 1988, BSB installed and operated a groundwater pumping system, which had extraction wells on the north side of Parcel G to control contaminated groundwater from that property and extraction wells on the east side of Parcels C, D, and E to prevent contaminated groundwater beneath the Hexcel Parcels from flowing off property. BSB continued operating the system after Hexcel's acquisition of Parcels A through E.

In 2005, Ecology issued an Enforcement Order DE 2552 (EO) requiring Hexcel to take over operation of the portion of the groundwater extraction on the Hexcel Parcels and to conduct groundwater monitoring. The remedial actions at the Hexcel Parcels are described in more detail in Section 5 of the FRI (CCA, 2018). The EO also required Hexcel to conduct and submit an FRI and an FFS.

While the FRI work was proceeding, BSB proposed a containment-based cleanup action for Parcel G (PES, 2008), which is the source of the contaminants on the Hexcel Parcels. Because that proposed remedy on Parcel G would isolate the contaminant source and allow flushing and/or natural attenuation of the Hexcel Parcels' VC plume by ambient groundwater, it had the potential to result in a significant change in groundwater conditions at the Hexcel Parcels and to make some of the proposed FRI work unnecessary. Consequently, Ecology modified the FRI requirement in the 2009 EO (Ecology, 2009). The modified FRI approach consisted of completing a vadose zone soil investigation, a compilation and evaluation of site investigation and monitoring data, and continued groundwater monitoring during the implementation of the BSB remedy. The Hydro Geo Chem (HGC) vadose zone soil investigation (HGC, 2010) and the compilation and evaluation of site environmental data (HGC, 2010b) were submitted to Ecology in 2010.

In 2005, Ecology also issued Agreed Order No. DE 2551 (AO) to BSB for environmental actions on Parcel G, and in 2011, BSB entered into Consent Decree No. 11-2-27288-5 with Ecology. The Consent Decree implemented a partial Cleanup Action Plan for the Site, stipulating a remedy consisting of a surface cap and a sub-surface soil-bentonite cutoff wall for containment of contaminants on Parcel G, and the use of a zero valent iron reactor vessel or a carbon filter system to treat water removed from the containment zone for hydraulic gradient control. Construction of the Parcel G remedy was completed in 2012.

Hexcel has conducted groundwater monitoring and operated the groundwater extraction system at Parcels A through E after the completion of the Parcel G remedy, which isolated the upgradient site contaminant source. Beginning in 2014, Hexcel conducted a sequence of shutdown tests at the CG-series groundwater extraction wells (the CG Well Shutdown Tests) and monitored water quality for any changes. The motivation for the shutdown of the groundwater extraction wells was that the groundwater being pumped met the CUL for VC. In 2015, Hexcel implemented laboratory and field studies of in situ bioremediation and monitored natural attenuation. An Interim Action consisting of expanded pilot program utilizing EISB was implemented in 2017 under the EO. The Hexcel Draft FFS proposed MNA with contingency for supplemental EISB as the cleanup action alternative to remediate VC present above cleanup standards in groundwater. A map of monitoring wells for the Hexcel Parcels is provided (*see* **Groundwater Monitoring Well Locations, Figure 4**).

2.5 Previous Investigations

Numerous site investigations have been conducted at the site over the past forty years. The FRI Report (CCA, 2018) provides an account of the activities conducted through 2017.

Section 4 of the FRI (CCA, 2018) summarizes these investigations, and provides a detailed account of more recent investigations and current conditions at the Hexcel Parcels. HGC Data Compilation and Evaluation (2010b) should be referred to if additional information is needed regarding the studies cited or data for specific contaminants. The description of historical conditions in the FRI is based on the following investigations and data sources reviewed by HGC (2010b).

- 1980-1981 EPA Site Investigation
- 1982 Hytek Phase 1 Investigation
- 1983-1984 Hytek Phase 2 Investigation
- 1984 Hytek Phase 3 Investigation
- 1985 Hytek Monitor Well Installation
- 1986 Hytek Soil Gas Survey
- 1987 Hytek Groundwater Investigation
- 1988 Hytek Polychlorinated Biphenyls (PCBs)
- 1989 BSB Pilot Recovery Program Investigation
- 1988 through 2005 Groundwater Monitoring by BSB
- 1992 Soil Sampling at Proposed Chemical Storage Facility
- 1995 Heath Tecna Facility Phase 1 Environmental Site Assessment
- 2000 Hexcel Facility Phase 1 Environmental Site Assessment
- 2002 Hexcel Facility Plant 1 Vaults Sludge and Water Sampling
- 2003 Hexcel Facility Source Investigation

- 2003 through 2009 Groundwater Monitoring by Hexcel
- 2003 Interim Technical Memorandum: Bioremediation Screening
- 2005 Interim Action Plan
- 2006 Hexcel Facility CNC Pad Soil Borings
- 2007 Development of Groundwater Cleanup Levels
- 2008 Deep Aquifer Investigation
- 2008 Downgradient Area Groundwater Investigation
- 2008 Indoor Air Sampling at Plant 1
- 2009 Vadose Zone Soil Sampling
- 2010 Data Compilation and Evaluation, Hexcel Plant 1

In addition, subsequent Interim Actions extensively characterized the site geochemistry with respect to natural attenuation and feasibility of enhanced in-situ bioremediation performance at the Hexcel Parcels. These interim actions were conducted from early 2015 through the summer of 2019, and the following are work plans implemented as part of those interim actions.

- 2015a Microcosm Study and Pilot Study Work Plan
- 2015b Update on Microcosm Study
- 2015c Work Plan Addendum: In Situ Bioremediation Pilot Test
- 2017 Enhanced In Situ Bioremediation Work Plan Addendum

2.6 Site Remediation

Section 5 of the FRI provides a comprehensive discussion of remedial actions performed at the Hexcel Parcels. The following is a summary of those actions.

From 1992 to 2009, BSB performed groundwater extraction at Parcel G via two wells (HYR-1 and HYR-2). The Parcel G groundwater extraction program removed contaminant mass, but did not provide complete control of contaminant migration onto the Hexcel Parcels. In 2012, BSB completed the installation of a low-permeability bentonite-soil slurry wall, significantly mitigating migration of residual chlorinated volatile organic compound (VOC) mass in the shallow aquifer onto the Hexcel Parcels.

From 1992 through 2016, groundwater extraction was performed at the Hexcel Parcels through four groundwater extraction wells (CG-1 through CG-4). Groundwater extraction provided hydraulic control of migration of dissolved VOCs and also removed contaminant mass from the aquifer. Operation and performance have been documented in routine monitoring reports to Ecology. Following the control of the shallow aquifer source by BSB, and after consultation and approval by Ecology, Hexcel systematically turned off extraction wells as monitoring confirmed groundwater concentrations for VC fell below the MTCA A CUL (CCA, 2019). The four

groundwater extraction wells were permanently shutdown in the following sequence: CG-1 on May 8, 2014; CG-2 on September 4, 2014; CG-3 on February 5, 2016; and, CG-4 on December 22, 2016. The CG-well shutdowns were done in advance of the expanded EISB pilot injections.

Naturally occurring biodegradation of TCE, cis-1,2-dichloroethylene (cDCE), and VC was described and investigated in 2003, as part of Hexcel's voluntary source investigation (HGC, 2003). The results of the assessment provided evidence that conditions were appropriate for biodegradation to be occurring at the site. Genetic marker testing in 2003 (HGC, 2004) confirmed the subsurface presence of Dehalococcoides, the primary microbe responsible for the dechlorination of VC and cDCE.

Following isolation of the Parcel G source, Hexcel implemented an EISB program to reduce concentrations of residual VOCs at the Site. The program included laboratory bench-scale testing that demonstrated the conceptual feasibility of EISB (Geosyntec, 2015a and 2015b). A pilot EISB injection study in the shallow aquifer in the vicinity of HEX-8 occurred in October 2015 followed by 6 months of groundwater monitoring (Geosyntec, 2015c). The positive results of the pilot test, including evidence of a viable microbial population and degradation of cDCE and VC, led to implementation of an expanded scale EISB field test (Geosyntec, 2017).

The expanded scale EISB field test was implemented in June 2017 in the area between PS-1 and CG-4 (*see* **Groundwater Monitoring Well Locations**, **Figure 4**). The results of groundwater sampling (CCA, 2019) demonstrated the viability of EISB to reduce concentrations of residual VOCs; showing appropriate geochemical transitions, significant VOC reductions, and the production of ethene from the breakdown of VC (Geosyntec, 2018b). Groundwater monitoring for the expanded scale EISB field test continued through the second quarter of 2019 (Geosyntec, 2019). The ongoing annual monitoring since 2019 continues to demonstrate the implemented EISB is effective (CCA, 2021).

3.0 SITE CONDITIONS

3.1 Environmental Setting

The Site lies in the Duwamish Valley between the Covington Plain on the east and the Des Moines Plain on the west. The Duwamish Valley is in the Duwamish-Green River Watershed, where major surface water bodies include the Green River, the Black River, the Duwamish River, Mill Creek, and Springbrook Creek. The closest surface water body to the Site is a ditch located about 2,000 feet northeast of the Hexcel Parcels (*see* **General Location Map, Figure 1**).

The Duwamish Valley is filled with over 300 feet of Quaternary alluvium interbedded with marine sand deposited after the last glaciation. Groundwater is found at shallow depths throughout the valley, with groundwater elevations in deeper wells generally higher than in shallower wells. Although 20 likely existing water supply wells were found within a 1-mile radius of the Hexcel Parcels, none are downgradient of the Hexcel Parcels. All water supply wells, with the exception of one well, are located east of Highway 167, and none are likely completed in the same hydrogeologic unit as the units investigated and monitored at the Hexcel Parcels.

3.2 Hydrogeology

Since the late 1980s, numerous environmental investigations (soil, soil gas and groundwater) have been completed at the Parcels A through E (CCA, 2018). The generalized hydrostratigraphy is a framework for the gross distribution of subsurface materials at the Hexcel Parcels. Specific attributes of the hydrogeologic units, such as average grain size, average thickness, and continuity, can vary spatially. The units are presented in typical cross sections across Parcels A through E (*see* **East-West Cross Section**, **Figure 5**; and, **North-South Cross Section**, **Figure 6**). Material descriptions of the six hydrogeologic units (Units A – F) at the Site and their relative permeability from the FRI (CCA, 2018) and the BSB CAP (B.S.B. Diversified, 2011, Exhibit A, Cleanup Action Plan) follow:

- Unit A is the shallowest unit and consists primarily of silt. Unit A extends from near the land surface to a depth of about 10 feet. The hydraulic conductivity of Unit A was reported by Sweet-Edwards/EMCON, Inc. (SEE) (1988) to be on the order of 1×10^{-4} centimeters per second (cm/s) or 0.3 feet per day (ft/day). Based on this information, the transmissivity of Unit A is approximately 3 feet squared per day (ft^2/d) or less.

- Unit B underlies Unit A and consists primarily of sand and silty sand. Unit B ranges in thickness from about 5 to 30 feet and extends to maximum depths of 35 to 40 feet below ground surface (bgs), and has been designated the Shallow Aquifer. Beneath the southern one-third of the Hexcel property, an intermediate silt (*see* Unit C, below)

divides Unit B into two sub-units. Beneath the northern two-thirds of the Hexcel property, the Unit C silt is only present discontinuous silt lenses. According to S.S. Papadopulos and Associates, Inc. (SSPA) (1993), Unit B is the most permeable unit beneath the Hexcel Parcels with an average transmissivity of 1,300 ft^2/day based on a single well test. This transmissivity and the range in thickness correspond to a hydraulic conductivity range of 43 to 260 ft/day. As a practical matter, SSPA (1993) found that a hydraulic conductivity range of 40 to 80 ft/day for Unit B best replicated the average behavior of measured water levels for calibration of a groundwater flow model of the area of Parcels A through G. SSPA (2003) changed the average hydraulic conductivity in the model to 51 ft/day during a subsequent model refinement.

- Unit C is present under Parcel G and the southern portion of the Hexcel Property at depths ranging from 35 to 40 ft bgs. Unit C consists of silt and silty sand. Unit C is not present on the northeast side of the Hexcel property (**North-South Cross Section**, **Figure 6**) or may be present only as discontinuous lenses as indicated by SSPA (1993). SSPA interpreted the transmissivity and hydraulic conductivity of Unit C to be on the order of 10 ft^2/day and 1 ft/day, respectively. Where present, Unit C is interpreted to be a low permeability unit that limits groundwater flow between Unit B and the underlying Unit D (PES, 2009b).

- Unit D is 10 to 30 feet thick and consists of sand to a depth of 65 to 70 ft bgs, and has been designated the Deep Aquifer beneath Parcel G. Both SEE (1988) and SSPA (1993) interpreted this unit to be less permeable than Unit B but more permeable than Unit C. The transmissivity of Unit D was reported to be 500 ft^2/day based on a single well test. SSPA (1993) identified calibrated transmissivities of 200 to 400 ft^2/day for Unit D and a corresponding hydraulic conductivity of 40 ft/day. Units B and D appear to form a continuous hydrogeologic unit north of the pinch-out of Unit C.

- Units E and F, underlying Unit D, consist of silty sand and silty clay, respectively. Unit F is an aquitard approximately 100 feet thick that separates the groundwater flow system in Units A to E from a deeper regional aquifer. Units E and F are not expected to contribute significantly to groundwater flow beneath the site. Similar to the Unit C silt, the silt and clay of transitional Unit E and Unit F serve as an aquitard to vertical groundwater flow and a restriction to the vertical transport of contaminants at the Hexcel Parcels.

3.3 Groundwater

3.3.1 Occurrence

Depth to groundwater at the Hexcel Parcels has varied from approximately 1.5 to 12 feet bgs, Water level fluctuations occur in response to seasonal changes in the distribution and rate of recharge and discharge throughout the region. Multiple water bearing zones have been identified at the Site (Units A – D). The primary groundwater flow and contaminant migration are Units B and D that are dominantly sand materials. Units B and D are separated by a silt unit beneath Parcel G (*see* the Geologic Cross Sections in Figures 5 and 6). The silt unit does not extend beneath the entire length Hexcel Property, thus causing hydraulic communication between the groundwater zones in Units B and D.

3.3.2 Aquifer Properties

Horizontal hydraulic conductivities determined from a BSB short-term pumping test ranged from 43 to 56 feet/day (1.51×10^{-2} to 1.96×10^{-2} cm/s). An aquifer test conducted in a Unit D deep well on the Hexcel Parcels yielded horizontal hydraulic conductivity results of 57 to 85 feet/day (2×10^{-2} to 3×10^{-2} cm/s). BSB vertical hydraulic conductivity testing of the Unit B silt samples were 6.9×10^{-7} and 3.5×10^{-6} cm/s, respectively, and the vertical hydraulic conductivities of the Unit C silt samples were 1.3×10^{-7} to 2.6×10^{-7} cm/s. The vertical hydraulic conductivity of a Unit F soil sample collected east of 84th Avenue South was 3.6×10^{-7} cm/s.

3.3.3 Flow Direction and Velocity

Groundwater and surface water flow, generally, progresses northward toward Puget Sound. However, local fluctuations in groundwater direction occur. Historical groundwater flow direction varied from northeasterly to northwesterly depending on the operation of the Parcel G (HYR-1 and HYR-2) and the Hexcel Parcels (CG-1, CG-2, CG-3, and CG-4) groundwater extraction well systems. After the Parcel G soil-bentonite containment wall final remedy installation, and the shutdown of all of the groundwater extraction wells, equilibration of the groundwater flow around the containment wall was established. Monthly groundwater level measurement in the Hexcel Parcels shallow aquifer show a northerly to a slight northwesterly groundwater flow direction from 2017 through 2021.

Shallow groundwater beneath the Hexcel Parcels flows in a northerly direction along the 81st Avenue South, and in a northwesterly direction along 84th Avenue South (*see* **Contour Map of Shallow Groundwater Elevations**, **Figure 7**). The Upper Layer D groundwater beneath the Site flows in a northerly direction Street (*see* **Potentiometric Surface, Upper Layer D**, **Figure 8**). The Lower Layer D groundwater beneath the Site flows in a westerly direction south of South 200th Street and in a northerly to westerly direction north of South 200th Street (*see* **Potentiometric Surface, Lower Layer D**, **Figure 9**).

Vertical hydraulic gradients are upward from the deep aquifer to the shallow aquifer. The flow directions in the deep aquifer in both, the upper and lower, portions of the deep aquifer beneath Parcel G is to the northeast (PES, 2017). The silt unit that separated the shallow and deep aquifers is only present on the southern end of the Hexcel Parcels (HGC, 2010b). The ambient groundwater flow gradient (i) is estimated to range from about 0.001 to 0.002 feet/feet. The groundwater seepage velocity (v) for groundwater flow based on site-specific data and estimated parameters suggest that groundwater migration velocities range from about 50 to 175 feet/year.

3.4 Surface Water

Northeast of the Hexcel Parcels is an engineered drainage ditch containing surface water that is a tributary to Springbrook Creek. Surface flow in the ditch is northerly.

A consistent aspect of the groundwater elevation data in the vicinity of the ditch is a persistent northwest dipping hydraulic gradient indicating that if the ditch is a gaining reach it is recharged by groundwater from the east rather than groundwater flow from the vicinity of the Hexcel Parcels. For this reason, there is no migration pathway between groundwater at the Hexcel Parcels and surface water.

4.0 NATURE AND EXTENT OF CONTAMINATION

4.1 Soil

Soil analyses for both the vadose and saturated zones were evaluated with respect to MTCA Method A CULs for soil

4.1.1 Vadose Zone Soil

Vadose zone soil investigations collected vadose zone soil samples for analysis of VOCs, PCBs, cyanide, metals, and petroleum hydrocarbons between 1984 and 2009.

4.1.1.1 Volatile Organic Compounds including methylene chloride and TCE were detected in some vadose zone soil samples at levels exceeding the MTCA Method A soil CUL during investigations in the 1980s. Subsequent investigations in 1991, 2003, and 2006 did not detect VOCs in soil at concentrations greater than MTCA Method A soil CULs for unrestricted land use. A vadose zone soil investigation conducted in 2009 as part of the phased FRI specifically sampled sites identified during the 1980s as having TCE detections greater than the MTCA Method A soil CUL (HGC, 2010). The only TCE detection at these sites in 2009 was in one sample of vadose zone fill material beneath asphalt. The vadose zone samples collected in 2009 did not detect VOC soil concentrations in excess of MTCA Method A soil CULs nor did it replicate previously measured VOC concentrations. VOCs are not considered constituents of concern in vadose zone soil due to their lack of occurrence and their low concentration when detected.

4.1.1.2 The following metals were detected in vadose zone soil samples from various locations: arsenic, barium, total chromium, and lead. Hexavalent chromium was not detected. The concentrations of the metals detected in the vadose zone soils were below the MTCA Method A soil CULs for industrial properties for those metals with CULs. Based on the lack of metals concentrations in excess of MCTA CULs for soils, (HGC, 2010b) metals are not constituents of concern in vadose zone soil.

4.1.1.3 Cyanide was not detected in any of the discrete or composite vadose zone soil samples (HGC, 2010b).

4.1.1.4 HGC (2010b) evaluated Polychlorinated Biphenyls (PCBs) data with respect to the MCTA Method A soil cleanup level for industrial uses at the former Hytek building. Ecology's SITE97 statistical analysis tool was used to calculate a lognormal 95 percent upper confidence level mean concentration of 4.5 mg/kg. PCBs were detected at less than the MTCA Method A soil CUL for industrial use of 10 mg/kg. PCBs are not a constituent of concern in vadose zone soil at the Hexcel Parcels (OHM, 1988a, and HGC, 2010b).

4.1.1.5 Petroleum Hydrocarbons were not detected in excess of MTCA Method A soil CULs for unrestricted land uses, and are not constituents of concern (HGC, 2010b).

4.1.2 Saturated Zone Soil

Saturated zone soil investigations between 1984 and 2006 collected saturated zone soil samples for analysis of VOCs, Semivolatile Organic Compounds (SVOCs), metals, and petroleum hydrocarbons. The sampling was conducted for various environmental investigations and in accordance with the EO.

4.1.2.1 VOCs that exceeded MTCA soil CULs in historical saturated zone soil samples were methylene chloride and TCE. All other VOCs were at concentrations lower than applicable MTCA soil CULs. Methylene chloride was detected above MTCA soil CULs in three samples collected in 1984, but did not exceed soil CULs between 1987 and 2006. Methylene chloride is not considered a constituent of concern in saturated zone. TCE was detected at concentrations exceeding MTCA Method A soil CULs in 7 of 32 samples collected between 1984 and 2006. TCE is not considered a constituent of concern in saturated zone soil due to its low detection frequency and no detection of TCE in groundwater samples at Parcels A through E.

4.1.2.2 SVOCs were not detected in saturated zone soil samples collected (HGC, 2010b) and not a constituents of concern in saturated zone soils.

4.1.2.3 Metals detected in the saturated zone soil include arsenic, barium, total chromium, and lead at concentrations below the MTCA Method A soil CULs for industrial properties for constituents with CULs. Silver, cadmium, hexavalent chromium, mercury, and selenium were not detected at minimum detection limits below MTCA soil CULs. With concentrations below MCTA soil CULs (HGC, 2010b), metals are not constituents of concern in saturated zone soil.

4.1.2.4 Petroleum Hydrocarbons including BTEX, gasoline-range, diesel-range, kerosene-range, and lube oil-range petroleum hydrocarbons were not detected in saturated zone soil samples collected in 2006 (HGC, 2010b). The detection limits for all analyses were below the applicable MTCA Method A soil CULs. Petroleum hydrocarbons are not considered to be constituents of concern.

4.1.3 Soil Gas

Soil gas sampling was conducted during two investigations. An investigation in 1986 detected DCE and TCE, but there are no MTCA guidelines for soil gas with which to compare these historical data. A soil gas survey beneath the Hytek building in 2003 detected acetone, 1,1-DCE, 2-butanone, cDCE, toluene, TCE, perchloroethene, and m,p-xylenes in more than 50 percent of the samples. None of the detected concentrations exceeded Occupational Safety and Health Administration or National Institute for Occupational Safety and Health permissible exposure limits for an 8-hour work day. The maximum total soil concentrations of VOCs determined from

equilibrium partitioning calculations were less than potentially applicable MTCA Method A soil CULs. VOCs in soil gas are not considered constituents of concern due to their low concentrations with respect to permissible exposure limits and MTCA soil CULs.

4.1.4 Indoor and Outdoor Air

Indoor air sampling was conducted in 2008 to evaluate whether the groundwater VOC plume and soil gas levels beneath Parcels A through E posed a threat to workers from migration of VOCs in indoor air (HGC, 2008). Prior to sampling a screening level analysis determined that VC and TCE were the only VOC's that posed a risk based on their concentrations in groundwater or soil gas samples (HGC, 2007a).

All VOC concentrations in the eight indoor and two outdoor air samples were below the Washington Industrial Safety and Health Act (WISHA) limits. VC was below detection limits in all of the indoor and outdoor samples at detection limits ranging from 0.26 $\mu g/m^3$ to 4.1 $\mu g/m^3$; well below the WISHA limit of 2,600 $\mu g/m^3$. TCE was detected in 3 indoor samples and 2 outdoor samples at concentrations between 1.2 $\mu g/m^3$ to 1.8 $\mu g/m^3$; well below the WISHA limit of 273,287 $\mu g/m^3$.

The results of VOC sampling of indoor air at Parcel A through E indicated that VC was below detection limits and TCE was 4 to 5 orders of magnitudes less than the WISHA limits. The absence of VC in all samples indicates that VC flux by vapor intrusion does not occur or that it occurs only in negligible amounts. The occurrence of TCE at equivalent concentration in both indoor and outdoor air samples indicates that TCE in the indoor samples is likely derived from ventilation with outdoor air. The indoor and outdoor air TCE concentrations were consistent with background concentrations reported elsewhere for indoor and outdoor air (Washington State Department of Health, 2002). Based on the data from indoor and outdoor air sampling, HGC (2010b) concluded that the vapor intrusion pathway at the Hexcel Parcels is absent or negligible given the current land use.

4.2 Groundwater

HGC (2010b) reviewed and provided a compilation of analytical results for the Hexcel Parcels groundwater monitoring wells from 1982 through October 2009. Constituents monitored at one time or another in groundwater samples at the Hexcel Property included VOCs, SVOCs, metals, cyanide, PCBs, and organochlorine pesticides. In addition, groundwater monitoring data was collected in wells east of the Hexcel Parcels (*see* list of reports below) and immediately outside and along the northern side of the Parcel G Soil-Bentonite containment wall. The results of the analysis of compiled groundwater data for SVOCs, metals, cyanide, PCBs, and organochlorine pesticides at the Hexcel Parcels were as follows:

- HGC (2010b) concluded that SVOCs, not present in the groundwater samples, are not constituents of concern at the Hexcel Parcels.
- HGC (2010b) identified arsenic as the only metal detected at elevated concentrations in groundwater with respect to a MTCA Method A CUL for groundwater or an US Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL) for drinking water. The only persistent occurrences of elevated arsenic were localized at upgradient wells HY-2, HY-4, and HEX-2 at the south end of the Hexcel Parcels. HGC (2010b) concluded that arsenic is not a constituent of concern because the groundwater sample concentrations in the Hexcel Parcels wells are similar to the background concentrations that exceed the MTCA Method A groundwater CUL related to a natural or an area-wide phenomenon.
- HGC (2010b) concluded that cyanide is not a constituent of concern at the Hexcel Parcels based on its low detection frequency in groundwater samples.
- HGC (2010b) concluded that PCBs, which were not detected in the groundwater samples at the Hexcel Parcels, are not a constituent of concern in groundwater.
- HGC (2010b) concluded that organochlorine pesticides, which were not detected in the groundwater samples at the Hexcel Parcels, are not constituents of concern at the Hexcel Parcels in groundwater.

Additional Shallow Aquifer Groundwater Monitoring Investigation work includes:

- PES Environmental, Inc. 2007. Downgradient Area Groundwater Investigation Final Report, Agreed Order No. DE2553, Kent, Washington. February 14, 2007.
- PES Environmental, Inc. 2008. Downgradient Area Groundwater Investigation Final Report, Agreed Order No. DE2553, Kent, Washington. January 22, 2008.
- PES Environmental, Inc. 2015. Attachment B - Technical Memorandum, Shallow Aquifer Cleanup Action, BSB Property Consent Decree No. 11-2-27288-5, Kent, Washington. February 20, 2015.
- PES Environmental, Inc. 2019. Cleanup Progress Report, Second Quarter 2019, BSB Property, Kent, Washington, Consent Decree No. 11-2-27288-5. July 17, 2019.
- Geosyntec Consultants 2019. Second Quarter 2019 Eighth Quarter Monitoring Event, Enhanced *In Situ* Bioremediation Monitoring Report, Hexcel Plant 1 Facility, Kent, Washington, September, 2019.
- Clear Creek Associates. 2019. Environmental Monitoring Report September 2019, Hexcel Plant 1 Facility, Kent, Washington. December 5, 2019.
- Clear Creek Associates. 2021. Environmental Monitoring Report September 2021, Hexcel Plant 1 Facility, Kent, Washington. November 15, 2021.

Additional Parcel G Deep Aquifer Groundwater Monitoring Investigation work includes:

- PES Environmental, Inc. 2015. Technical Memorandum Parcel G Deep Aquifer Monitoring, BSB Property, Kent, Washington. February 20, 2015.
- PES Environmental, Inc. 2017. 2016 Data Transmittal and Summary, Parcel G Deep Aquifer Monitoring, BSB Property, Kent, Washington. April 7, 2017.

4.2.1 Volatile Organic Compounds - Shallow Aquifer

The primary VOCs that have occurred in groundwater samples from shallow aquifer wells at levels potentially exceeding applicable standards are cDCE, VC, and TCE. TCE is an important VOC because nonaqueous phase TCE in groundwater at Parcel G acted as a source that resulted in elevated concentrations of TCE, cDCE and VC at the downgradient Hexcel Parcels. VC and cDCE are degradation byproducts of TCE, formed by the naturally occurring dechlorination of TCE in the subsurface.

Comparing the Hexcel Parcels historical distributions of VC, cDCE, and TCE with the current conditions indicates that there is a substantial reduction in the size of the groundwater plumes for these VOCs over time. The shrinkage of the plumes is due to natural attenuation and groundwater remedial actions between 1992 to present, which removed contaminant mass, isolated the source at Parcel G, and cut off the mass loading of dissolved VOC contaminants into the downgradient groundwater from Parcel G. Historical Shallow Aquifer Concentrations for VC, cDCE and TCE are shown in Figures 10, 11, and 12.

TCE, cDCE and VC are the VOCs detected historically in excess of potentially applicable standards in groundwater at the Hexcel Parcels. Historically, TCE has been detected in five Shallow Aquifer wells HEX-1, HEX-3, HEX-4, HEX-5, and HEX-6. Only monitoring well HEX-1 had TCE concentrations exceeding the MTCA A CUL of 5 µg/L. The highest HEX-1 monitoring well TCE concentration measured was 300 µg/L from groundwater samples collected on 3/4/2011. Subsequent monthly groundwater sampling and analysis showed a significant, and rapid decline in the HEX-1 TCE concentrations to below the MTCA A CUL within six months. TCE concentrations fell below the analytical laboratory Method Detection Level (MDL), and remained below the MDL, since January 2012 (CCA, 2019).

All TCE concentrations detected in the other four Shallow Aquifer wells (HEX-3, HEX-4, HEX-5, and HEX-6) were lower than the MTCA A CUL and TCE concentrations in these four wells have remained below the MDL since January 2012 (CCA, 2019; 2020; 2021). The majority of the TCE observations occurred during the time period when construction work took place at Parcel G for their final cleanup remedy, when dewatering performed at Parcel G for construction is assumed to have mobilized absorbed, residual TCE. The TCE was not detected before the construction dewatering and was not detected six-months after the dewatering finished.

As described by HGC (2010b), the number and magnitude of VOCs detected in groundwater decreased with time. Early groundwater monitoring detected methylene chloride, trans-1,2-DCE,

1,1-dichloroethene, and benzene in excess of potentially applicable standards. None of these constituents have been detected in excess of the MTCA Method A groundwater CULs in the Hexcel Parcel wells since October 2001. Since 2012, there have not been any detections of TCE (CCA, 2021). Since 2014, there have been no detections of cDCE above the EPA MCL (CCA, 2021). There is no MTCA Method A CULs for cDCE in groundwater (**WAC 173-340, Table 720-1, May 2019**). Groundwater monitoring analytical data indicate that cDCE is no longer a constituent of concern at the Hexcel Parcels, having been reduced to concentrations less than the CUL since 2014. Subsequent downgradient groundwater quality monitoring by PES (2019), Geosyntec (2019), and Clear Creek (2019) confirm these observations.

VC in groundwater remains a constituent of concern and is being addressed by natural attenuation and in situ biological remediation. The historical and current remedial actions at the Hexcel Property are described in Section 5 of the FRI (CCA, 2018), in the Geosyntec (2019) Enhanced *In Situ* Bioremediation Monitoring Report, and summarized in Section 2.6 of this CAP. The 2021 groundwater quality monitoring data (PES and CCA) show VC plumes substantially contained within the property boundary of the Hexcel Parcels. The multiple years of monthly, shallow groundwater contour maps indicate that the groundwater flow direction maximizes the natural attenuation time of the VC plume beneath the Hexcel Parcels in the shallow aquifer. The predominant groundwater flow path restricts the remnant VC groundwater plume to the boundaries of the Hexcel Parcels.

Site groundwater pH measurements range from 6.15 to 8.18, or from slightly acidic to slightly alkaline. The redox potential measurements range from -189 to -15.7 millivolts; indicating that reducing conditions predominate in the shallow aquifer. The data show that groundwater in the VC plume is circumneutral and reduced, which are chemically favorable for the reductive dechlorination of VC (Wiedemeier et. al., 1996). The subsequent downgradient groundwater quality monitoring by PES (2019), Geosyntec (2019), and Clear Creek (2021) confirm these observations, and indicate that VC is now the only VOC detected in excess of applicable MTCA A standards in the shallow groundwater at the Hexcel Parcels.

4.2.2 Volatile Organic Compounds - Deep Aquifer

Monitoring wells in the deep aquifer were installed along the upgradient boundary of the Hexcel Parcels in response to the discovery of deep aquifer contamination at Parcel G, as described by PES (2010) and CCA (2011). Groundwater samples from some of the new deep aquifer wells installed after 2008 had exceedances of the VC groundwater CUL. Groundwater monitoring since 2010 indicates:

- Parcel G groundwater sampling downgradient, and outside of the containment wall along the south side of South 200th Street at HYCP-2d, HYCP-7d and HY-102 have no detections of VC from 2013 through 2016 (PES, 2017).

- Hexcel Parcels groundwater sampling downgradient of Parcel G, along the north side of South 200th Street at HEX-10, HEX-11, HEX-13, and HEX-14 had periodic detections of VC above the CUL. The following deep groundwater wells have had no VC detections above the VC MTCA A CUL since 2012 at HEX-11, 2012 at HEX-13, and 2011 at HEX-14. VC has not been detected in HEX-15 since sampling began in 2010. VC has been detected above MTCA A CUL in most samples at HEX-10 and HEX-12.

4.2.3 Concentration Trend Analysis for VC

As described in detail within the FRI, the primary source of chlorinated solvent impacts to the local environment occurred at the disposal sites on Parcel G (CCA, 2018). VC is the sole remaining constituent of concern (*see* FRI Section 4.2.2; CCA, 2018). The interior well HEX-8 typically had the highest VC concentrations. The EISB expanded-scale pilot interim action has demonstrated a significant reduction in VC concentrations within the portion of the aquifer containing a residual zone of groundwater. This residual zone contained concentrations greater than 1 µg/L VC, including wells CG-4 and HEX-8.

The figures and tables in the September 2021 CCA Environmental Monitoring Report summarize historical and the September 2021 groundwater sampling results. These figures and tables provide historical concentrations trends of cDCE and VC at the following Shallow Aquifer groundwater quality monitoring wells at the Hexcel Parcels: CG-1 to CG-4; HEX-1-to-10; HY-7s, HY-7ss, Ks, and HY-9; and at the following deep aquifer wells: HEX-10 to HEX-15. VC concentrations have declined over time. In September 2021, VC was the only VOC detected at the Hexcel Parcels above the groundwater CUL (CCA, 2021). All the wells have downward trending concentrations towards the VC MTCA A CUL or are already below the VC MTCA A CUL. In September 2021, seven groundwater monitoring wells exceeded the MTCA Method A groundwater CUL of 0.2 µg/L, six shallow wells and one deep well (shallow wells HEX-3, HEX-4, HEX-6, HEX-7, HEX-9, and HY-7ss; deep well HEX-12 (CCA, 2021)). VC concentrations in the other groundwater monitoring wells at the Hexcel Parcels are less than the 2.0 µg/L MCL. The time series graphs show that VC concentrations declined by two to three orders of magnitude in many wells since 2003 and that concentrations in 2021 are at historically low levels (CCA, 2021).

The VC concentrations at the Hexcel Parcels have declined to non-detect (i.e., no detection down to the MDL) at the downgradient CG wells located on the eastern boundary of the Hexcel Parcels, along the western side of 84th Avenue South. Due in part to the intrinsic biodegradation of VC in the shallow aquifer at the Hexcel Parcels, natural attenuation reduced VC concentrations in wells

CG-1, CG-2, CG-3, and CG-4 from as high as 750 µg/L in 1996 to less than the MTCA Method A CUL of 0.2 µg/L and eventually below the MDL (CCA, 2019). Groundwater monitoring wells HY-9, Ks and Ki (*see* **Groundwater Monitoring Well Locations, Figure 4**), also located east of the Hexcel Parcels along the eastern side of 84th Avenue South, have VC concentrations below the MTCA A CUL (wells HY-9 and Ki) or below the MDL (well Ks). The September 2021 Hexcel Environmental Monitoring Report (CCA. 2021) groundwater quality data confirms the effectiveness of monitored natural attenuation and containment of the source at the Parcel G contributed to VC concentrations in both HEX-8 and CG-4 less than the MTCA Method A cleanup level of 0.2 µg/L (*see* **Table 1**).

There is a decreasing trend in the concentration of VC in groundwater in samples from wells along South 200th Street, on the upgradient boundary of the Hexcel Parcels (shallow wells HEX-1, HEX-2, and HEX-3; and, deep wells HEX-10 through HEX-14). Only wells HEX-3 and HEX-12 have VC concentrations greater than the MTCA A VC CUL at 0.30 µg/L and 0.47 µg/L, respectively, based on the September 2021 groundwater quality samples (CCA, 2021). This data indicates the presence of back diffusion into groundwater from the fine grained soil matrix beneath the Hexcel Parcels or an ongoing loading of VC from offsite sources.

Shallow groundwater monitoring wells HEX-4 and HEX-5, located along 81st Avenue South on the western boundary of the Hexcel Parcels, also show a decreasing trend in the concentration of VC in groundwater in samples collected from these wells. The September 2021 VC concentrations for these wells are 0.31 µg/L and 0.11 µg/L respectively (CCA, 2021).

Interior groundwater monitoring wells (shallow wells HEX-6 through HEX-9, HY-7s and HY-7ss, and deep well HEX-15) exhibit a decreasing trend in the concentration of VC in groundwater samples collected. VC concentration data for HY-7s and HY-7ss illustrate large declines since the 1990s. VC concentrations at shallow wells HY-7s and HEX-8, and deep well HEX-15 are now below the MTCA A VC CUL (deep well HEX-15 has been below the MDL since 11/2010). The groundwater VC concentrations for other shallow wells are relatively close to the MTCA A VC CUL (HEX-6, 0.55 µg/L; HEX-7, 0.36 µg/L; HEX-9, 0.25 µg/L; and HY-7ss, 0.22 µg/L (CCA, 2021)).

The VC concentrations in the deep wells, with the exception of HEX-12, are now below the MTCA A VC CUL (CCA, 2021). The VC occurrence in deep aquifer HEX-12 is due to groundwater flow from Parcel G to Hexcel Parcels. PES (2011) provides a detailed review of water quality conditions in the deep aquifer on Parcel G.

The concentration of VC in groundwater flowing beneath the Hexcel Parcels is expected to be reduced to less than the groundwater CUL by the downgradient Hexcel Parcels' boundary through natural attenuation and, if necessary, the use of EISB. There is no potential for a downgradient offsite exposure because the contaminated groundwater plume is only present beneath the Hexcel Property. There is no potential for future residential and recreational

exposures to VC in groundwater beneath Hexcel Parcels because an environmental covenant would place deed restrictions on the types of acceptable land use and would inform future owners of environmental conditions.

4.3 Surface Water

Hexcel monitored water quality in samples from the ditch pursuant to the FRI work plan (HGC, 2005).

- Twenty-one grab samples were collected from surface flow in the ditch between 2005 and 2013 and analyzed for VOCs. VOCs were not detected in any of the samples except for trace levels of common laboratory contaminants (*see* Appendix B of CCA 2017 Environmental Monitoring Report for data). Sampling of the ditch water was suspended with the permission of Ecology (Ecology, 2014).

Water elevation data indicate that the ditch is not on a flow path from the Hexcel Parcels and water quality sampling from the ditch over 10 years did not detect VOCs.

5.0 RISKS TO HUMAN HEALTH AND THE ENVIRONMENT

5.1 Contaminant Sources and Migration Mechanisms

The FRI and FFS Reports presented a detailed evaluation of risk and exposure pathways for groundwater, soil, soil gas (i.e., potential vapor intrusion pathway), and surface water. The results of the evaluation are summarized as follows:

- **Groundwater** – Groundwater at, or potentially affected by the site, is not currently being used as drinking water and is not a reasonable future source of drinking water. The drinking water pathway is, therefore, incomplete.
- **Soil** – There is no evidence of the presence of VC in the soils exceeding soil screening levels. Thus, there are no unacceptable potential exposures associated with VC in soil.
- **Soil Gas** – No unacceptable indoor air exposures were identified for current or future land use.
- **Surface Water** – There is no evidence of the presence of VC in surface water, thus there is no risk associated with the potential exposure pathways and receptors identified in the FRI Report (CCA, 2018).

5.2 Exposure Pathways and Receptors

The conceptual site model (CSM), identifies the types and concentrations of hazardous substances, potential sources of hazardous substances, potentially contaminated media, and potential exposure pathways to provide a conceptual tool for decision making (WAC 173-340-200). This CSM for the shallow aquifer at the Hexcel Parcels (HGC, 2005) based on information in the data compilation and evaluation (HGC, 2010) and the data from the FRI (CCA, 2018).

5.3 Potential Hazardous Substances

The potential hazardous substance associated with the Hexcel Parcels is VC. Although various VOCs have been present historically, VC is the only VOC that occurs at current concentrations exceeding MTCA Method A CULs for groundwater. In September 2021, the detectable concentrations of VC measured in samples from the Hexcel Parcels wells ranged from < 0.075 to 0.6 µg/L. VC concentrations in groundwater are highest in the vicinity of well HEX-6. cDCE is often associated with VC in groundwater at concentrations less than the MTCA A CUL.

5.4 Potential Sources of Hazardous Substances

Potential historical sources of VOCs at the Hexcel Parcels are related to the leaks or disposal practices from the historical operations at the Hytek building and conveyances to Parcel G. There is no evidence of a current source at the Hexcel Parcels.

The VC and cDCE at the Hexcel Parcels are from a residual plume of contaminants from Parcel G. These VOCs were reduced through groundwater extraction remedial actions at Parcel G and the Hexcel Parcels between 1992 and 2016. A soil-bentonite containment wall was installed in 2012 at Parcel G to isolate the upgradient source. Groundwater flow to the upgradient boundary of the Hexcel Parcels still contains low levels of VC and cDCE due to residual contamination outside of the Parcel G isolation system (CCA, 2018). Natural attenuation is reducing the VC and cDCE to less than CUL as groundwater flows across the Hexcel Parcels.

5.5 Potentially Contaminated Media & Migration Mechanisms

The results of investigations and samplings of groundwater, saturated, and vadose zone soils, soil gas, and indoor air are summarized in the FRI (HGC, 2010). The data indicate that groundwater containing VC is the primary contaminated media.

VC in groundwater is partitioned between the aqueous phase and aquifer material based on factors such as the contaminant concentration, contaminant specific partitioning coefficients, and the grain size and organic carbon content of soil. For this reason, areas with VC in groundwater can store and release VC within saturated soil, depending on the relative concentration gradients and chemical contrasts of the groundwater and aquifer solids. VC in groundwater can also partition into the vapor phase at the interface between the groundwater surface and unsaturated soil.

VC in groundwater at Hexcel Parcels is degrading by naturally occurring biodegradation as described in the FRI (HGC, 2010). The degradation products of VC are the nonhazardous substances of ethene and carbon dioxide.

5.6 Potential Exposure Pathways

The VC contained in groundwater can migrate with the ambient groundwater flow system, sorb to sediment in the saturated zone, volatilize into soil gas in the vadose zone above the water table, or be destroyed by biologically mediated reductive dehalogenation.

Potential exposure points and exposure routes for VC are constrained by the current and future land uses at the Hexcel Parcels. The current and planned future use of the Hexcel Parcels is as an industrial facility for manufacturing. Potential receptors at the Hexcel Parcels would be adult

workers that could come into contact with VC bearing environmental media during workplace activities. VC does not occur in downgradient Site wells east of the Hexcel Parcels at concentrations exceeding the MTCA Method A groundwater cleanup. The potential for an exposure east of the Hexcel Parcels is negligible because the VC plume exceeding the groundwater cleanup standard is restricted to the Hexcel Parcels and is not expected to migrate off of the Hexcel Parcels in the future.

5.6.1 Groundwater

VC dissolved in groundwater can migrate by advection, dispersion, and diffusion. The concentration of VC in groundwater is reduced naturally by reductive dechlorination to degrade VC and dilution to reduce VC mass per unit volume of water. Both of these processes are active at the Hexcel Parcels and work to reduce the concentrations of VC in groundwater flowing beneath the Hexcel Parcels. Groundwater flow directions beneath the Hexcel Parcels are northerly (CCA, 2018).

Exposure to VC in groundwater at the Hexcel Parcels is limited to activities that can potentially bring workers in contact with groundwater, such as groundwater sampling and excavation below the water table. Dermal contact, ingestion, and inhalation would be the potential exposure routes for VC affected groundwater. The risk of contacting, ingesting, or inhaling vapors from affected groundwater is negligible during groundwater sampling and construction because health and safety precautions are required and followed as a matter of standard operating procedure during those activities. The health and safety precautions include hazard recognition awareness and personal protective equipment training for the prevention of exposure to hazardous chemicals.

5.6.2 Saturated Zone Soil

Exposure to saturated zone soil containing sorbed VC is a possibility for construction activities that involve excavation below the water table, such as excavation, trenching, or drilling. Dermal contact, ingestion, and inhalation are the potential exposure routes for affected saturated zone soil. The risk of contacting, ingesting, and inhaling vapors volatilizing from saturated soil during construction activities is negligible because health and safety precautions are followed as a matter of standard operating procedure. The health and safety precautions include hazard recognition awareness and personal protective equipment training for the prevention of exposure to hazardous chemicals.

5.6.3 Site Conceptual Model Summary

In summary, low levels of VC in groundwater and soil beneath the Hexcel Parcels are due to a residual groundwater contaminant plume from Parcel G. VC concentrations are declining due to installation of the Parcel G remedy, natural attenuation, and spot treatment with EISB. The majority of the Hexcel Parcels is paved or covered by buildings, which makes access to the subsurface limited except in the cases of subsurface environmental sampling or certain construction activities. Potential exposure to VC affected groundwater and saturated soil is limited to work activities for which health and safety protocols are established.

6.0 CLEANUP STANDARDS

Cleanup standards consist of three components:

- CULs (chemical concentrations). Hazardous substance concentrations that protect human health and the environment (WAC 173-340-700(2));
- Points of compliance (at which the CULs must be met) Point of compliance includes conditional points of compliance (WAC 173-340-720(8)(c), (d)); and,
- Additional regulatory requirements.

Typically, preliminary cleanup standards are developed during the FRI, proposed cleanup standards for remedial alternative evaluation are presented in the FFS, and final cleanup standards are established during the CAP development process. The cleanup standards proposed in the FRI (CCA, 2018) and FFS Report (Geosyntec, 2018a) were developed in accordance with WAC 173-340-700 through -730. Based on Ecology's acceptance of the FRI and FFS Reports, the cleanup standards proposed in the FRI and FFS Reports will be the final cleanup standards for the site. The cleanup standards are presented in the following sections.

6.1 Identification of ARARS

MTCA requires that all cleanup actions comply with applicable state and federal laws (WAC 173-340-360(2)). MTCA defines applicable state and federal laws to include "legally applicable requirements" and "relevant and appropriate requirements." The Applicable or Relevant and Appropriate Requirements (ARARs) for the site are presented in **Table 2**.

6.2 Cleanup Levels

The regulations implementing MTCA, Chapter 173-340 WAC, require groundwater CULs to be based on the highest beneficial use of the water under current and future conditions. The regulations presume that the highest beneficial use of groundwater at any site will be drinking water, per WAC 173-340-720(1). Based on evaluation of potential exposure pathways, the development of CULs for VC was limited to groundwater and groundwater to surface water pathways. Groundwater cleanup criteria were developed to be adequately protective of human health and aquatic organisms, and of humans that ingest these organisms. MTCA Method A groundwater and surface water CULs were compiled in accordance with WAC 173-340720(4) and WAC 173-340-730(3). The groundwater CULs are presented in **Table 3**.

The selection process required that the most stringent CUL from the groundwater and surface water ARARs be selected. As detailed in the FFS Report (Geosyntec, 2018a), the most stringent

ARAR for VC in groundwater is 0.20 µg/L, which is the MTCA Method A standard formula value (**Table 3**).

6.3 Points of Compliance

The point of compliance is defined by MTCA as the point or points where CULs shall be achieved (WAC 173-340-200). The point of compliance (POC) refers to the point or points where cleanup levels will be attained. The hydrogeology, natural geochemistry and nature of groundwater contamination on the Property (FRI, Clear Creek, 2018 and FFS, Geosyntec, 2018a) compliment MNA with contingency for EISB to address VC in groundwater. The standard point of compliance for the purposes of evaluating potential cleanup alternatives indicates that the degradation rates and times estimated as described in the FFS will be effective in reaching cleanup standards in groundwater prior to groundwater migrating off-site. The standard point of compliance for groundwater will be enforced at the Site throughout all portions of the Hexcel Parcels (Parcels A through E) (WAC 173-340-720(8)(b)).

7.0 SUMMARY OF CLEANUP ACTION ALTERNATIVES EVALUATED

7.1 Cleanup Action Objectives

This section provides a concise summary of the multiple step remedial evaluation process that was presented in the FFS Report (Geosyntec, 2018a), and culminated in the recommendation that MNA with a contingency for supplemental EISB as the preferred cleanup action alternative for the site. A variety of remedial and regulatory options for the Hexcel Parcels that have the potential to accelerate the groundwater VOC cleanup were assessed. A key element in the analysis is optimizing the naturally occurring VOC biodegradation demonstrated through the Microcosm Study and Pilot studies that confirmed that the natural attenuation occurring beneath the Hexcel Parcels is robust and a viable remediation option.

7.2 Process Overview & Conclusion

Following an initial identification and screening of potentially-applicable remedial technologies and process options, four remedial alternatives were developed. The four alternatives developed and included in the FFS are listed below:

- Alternative 1: Site-wide groundwater extraction;
- Alternative 2: Full Scale EISB;
- Alternative 3: Site-wide MNA with contingency for supplemental EISB; and
- Alternative 4: Site-wide MNA.

These alternatives represent an appropriate range of cleanup approaches capable of achieving the cleanup standards.

Each of the four alternatives was evaluated using the two categories of cleanup action requirements under WAC 173-340-360: (i) threshold requirements and (ii) additional requirements. The criteria for these MTCA threshold and additional requirements are the following:

- Threshold Requirements (WAC 173-340-360(2)(a)): i) Protect Human Health and the Environment; ii) Comply with Cleanup Standards; iii) Comply with Applicable State and Federal Laws; and iv) Provide for Compliance Monitoring.
- Additional Requirements (WAC 173-340-360(2)(b)): i) Use Permanent Solutions to the Maximum Extent Practicable; ii) Provide for Reasonable Restoration Time Frame; and iii) Consider Public Concerns (**Table 4**).

- Groundwater Cleanup Actions (WAC 173-340-360(2)(c)).

Consistent with WAC 173-340-360(3)(e), a disproportionate cost analysis (DCA) was performed for the four Alternatives to determine which of these cleanup action alternatives is protective to the maximum extent practicable, and to determine if the incremental costs of higher cost remedies are proportionate to their anticipated incremental benefits. The evaluation criteria included protectiveness, permanence, cost, long-term effectiveness, management of short-term risks, implementability, and consideration of public concerns.

Through the FRI/FFS process, Alternative 3 (MNA with contingency for supplemental EISB) was found to be consistent with Ecology expectations and requirements for cleanup action alternatives, and is identified as the preferred remedy based on the MTCA evaluation criteria, DCA, and cost. As such, Alternative 3 (MNA with contingency for supplemental EISB) was proposed as the recommended alternative for the site.

7.3 MTCA Threshold Requirement Evaluation of Cleanup Action Alternatives

This section presents a brief description of each of the four cleanup action alternatives and discusses the extent to which each alternative satisfies the MTCA Threshold Requirements for a cleanup action.

7.3.1 Alternative 1 – Site-Wide Groundwater Extraction[4]

The groundwater extraction alternative would be a continuation of the prior interim remedial action of Site wide groundwater pumping. The extraction well system is located along the eastern Hexcel Parcels boundary. Extraction wells CG-4, CG-3, CG-2, and CG-1 are located from south to the north of the main plume along the Parcels A through E boundary. Each of the extraction wells is connected to a groundwater conveyance system that discharges to the municipal sanitary sewer system.

The capture zone width was estimated based on modeling the objective to capture groundwater containing VC above the CUL of 0.20 µg/L. The desired capture zone width for extraction system was approximately 500-1,000 feet. Groundwater modeling was used to estimate the extraction needed at each well to achieve the design capture width (SSPA, 1993, 2003). The extraction rate required to develop the appropriate capture width was determined to be 6,545 ft^3/day, or 34 gallons per minute (gpm) (SSPA, 1993, 2003).

[4] Although titled "Site-Wide Groundwater Extraction", this remedy involved or focused on groundwater extraction only for the Hexcel Parcels A-E.

Typically, groundwater extraction of multiple aquifer "pore volumes (PVs)" is required to achieve groundwater cleanup for chlorinated solvents, due to their sorption to aquifer materials. The restoration of groundwater requires that sufficient groundwater be flushed through the contaminated zone to remove dissolved contaminants and contaminants that will desorb from the aquifer material. The PV represents the actual volume of groundwater present within the pore space of the aquifer.

At many pump and treat sites, numerous PVs must be flushed through the contamination zone to attain cleanup standards (EPA, 1997). Assuming linear sorption, the absence of Nonaqueous Phase Liquid or soil source, no biodegradation, and no dispersion, the number of PVs required for restoration is a function of the retardation factor (R). The R is the ratio of the groundwater velocity to the dissolved VC transport velocity.

It was estimated that the extraction system would have to extract ~10 PVs to achieve cleanup objectives (Geosyntec, 2018a). At the estimated extraction rates (34 gpm), the extraction system would operate for approximately 13.3 years.

Alternative 1 was evaluated against the four minimum threshold requirements specified under MTCA. Based on the evaluation presented in the FFS Report (Geosyntec, 2018a), Alternative 1 is considered compliant with the four MTCA Threshold Requirements and meets the minimum requirements of an acceptable cleanup action.

7.3.2 Alternative 2 – Full-Scale Enhanced In Situ Bioremediation

The full scale EISB alternative would cover the groundwater plume area above 0.2 µg/L concentration that is accessible to injection. Because of the active manufacturing activities at the site, the full scale EISB cannot target the entire groundwater plume above 0.2 µg/L (*see* **Historical VC Concentrations in Shallow Aquifer Groundwater 1988, 1998, and 2008, Figure 10**). Based on the prior EISB pilot studies performed at the site, the depth of injection would be from approximately 15 to 30 feet below ground surface (bgs).

The performance of a full-scale EISB alternative is anticipated to be similar to the pilot and expanded field treatability deployment of EISB already performed at the Site. Because EISB does not increase the flow of groundwater, the rate of VC reduction in the groundwater plume outside the area of the EISB injections was assumed to be unaffected. These areas not subjected to EISB will continue to see concentrations declines at MNA rates, with remedy duration of about ~4 years, same as MNA.

It is anticipated that the VC mass reduction due to the EISB will enhance the attenuation process within the plume and downgradient of the EISB area. However, the effect of EISB on the

downgradient plume edges, as well as areas unavailable to injection, is not likely to be significant (*i.e.*, VC concentrations at the lateral and longitudinal extents of the plume are likely to decline at the same rate as predicted for Alternative 3 & 4). The remedial duration of Alternative 2 is likely ~4 years.

Alternative 2 was evaluated against the four minimum threshold requirements specified under MTCA. Based on the evaluation presented in the FFS Report (Geosyntec, 2018a), Alternative 2 is considered compliant with the four MTCA Threshold Requirements and meets the minimum requirements of an acceptable cleanup action.

7.3.3 Alternative 3 – Site-Wide Monitored Natural Attenuation (MNA) with contingency for supplemental Enhanced In Situ Bioremediation (EISB)

Natural attenuation is the process by which natural processes clean up or attenuate contaminants in groundwater. The term "monitored natural attenuation," refers to the reliance on natural processes to achieve site-specific remedial objectives, with on-going monitoring. Natural attenuation processes include a variety of physical, chemical, and/or biological processes that, under favorable conditions, reduce the mass, toxicity, mobility, volume, or concentration of contaminants in groundwater. These processes include biodegradation; dispersion; dilution; sorption; volatilization; and chemical or biological stabilization, transformation, or destruction of contaminants (USEPA, 1999). This MNA alternative is coupled with the EISB contingency that is further detailed in the Enhanced In Situ Bioremediation Contingency Plan (Appendix A of the Cleanup Action Plan).

Section 4.2.3 presented a concentration trend analysis for VC in groundwater at the Site. Since 2012, subsequent to completion of the source area actions at Parcel G, the mass of VC dissolved in groundwater has been subject to various fate and transport mechanisms that have influenced the observed distributions of VC. The VC concentrations along the flow path have been decreasing and will continue to decrease under the influence of the following mechanisms: (i) advective-based dispersion, (ii) recharge of groundwater that does not contain VC, (iii) sorption to aquifer solids, and (iv) abiotic and biotic VC transformation reactions.

The time trend data were analyzed to estimate site-specific degradation rate constant (Geosyntec, 2018a). The degradation rate constant for HEX-8, the monitoring well with consistently highest VC concentration, was estimated based on curve fitting to declining concentrations since the beginning of 2015. Using the MTCA CUL for VC of 0.20 µg/L, it is anticipated that HEX-8 monitoring well will achieve the cleanup standard in approximately four years.

Alternative 3 was evaluated against the four minimum threshold requirements specified under MTCA. Based on the evaluation presented in the FFS Report (Geosyntec, 2018a), Alternative 3 is considered compliant with the four MTCA Threshold Requirements and meets the minimum requirements of an acceptable cleanup action.

7.3.4 Alternative 4 – Monitored Natural Attenuation

Natural attenuation is the process by which natural processes clean up or attenuate contaminants in groundwater. The term "monitored natural attenuation," refers to the reliance on natural processes to achieve site-specific remedial objectives, with on-going monitoring. Natural attenuation processes include a variety of physical, chemical, and/or biological processes that, under favorable conditions, reduce the mass, toxicity, mobility, volume, or concentration of contaminants in groundwater. These processes include biodegradation; dispersion; dilution; sorption; volatilization; and chemical or biological stabilization, transformation, or destruction of contaminants (EPA, 1999).

Since the 2012 completion of the source area control actions for Parcel G, the mass of VOC dissolved in groundwater has been subject to various fate and transport mechanisms, which has influenced the observed distributions of VC (*see* **Historical...Concentrations in Shallow Aquifer**, **Figures 10 - 12**). Within the Site monitoring wells located in the Hexcel Parcels, concentration trends for cDCE and VC through September 2021, in general, continue decreasing towards or below the CUL (CCA, 2021) (*see* **September 2021...Groundwater Concentrations**, **Figures 13 & 14**). The VC concentrations along the flow path have been decreasing and will continue to decrease under the influence of the following mechanisms: (i) continued enhanced biodegradation, (ii) advective-based dispersion, (iii) recharge of groundwater that does not contain VC, and (iv) sorption to aquifer solids.

The time trend data can be analyzed to estimate average site-specific degradation rate constants. Degradation rate constants were estimated for the PS-1 and HEX-8 using methods outlined in Calculation and Use of First-Order Rate Constants for Monitored Natural Attenuation Studies (EPA, 2002). The degradation rate constant was estimated from trend plots for PS-1 and HEX-8 (*see* **Plots of VC concentrations versus time..., Figure 15**), which were based on the most recent monitoring results. Degradation rates of VC for HEX-6 and CG-4 were also estimated from trend plots (*see* **Plots of VC concentrations versus time...**, **Figure 16**). Using the VC Cleanup Standard of 0.20 µg/L, it is anticipated the cleanup standard will be achieved at these individual monitoring wells in between approximately 3 years and 7 years. These degradation rates for PS-1, HEX-8, and CG-4 are influenced by the recent expanded EISB field deployment, and will require recurring evaluation as new monitoring data are acquired.

Forecast graphs are plotted for future conditions based on historical data that are designed for remedial planning purposes (*see* **Plots of VC concentrations versus time...**, **Figure 15 & 16**). However, site groundwater conditions are subject to seasonal water level and geochemistry fluctuations that may affect actual future VC concentrations.

A plot of concentration of VC vs. distance to the Hexcel property boundary indicates that the estimated degradation rates and times will be effective in reaching cleanup standards in groundwater prior to groundwater migrating beyond the Hexcel property boundary (*see* **Plots of VC concentrations versus distance...**, **Figure 17**). The estimated travel time from HEX-8 to the property boundary is approximately seven years based on aquifer properties described in the FRI (CCA, 2018). Both the estimated travel time and data indicate sufficient time for MNA processes to meet remedial objectives. Groundwater quality monitoring (Clear Creek, 2021) trends show that the natural attenuation continues to reduce the VC concentrations in groundwater at the Hexcel Plant.

As pointed out in the FRI (Clear Creek, 2018), upgradient VC loading continues to occur from Parcel G. The plots of VC concentrations vs. time and distance (*see* **Plots of VC concentrations versus time...**, **Figure 15 & 16; and Plots of VC concentrations versus distance...**, **Figure 17**) indicate that at present this upgradient loading is interpreted to occur at a rate that is less than natural attenuation occurring in groundwater at the Hexcel Plant.

Alternative 4 was evaluated against the four minimum threshold requirements specified under MTCA. Based on the evaluation presented in the FFS Report (Geosyntec, 2018a), Alternative 4 is considered compliant with the four MTCA Threshold Requirements and meets the minimum requirements of an acceptable cleanup action.

7.4 Disproportionate Cost Analysis

A DCA was performed to determine which of the four cleanup action alternatives is protective to the maximum extent practicable. The estimated benefit of each alternative was quantified using the DCA criteria. For each cleanup action alternative, rating values ranging from 1 (least favorable) to 5 (most favorable) were assigned for each of the MTCA criteria.

The absolute ratings were adjusted using DCA weighting factors. The weighted ratings and the estimated benefit of each alternative were presented in the FFS Report (Geosyntec, 2018a). The estimated benefit of Alternative 3 (normalized to a value of 5) was 4.8. The estimated benefits of Alternatives 1 and 2 were each 3.9, and Alternative 4 resulted in an estimated benefit of 4.6. Alternative 3 is the highest rated alternative and is protective to the maximum extent practicable (**Table 4**).

7.5 Evaluation of Cleanup Action Alternatives

7.5.1 Reasonable Restoration Timeframe Analysis

The MTCA specified factors were considered in the FFS Report (Geosyntec, 2018a) to determine whether Alternative 3 (i.e., the highest rated alternative) provided for a reasonable restoration time frame. The analysis presented in the FFS Report, supports the estimated Alternative 3 restoration time frame of four years, which is considered reasonable and based on the following:

- There are no future unacceptable risks at the Site.
- The evaluation of the geochemistry and EISB study after the installation of the Parcel G remedy, the decreasing groundwater VC concentrations beneath the Hexcel Parcels demonstrate a reasonable restoration time frame.
- There are no anticipated effects on current uses that would result during the anticipated restoration time frame.
- There are no future uses anticipated that will negatively impacted by the presence of VC in the groundwater during the anticipated restoration time frame.
- Water supply by the City of Kent provides an effective and reliable means to prevent human exposure to VC in groundwater.

The VC groundwater concentration time trend analysis, the first-order decay rates, the groundwater quality sampling data confirm that the natural processes are reducing the concentrations of VC at the Hexcel Parcels.

7.5.2 Alternative 3 Selection Considerations

Potential public concerns were considered in the FFS Report (Geosyntec, 2018a) including:

- There are no unacceptable risks currently at the Site;
- VC concentrations are declining and are less than cleanup levels at the Hexcel Parcels outside of Parcels A-E;
- Groundwater concentrations beneath Parcels A-E is estimated to meet VC cleanup levels in approximately four years;
- There are no use restrictions imposed by Alternative 3 that are not already met as a result of local municipal water supply;
- Alternative 3 does not require, or may require minimal, construction activities and thus will not inconvenience residents or property owners during implementation; and
- Alternative 3 is more sustainable than Alternatives 1 and 2, consuming substantially less energy, producing substantially less carbon dioxide emissions, and having by far the best safety/accident risk metric.

Additional consideration of public concerns will occur in the context of the public review and comment period.

8.0 SELECTED CLEANUP ACTION

8.1 Selected Cleanup Action

Based on the analyses presented in the FRI and FFS Reports (CCA, 2018; Geosyntec, 2018a), the selected cleanup action alternative is Alternative 3 - Monitored Natural Attenuation with contingency for supplemental EISB. WAC 173-340-370 states the expectations that Ecology has for the development of cleanup action alternatives under WAC 173-340-350 and the selection of cleanup actions under WAC 173-340-360.

Review of Ecology's expectations for cleanup action alternatives and the analysis presented in the FRI and FFS Reports (CCA, 2018; Geosyntec, 2018a), Alternative 3 is consistent with MTCA requirements and thus is proposed as the recommended alternative for the site.

The expectations for the selection and implementation of cleanup action alternatives (WAC 173-340-370) at the Property include:

- WAC 173-340-370(2): Minimize the need for long-term management of contaminated materials; such that, all hazardous substances will be destroyed, detoxified, and/or removed to concentrations below cleanup levels throughout sites containing small volumes of hazardous substances;

- WAC 173-340-370(4): Minimize the potential for migration of hazardous substances that prevents precipitation and subsequent runoff from coming into contact with contaminated soils and waste materials; and

- WAC 173-340-370(7): The natural attenuation of the hazardous substances include source control containment at the B.S.B. Diversified Property to the maximum extent practicable; contaminants left during the restoration time frame does not pose an unacceptable threat to human health or the environment; there is evidence that natural biodegradation or chemical degradation is occurring and will continue to occur at a reasonable rate at the site; and groundwater quality monitoring is conducted to ensure that the natural attenuation process is taking place and that human health and the environment are protected.

If MNA does not perform to expectations, then there is a contingency for Ecology and Hexcel to evaluate whether supplemental EISB injections are warranted. The Compliance Monitoring Plan and Operation and Maintenance Plan for Hexcel Parcels report (2023) lists the criteria for triggering contingency EISB treatment. EISB optimizes the naturally occurring biodegradation of VOCs beneath the Hexcel Parcels. Figures 7, 8, and 9 show the historical natural attenuation of

VOCs over time. VOC concentrations have significantly decreased over time as detailed in Section 4.2. If the decreasing concentration trends reverse, then an increasing trend in VOC concentrations may trigger the EISB contingency plan depending on the specific conditions observed.

The injections include microorganisms, nutrients, and geochemical amendments. EISB injections will use or modify, if necessary, the performance parameters established during the EISB Microcosm Study (Geosyntec, 2015a, b, c and 2017). The location and spacing of the injection points will form a transect extending through the lateral extent of the elevated VC concentrations.

8.1.1 Contingency Triggers and Implementation of Supplemental Enhanced In Situ Bioremediation

Ecology's decision to require Hexcel to implement the supplemental Enhanced In Situ Bioremediation (EISB) would be identified during reviews of groundwater monitoring results. Hexcel would evaluate the need to implement the supplemental EISB under this CAP and the Hexcel Parcels Consent Decree as a contingent action if:

- VC concentrations in groundwater fail to meet CULs at the point of compliance within a reasonable restoration timeframe, OR
- Ecology determines that MNA is unable to protect groundwater and meet CULs at the point of compliance.

If necessary, supplemental EISB would be targeted at specific locations at the Hexcel Parcels where Ecology has determined that MNA alone is not meeting remedial goals as outlined in this CAP and compliance monitoring work plan. Ecology may require additional deployments of supplemental EISB depending on the results of the initial deployment.

8.2 Overall Implementation Approach

The final selection and implementation of Alternative 3, Monitored Natural Attenuation (MNA) with contingency for supplemental EISB, is the preferred cleanup action and will include the following general steps:

- Implementation of the Compliance Monitoring Plan (CMP);
- Regular reporting of results to Ecology; Hexcel or a third party will conduct long-term operations, maintenance, and compliance monitoring activities; and

- Since an institutional control is included in the selected cleanup action, Ecology will conduct periodic reviews (WAC 173-340-420) to evaluate the effectiveness of the remediation. Ecology will conduct periodic review at a minimum of every five years in accordance with MTCA. Additional remediation or contingency plans will be implemented if Ecology determines that contaminated groundwater above CULs is issuing from the Hexcel Parcels due to failure of the MNA and supplemental EISB.

8.3 Institutional Controls

Institutional controls will be incorporated in the cleanup action since contaminants exceeding the MTCA Method A cleanup levels will remain on the Property (WAC 173-340-440(4)(a)). The intent of the institutional controls will be to preserve the integrity of the cleanup action. Institutional controls will include Hexcel recording an environmental (restrictive) covenant consistent with WAC 173-340-440 and chapter 64.70 RCW with the King County Auditor to notify individuals of the restrictions on uses and actions at the Hexcel Parcels. For groundwater, an Environmental Covenant executed pursuant to the Model Toxics Control Act ("MTCA"), chapter 70A.305 RCW, will be implemented that precludes the use of property groundwater for drinking water. The environmental covenant will limit activities that may create a new exposure pathway (e.g., indoor air pathway or subsurface worker pathway), result in the release of hazardous substances, or interfere with the integrity of the Cleanup Action without Ecology's written approval. In addition, the Covenant will restrict the land use. Prohibited uses on the Property include but are not limited to residential uses, childcare facilities, K-12 public or private schools, parks, grazing of animals, and growing of food crops. The Environmental Covenant for property groundwater is anticipated to be an effective and reliable means to prevent human exposure to VC in groundwater. If CMP groundwater quality sampling determines VOC concentrations for all the wells are statistically determined to below CULs, then the Environmental Covenant maybe removed from the property.

8.4 Financial Assurances

Hexcel will establish and maintain sufficient financial assurances to implement this Cleanup Action Plan, including maintaining institutional and engineering controls on the Property and maintaining compliance monitoring (WAC 173-340-440(11); WAC 173-303-64620). WAC 173-340-440(11) states, "The department shall, as appropriate, require financial assurance mechanisms at sites where the cleanup action selected includes engineered and/or institutional controls." The purpose of the financial assurances is to cover costs associated with the operation and maintenance of the cleanup action, including institutional controls, compliance monitoring, and corrective measures.

8.5 Substantive Requirements

Chapter 70A.305 RCW exempts cleanup actions conducted under a consent decree from the procedural requirements of RCW Chapters 70A.15, 70A.205, 70A.300, 77.55, 90.48, and 90.58 and of any laws requiring or authorizing local government permits or approvals. Hexcel will conduct the selected cleanup action in compliance with the substantive requirements of any local government laws.

8.6 Work Plans

Work plans for the selected cleanup action include:

- Enhanced In Situ Bioremediation (EISB) Contingency Plan that covers the details, procedures, and implementation schedule for the MNA EISB contingency (Appendix A);
- A CMP that includes a sampling and analysis plan, and a discussion of data analysis and evaluation procedures. The CMP discusses protection monitoring, performance monitoring, and confirmational monitoring (WAC 173-340-410) (Appendix B); and
- An Operation and Maintenance (O&M) plan (WAC 173-340-400(4)(c)), which details the plans to ensure the effective operation of the selected cleanup action. The O&M Plan is included as a Section of the CMP (Appendix B).

REFERENCES

BSB Consent Decree No. 11-2-27288-5, Attorney General of Washington, Ecology Division. 2011. Consent Decree State of Washington Department of Ecology and B.S.B. Diversity. August 10, 2011.

BSB Consent Decree No. 11-2-27288-5, Attorney General of Washington, Ecology Division. 2011. Exhibit A, Cleanup Action Plan, Consent Decree State of Washington Department of Ecology and B.S.B. Diversity. August 10, 2011.

Clear Creek Associates. 2011. Monitor Well Installation Completion Report, Hexcel Facility, Kent, Washington. January 26, 2011.

Clear Creek Associates. 2017. Environmental Monitoring Report September 2017, Hexcel Plant 1 Facility, Kent, Washington. December 7, 2017.

Clear Creek Associates. 2018. May 2018 Operations Summary, Hexcel Plant 1 Facility. Correspondence from James Norris, Clear Creek Associates, to Hideo Fujita, Department of Ecology. June 1, 2018.

Clear Creek Associates. 2018. Draft Focused Remedial Investigation Summary, Hexcel Plant 1 Kent, Washington. August 31, 2018.

Clear Creek Associates. 2019. Environmental Monitoring Report September 2019, Hexcel Plant 1 Facility, Kent, Washington. December 5, 2019.

Clear Creek Associates. 2021. Environmental Monitoring Report September 2021, Hexcel Plant 1 Facility, Kent, Washington. November 15, 2021.

Geosyntec. 2015a. Microcosm Study and Pilot Study Work Plan: Hexcel Corporation Plant 1 Facility, 19819 84th Ave. South, Kent, Washington, 98032. March 6, 2015.

Geosyntec. 2015b. Update on Microcosm Study. Hexcel Corporation Plant 1 Facility, Kent, Washington. July 2015.

Geosyntec. 2015c. Work Plan Addendum: In Situ Bioremediation Pilot Test. Hexcel Plant 1 Facility. Kent, WA. August 11, 2015.

Geosyntec. 2017. Enhanced In Situ Bioremediation Work Plan Addendum. Hexcel Plant 1 Facility. Kent, WA. April 18, 2017.

Geosyntec. 2018a. Focused Feasibility Report, Hexcel Plant 1 Facility, Kent Washington. August 31, 2018.

Geosyntec. 2018b. First Quarter 2018 Enhanced In Situ Bioremediation Monitoring Report, Hexcel Plant 1 Facility, Kent, WA. June 2018.

Geosyntec. 2019. Second Quarter 2019 Enhanced In Situ Bioremediation Monitoring Report, Hexcel Plant 1 Facility, Kent, WA. September 2019.

Hexcel Corporation. 2014. Correspondence from Tim L. Sturdivant, Hexcel Corporation, to Hideo Fujita, Department of Ecology, RE: Hexcel Plant 1, Enforcement Order No. DE 2552. January 10, 2014.

Hexcel Corporation. 2016. Correspondence from Tim Sturdavant, Hexcel Corporation, to Hideo Fujita, Department of Ecology, RE: Request from Hexcel Corporation to shut down groundwater extraction pump CG #4 at the Hexcel Plant 1 Facility in Kent, Washington. December 15, 2016.

Hydro Geo Chem, Inc. 2003. DRAFT Interim Technical Memorandum: Screening of Bioremediation Verification Results, Hexcel Kent Facility. December 3, 2003.

Hydro Geo Chem, Inc. 2004. Hexcel Kent Biological Groundwater Assessment. Memorandum to Jim Norris from Bill Kight. January 23, 2004.

Hydro Geo Chem, Inc. 2005. Work Plan for Focused Remedial Investigation, Hexcel Plant 1 Facility, Kent, Washington. December 21, 2005.

Hydro Geo Chem, Inc. 2007a. Work Plan for Indoor Air Sampling At the Hexcel Plant 1 Facility, Kent, Washington. November 7, 2007.

Hydro Geo Chem, Inc. 2008. Sampling and Assessment of Indoor Air, Hexcel Plant 1 Facility, Kent, Washington. June 20, 2008.

Hydro Geo Chem, Inc. 2010a. Vadose Zone Soil Sampling for Additional Source Characterization, Hexcel Plant 1 Facility, Kent, Washington. January 5, 2010.

Hydro Geo Chem, Inc. 2010b. Data Compilation and Evaluation, Hexcel Plant 1 Facility, Kent, Washington. January 28, 2010.

O.H. Materials Corp. 1988a. Proposal for the Cleaning of CIBA-GEIGY Corporation's Facility Located in Kent, Washington. April 11, 1988.

Pacific Northwest Center for Geologic Mapping Studies. 2006. Geologic map of King County, Washington: D.B. Booth and A. P. Wisher, compilers, scale 1:100,000 (available at: (http://geomapnw.ess.washington.edu/services/publications/map/data/KingCocomposite.pdf).

PES Environmental, Inc. 2005. Focused RI Summary/FS Report, BSB Property, Kent, Washington. June 20, 2005.

PES Environmental, Inc. 2007. Downgradient Area Groundwater Investigation Final Report, Agreed Order No. DE2553, Kent, Washington. February 14, 2007.

PES Environmental, Inc. 2008. Draft Cleanup Action Plan, BSB Property, Kent, Washington. April 14, 2008.

PES Environmental, Inc. 2008a. Downgradient Area Groundwater Investigation Final Report, Agreed Order No. DE 2553, Kent, Washington. January 22, 2008.

PES Environmental, Inc. 2009b. Deep Aquifer Investigation Evaluation Report, Agreed Order No. DE 2553, Kent, Washington. January 29, 2009.

PES Environmental, Inc. 2010. Phase 2 Deep Aquifer Investigation Data Summary Report, BSB Property, Kent, Washington. July 27, 2010.

PES Environmental, Inc. 2011. Remedial Investigation Report Addendum, BSB Property, Kent, Washington. April 29, 2011.

PES Environmental, Inc. 2015. Technical Memorandum Parcel G Deep Aquifer Monitoring, BSB Property, Kent, Washington. February 20, 2015.

PES Environmental, Inc. 2018. Cleanup Progress Report, Second Quarter, 2018, BSB Property, Kent, Washington, Consent Decree No. 11-2-27288-5. July 19, 2018.

PES Environmental, Inc. 2019. Cleanup Progress Report, Second Quarter 2019, BSB Property, Kent, Washington, Consent Decree No. 11-2-27288-5. July 17, 2019.

PES Environmental, Inc. 2020. Data Transmittal and Summary Deep Aquifer Monitoring, BSB Property, Kent, Washington. January 29, 2020.

S.S. Papadopulos & Associates, Inc. 1993. Hydraulic Evaluation of Recovery Well System Performance at BSB Diversified Company, Inc. Prepared for Heath Tecna Aerospace Company. September, 1993.

S.S. Papadopulos & Associates Inc. 2003. BSB Diversified Company, Inc., Kent, WA. , Modification to Groundwater Flow Model and Containment Well Network. Memorandum from Michael J. Riley to Paul Beveridge.

Sweet-Edwards/EMCON, Inc. 1988. Hytek Finishes 1987 Ground Water Investigation Report. January 22, 1988.

Washington State Department of Ecology, 2014. Email correspondence from Hideo Fujita, Department of Ecology, to Tim Sturdavant and Ronald A. Burt, RE: Hexcel - Kent, WA groundwater monitoring & hydraulic extraction system modifications. April 21, 2014.

Washington State Department of Ecology. 2015. Cleanup Levels and Risk Calculation Database (CLARC) : https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx.

Wiedemeier, T.H., Swanson, M.A., Moutoux, D.E., Gorden, E.K., Wilson, J.I., Wilson, B.H., Kampbell, D.H., Hansen, J.E., Haas, P., and Chapelle, F.H. 1996. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater. November 1996.

TABLES

DRAFT

Table 1
Vinyl Chloride Results from Groundwater Wells 2012-2018

Date Sampled	CG-1	CG-2	CG-3	CG-4	HEX-1	HEX-2	HEX-3	HEX-4	HEX-5	HEX-6	HEX-7	HEX-8	HEX-9	HEX-10	HEX-11	HEX-12	HEX-13	HEX-14	HEX-15	HY-9	Ki	Ks	PS-1	HY-7S	HY-7SS
Jan-12					**9.8**	**2**	**3.3**																		
Feb-12					**3.4**	**1.2**	**2.5**																		
Mar-12					**1.7**	**0.48**	**2.3**																		
Apr-12	0.09	ND	**0.72**	**28**	**22**	**2.9**	**3.2**	**49**	**0.27**	**1.5**	**19**	**130**	**0.27**	ND	19	**0.2**	**0.41**	ND	ND	**0.22**	0.16	ND			
May-12					**21**	0.098	**2.9**																		
Oct-12	0.09 J	ND	**2.6**	**49**	**2.8**	**50**	**0.9 J**	**0.67**	ND	**37**	**8.6**	**99**	**0.330 J**	ND	ND	**7.5**	ND			0.180 J	ND	ND			
Apr-13	0.150 J	0.09 J	**4.7**	**72**	**1**	**2.8**	**1.9**	**0.73**	0.180 J	**9.5**	**40**	**250**	**0.49**	ND	< 0.0750	**11**	0.08 J	ND	ND	**0.2 J**	0.120 J	**0.220 J**			
Oct-13	0.130 J	ND	**0.73**	**63**	**0.4 J**	**2.7**	**0.87**	**0.68**	0.170 J	**5.2**	**52**	**350**	**0.410 J**	ND	ND	**5.9**	ND	ND	ND	**1.2**	**0.54**	0.08 J			
May-14	0.11	0.09 J																							
Jun-14	0.08 J	0.08 J																							
Jul-14	0.08 J	ND																							
Aug-14	0.170 J	0.08 J																							
Sep-14	0.23	0.27	**0.21**	**51**	0.13	**4.5**	**0.91**	**0.51**	**0.21**	**16**	**7.4**	**290**	**0.66**	**0.27**	ND	ND	ND	ND	ND	0.19	ND	ND			
Sep-15	ND	ND	0.11	**32**	**0.39**	**2.8**	**1.5**	**0.43**	0.18	**7.3**	**5**	**290**	**0.47**	**0.32**	0.14	0.14	ND	ND	ND	0.08 J	ND	ND			
Oct-15				**30**								**310**											**79**		
Nov-15				**26**								**270**											**33**		
Dec-15				**30**								**160**											**31**		
Jan-16				**45**								**220**											**37**		
Feb-16				**42**								**290**											**20**		
Mar-16				**46**								**240**											**18**		
Apr-16				**30**								**420**											**150**		
May-16												**380**											**170**		
Jun-16												**320**											**160**		
Jul-16				**17**								**240**											**130**		
Sep-16	ND	ND	0.11	**15**	0.14	**1.9**	**0.87**	**0.35**	0.18	**2.4**	**6.1**	**190**	**0.36**	**0.53**	ND	**0.62**	ND	ND	ND	0.09 J	ND	0.08 J			
Oct-16				**12**								**240**											**86**		
Mar-17	< 0.10	< 0.10	0.080 J	**20**	0.19					**0.41**	**36**	**210**								0.11	0.11	< 0.10	**69**		
May-17	< 0.10	< 0.10	< 0.10	**0.8**	0.14					**0.38**	**14**	**160**								0.17	**0.26**	< 0.10	**76**		
Sep-17	0.038	0.017	0.028	0.062J	0.11	**1**	**0.88**	**0.38**	**0.24**	**1.4**	**1.9**	**1.3**	**0.41**	**0.36**	< 0.10	**1.4**	0.089	< 0.10	< 0.10	0.16	0.14	0.13	**26**		
Dec-17	< 0.075	< 0.075	< 0.075	< 0.075	< 0.075					**0.34**	**7.6**	**73**								< 0.075	0.15	0.15	**3**		
Mar-18	< 0.075	< 0.075	< 0.075	**1.8**	0.10					**0.30**	**14**	**26**								0.11	0.090 J	< 0.075	< 0.075		
Jun-18	< 0.075	< 0.075	< 0.075	0.17J	0.090J					**0.39**	**2.2**	**20**								< 0.075	< 0.075	< 0.075	< 0.075	0.11J	0.19J

Notes
MTCA Cleanup Standard for VC = 0.2 µg/L
Results are in units of micrograms per liter (µg/L)
MCTA = Model Toxics Control Act
ND = Non Detect
< = Result is less than the given Reporting Limit (RL) value
NA = Not Sampled/Not Applicable
Bold = Result exceeded the MCTA Regulatory Limits
J = Result was reported as below the reporting limit but above the detection limit, and therefore is estimated.

Table 2
Applicable, Relevant and Appropriate Requirements (ARARs)
Hexcel Plant 1, Kent, Washington

Action	Citation	Requirements	Comments
Construction	29 CFR Part 1910.120 Occupational Safety and Health Standards - Hazardous Waste Operations and Emergency Response	Federal regulation requiring that remedial activities must be in accordance with applicable Occupational Safety and Health Administration (OSHA) requirements.	Applicable to construction phase of remedial alternatives.
	29 CFR Part 1926 Safety and Health Regulations for Construction	Federal regulation requiring that remedial construction activities must be in accordance with applicable OSHA requirements.	Applicable to construction phase of remedial alternatives.
	King County Title 20	County regulations covering construction and infrastructure regulations.	Applicable to construction of treatment system alternatives.
Treatment	42 USC 6902 (RCRA)	Defines Hazardous waste management requirements.	Applies to management of hazardous/dangerous waste. If wastes are accumulated in treatment system they will be managed in accordance with these requirements.
	RCW 70A.105D.090 (Model Toxics Control Act)	Defines hazardous waste cleanup policies.	Remedial activities will comply with substantive requirements of ARARS.
	WAC 173-340 (MTCA regulations)	Establishes administrative processes and standards to identify, investigate and clean up facilities where hazardous substances have come to be located.	Applies to any facility where hazardous substance releases to the environment have been confirmed.
	State Hazardous Waste Management Act (HWMA) RCW 70A.105	Defines threshold levels and criteria to determine whether materials are hazardous/dangerous waste.	Applies to designation, handling, and disposal of wastes. Treatment system wastes meeting these criteria will be handled and disposed of in accordance with regulatory requirements.
Extraction wells	Well Construction RCW 18.104 WAC 173-160	Requirements that apply to wells and well construction.	Applies to construction of extraction wells for pump and treat alternative.
Transportation	40 CFR 261, 262, 264; 49 CFR 171, 172, 173, 174 Hazardous Materials Transportation	Defines requirements for off-site transportation of wastes.	Applicable to transportation of waste off-site. Applies to treatment alternative. Actions will comply with these requirements.
	WAC 446-50 Transportation of hazardous/dangerous waste	Defines requirements for off-site transportation of wastes.	Applicable to transportation of waste off-site. Applies to treatment alternative. Actions will comply with these requirements.

DRAFT

Geosyntec consultants

Table 3
Potential Groundwater Cleanup Levels for Vinyl Chloride
Hexcel Plant 1, Kent Washington

Analyte	Groundwater Protection (µg/L)		Concentration Protective of Surface Water (µg/L)									
			National Toxics Rule (1)				National Recommended Water Quality Criteria				MTCA Method B	
	Federal & State MCL	MTCA Method A	Protection of Aquatic Life - Freshwater		Protection of Human Health (Water & Organisms) (4)	Protection of Human Health (Organisms Only)	Protection of Aquatic Life - Freshwater		Protection of Human Health (Water & Organisms) (4)	Protection of Human Health (Organisms Only)	Carcinogen	Non-Carcinogen
			Acute	Chronic			Acute	Chronic				
Vinyl Chloride	2.0	0.20	--	--	0.025	2.4	--	--	0.025	2.4	3.7	24.0

Notes:

(1) Ambient water quality criteria for protection of human health from 40 CFR Part 131d (National Toxics Rule, 2008)

(2) National Recommended Water Quality Criteria (Clean Water Act Section 304, 2006)

(3) Ambient water quality criteria for protection of aquatic life from WAC 173-201A-240

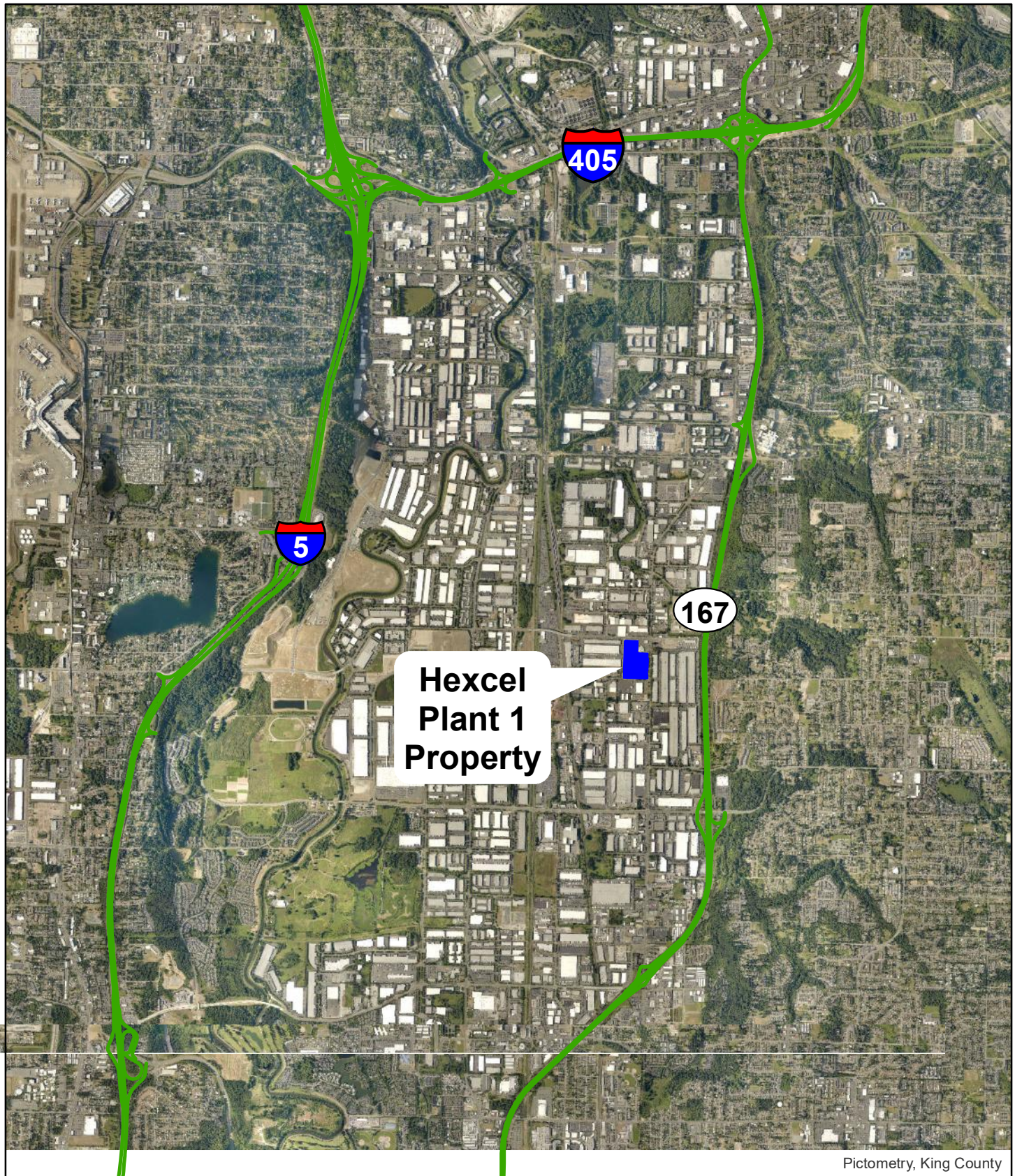
(4) Criterion is not applicable because surface water near and directly downgradient of the Site is not and will not likely be used for drinking water

Most stringent applicable cleanup level

Table 4
Disproportionate Cost Analysis
Hexcel Plant 1, Kent, Washington

Criteria	Alternatives			
	Groundwater Extraction	**EISB**	**MNA + EISB Contingency**	**MNA**
MTCA Threshold Criteria				
1. Protection of Human Health and the Environment	Yes	Yes	Yes	Yes
2. Compliance with Cleanup Standards	Yes	Yes	Yes	Yes
3. Compliance with ARARs	Yes	Yes	Yes	Yes
4. Provision for Compliance Monitoring	Yes	Yes	Yes	Yes
Restoration Time Frame	~13-14 Years	~4 Years	~4 Years	~4-7 Years
Unweighted Ratings (1 = Least Favorable; 5 = Most Favorable)				
Protectiveness	4	4	5	5
Permanence	4	4	4	3
Long-Term Effectiveness	4	5	5	5
Management of Short-Term Risks	4	3	5	5
Implementability	4	3	5	5
Consideration of Public Concerns	3	3	5	5
Estimated Benefit - Weighted Ratings				
Protectiveness (30%)	1.2	1.2	1.5	1.5
Permanence (20%)	0.8	0.8	0.8	0.6
Long-Term Effectiveness (20%)	0.8	1	1	1
Management of Short-Term Risks (10%)	0.4	0.3	0.5	0.5
Implementability (10%)	0.4	0.3	0.5	0.5
Consideration of Public Concerns (10%)	0.3	0.3	0.5	0.5
Benefit Rating	3.9	3.9	4.8	4.6
Disproportionate Cost Analysis				
Estimated Cost	~$200,000/yr $2,600,000 for 13 years	~$350,000 $550,000 for 4 years	~$50,000/yr + ~$150,000 EISB $350,000 for 4 years	~$50,000/yr $200,000 for 4 years
Cost Disproportionate to Incremental Benefits?	Yes	Yes	No	N/A (Baseline)
Overall Alternative Ranking	3	4	1	2
Cost Increase over Baseline (%)	1300%	275%	175%	

FIGURES



Pictometry, King County

0 2,000 4,000

Feet

CLEAR CREEK ASSOCIATES

File ID 273-007

Date 6/18/18

FIGURE 1
General Location Map

Projection: NAD 1983 State Plane Washington North FIPS 4601 Feet

0 250 500
Feet

CLEAR CREEK ASSOCIATES

File ID 273-008
Date 6/18/18

FIGURE 2
Site Map

Projection: NAD 1983 State Plane Washington North FIPS 4601 Feet

Modified 1/5/2022 by WA State Dept. of Ecology

DRAFT

0 130 260
Feet

CLEAR CREEK ASSOCIATES

File ID 273-015

Date 6/18/18

Projection: NAD 1983 State Plane Washington North FIPS 4601 Feet
Parcel data provided by permission of King County Source: King County GIS Data Portal (https://www5.kingcouny.gov/gisdataportal/)

FIGURE 3
Parcel Location Map

Legend

- Remedial Pumping Well in Shallow Aquifer
- Shallow Aquifer Monitoring Well
- Intermediate Aquifer Monitoring Well
- Deep Aquifer Monitoring Well

0 75 150 300

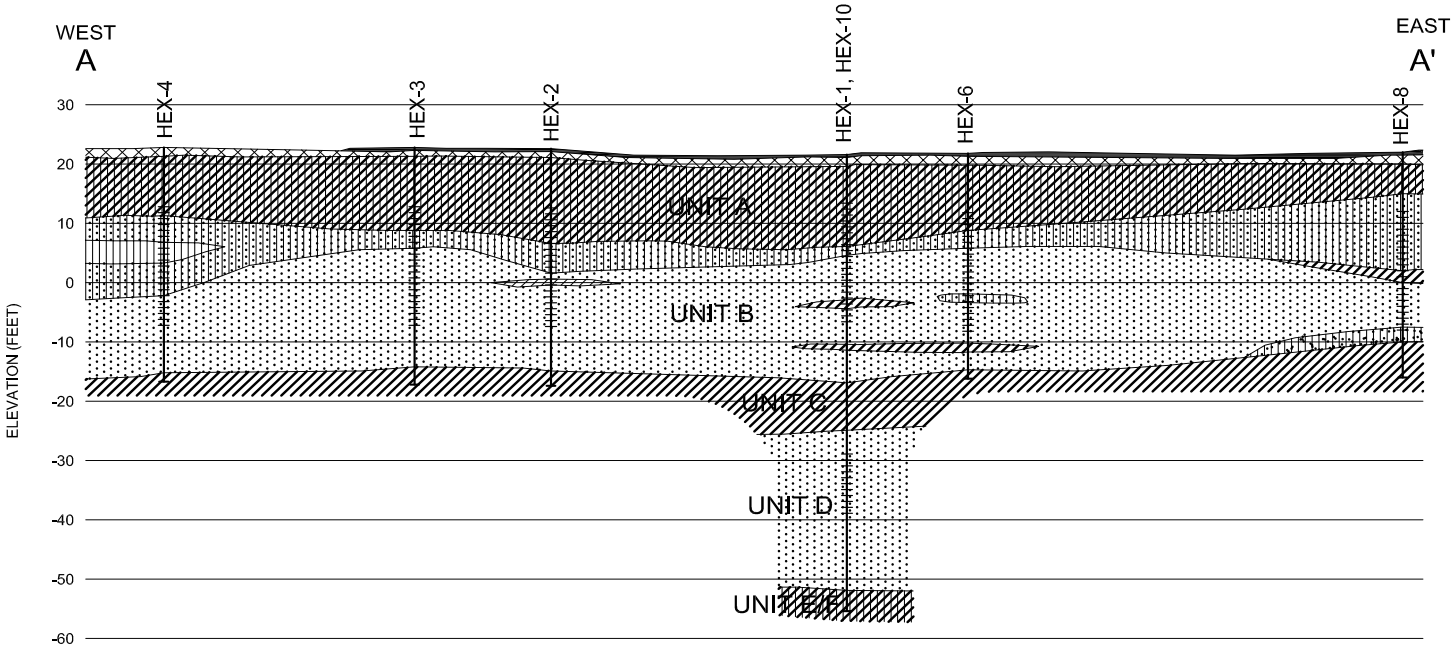
Feet

Projection: NAD 1983 State Plane Washington North FIPS 4601 Feet

Date	File ID
8/13/18 (revised 1/3/2022)	273-010

CLEAR CREEK ASSOCIATES

FIGURE 4
Groundwater Monitoring Well Locations

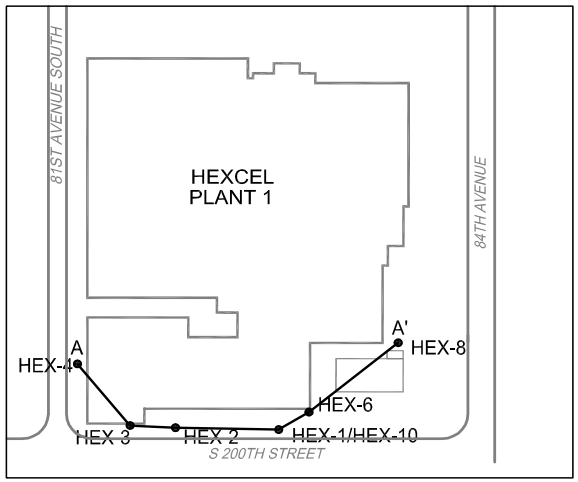


0 60 120 180

HORIZONTAL SCALE IN FEET

VERTICAL EXAGGERATION: 4X

CROSS SECTION LOCATION



EXPLANATION

ASPHALT
FILL
CLAY
SILT
SILTY CLAY
SAND
SILTY SAND
HEX-1
WELL LOCATION
SCREENED INTERVAL

N

0 200 400

APPROX. SCALE IN FEET

LOCATION MAP SCALE

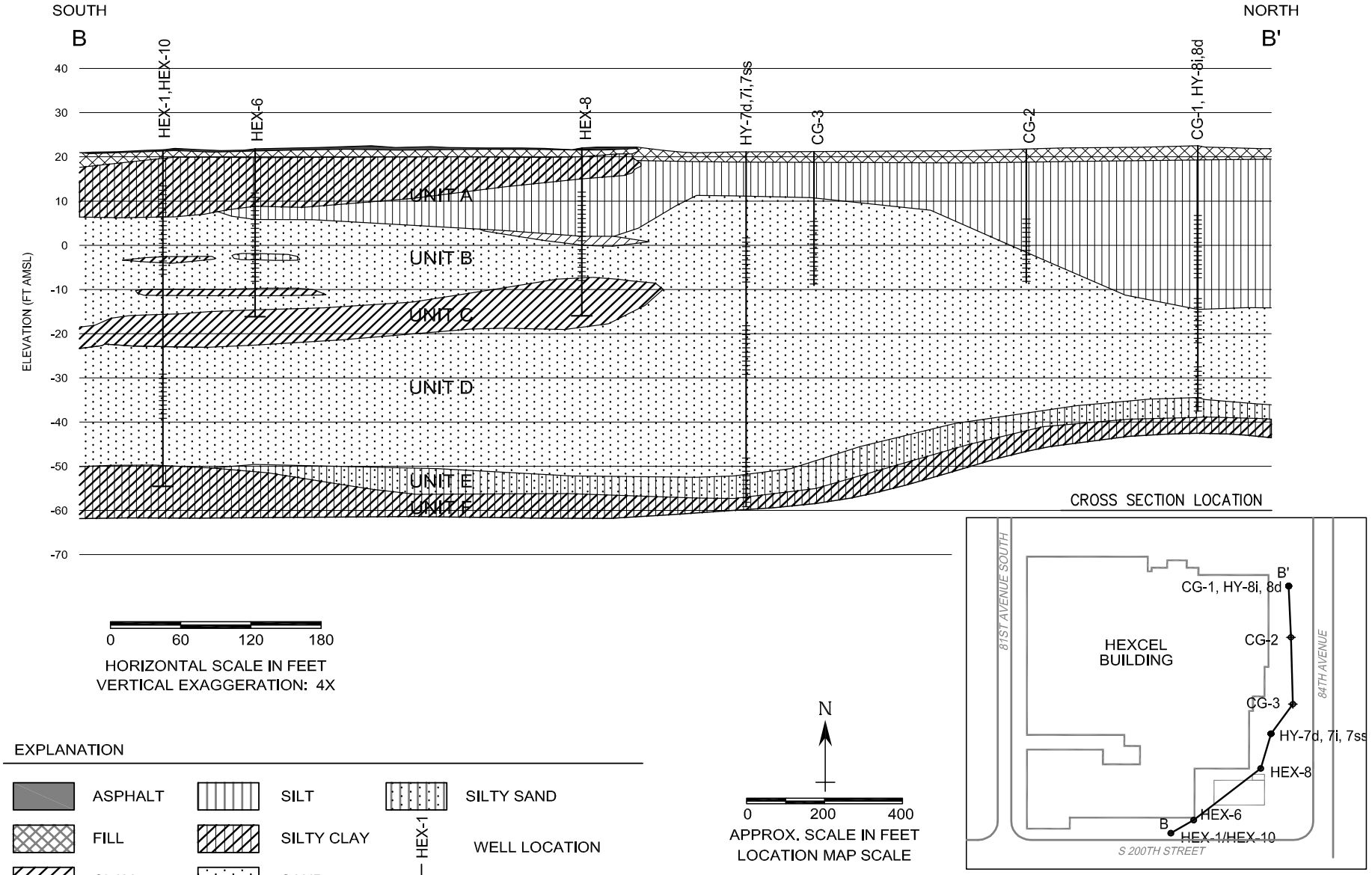
CLEAR CREEK ASSOCIATES

File: A273-002

Date: 6/20/18

FIGURE 5
East-West Cross Section

Figure after HGC (2010b)



NOTE: CROSS SECTION BASED ON FIGURE 7.1-1 FROM SWEET-EDWARDS/ EMCON (1988), FIGURE 13 FROM IT CORPORATION (2001), AND HEX WELLS

CLEAR CREEK ASSOCIATES

File: A273-001

Date: 6/20/18

FIGURE 6
North-South Cross Section

Legend

- Shallow Aquifer Monitoring Well
- Intermediate Aquifer Monitoring Well
- Former Remdial Pumping well
- Groundwater Elevation Contour Based on Shallow Aquifer Data Only
- Groundwater Depression

Contours are dashed where inferrred based on prior measurements

Scale (Feet)

0 150 300

Notes:

Projection: NAD1983 HARN State Plane Washington North FIPS 4601 FEET
Water elevations at HY-12S, HY-13S, HY-16S, and HY-17S not measured due to lack of an access agreement with property owners.
Water elevations at HY-14S and HY-15S not measured due to landscaping activities by the City of Kent. Water elevations at HY-7i and Ks not used for contouring.

Date	File ID
11/1/2021	273-105

CLEAR CREEK ASSOCIATES

Figure 7
Contour Map of Shallow Groundwater Elevations (September 13-16, 2021)
Plant 1 and Vicinity

Explanation

- Gd — Upper Deep Aquifer Monitoring Well
- Hd — Lower Deep Aquifer Monitoring Well
- F — Deep Observation Well
- DW-5 — Deep Dewatering Well
- CG-2 — Recovery Well
- HYR-6 — Shallow or Intermediate Monitoring Well
- OW-2A — Shallow or Intermediate Observation Well
- HY-12s — Downgradient Area Well
- x — Fence
- Property Boundary
- 21.2 — Upper Deep Aquifer Groundwater Elevation Contour, September 2019
- 20.13 — Upper Deep Aquifer Groundwater Elevation, September 2019
- \+ — Anomalous water elevations not used in contouring
- * — Well screened at the base of the deep aquifer; groundwater elevation included on the upper deep aquifer map since the well screen elevation is consistent with upper deep aquifer wells at the BSB property.

S 196th STREET

81st AVENUE SOUTH

84th AVENUE (EAST VALLEY ROAD)

ALLEY

Commercial Building

COMMERCIAL BUILDING

Hexcel Building

Hexcel Property

J.H. Carr Building

J.H. Carr Property

BSB Property

S 200th STREET

Gate

HY-5 HY-8i CG-1 HY-8d* 20.03 HY-6 HY-9 HY-13s

HY-12s

HEX-15 21.74

HEX-11 22.07

HY-119 21.93

HEX-10 21.87

HEX-13 21.78

HYCP-7d 22.10

HY-102 21.89

HYCP-2d 21.98

HY-113 22.11

21.77 HY-108 21.84

DW-5

HY-122 22.14

DW-1a 22.17

HY-115 22.14

HY-117 22.12

HY-105 21.91

HY-125 22.24

HY-127 22.15

Bd* 21.70

HY-11i HY-11s HY-11d

HY-3

20.2 20.4 20.6 20.8 21 21.2 21.4 21.6 21.8 22 22.2

N

0 150

SCALE IN FEET

PES Environmental, Inc.
Engineering & Environmental Services

Potentiometric Surface, Upper Layer D
September 2019
BSB Deep Aquifer
Kent, Washington

FIGURE 8

827.001.46.003	82700146003_1	WRH	1/20
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

Explanation

Hd	Lower Deep Aquifer Monitoring Well
F	Deep Observation Well
DW-5	Deep Dewatering Well
CG-2	Recovery Well
HYR-6	Shallow or Intermediate Monitoring Well
OW-2A	Shallow or Intermediate Observation Well
HY-12s	Downgradient Area Well
x	Fence
	Property Boundary
22.1	Lower Deep Aquifer Groundwater Elevation Contour, September 2019
22.56	Lower Deep Aquifer Groundwater Elevation, September 2019
+	Anomalous groundwater elevation not used in contouring
NM	Not Measured
*	Well screened at the base of the deep aquifer; groundwater elevation included on the upper deep aquifer map since the well screen elevation is consistent with upper deep aquifer wells at the BSB property.

S 196th STREET

81st AVENUE SOUTH

84th AVENUE (EAST VALLEY ROAD)

S 200th STREET

ALLEY

Hexcel Building

J.H. Carr Building

J.H. Carr Building

Commercial Building

Commercial Building

BSB Property

J.H. Carr Property

Gate

HY-5 HY-1s HY-1i HY-1d 21.12+ HY-11i HY-11s HY-11d 22.78 HY-3 HY-4 HY-6 HY-8i HY-8d* CG-1 HY-9 HY-13s HY-12s CG-2 OW-2A OW-2B OW-2C OW-3 CG-3 OW-4 CG-4 HY-7i HY-7s HY-7ss HY-7d 21.83 F 22.42 E 22.56 D I HYR-2 HYR-1 HYCP-1 HYCP-2 HYCP-2i HYCP-5 HYCP-6 HYCP-7i HYCP-4 HYCP-3i HYCP-3s HY-2 HEX-1 HEX-12 21.70 HEX-14 20.78+ HY-120 21.96 HY-121 21.94 HY-106 21.98 HY-107 22.09 HY-112 22.04 HY-110 22.19 HY-114 22.15 HY-109 22.08 DW-5 HY-123 22.21 HY-104a DW-1a HY-118 22.18 HY-116 22.11 HY-101 21.94 HY-126 22.22 HY-111 22.28 HY-128 22.36 Ld 22.50 Hd 22.09 Hs Ls Gi GS Gd 21.93 Cd 21.46 Cs Ki Ks Kd NM A Bd* Bs

22.7 22.6 22.5 22.4 22.3 22.2 22.1 22 21.9 21.8 21.7 21.6

N

0 150

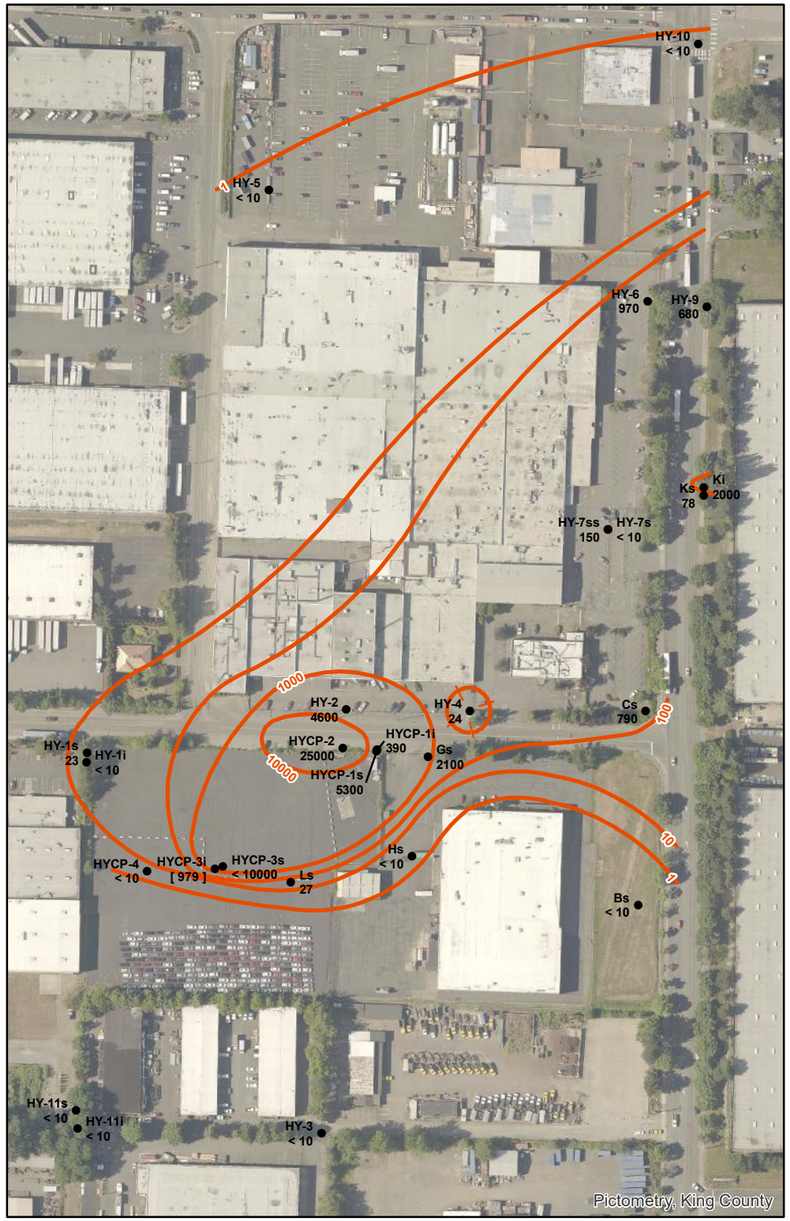
SCALE IN FEET

PES Environmental, Inc.
Engineering & Environmental Services

Potentiometric Surface, Lower Layer D
September 2019
BSB Deep Aquifer
Kent, Washington

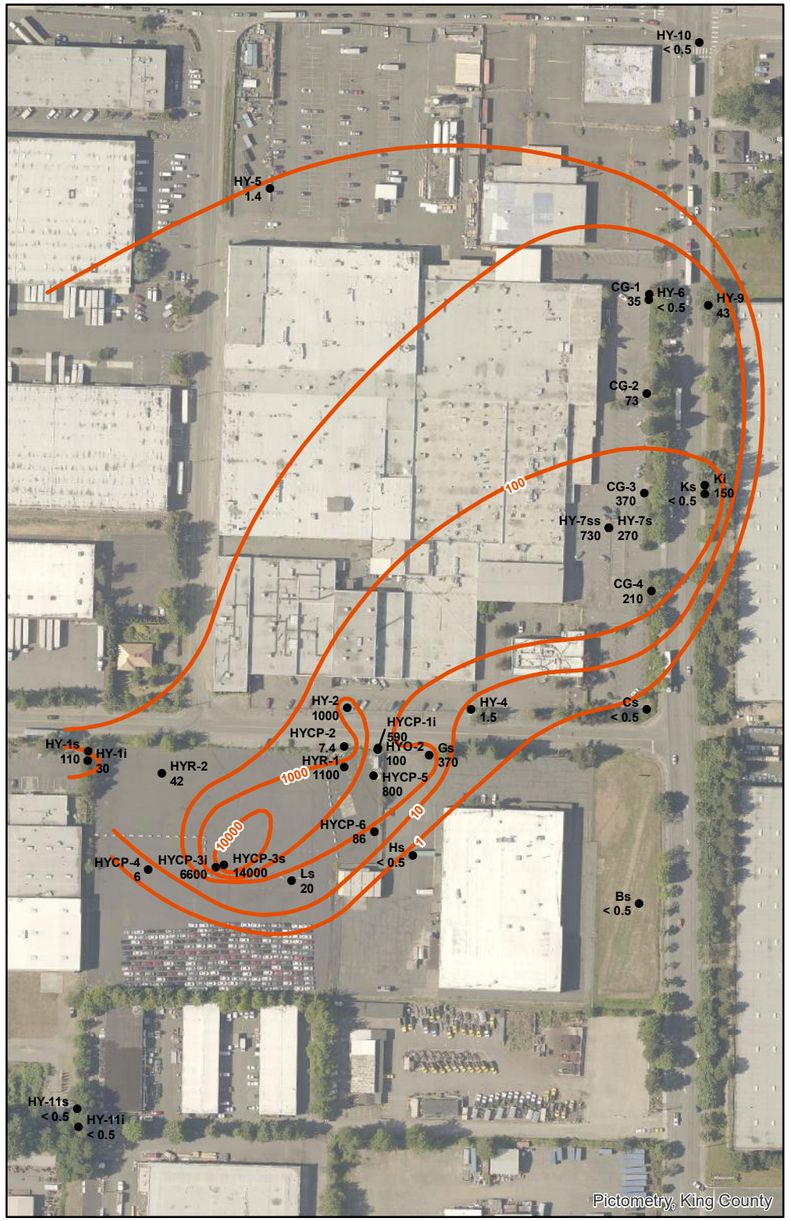
FIGURE 9

827.001.46.003	82700146003_2	WRH	1/20
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



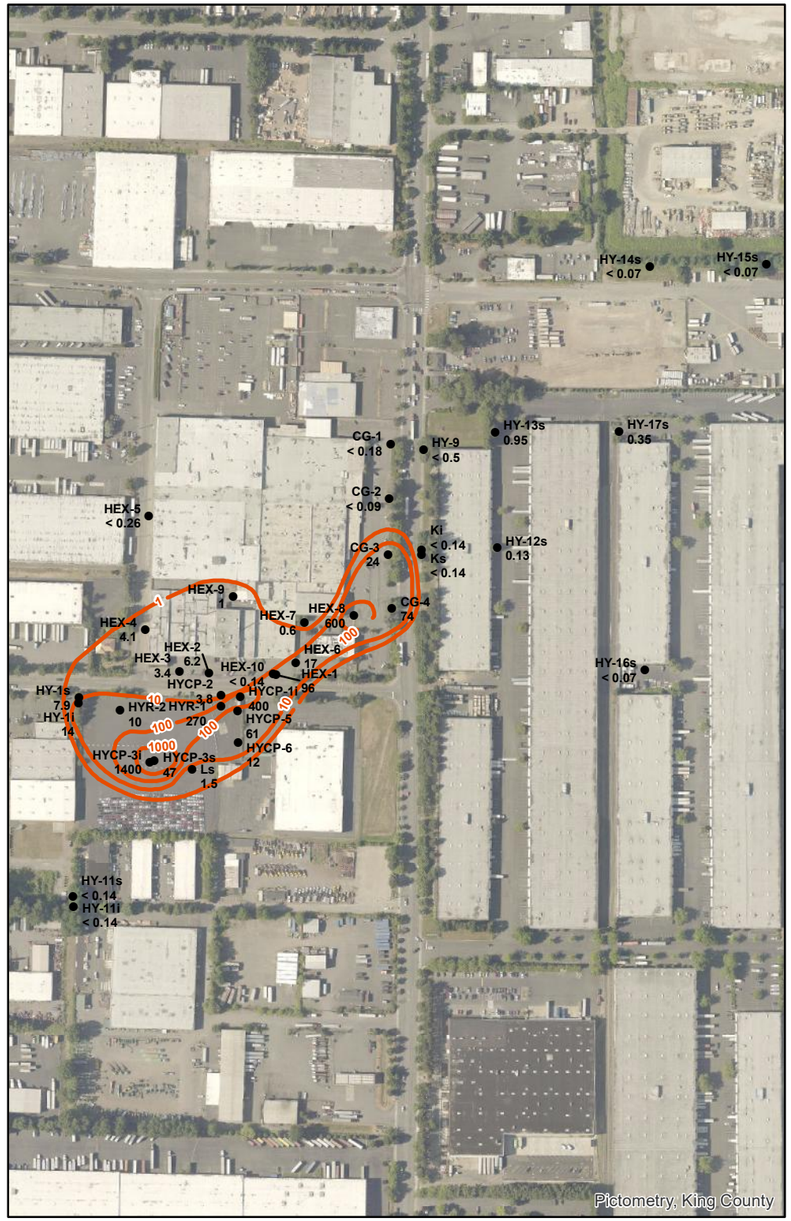
1988

0 125 250 375 Feet



1998

0 125 250 375 Feet



2008

0 225 450 675 Feet

Legend

- VC Concentration (µg/L)
- VC Concentration Contour (µg/L)

PROJECTION: State Plane WA N FIPS 4601 NAD 83

Concentration data and contours from HGC (2010b)
1988, 1998 and 2008 contours based on highest detected concentration in each well for that year. 2008 contours also augmented with September 2007 data.

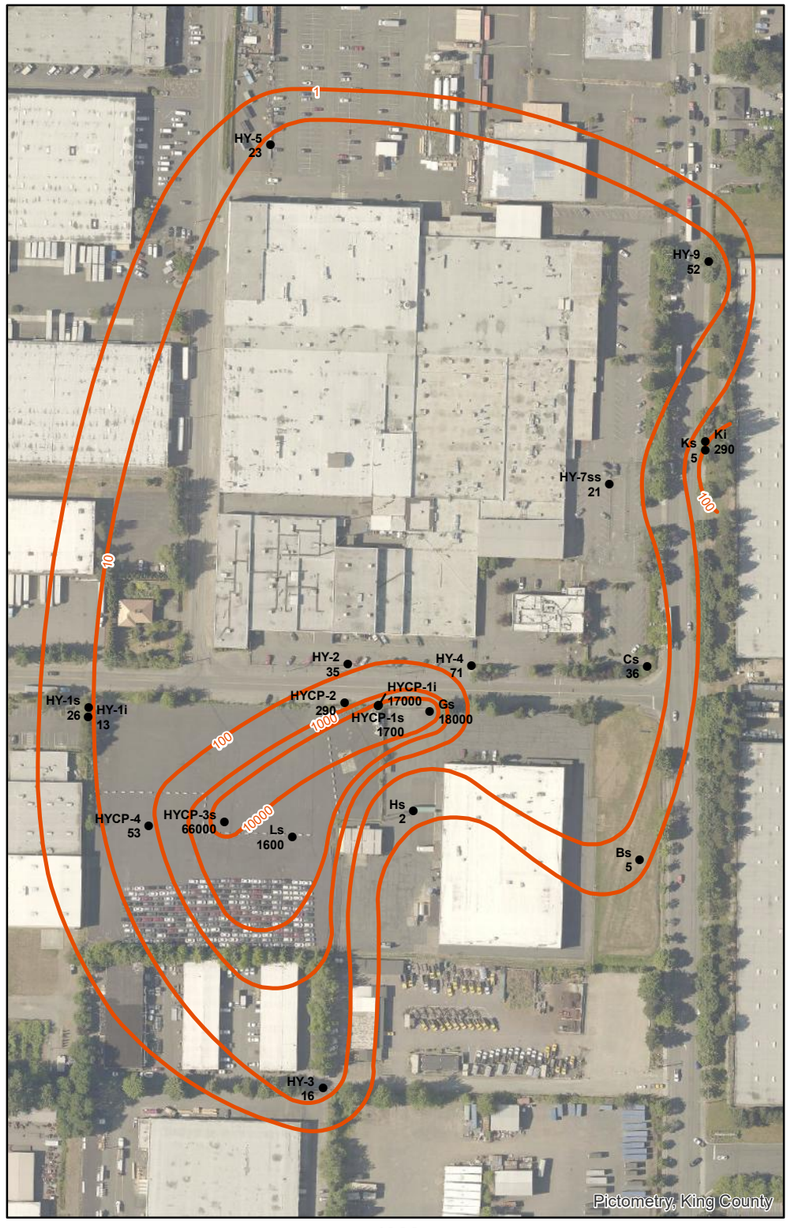
Source: PES Environmental, Inc. Focused RI Summary/FS Report, BSB Property, Kent Washington. December 5, 2005
PES Environmental, Inc. Downgradient Area Groundwater Investigation, Agreed Order No. DE2553, Kent Washington. January 22, 2009.

CLEAR CREEK ASSOCIATES

File ID 273-011

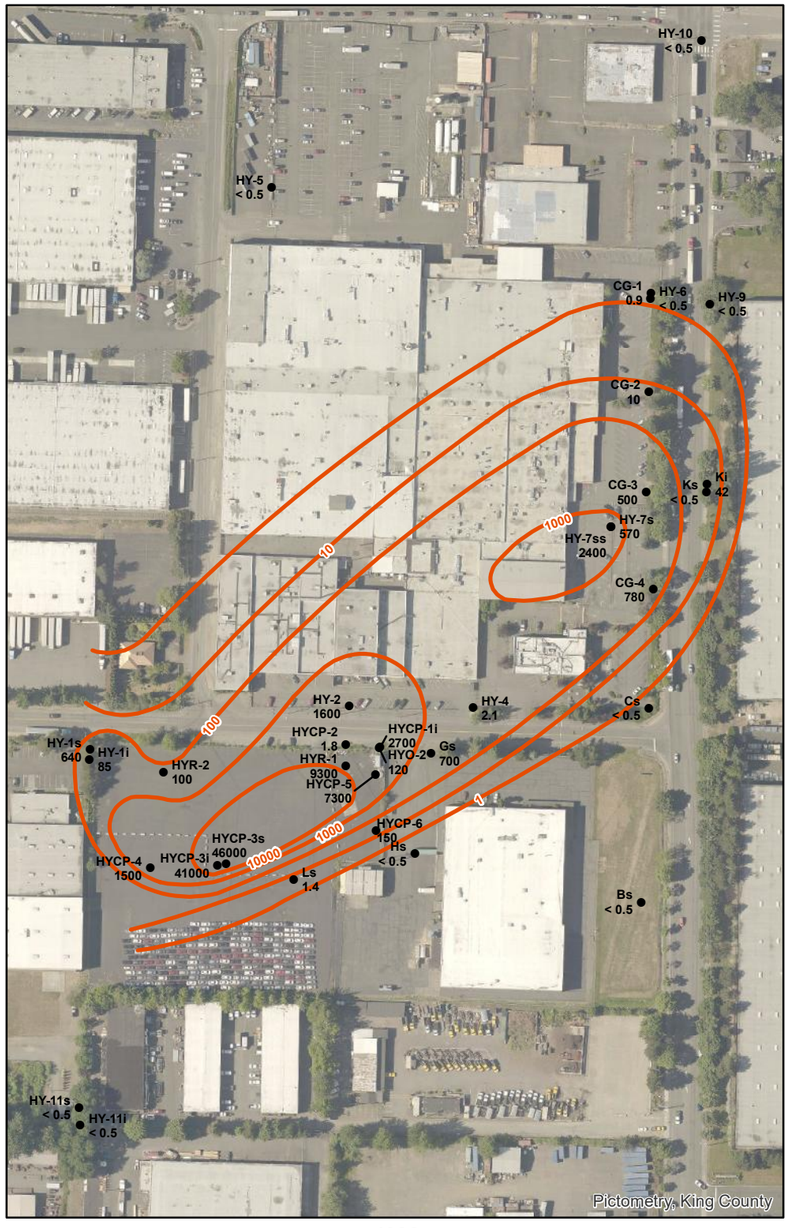
Date 8/13/18

FIGURE 10
Historical VC Concentrations in Shallow Aquifer Groundwater
1988, 1998, and 2008



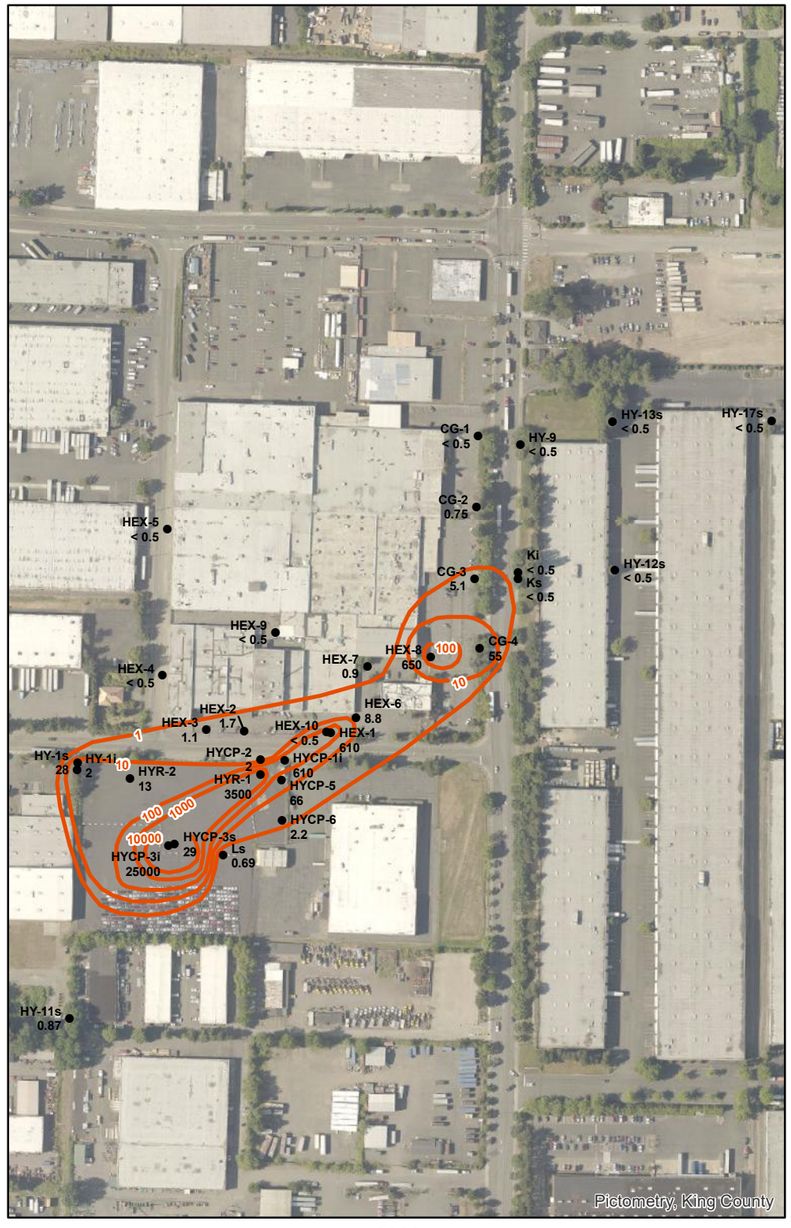
1988

0 125 250 375 Feet



1998

0 125 250 375 Feet



2008

0 175 350 525 Feet

Legend

- CIS - 1, 2 Dichloroethylene Concentration (µg/L)
- CIS - 1, 2 Dichloroethylene Concentration Contour (µg/L)

PROJECTION: State Plane WA N FIPS 4601 NAD 83

Concentration data and contours from HGC (2010b)
1988, 1998 and 2008 contours based on highest detected concentration in each well for that year. 2008 contours also augmented with September 2007 data.

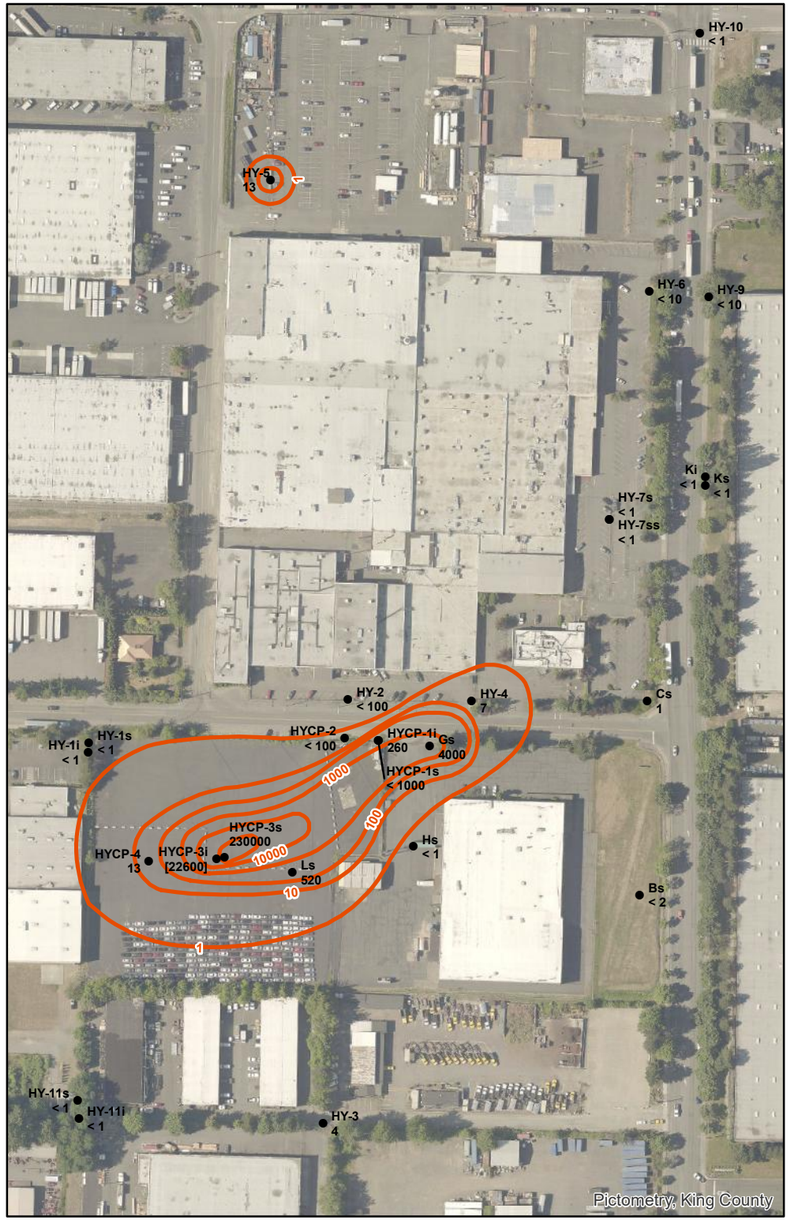
Source: PES Environmental, Inc. Focused RI Summary/FS Report, BSB Property, Kent Washington. December 5, 2005
PES Environmental, Inc. Downgradient Area Groundwater Investigation, Agreed Order No. DE2553, Kent Washington. January 22, 2009.

CLEAR CREEK ASSOCIATES

File ID 273-012

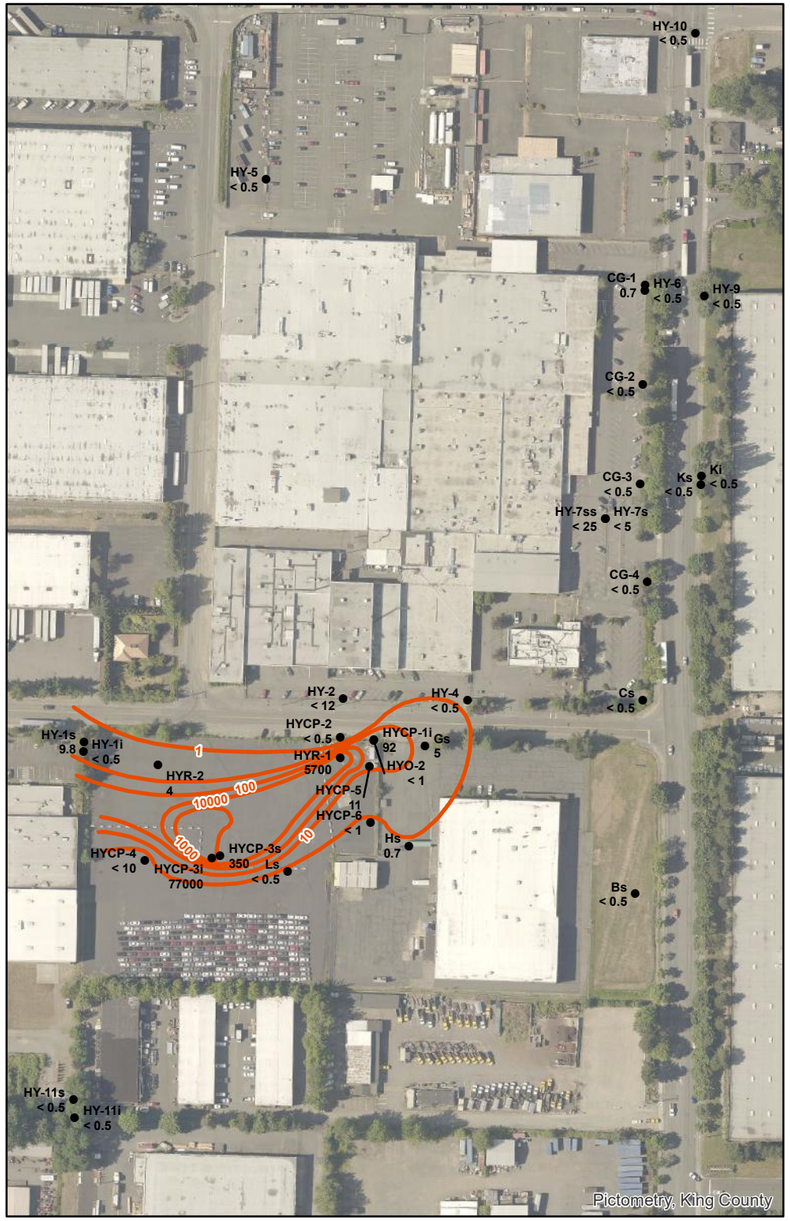
Date 8/13/18

FIGURE 11
Historical cDCE Concentrations in Shallow Aquifer Groundwater 1988, 1998, and 2008



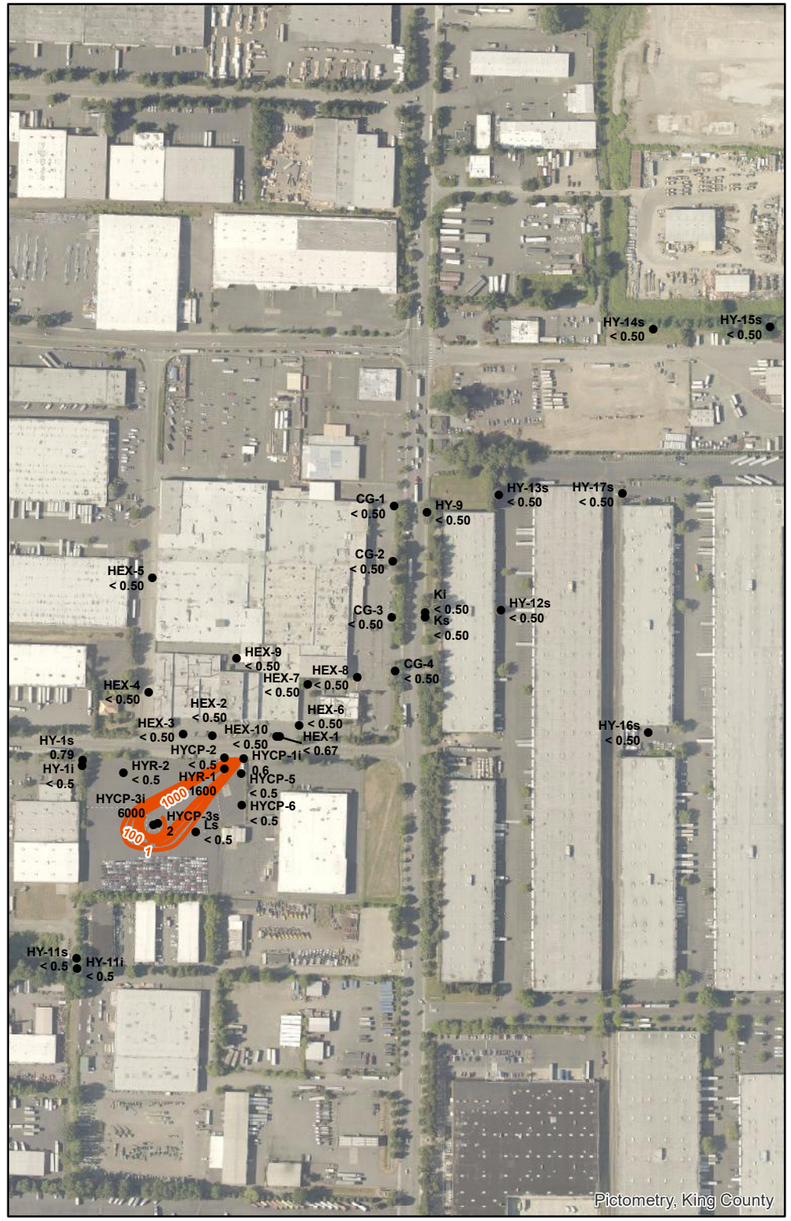
1988

0 125 250 375 Feet



1998

0 125 250 375 Feet



2008

0 225 450 675 Feet

Legend

- TCE Concentration (µg/L)
- TCE Concentration Contour (µg/L)

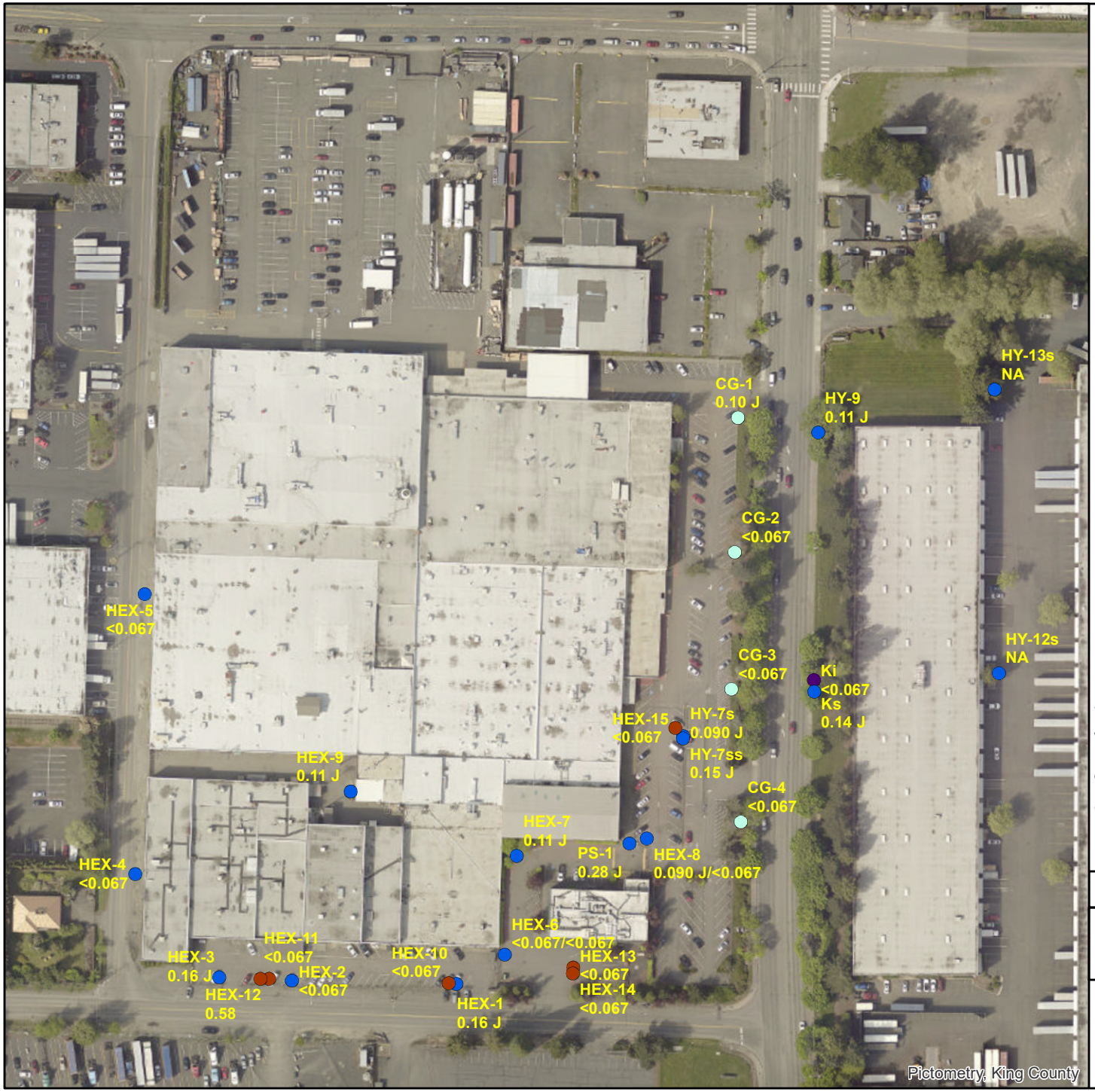
PROJECTION: State Plane WA N FIPS 4601 NAD 83

Concentration data and contours from HGC (2010b)
1988, 1998 and 2008 contours based on highest detected concentration in each well for that year. 2008 contours also augmented with September 2007 data.
Source: PES Environmental, Inc. Focused RI Summary/FS Report, BSB Property, Kent Washington. December 5, 2005
PES Environmental, Inc. Downgradient Area Groundwater Investigation, Agreed Order No. DE2553, Kent Washington. January 22, 2009.

CLEAR CREEK ASSOCIATES

File ID 273-013
Date 8/13/18

FIGURE 12
Historical TCE Concentrations in Shallow Aquifer Groundwater 1988, 1998, and 2008



Legend

- Former Remedial Pumping Well
- Monitoring Well in Shallow Aquifer
- Monitoring Well in Intermediate Aquifer
- Monitoring Well in Deep Aquifer

Example

CG-1 Well Name
0.10 J cis-1,2-Dichloroethene Concentration

(Duplicate results separated by "/")

Scale (Feet)

0 100 200

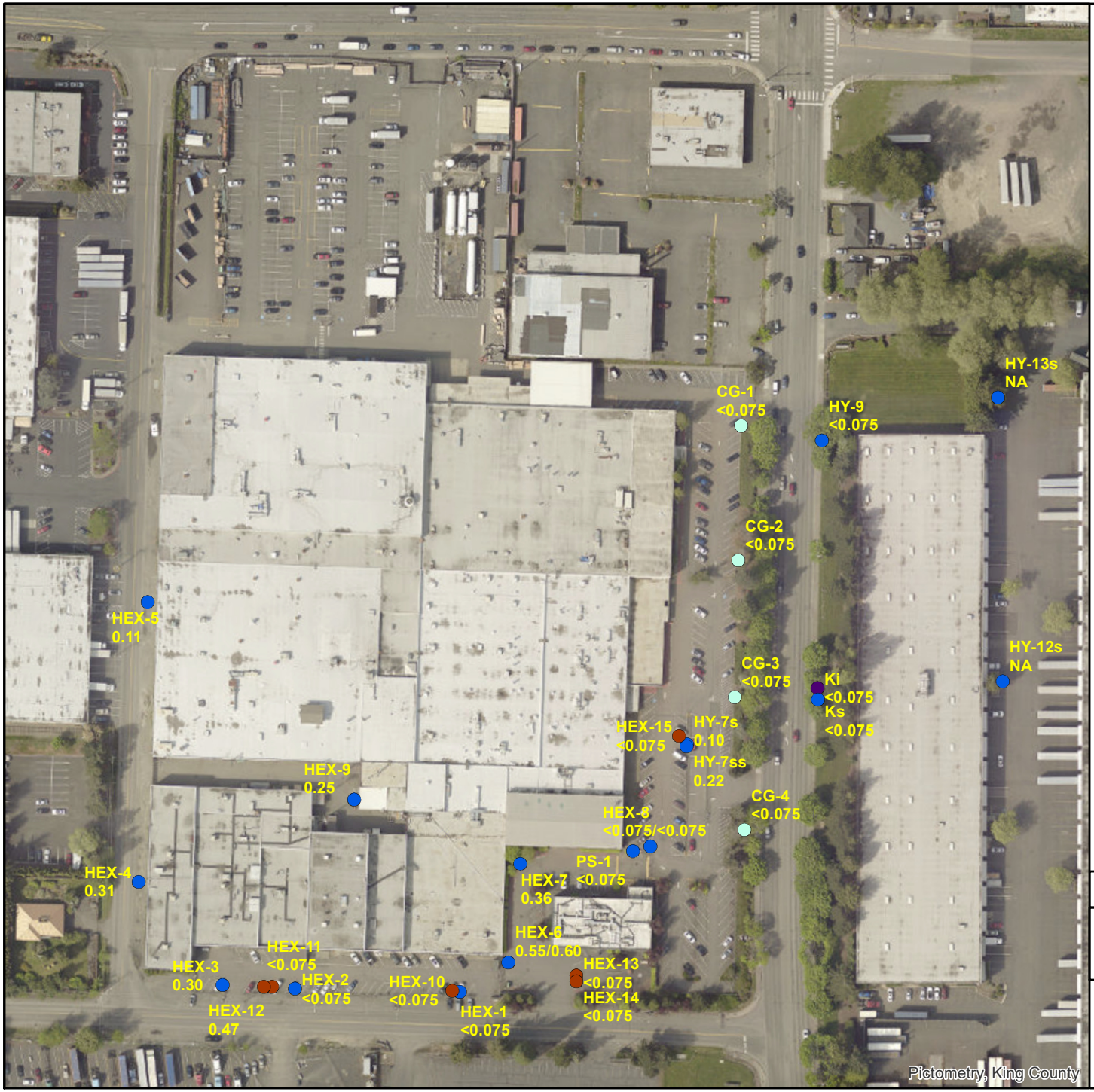
Notes:

Projection: STATE PLANE
WA NORTH FIPS 4601 FEET
NA = Not Accessible; samples not collected due to lack of access agreeement
µg/L = micrograms per Liter
"J" indicates an estimated value between the Minimum Detection Limit and the Minimum Reporting Limit.

Date	File ID
11/1/2021	273-106

CLEAR CREEK ASSOCIATES

Figure 13
CIS-1,2-DICHLOROETHENE (µg/L)
IN GROUNDWATER
SEPTEMBER 2021



Legend

- Former Remedial Pumping Well
- Monitoring Well in Shallow Aquifer
- Monitoring Well in Intermediate Aquifer
- Monitoring Well in Deep Aquifer

Example
CG-1 Well Name
<0.075 Vinyl Chloride Concentration

(Duplicate results separated by "/")

Scale (Feet)

0 100 200

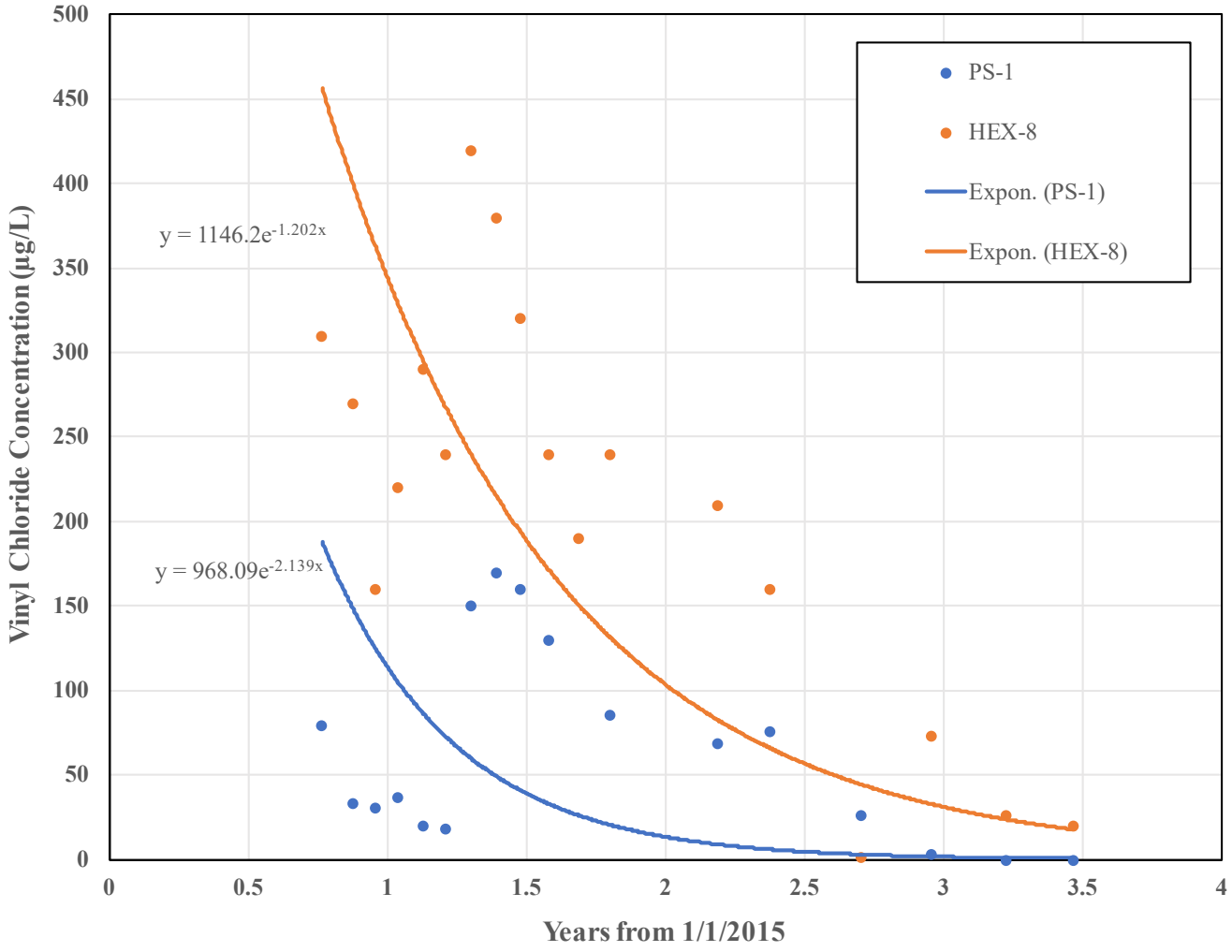
Notes:

Projection: STATE PLANE
WA NORTH FIPS 4601 FEET
NA = Not Accessible; samples not collected due to lack of access agreeement
µg/L = micrograms per Liter
"J" indicates an estimated value between the Minimum Detection Limit and the Minimum Reporting Limit.

Date	File ID
11/1/2021	273-107

CLEAR CREEK ASSOCIATES

Figure 14
VINYL CHLORIDE (µg/L)
IN GROUNDWATER
SEPTEMBER 2021



Calculation of MNA Time

		PS-1	HEX-8
t=(ln(Cgoal)/Cstart))/-k			
Cgoal =	0.2		
Cstart =	From Plot	968.09	1146.2
-k =	From Plot	-2.139	-1.202
t=		3.97	7.20

Plots of Vinyl Chloride Concentrations vs. Time
Select Groundwater Monitoring Wells
Hexcel Plant 1, Kent, WA

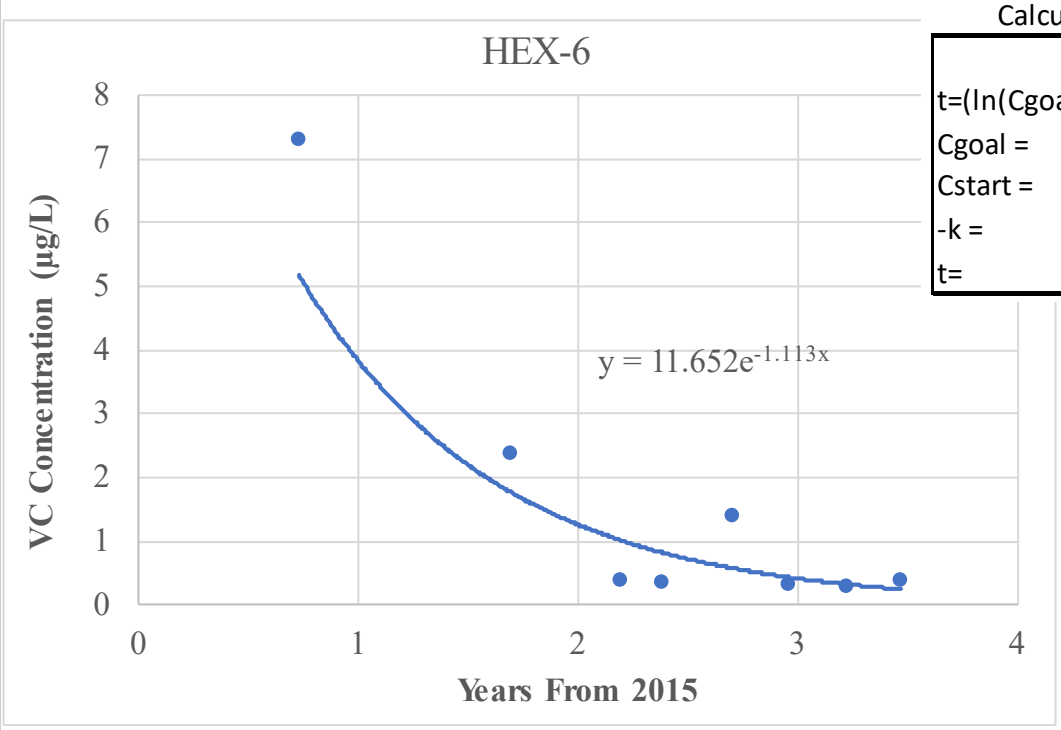
Geosyntec consultants

Seattle, WA

HEXCEL

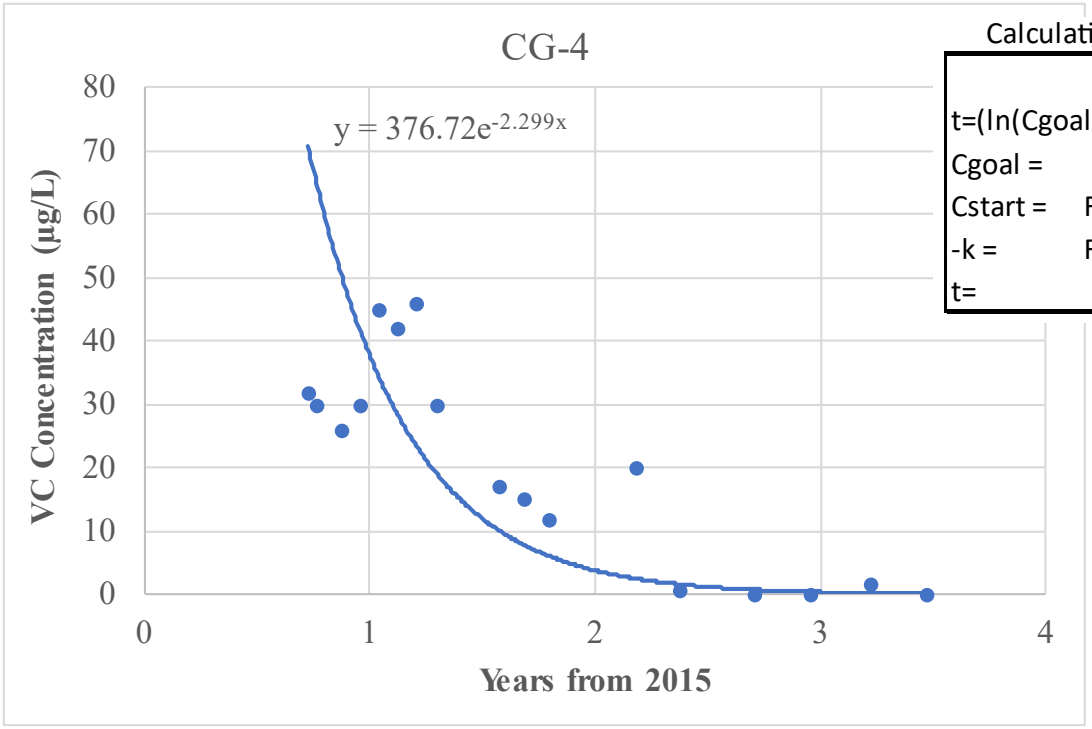
August 2018

Figure 15



Calculation of MNA Time

		HEX-6
t=(ln(Cgoal)/Cstart))/-k		
Cgoal =	0.2	
Cstart =	From Plot	11.652
-k =	From Plot	-1.113
t=		3.65



Calculation of MNA Time

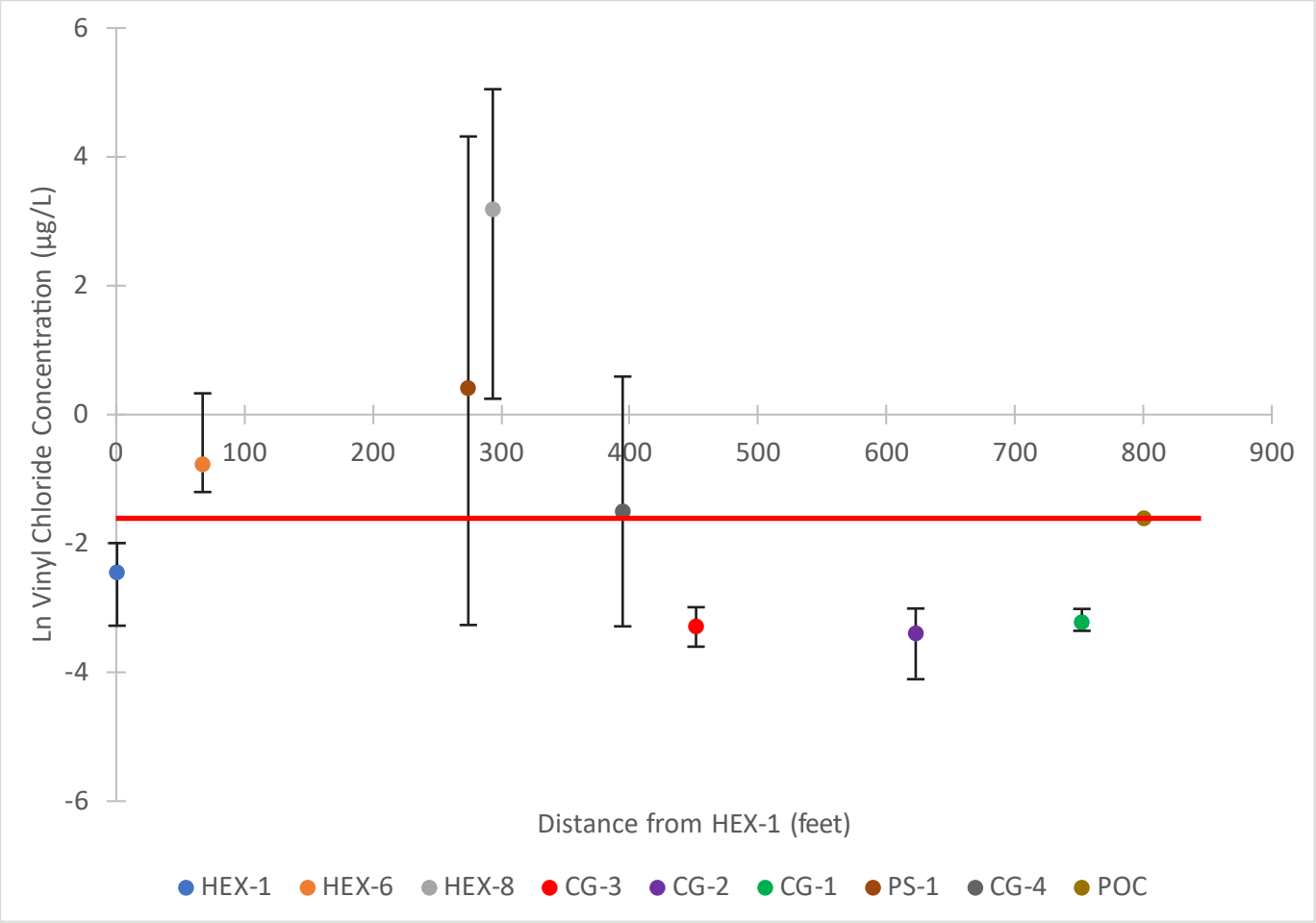
		CG-4
t=(ln(Cgoal)/Cstart))/-k		
Cgoal =	0.2	
Cstart =	From Plot	376.72
-k =	From Plot	-2.299
t=		3.28

Plots of Vinyl Chloride Concentrations vs. Time
Select Groundwater Monitoring Wells
Hexcel Plant 1, Kent, WA

Geosyntec consultants | HEXCEL

Seattle, WA | August 2018

Figure 16



Legend

Regulatory Cleanup Standard

Plots of Vinyl Chloride Concentrations vs. Distance
Select Groundwater Monitoring Wells
Hexcel Plant 1, Kent, WA

Geosyntec consultants

Seattle, WA

HEXCEL

August 2018

Figure 17

Appendix A

Appendix A: Enhanced In Situ Bioremediation Contingency Plan

This contingency plan provides an outline of the proposed strategy for evaluating and preparing additional enhanced *in situ* bioremediation (EISB) to stimulate destruction of residual levels of vinyl chloride (VC) detected during Compliance Monitoring of groundwater at the Hexcel Parcels located at 19819 84th Avenue South, Kent, WA 98032 (Site). The Compliance Monitoring Plan provides criteria for triggering this EISB contingency plan.

Multiple lines of evidence have established that EISB is an effective remedial action at this Site:

- Considerable studies have documented the degradation of tetrachloroethene (PCE) and trichloroethene (TCE) via biodegradation by naturally occurring microorganisms.[1]

- Past testing at the site has confirmed the presence of the necessary solvent-degrading microbial populations of *Dehalococcoides sp.*[2]

- Natural attenuation parameter testing in September 2003 (Table E.2 from Clear Creek Associates) indicates that mildly anaerobic conditions were present in the B-Zone aquifer. Nitrate was depleted, dissolved iron and manganese were in abundance, and low levels of sulfide were detected. This, combined with the moderate total organic carbon concentrations, indicates that aquifer conditions should be naturally well-poised for complete reductive dechlorination to occur.

- Ecology approved Pilot EISB remedial action in 2015 and Enhanced Pilot EISB remedial action in 2017 both provide confirmation that combined bioaugmentation with appropriate biostimulation using emulsified vegetable oil can successfully reduce VOC concentrations through dechlorination.

Phased Approach

Triggering of this contingency plan is outlined in the compliance monitoring plan. When this EISB contingency plan has been triggered, a phased approach will be followed to determine the need for EISB remedial action, and development of an implementation work plan. At the completion of each phase, the decision will be made through discussions between Ecology and Hexcel whether the next phase of the plan will be required. The recommended phased approach, as outlined below, follows the same methods that were successful for the pilot and enhance pilot tests.[3]

[1] Natural Attenuation of Fuels and Chlorinated Solvents in the Subsurface (Wiedemeier et al., 1999)
[2] DRAFT Interim Technical Memorandum; Screening of Bioremediation Verification Results (Hydro Geo Chem, 2003); Geosyntec 2018, First Quarter 2018 Enhanced In Situ Bioremediation Monitoring Report, Hexcel Plant 1 Facility, Kent, WA.
[3] Geosyntec, 2015. Work Plan Addendum: In Situ Bioremediation Pilot Test. Hexcel Plant 1 Facility. Kent, WA. August 11, 2015. Geosyntec, 2017. Enhanced In Situ Bioremediation Work Plan Addendum. Hexcel Plant 1 Facility. Kent, WA. April 18, 2017.

Phase I – Groundwater Monitoring and Evaluation

Groundwater monitoring targeted at development of an EISB work plan will be needed based on location of triggering monitoring well(s), level of exceedance above cleanup level for VC, rate of increase of concentration, determination of other possible VOC constituents, as well as other possible parameters not identifiable at this time. This first phase is designed to sufficiently understand the groundwater exceedances triggering the need for possible addition of EISB remedial action, as well as the groundwater geochemistry. The number of locations to collect data will be determined based on the triggering monitoring well(s).

This phase will gather the following data for evaluation:

- Review and evaluation of field parameters collected during compliance monitoring to assess changes in MNA indicators (e.g., pH, oxidation-reduction potential [ORP], and dissolved oxygen [DO]);

- Collection of geochemical parameters, including:
    - Field measurements of pH, temperature, ORP, DO, conductivity, turbidity;
    - Volatile Organic Compounds (VOCs) – EPA 8260C;
    - Nitrate as N – EPA 300.0;
    - Total and dissolved iron – EPA 6010C;
    - Total and dissolved manganese – EPA 6010C
    - Sulfate – EPA 300.0;
    - Total sulfide – EPA 9030M;
    - Dissolved gases (methane, ethane, ethene) – RSK175M;
    - Chloride – EPA 300.0;
    - Alkalinity (Total, Bicarbonate, and Carbonate) – SM 2320B;
    - Total organic carbon (TOC) – SM 5310C; and

- Collection and analysis of microbial genetic samples to evaluate the bacterial population.

Analysis of appropriate groundwater geochemistry will confirm the need for EISB, as well as provide data for development of the EISB remedial action design as part of Phase II of the contingency plan. Results from Phase I will be discussed with the Department of Ecology to determine the appropriate next steps.

Phase II – Preparation of and Implementation of an EISB Work Plan

Following analysis of Phase I groundwater monitoring data and a determination that EISB remedial action is warranted, a work plan will be prepared and submitted to the Department of Ecology for approval. This work plan will include:

- Recommended Injection Design, including:
    - Injection location, density, and number of injection points;
    - Injection method;

  - Injection Volumes;
  - Determination of need to create anaerobic conditions;
  - Injection sequencing; and
  - Contingency Plan.

- The specific type of, and dosing requirement, for the injectate;
- Methods and materials for conducting the injections including target injection pressures and flow rates;
- Procedures for conducting the injection test and measuring the achieved radius of influence (ROI) for the injectate;
- Details regarding the performance monitoring program, including sampling frequency for each monitoring well and the analytical testing program, and
- Potential additional information requested by the Department of Ecology for the injection of the reactant into the subsurface at the Site.

Following review and approval of the work plan by Ecology, the EISB remedial action will be implemented. Timing and schedule, from triggering of this contingency plan through implementation of remedial action work plan, will be expedited to the extent possible.

Phase III – Post-Injection Monitoring

Following the EISB remedial action a post-injection monitoring program will be established to confirm performance.

Samples for the following analytes will be collected during performance monitoring similar to baseline monitoring (as detailed below), but to include at a minimum:

- pH, temperature, ORP, dissolved oxygen – field measurements;
- Volatile Organic Compounds (VOCs) – EPA 8260B;
- Dissolved gases (methane, ethane, ethene) – RSK175M;
- Total organic carbon (TOC) – SM 2540C; and
- Microbial genetic sampling.

Sampling frequency will depend on details of the remedial action itself but will include the following:

- Baseline monitoring –prior to injections;
- Short-term monitoring – sampling at reasonably short intervals for a period immediately following injections (e.g. monthly for one quarter); and
- Long-term monitoring – sampling at longer intervals following completion of the short-term sampling, and contingent on those results (e.g. quarterly for one year).

The number of sampling locations will be determined based on the triggering monitoring well(s) and injection wells.

Reporting

A summary report is expected to be prepared for Ecology review at the conclusion of each Phase outlined above. The purpose of the reports will be to document data collected, evaluate that data, and provide a conclusion and recommendations, if warranted, at the close of each Phase of the contingency plan process.

Appendix B

DRAFT
COMPLIANCE MONITORING PLAN AND OPERATION AND MAINTENANCE PLAN
HEXCEL PARCELS
KENT, WASHINGTON

Prepared for:

HEXCEL CORPORATION
281 Tresser Boulevard
Stamford, Connecticut 06901

Prepared by:

CLEAR CREEK ASSOCIATES, LLC
221 North Court Avenue, Suite 101
Tucson, Arizona 85701
(520) 622-3222

February __, 2023

DRAFT
COMPLIANCE MONITORING PLAN
AND
OPERATION AND MAINTENANCE PLAN
HEXCEL PARCELS
KENT, WASHINGTON

Prepared for:

HEXCEL CORPORATION
281 Tresser Blvd
Stamford, CT 06901

Prepared by:

_____
James R. Norris
Licensed Geologist No. 1404

Reviewed by:

_____
John Villinski, Ph.D.
Licensed Geologist No. 22037532

February __, 2023

TABLE OF CONTENTS

1. INTRODUCTION 1
   1.1 Property Description 1
   1.2 Cleanup Action 2
   1.3 Environmental Conditions 2
      1.3.1 Hydrogeology 3
      1.3.2 Groundwater Flow Direction and Velocity 3
      1.3.3 Shallow Aquifer Water Quality 3
2. GROUNDWATER MONITORING 5
   2.1 Objectives 5
   2.2 Sampling and Analysis Plan 6
      2.2.1 Groundwater Level Monitoring 6
      2.2.2 Groundwater Sampling 6
      2.2.3 Groundwater Monitoring Frequency and Schedule 7
      2.2.4 Groundwater Analyses 7
         2.2.4.1 VC Concentration 8
         2.2.4.2 Field Parameters 8
         2.2.4.3 MNA Parameters 8
      2.2.5 Quality Assurance Project Plan 8
3. DATA ANALYSIS AND EVALUATION 9
   3.1 Groundwater Elevation Data 9
   3.2 Groundwater Quality Data 9
      3.2.1 Determining Compliance with the Cleanup Level 9
      3.2.2 Concentration Trends 10
   3.3 Evaluation of Cleanup Action Effectiveness and Contingency EISB Treatment 10
      3.3.1 Criteria for Triggering Contingency EISB Treatment 11
   3.4 Attainment of Cleanup Levels 11
4. REPORTING 12
   4.1 Groundwater Monitoring Reports 12
5. OPERATION AND MAINTENANCE PLAN 13
   5.1 Compliance Monitoring Network 13
6. REFERENCES 14

TABLES

1 Compliance Monitoring Network

FIGURES

1 Hexcel Parcels Location Map
2 Hexcel Parcels Local Area
3 Parcel Location Map
4 Contour Map of Shallow Groundwater Elevations (September 13-16, 2021)
5 Vinyl Chloride (µg/L) in Groundwater September 2021
6 Compliance Monitoring Network
7 Alert Wells

1. INTRODUCTION

This Compliance Monitoring Plan (CMP) and Operation and Maintenance Plan (OMP) describe the methods to be used to document groundwater conditions for the cleanup action at the Hexcel Parcels located at 19819 84th Avenue South, Kent, WA 98032 (Figures 1 and 2). The Hexcel Parcels are synonymous with the Hexcel Operable Unit of the BSB Dangerous Waste Unit. The groundwater cleanup at the Hexcel Parcels is being implemented pursuant to a Consent Decree between Hexcel Corporation (Hexcel) and Washington Department of Ecology (Ecology).

This CMP is a requirement of Model Toxics Control Action (MTCA) Chapter 173-340-410 of the Washington Administrative Code (WAC), which describes its general requirements. The CMP was developed considering additional guidance on compliance monitoring at WAC 173-340-720 and sampling and analysis plans at WAC 173-340-820.

The cleanup action at the Hexcel Parcels addresses a residual groundwater plume containing vinyl chloride (VC) that is being remediated using Monitored Natural Attenuation (MNA) with contingency for supplemental Enhanced In Situ Bioremediation (EISB), if needed, as described by the draft Cleanup Action Plan (CAP) (Geosyntec, 2023). There is a large amount of current information about the hydrogeology, water quality, and remediation of the Hexcel Parcels contained in the following reports:

- Focused Feasibility Report (FFS) (Geosyntec, 2018)
- Focused Remedial Investigation Summary (FRI) (Clear Creek Associates [CCA], 2018)
- Data Compilation and Evaluation Hexcel Plant 1 Facility (Hydro Geo Chem, Inc. [HGC], (2010)
- Environmental Monitoring Report September 2021 Hexcel Plant 1 Facility (CCA, 2021)
- Second Quarter 2019 Enhanced In Situ Bioremediation Monitoring Report Hexcel Plant 1 Facility (Geosyntec, 2019)

This information is only summarized in the CMP as needed to provide a context for groundwater monitoring pursuant to the CAP and Consent Decree. A complete review of site data is outside the scope of the CMP and the reader is directed to the references cited if additional information is needed.

1.1 Property Description

The Hexcel Parcels are on King County Parcel No. 012204-9061 (the former Parcels A, B, C, D, and E) (Figure 3), bounded on the south by South 200th Street, on the west by 81st Avenue South,

on the north by South 196th Street, and on the east by 84th Avenue South. The area surrounding the Hexcel Parcels is topographically flat and zoned "Limited Industrial." Commercial and industrial park properties are located around the Hexcel Parcels.

1.2 Cleanup Action

The CAP specifies MNA and contingent EISB for the remediation of residual VC in groundwater beneath the Hexcel Parcels. The CAP is developed in accordance with the MTCA under Chapter 70.105D of the Revised Code of Washington (RCW) and WAC Chapter 173-340. Ecology previously selected a remedy for the upgradient groundwater source area at the BSB Diversified Company, Inc. (BSB) Parcel G that is being implemented under Consent Decree No. 11-2-27288-5 between Ecology and BSB (Ecology, 2011).

As described by the FRI and CAP, and as demonstrated in the annual monitoring reports, VC concentrations at the Hexcel Parcels have decreased significantly over time, especially since installation of the remedy at the adjacent upgradient property, Parcel G, owned by BSB. The reduction of VC concentrations at the Hexcel Parcels is due to the reduced loading of VC from the offsite source and natural attenuation occurring once the Parcel G remedy was in place. In 2015, Hexcel implemented an evaluation of EISB to reduce concentrations of residual VOCs at the site (Geosyntec, 2015a and 2015b). A large-scale EISB field test was implemented in June 2017 (Geosyntec, 2017) and was completed in June 2019 (Geosyntec, 2019). EISB was successful in reducing VC concentrations in the residual plume. MNA and EISB have been the cleanup actions used at the Hexcel Parcels since 2017.

The CAP for the Hexcel Parcels requires Hexcel to monitor VC levels in groundwater. The monitoring results will be used to determine concentrations with respect to the MTCA Method A cleanup level (CUL) for VC of 0.2 micrograms per liter (µg/L) and to document concentration trends for assessment of MNA performance (Section 3.2).

Concentrations at the Hexcel Parcels are expected to continue decreasing slowly or remain steady over time depending on the VC load in groundwater flowing to the Hexcel Parcels from upgradient sources (e.g., Parcel G) and the effectiveness of MNA. If a persistent increase in VC concentrations were to result in exceedances of the CUL in currently remediated wells, then there could be grounds to trigger the EISB Contingency Plan (Geosyntec, 2023) (Section 3.3).

1.3 Environmental Conditions

Environmental conditions at the Hexcel Parcels and vicinity have been detailed by comprehensive investigations conducted from the 1980's through present. The FRI describes the hydrogeologic setting of the site, site investigations, groundwater hydrology, contaminant distributions in site media, remediation history, and a conceptual site model. Current information for water levels and water quality at the Hexcel Parcels is reported in the annual groundwater monitoring report for September 2021 (CCA, 2021).

1.3.1 Hydrogeology

Groundwater affected by VC at the south end of the Hexcel Parcels occurs to a depth of approximately 70 feet below surface in a bedded sequence of sand, silt, and clay hydrostratigraphic units. Two sand units, locally referred to as Units B and D are the highest permeability units and the primary flow system for VC-affected groundwater at the upgradient boundary of the Hexcel Parcels.

Unit A, the shallowest unit, overlies Unit B and consists primarily of silt to a depth of about 10 feet. Unit C is a silt and silty sand layer between Units B and D. Unit C is present under Parcel G and the south portion of the Hexcel Parcels, but is absent or discontinuous on the north side of the Hexcel Parcels. Where present, Unit C is interpreted to be a low permeability layer that limits groundwater flow vertically between Unit B and the underlying Unit D (PES Environmental Inc. [PES], 2009). Underlying Unit D are the silty sand and silty clay strata of Units E and F which constitute an aquitard that separates the VC-affected groundwater flow system in Units A to D from the deeper regional aquifer. Units E and F are not known to contribute significantly to groundwater flow beneath the site.

Units A and B are referred to as the "shallow" aquifer and unit D as the "deep" aquifer. The average horizontal hydraulic conductivities for Units B and D are 51 feet per day (ft/d) and 40 ft/d, respectively. These hydraulic conductivity estimates are volume averaged values determined by calibration of a groundwater flow model of the site as described by the FRI.

1.3.2 Groundwater Flow Direction and Velocity

Figure 4 is a groundwater elevation contour map for the shallow aquifer in September 2021. Groundwater level measurements indicate that the water table slopes to the north and north-northeast at the south boundary of the Hexcel Parcels and to the north and north-northwest at the northern half of the property. These data indicate a northerly groundwater flow direction along the 81st Avenue South and north-northwesterly flow along 84th Avenue South. This general water table configuration has been observed since 2016 when groundwater pumping was terminated at the CG wells along 84th Avenue South.

The ambient hydraulic gradient indicated by the September 2021 groundwater elevation data is estimated to range from about 0.0006 to 0.001 feet/feet. The average groundwater velocity for shallow groundwater flow in Unit B is estimated to range from about 45 to 75 feet/year, assuming the range of September 2021 hydraulic gradients, an average hydraulic conductivity of 51 feet/day, and a porosity of 0.25.

1.3.3 Shallow Aquifer Water Quality

The primary zones of groundwater flow and contaminant migration are Units B and D which are dominantly sand. The transport of VC in groundwater flow from upgradient offsite areas to the Hexcel Parcels occurs primarily in Unit B of the shallow aquifer which extends to a depth of

approximately 40 feet below surface. Unit D of the deep aquifer is contaminated by several volatile organic compounds on Parcel G, but there is limited migration of contaminants to the upgradient boundary of the Hexcel Parcels except at well HEX-12 (CCA, 2021). PES (2011) provides a detailed review of water quality conditions in the deep aquifer on Parcel G.

Figure 5 shows VC concentrations in samples from shallow and deep aquifer wells at the Hexcel Parcels in September 2021 (CCA, 2021). In September 2021, VC was the only volatile organic compound detected at concentrations in excess of a groundwater cleanup level. The VC concentrations at the Hexcel Parcels were all less than the 2 µg/L US Environmental Protection Agency Maximum Contaminant Level for drinking water, but seven wells (six shallow aquifer and one deep aquifer) exceeded the VC CUL. VC concentrations between 0.22 µg/L and 0.55 µg/L were measured at shallow aquifer wells HEX-3, HEX-4, HEX-6, HEX-7, HEX-9 and HY7ss, and the deep aquifer well HEX-12.

As described in the FRI and the annual monitoring report for September 2021, VC concentrations in groundwater samples collected from the shallow aquifer between 2003 and 2021 show that VC concentrations have declined by two to three orders of magnitude in many wells and concentrations in 2021 were at historically low levels. The VC occurrence in deep aquifer well HEX-12 is due to groundwater flow from Parcel G to the Hexcel Parcels.

2. GROUNDWATER MONITORING

2.1 Objectives

The objectives of groundwater monitoring are to document groundwater elevations at and near the Hexcel Parcels and groundwater chemistry at the Hexcel Parcels. Groundwater elevation data indicate potentiometric conditions in the shallow aquifer from which groundwater flow paths are estimated and parameters such as the hydraulic gradient and average groundwater velocity are calculated. Groundwater chemistry data indicate the concentration of VC and other volatile organic compounds, the general chemical conditions of groundwater such as pH and electrical conductivity, and chemical factors relevant to in-situ biodegradation such as oxidation-reduction potential and dissolved oxygen. These data on the state of the shallow aquifer will be used to determine the effectiveness of the cleanup action, compliance with groundwater cleanup levels (Section 3.2), and the need for contingency EISB treatment (Section 3.3).

Hydrogeologic work conducted for the cleanup action will be supervised and directed by a geologist or hydrogeologist licensed by the State of Washington or an engineer registered by the State of Washington. Documents containing hydrogeologic or engineering work submitted to Ecology for the cleanup action will be sealed by an appropriately licensed professional.

Per WAC 173-340-410 there are three components of compliance monitoring: 1) Protection Monitoring; 2) Performance Monitoring; and 3) Confirmational Monitoring.

- Protection Monitoring confirms the protection of human health and the environment during implementation of remedial action.
- Performance Monitoring confirms that the cleanup action progresses towards, and ultimately achieves, the CUL site-wide.
- Confirmational Monitoring confirms the long-term effectiveness of the cleanup action once CUL is attained site-wide (i.e., upon completion of Performance Monitoring).

Protection, Performance, and Confirmational Monitoring will be accomplished using a Compliance Monitoring Network consisting of the existing shallow aquifer monitoring wells shown by Figure 6. The Compliance Monitoring Network consists of wells on the Hexcel Parcels in the upgradient non-source residual plume and in the area of remediated wells down- and cross-gradient of the residual plume. Four offsite wells east of the Hexcel Parcels are included in the Compliance Monitoring Network for the purpose of water level measurement only.

Table 1 lists the well construction attributes of wells in the Compliance Monitoring Network. Geologic and well construction logs for wells in the Compliance Monitoring Network wells are in HGC (2010). The FRI, FFS, and CAP describe the water level and water quality histories of the Compliance Monitoring Network wells and the remedial actions at the Hexcel Parcels.

2.2 Sampling and Analysis Plan

Groundwater monitoring will be conducted using the methods as described in this section. Figure 6 show the sites for water level measurement and groundwater sampling.

The water level measurement and water sampling and analysis methods for this CMP are those that have been used for groundwater monitoring at the Hexcel Parcels since 2003, including the Focused Remedial Investigation (HGC, 2005) and the Interim Action under Enforcement Action No 2552. Those methods are described in the *Sampling and Analysis Plan for the Remedial Investigation* (Section 4 of Appendix D in HGC, 2005) which includes descriptions of water level measurement, groundwater sampling and analysis, sample collection, analytical methods, management of investigation derived waste, and quality assurance/quality control.

2.2.1 Groundwater Level Monitoring

The depth to groundwater will be measured at all Compliance Monitoring Network wells on the Hexcel Parcels and at four offsite wells east of the Hexcel Parcels (Figure 6). The water level measurements from wells HY-9, Ki, Ks, and HY-14s east of the Hexcel Parcels are useful for providing data for interpolation of groundwater elevation contours at the site.

2.2.2 Groundwater Sampling

Unfiltered groundwater samples will be collected at 16 shallow aquifer monitoring wells on the Hexcel Parcels (Figure 6). The monitoring wells can be differentiated into two groups: upgradient non-source residual plume wells and remediated wells down- and cross-gradient of the residual plume wells.

The upgradient non-source residual plume wells include HEX-3, HEX-4, HEX-6, HEX-7, and HEX-9. In September 2021 residual plume wells contained VC concentrations exceeding the CUL (CCA, 2021). Concentrations in these wells ranged from 0.22 µg/L to 0.55 µg/L VC. The non-source residual plume is the result of releases from a source outside of the Hexcel Parcels as detailed in the FRI, FFS and CAP. Monitoring Network wells HEX-1 and HEX-2 are south of the residual plume and have VC concentrations less than the CUL. These wells may represent a cleanup front developing along South 200th Street.

Down- and cross-gradient remediated wells include CG-1, CG-2, CG-3, CG-4, HEX-5, HEX-8, HY-7s, HY-7ss, and PS-1. Wells CG-1, CG-2, CG-3, CG-4, HEX-5, HEX-8, HY-7s, and PS-1 are wells that in September 2021 either had no detectable VC (0.075 µg/L method detection limit) or a VC concentration that was less than the CUL, although HY-7ss had a VC concentration of 0.22 µg/L, which is slightly greater than the CUL. These wells are considered remediated wells because at one time they all had concentrations of VC one to three orders of magnitude greater than the CUL, but now they have VC concentrations less than the CUL as a result of site remedial actions. The remediated wells are down- or cross-gradient from the off-site source south of the Hexcel Parcels and the residual plume on the Hexcel Parcels. The concentrations of VC in

downgradient remediated well can vary over time with concentration spikes occurring due to short-term fluctuations in conditions in this zone of active remediation. This may be especially true in wells such as HEX-8 and PS-1 close to the residual plume and HEX-5 which may sample water containing VC from an upgradient offsite source.

Hexcel will voluntarily collect groundwater samples from monitoring wells HEX-10, HEX-11, HEX-12, HEX-13, HEX-14, and HEX-15 in the deep aquifer (Figure 5), as needed, although the deep aquifer sampling is unrelated to compliance monitoring for the Consent Decree remedial action in the shallow aquifer.

2.2.3 Groundwater Monitoring Frequency and Schedule

As detailed in the FRI and FFS, steady declines in VC concentration have been observed in groundwater at the Hexcel Parcels since installation of the Parcel G remedy, providing conclusive evidence that VC in groundwater is attenuating through naturally occurring physical and biodegradation mechanisms. Given the relatively slow groundwater velocities of 45 to 75 feet/year (Section 1.3.2), the relatively long history of analytical results since 2003, and the declining VC concentration trends observed since installation of the Parcel G remedy, sampling will be conducted annually in years 1 and 2 after approval of the Consent Decree. After the second annual sampling event, sampling will be conducted biannually in years 4 and 6 after execution of the Consent Decree. After year 6 sampling would be conducted every five years thereafter. However, Hexcel will evaluate the need to continue monitoring after collecting samples in year 4 after approval of the CMP.

Groundwater sampling will be conducted in September, consistent with historical practice at the Hexcel Parcels and coinciding with sampling at Parcel G. Ecology will be notified at least 7 days in advance of groundwater sampling events. The sampling frequency and schedule would be modified in consultation with Ecology if contingency EISB were triggered (Section 3.3). In such an event, the sampling frequency and schedule would be reevaluated based on site-specific conditions.

2.2.4 Groundwater Analyses

Water quality data collected for Protection, Performance, and Confirmational Monitoring will be used to document VC concentrations and to characterize MNA parameters such as dissolved oxygen and oxidation-reduction potential. Given the low concentrations of VC observed at the Hexcel Parcels, sampling for VC degradation products is not required because it is unlikely that VC degradation products would be present at quantifiable levels. Monitoring microbiological activity also would not be useful because such data can be variable and of secondary importance to the key parameter of interest, the VC concentration.

Groundwater quality parameters to be measured for groundwater monitoring are described below.

2.2.4.1 VC Concentration

The VC concentration in groundwater samples will be measured at an accredited laboratory by Method 8260C or equivalent having a VC Method Detection Level of 0.075 µg/L. The VC concentration in remediated wells will be used to determine compliance with the CUL and the effectiveness of MNA. A sample from a remediated well that exceeds the CUL will be verified before determining the next appropriate action.

2.2.4.2 Field Parameters

The water quality parameters pH, electrical conductivity, and temperature will be measured in the field at the time of sample collection using calibrated hand-held meters.

2.2.4.3 MNA Parameters

Oxidation-reduction potential and dissolved oxygen will be measured to characterize parameters that can indicate conditions that influence microbial reductive dehalogenation.

2.2.5 Quality Assurance Project Plan

The quality assurance and quality control procedures for the CMP will be the same that have been used since 2003 for collecting and reporting environmental data at the Hexcel Parcels. HGC (2005) describes quality assurance/quality control procedures that will be used for the CMP, including the calibration of field equipment, decontamination procedures, and collection of quality assurance samples consisting of trip blank, equipment blank, and groundwater duplicate samples. A data validation report will be prepared based on laboratory case narrative reports, the results of laboratory quality assurance sampling, and the results of field quality assurance sampling. The data validation report will be included with the groundwater monitoring report (Section 4.1) for each sampling event.

3. DATA ANALYSIS AND EVALUATION

The groundwater measurement data will be processed to evaluate compliance with the CUL and the effectiveness of the cleanup action.

If the groundwater monitoring data indicate the cleanup action is not performing as expected, Contingency EISB may be conducted. The metrics for judging compliance with the CUL and for evaluating the effectiveness of the cleanup action are described in Sections 3.2 and 3.3. Groundwater monitoring results and their evaluation will be reported to Ecology in groundwater monitoring reports (Section 4.1) to be submitted within 60 of the receipt of all lab data for a sampling event.

3.1 Groundwater Elevation Data

Depth to groundwater measurements will be used to calculate the groundwater elevation based on elevation survey data for established measuring points on wells. Tables will be prepared with the depth to water data, measuring point elevation, and calculated groundwater elevation. The groundwater elevation data will be depicted on maps and contoured using standard interpolation methods to create groundwater elevation contour maps. The data are stored in the site spreadsheet database to allow preparation of time series plots and, if needed, calculation of metrics such as the hydraulic gradient.

3.2 Groundwater Quality Data

Groundwater quality data will be used to evaluate CUL compliance and VC concentration trends. The VC concentration data will be compared to the CUL to determine the status of each well during each sampling event. VC data for each well will also be used to calculate the mean, variance, and upper ninety-five percent confidence level of the mean (UCL95) concentration for each well. The sample statistics for the VC concentrations at a well would be calculated using data for the most recent five sampling events to characterize the current condition of groundwater.

3.2.1 Determining Compliance with the Cleanup Level

WAC 173-340-720(9) indicates that compliance with cleanup levels shall be determined by analysis of unfiltered groundwater samples and that the "upper one-sided ninety-five percent confidence limit on the mean shall be less than the groundwater cleanup level." Per WAC 173-340-720(9) "no single sample concentration shall be greater than two times the groundwater cleanup level" and "less than ten percent of the sample concentrations shall exceed the ground water cleanup level during a representative sampling period."

A well's compliance with the CUL will be determined by calculating the UCL95 using VC concentration data for the most recent five sampling events. The UCL95 will be calculated using

a statistical software such as ProUCL (EPA, 2016) or MTCAStat97 (Ecology, 2022), or equivalent methods and following the guidelines of WAC 173-340-720(9).

Compliance Monitoring Network wells will be checked for compliance with the CUL after each sampling event. The results of the compliance check will be reported to Ecology in the groundwater monitoring report. When a well has met the CUL for four consecutive sampling events Hexcel may submit to Ecology a written request for removal of that well from the Compliance Monitoring Network.

3.2.2 Concentration Trends

Concentration trends at individual wells will be examined. Concentration trends for individual wells will be evaluated by visual inspection, simple linear regression, or statistical analyses such as least squares regression or nonparametric Mann-Kendall trend analysis, as needed and appropriate.

3.3 Evaluation of Cleanup Action Effectiveness and Contingency EISB Treatment

The cleanup action effectiveness will be evaluated based on multiple lines of evidence as described in Section 3.3.1. Contingency supplemental EISB treatment is included in the CAP in the event that groundwater monitoring data indicate that MNA is not performing as expected. The decision to initiate contingency EISB would be made if groundwater monitoring data indicate that VC is no longer sufficiently attenuated to prevent off-site migration of groundwater exceeding the CUL. The criteria for triggering Contingency EISB are based on site-specific conditions at the Hexcel Parcels considering factors such as the magnitude and time trends of groundwater VC concentrations, groundwater flow paths and travel times, and biological and hydrochemical indicators of MNA.

Contingency EISB would be developed in three phases allowing additional groundwater characterization, analysis of MNA effectiveness, and, if needed, design, implementation, and monitoring of EISB treatment.

- Phase I of Contingency EISB – Groundwater Monitoring and Evaluation
- Phase II of Contingency EISB – Preparation and Implementation of EISB Treatment Plan
- Phase III of Contingency EISB – Post-Treatment Monitoring

See the EISB Contingency Plan (Geosyntec, 2023) for additional details regarding contingency EISB implementation.

3.3.1 Criteria for Triggering Contingency EISB Treatment

Phase I Contingency EISB would be triggered by a determination, in consultation with Ecology, based on detailed analysis of groundwater monitoring data, that the effectiveness of MNA was no longer sufficient to meet the CUL and prevent off-site migration of groundwater exceeding the VC CUL. Data that may be used include groundwater chemistry, potentiometric conditions, groundwater flow paths and velocities, and observations of VC degradation.

VC concentrations at the Alert Wells shown on Figure 7 will be used to assess the need for contingency EISB. Wells CG-3, CG-4, HEX-5, HY7s, and HY7ss are designated as Alert Wells because they currently have mean concentrations that are less than the CUL based on their last five samplings. The Alert Wells are remediated wells that are down- or cross-gradient of the residual plume. Located on the periphery of the Hexcel Parcels, the Alert Wells indicate conditions at the east and west edges of the property. Phase I Contingency EISB would be initiated if:

1. the mean VC concentration at an Alert Well increases to greater than 5 times the CUL (1.0 µg/L) based on the last five samplings, and

2. the concentration data for the last five samplings display a consistent increasing trend.

The Alert Wells would be used to evaluate contingency action because a persistent increase of VC concentrations greater than the CUL could potentially indicate an expansion of the residual plume. However, the conditions that can trigger Phase I Contingency EISB do not necessarily indicate that offsite migration of groundwater exceeding the UCL is occurring because the travel times for groundwater flow paths from Alert Wells to the northern property boundary are generally greater than 10 years. The long travel time would allow additional attenuation of VC to occur before groundwater would move beyond the Hexcel Parcels.

Work for Phase I Contingency EISB would collect and report biogeochemical information and other data to assess MNA performance and effectiveness. Phase II Contingency EISB would be implemented upon a finding by the Phase I evaluation in consultation with Ecology that Contingency EISB treatment is warranted.

3.4 Attainment of Cleanup Levels

When Performance Monitoring data for each well in the Compliance Monitoring Network indicate the all wells meet the CUL based on the metrics described in Section 3.2, the Hexcel Parcels will be deemed to have met the MTCA Method A cleanup level for VC. At such time Hexcel may petition Ecology for a remedy completion letter, elimination of the institutional control, or relaxation or elimination of groundwater monitoring requirements.

4. REPORTING

4.1 Groundwater Monitoring Reports

Groundwater monitoring reports will be submitted in accordance with the sampling frequency and schedule set forth in Section 2.2.3. The reports will contain the results of groundwater monitoring and other relevant analysis/summary. A data validation report will be included with each groundwater monitoring report, as needed.

Groundwater monitoring reports will be submitted to Ecology within 60 of the receipt of all analytical laboratory data for a sampling event. The groundwater monitoring reports, including laboratory reports and supporting information, will be submitted in both printed and electronic formats unless otherwise specified by Ecology. Reports, records, and underlying data developed for the cleanup action will be retained for the duration of the Consent Decree and for 10 years after the Consent Decree is in effect.

5. OPERATION AND MAINTENANCE PLAN

The primary operations and maintenance (O&M) activities for the cleanup action are ensuring that the wells of the Compliance Monitoring Network are accessible for groundwater monitoring activities.

5.1 Compliance Monitoring Network

The surface installations of wells will be visually inspected during scheduled groundwater monitoring events. Problems that limit access to the wells for sampling or that may cause surface water runoff to drain into well installations would be identified and repaired to the extent practical.

Problems with wells will be repaired as appropriate to allow sampling per the CMP. A problem with well access or integrity that cannot be repaired in time to allow its scheduled sampling would be repaired as soon as feasible.

The decommissioning of wells, if needed, would be conducted using methods consistent with WAC 173-160-460 which addresses the abandonment of resource protection wells. If well replacement is needed because a well is irreversibly damaged, Hexcel would submit a Notice of Intent form and retain a licensed well driller for the project.

6. REFERENCES

Clear Creek Associates (CCA). 2018. Draft Focused Remedial Investigation Summary, Hexcel Plant 1 Kent, Washington. August 31, 2018.

Clear Creek Associates (CCA). 2021. Environmental Monitoring Report September 2021, Hexcel Plant 1 Facility, Kent, Washington. August 31, 2021.

US Environmental Protection Agency (EPA). 2016. Statistical Software ProUCL 5.1.00 for Environmental Applications for Data Sets with and without Nondetect Observations**.** https://www.epa.gov/land-research/proucl-software**.**

Geosyntec, 2015a. Microcosm Study and Pilot Study Work Plan, Hexcel Plant 1 Facility, 19819 84th Ave. South, Kent Washington. March 6, 2015.

Geosyntec, 2015b. Work Plan Addendum – In Situ Bioremediation Pilot Test, Hexcel Plant 1 Facility, Kent Washington. August 11, 2015.

Geosyntec, 2017. Enhanced In Situ Bioremediation Work Plan Update, Hexcel Plant 1 Facility, Kent Washington. April 18, 2017.

Geosyntec. 2018. Focused Feasibility Report, Hexcel Plant 1 Facility, Kent Washington. August 31, 2018.

Geosyntec. 2019. Second Quarter 2019 Enhanced In Situ Bioremediation Monitoring Report, Hexcel Plant 1 Facility, Kent, WA. September 2019.

Geosyntec. 2023. Draft Cleanup Action Plan Hexcel Parcels Kent, Washington. February 2023.

Hydro Geo Chem, Inc. (HGC), 2005. Work Plan for Focused Remedial Investigation, Hexcel Plant 1 Facility, Kent, Washington. December 21, 2005.

Hydro Geo Chem, Inc. (HGC), 2010. Data Compilation and Evaluation, Hexcel Plant 1 Facility, Kent, Washington. January 28, 2010.

PES Environmental, Inc. (PES), 2009. Deep Aquifer Investigation Evaluation Report, Agreed Order No. DE 2553, Kent, Washington. January 29, 2009.

PES Environmental, Inc. (PES), 2011. Remedial Investigation Report Addendum, BSB Property, Kent, Washington. April 29, 2011.

Washington Department of Ecology (Ecology). 2011. Consent Decree No. 11-1-17188-5 State of Washington Department of Ecology, Plaintiff, v BSB Diversified, Inc., Defendant. August 2011.

Washington Department of Ecology (Ecology). 2022. MTCAStat97. https://ecology.wa.gov/Asset-Collections/Doc-Assets/Regulations-Permits/Guidance-technical-assistance/Online-cleanup-tools/MTCAStat97SiteModule

TABLES

TABLE 1
Compliance Monitoring Network

Well ID	State Plane WA N NAD83	State Plane WA E NAD83	Boring Depth (ft bgs)	Casing Type	Screen Interval (ft bgs)	TOC Elevation (ft amsl)
CG-1	158116.390	1295120.630	36	6" SS, 0.015" slot	15 to 30	19.94
CG-2	157953.300	1295116.960	36	6" SS, 0.010" and 0.020" slot	15 to 30	19.58
CG-3	157787.780	1295112.740	36	6" SS, 0.010" and 0.020" slot	15 to 30	19.41
CG-4	157626.920	1295124.400	36	6" SS, 0.010" and 0.020" slot	15 to 30	21.63
Cs	157431.210	1295116.980	17	2" SS, 0.010" slot	4 to 14	22.99
HEX-1	157430.948	1294779.906	29	2" Sch 40 PVC, 0.010" slot	8.5 to 28.5	21.87
HEX-2	157434.857	1294580.722	30	2" Sch 40 PVC, 0.010" slot	10 to 30	22.61
HEX-3	157439.194	1294493.185	32	2" Sch 40 PVC, 0.010" slot	10 to 30	22.81
HEX-4	157564.147	1294391.574	32	2" Sch 40 PVC, 0.010" slot	10 to 30	22.80
HEX-5	157902.519	1294402.704	32	2" Sch 40 PVC, 0.010" slot	10 to 30	20.89
HEX-6	157466.550	1294838.481	32	2" Sch 40 PVC, 0.010" slot	10 to 30	21.76
HEX-7	157585.833	1294852.950	32	2" Sch 40 PVC, 0.010" slot	10 to 30	22.07
HEX-8	157606.992	1295010.566	32	2" Sch 40 PVC, 0.010" slot	10 to 30	21.97
HEX-9	157663.723	1294652.331	32	2" Sch 40 PVC, 0.010" slot	9 to 29	21.96
HY-7s	157730.840	1295054.670	22.5	2"	12.5 to 22.5	22.08
HY-7ss	157728.350	1295054.480	30	2" SS	20 to 30	22.13
HY-9	157663.970	1294652.395	25.5	2" PVC	12 to 22	27.26
HY-14s	158642.850	1295889.670	30	2" Sch 40 PVC, 0.040" slot	20 to 30	30.13
Ki	157800.474	1295212.902	39	2" Sch 40 PVC, 0.010" slot	23 to 33	26.67
Ks	157786.803	1295212.718	19	2" Sch 40 PVC, 0.010" slot	5 to 15	26.4
PS-1	157601.057	1294989.419	30	2" Sch 40 PVC, 0.010" slot	20 to 30	NM

Notes:

ft amsl = feet above mean sea level

ft bgs = feet below ground surface

PVC = Poly Vinyl Chloride

SS = Stainless Steel

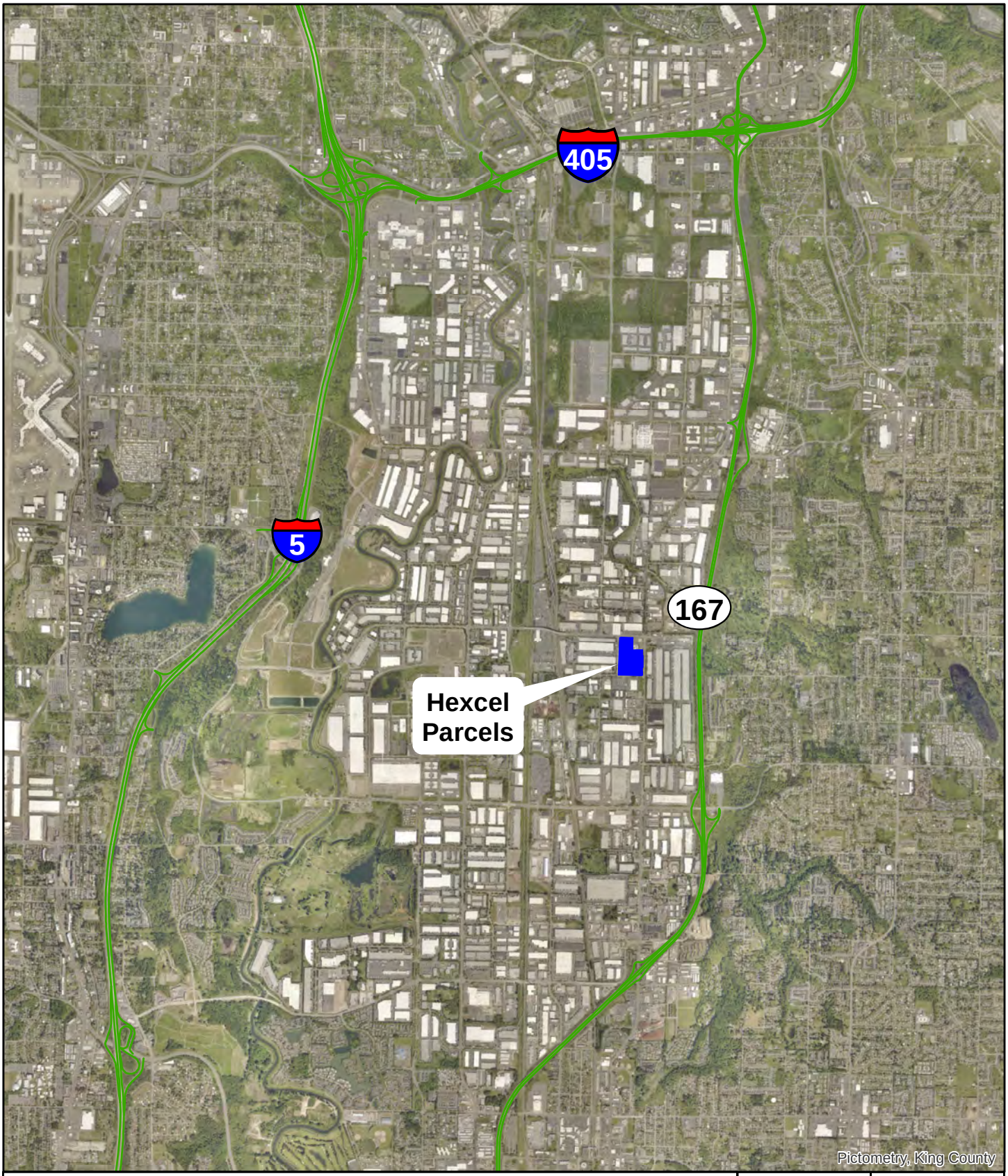
State Plane WA E, NAD83 = State Plane Washington, East, North American Datum 1983 (feet)

State Plane WA N, NAD83 = State Plane Washington, North, North American Datum 1983 (feet)

TOC = Top of Casing

NM = Not Measured. PS-1 not surveyed, coordinates are estimated.

FIGURES



0 2,000 4,000
Feet

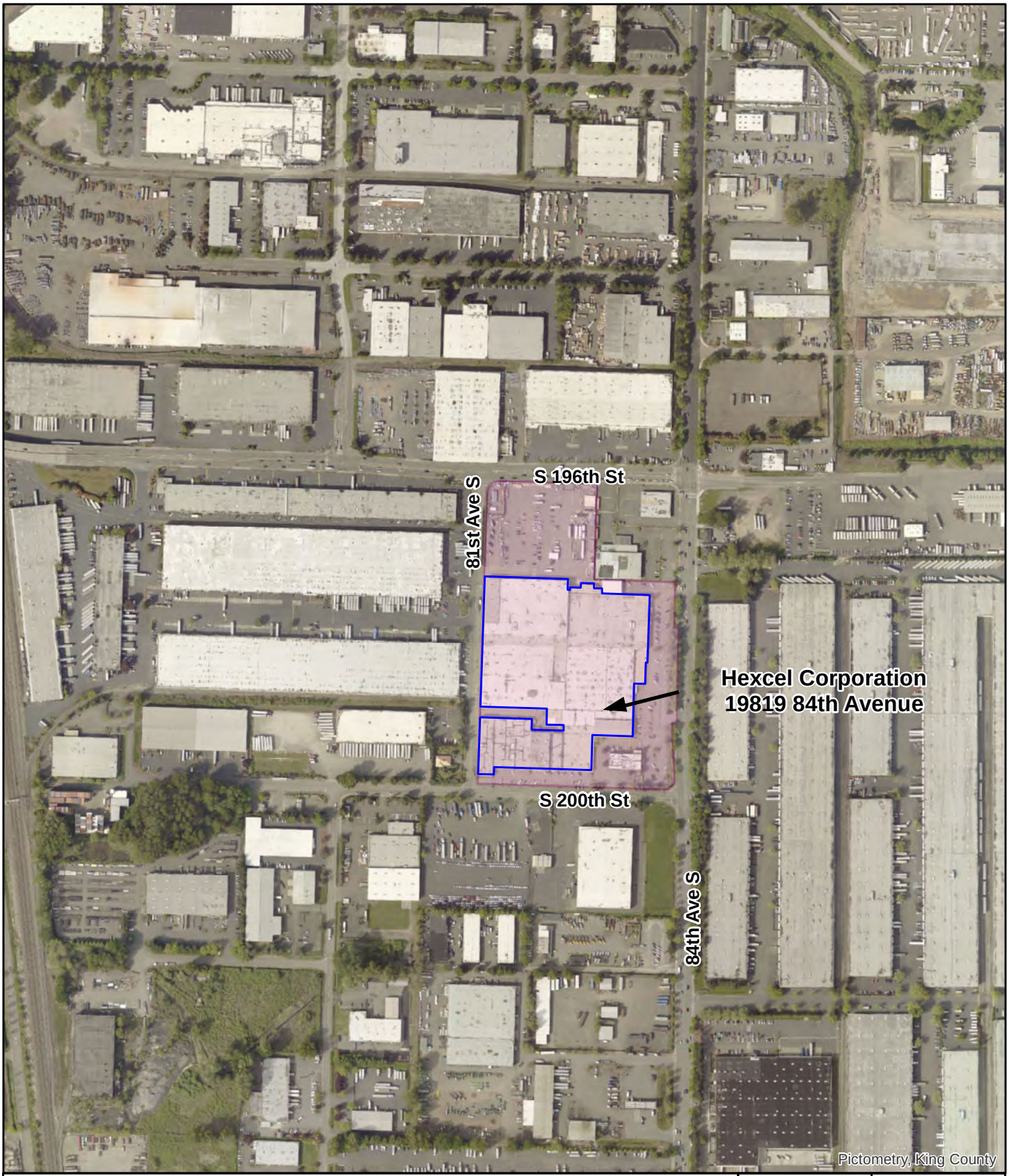
CLEAR CREEK ASSOCIATES

File ID 273-111

Date 2/8/2022

FIGURE 1
Hexcel Parcels Location Map

Projection: NAD 1983 State Plane Washington North FIPS 4601 Feet



0 250 500
Feet

Projection: NAD 1983 State Plane Washington North FIPS 4601 Feet

CLEAR CREEK ASSOCIATES

File ID 273-008

Date 2/8/2022

FIGURE 2
Hexcel Parcels Local Area

0 130 260
Feet

CLEAR CREEK ASSOCIATES

File ID 273-015
Date 2/8/2022

Projection: NAD 1983 State Plane Washington North FIPS 4601 Feet
Parcel data provided by permission of King County Source: King County GIS Data Portal (https://www5.kingcouny.gov/gisdataportal/)

FIGURE 3
Parcel Location Map

Legend

- Shallow Aquifer Monitoring Well
- Intermediate Aquifer Monitoring Well
- Former Remdial Pumping well
- Groundwater Elevation Contour Based on Shallow Aquifer Data Only
- Groundwater Depression

Contours are dashed where inferrred based on prior measurements

Scale (Feet)

0 160 320

Notes:

Projection: NAD1983 HARN State Plane Washington North FIPS 4601 FEET
Water elevations at HY-12S, HY-13S, HY-16S, and HY-17S not measured due to lack of an access agreement with property owners.
Water elevations at HY-14S and HY-15S not measured due to landscaping activities by the City of Kent. Water elevations at HY-7i and Ks not used for contouring.

Date	File ID
2/8/2022	273-113

CLEAR CREEK ASSOCIATES

FIGURE 4
Contour Map of Shallow Groundwater Elevations (September 13-16, 2021)

Legend

- Vinyl Chloride Contour
- Former Remedial Pumping Well
- Monitoring Well in Shallow Aquifer
- Monitoring Well in Intermediate Aquifer
- Monitoring Well in Deep Aquifer

Example
CG-1 Well Name
<0.075 Vinyl Chloride Concentration

(Duplicate results separated by "/")

Scale (Feet)

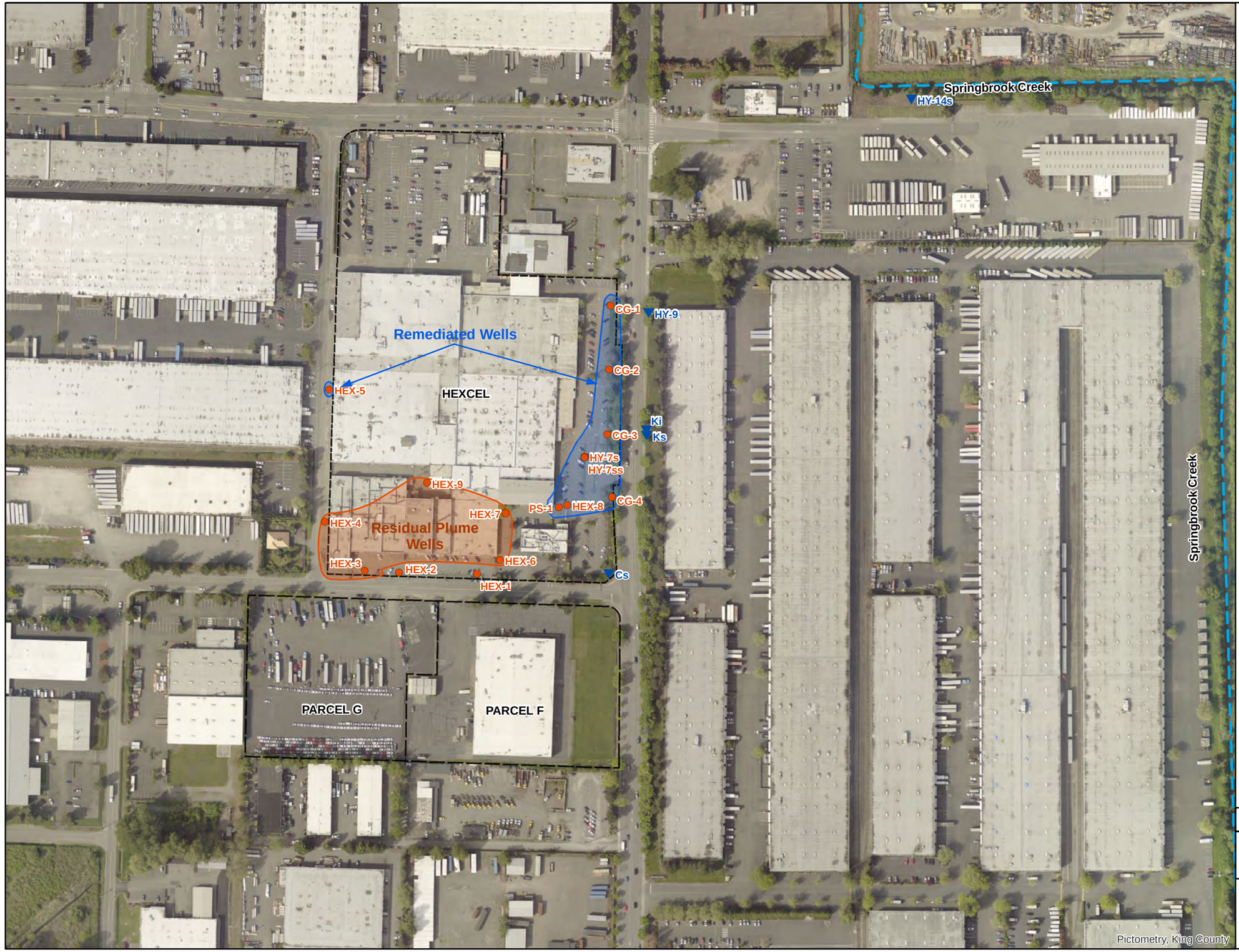
0 100 200

Notes:
Projection: STATE PLANE
WA NORTH FIPS 4601 FEET
NA = Not Accessible; samples not collected due to lack of access agreeement
µg/L = micrograms per Liter
CUL = cleanup level
"J" indicates an estimated value between the Minimum Detection Limit and the Minimum Reporting Limit.

Date	File ID
2/9/2022	273-112

CLEAR CREEK ASSOCIATES

FIGURE 5
Vinyl Chloride (µg/L)
in Groundwater
September 2021



Legend

- Groundwater Sample and Water Level Measurement
- Water Level Measurement Only
- Drainage Ditch Tributary to Springbrook Creek

0 125 250 500

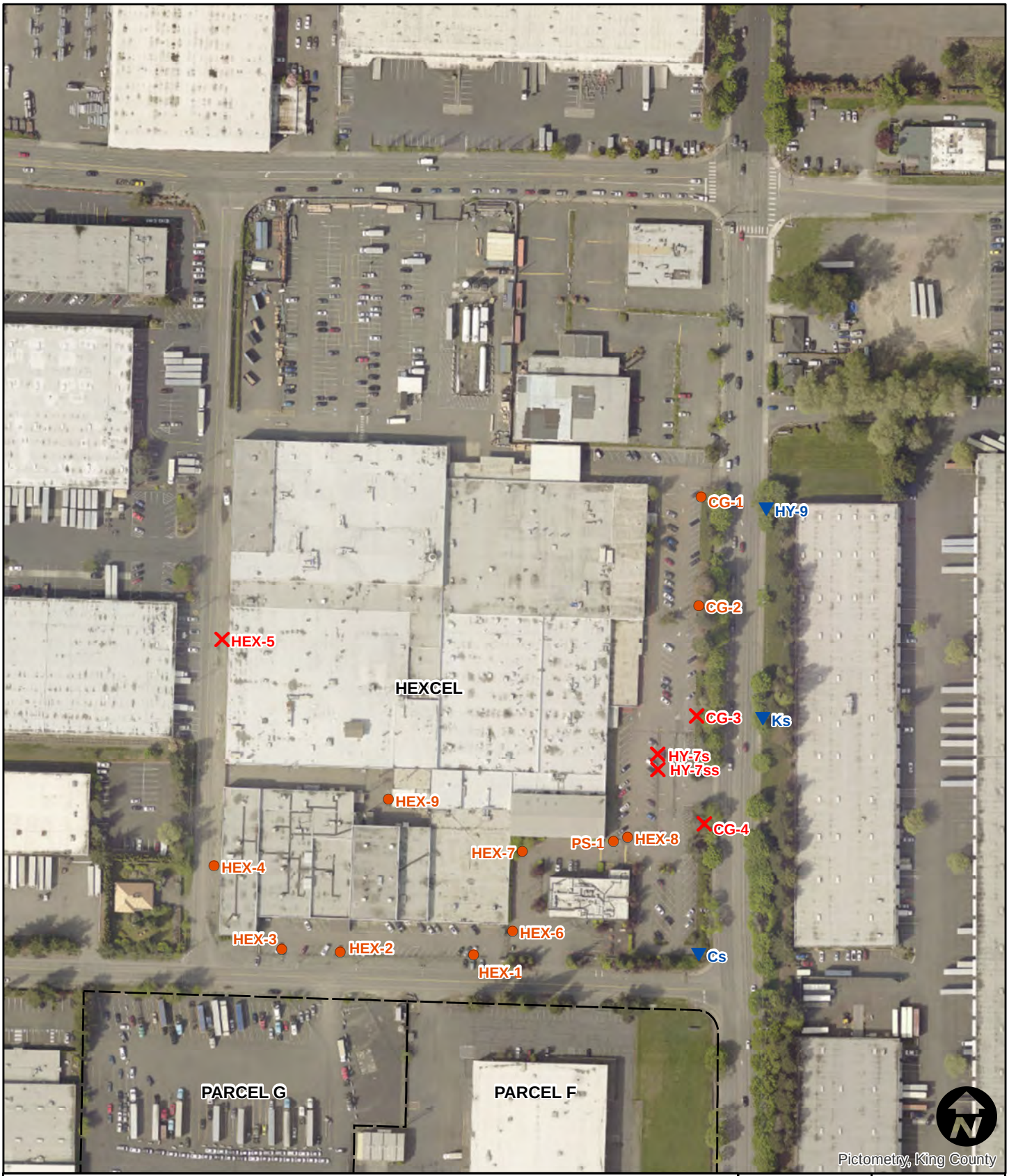
Feet

Projection: NAD 1983 State Plane Washington North FIPS 4601 Feet

Date	File ID
2/11/2022	273-114

CLEAR CREEK ASSOCIATES

FIGURE 6
Compliance Monitoring Network



Legend

- Alert Well/Groundwater Sample and Water Level Measurement
- Groundwater Sample and Water Level Measurement
- Water Level Measurement Only

0 110 220
Feet

Projection: NAD 1983 State Plane Washington North FIPS 4601 Feet

CLEAR CREEK ASSOCIATES

File ID 273-116

Date 2/10/2022

FIGURE 7
Alert Wells

Exhibit C

EXHIBIT C

Hexcel Structure Corp Operable Unit of the BSB Diversified Co Inc Site

Scope of Work and Schedule

This Scope of Work (SOW) implements the Cleanup Action Plan (CAP), Exhibit B to the Consent Decree to address soil and groundwater contamination at the Hexcel Structure Corp Operable Unit (Hexcel Parcels) of the BSB Diversified Co Inc Site in Kent, Washington. The Hexcel Corporation, Defendant to the Decree, will implement this SOW to perform Site cleanup and shall furnish all personnel, materials, and services necessary for, or incidental to, performing the cleanup action selected for the Site. All work completed for this SOW must meet the requirements of the Model Toxics Control Act (MTCA) Cleanup Regulation, Chapter 173-340 Washington Administrative Code (WAC).

The actions to be accomplished under this SOW are described in Section 8 of the CAP (Exhibit B). The required final cleanup action for the Site consists of:

A. Conducting long-term monitoring of groundwater (quality and levels for hydraulic control purpose).
B. Implementing institutional and engineering controls.
C. If contingency is triggered, performing Enhanced In Situ Bioremediation.

Schedule

The Schedule includes tasks involving the completion of certain milestone activities and the submission of documents. Each of the documents required below are subject to Ecology's review and approval. Ecology will approve, approve with conditions, or disapprove of these documents. If Ecology disapproves of a draft document, Ecology will provide comments to the Defendant who will submit a revised document that addresses Ecology's comments. The Defendant may request a schedule modification in accordance with Section XV (Extension of Schedule) of the Decree. starting date for the period shown is the date Ecology receives the deliverable.

	Work Scope	Schedule[1]
A. Administrative		
A.1	Progress Reports	Submit to Ecology annually, beginning after the first year following the effective date of the Consent Decree
B. Groundwater Monitoring		

B.1	Continue annual long-term groundwater monitoring	September of every year or as agreed by the Ecology and Hexcel
B.2	Final Annual Groundwater Monitoring Report	Submit to Ecology within 60 days of receipt of all analytical results from sampling event
C. Institutional Controls		
C.1	Proof of recording of an Environmental Covenant with the King County Recorder's Office	Submit to Ecology within 60 days of the effective date of the Consent Decree

Notes:

1. Schedule is in calendar days. Deliverable due date may be modified with Ecology concurrence without amendment to the Consent Decree.