ANNEX "A"

FUNDING PROVIDED BY CANADA

(a) The amount of Operational Funding for Fiscal Year 2019-2020 is shown in the table below. The amount shall be prorated based on the number of months from the date the Land Code comes into force to the end of the Fiscal Year, and the Nation shall be paid the prorated amount for that year. Transitional and Environmental Funding will be provided for the year the Land Code comes into force and for the subsequent Fiscal Year, as shown in the table below.

(b) Operational Funding will increase 1% annually over the term of the Memorandum of Understanding between Operational First Nation signatories to the *Framework Agreement on First Nation Land Management*, as represented by the Chair of the Lands Advisory Board, Chair of the First Nations Land Management Resource Centre Inc., and Her Majesty the Queen in Right of Canada, as represented by the Minister of Indian Affairs and Northern Development, dated 10 May 2019.

(c) Subject to appropriation by Parliament and the approval of the Treasury Board of Canada, Operational Funding for Fiscal Years after March 31, 2023, will be calculated and provided in accordance with the Operational Funding Formula as amended from time to time.

OPERATIONAL FUNDING	
2019-2020 Fiscal Year	**$274,981.00** (This amount shall be prorated in accordance with paragraph (a) above) and **$75,000.00** - One time Transitional Funding per 1st Fiscal Year
2020-2021 Fiscal Year	**$277,730.00** and **$75,000.00** - One time Transitional Funding per 2nd Fiscal Year
2021-2022	**$280,508.00**
2022-2023	**$283,313.00**
Subsequent Fiscal Year(s)	Subject to paragraph (c) above, Operational Funding will be calculated and paid each Fiscal Year based on the Operational Funding Formula as amended from time to time.

ANNEX "B"

DETAILS FOR THE TRANSFER OF MONEYS

1. As of the 13th day of June, 2019, Canada is holding $834,648.28 of revenue moneys and $720,647.85 of capital moneys for the use and benefit of the First Nation or its members. This amount is included for information purposes only and is subject to change.

2. **Initial Transfer.** Within thirty (30) days of the Land Code coming into force, Canada shall transfer to the First Nation all revenue and capital moneys collected, received or held by Canada for the use and benefit of the First Nation or its members.

3. **Subsequent Transfers.** Following an initial transfer of moneys, Canada shall, on a semi-annual basis, transfer to the First Nation all revenue and capital moneys that are subsequently collected or received by Canada for the use and benefit of the First Nation or its members. The first such subsequent transfer shall be made in the month of April or October, whichever month comes first after the month of the initial transfer.

ANNEX "C"

LIST OF INTERESTS AND LICENCES GRANTED BY CANADA

All interests and licenses granted by Canada in or in relation to the Kitsumkalum First Nation Land that are recorded in the Reserve Land Register and the Surrendered and Designated Lands Register are listed in reports that are available for review at the Kitsumkalum Lands Department in the Kitsumkalum Development Corp. and Resource Management Office located at 14303 Highway 16 West, Terrace, BC V8G 0C8 and at the Kitsumkalum Band Administration Office located at 3514 West Kalum Road Terrace, BC, V8G 0C8.

Alternatively, the documents are also available for review online at:
http://www.kitsumkalum.com/kitsumkalum-laxyuup/land-code/

Reserve General Abstract Reports for:

- Kitsumkaylum Indian Reserve No. 1 (07646)
- Dalk-ka-gila-quoeux Indian Reserve No. 2 (07647)
- Zimagord Indian Reserve No. 3 (07648)

Lawful Possessors Reports for:

- Kitsumkaylum Indian Reserve No. 1 (07646)
- Zimagord Indian Reserve No. 3 (07648)

Lease or Permits Reports for:

- Kitsumkaylum Indian Reserve No. 1 (07646)

ANNEX "D"

LIST OF ALL EXISTING INFORMATION IN CANADA'S POSSESSION RESPECTING ANY ACTUAL OR POTENTIAL ENVIRONMENTAL PROBLEMS WITH THE KITSUMKALUM FIRST NATION LANDS

Executive Summary - Phase I Environmental Site Assessment - Kitsumkalum First Nation. Prepared by Golder Associates Ltd. – March 4, 2014

Executive Summary - Phase II Environmental Site Assessment Kitsumkalum First Nation. Prepared by Tetra Tech EBA Inc. – March 31, 2016

Executive Summary - Supplemental Phase II Environmental Site Assessment Kitsumkalum First Nation. Prepared by Tetra Tech EBA Inc. – May 17, 2017

The complete Phase I, Phase II and Supplemental Phase II Environmental Site Assessments are available for review at the Kitsumkalum Lands Department in the Kitsumkalum Development Corp. and Resource Management Office located at 14303 Highway 16 West, Terrace, BC V8G 0C8 and at the Kitsumkalum Band Administration Office located at 3514 West Kalum Road Terrace, BC, V8G 0C8.

The complete Phase I, Phase II and Supplemental Phase II Environmental Site Assessments are also available for review online at:
http://www.kitsumkalum.com/kitsumkalum-laxyuup/land-code/

ANNEX "E"

LIST OF OTHER INFORMATION PROVIDED BY CANADA THAT MATERIALLY AFFECTS INTERESTS AND LICENSES

Registration/Instrument #: 6110133
Non-Metallic Minerals Permit No. 1-681-07646-2018-2022 Kitsumkaylum IR 1, Kitsumkalum Indian Band
Between Her Majesty the Queen and Kalum Quarry Limited Partnership
Effective Date: May 21, 2018
Expiry/End Date: May 21, 2023
Purpose: Authorized extraction of non-metallic minerals.
Status: Outstanding royalties payable to the First Nation.

Instrument: Log Purchase Agreement
No. 1 – 2017-Kitsumkaylum 1 (07646)
Between Her Majesty the Queen and with Kalum Venture Ltd. Partnership
Status: All stumpage paid. Post-Harvest Report received pending review for security deposit release.

Instrument: Timber Permit "B"
No. 1-681-07646-2017/18 Kitsumkaylum IR 1, Kitsumkalum Band
Between Her Majesty the Queen and Kitsumkalum Band and Kalum Quarry Limited Partnership
Status: All stumpage paid. Post-Harvest Report received pending review for security deposit release.

Instrument: Timber Permit "B"
No. 1-681-07646-2019/20 Kitsumkaylum IR 1 Inland Port Logistics Park
Status: Logging completed. Stumpage and Export Levy to be collected and missing Post-Harvest Report required for security deposit release.

D.R.

ANNEX "F"

INTERIM ENVIRONMENTAL ASSESSMENT PROCESS

(1) In this Annex,

(a) "CEAA (1992)" means the *Canadian Environmental Assessment Act, S.C. 1992, c. 37* [repealed, 2012, c. 19, s. 66], as it read immediately prior to its repeal;

(b) "CEAA 2012" means the *Canadian Environmental Assessment Act,* 2012, S.C. 2012, c. 19, s. 52, as amended from time to time.

(2) This Annex sets out the environmental assessment process that will apply to projects on Kitsumkalum First Nation Land until the enactment and coming into force of First Nation Laws on that subject.

(3) The First Nation shall conduct an assessment process in respect of every project on Kitsumkalum First Nation Land consistent with:

(a) CEAA (1992), or

(b) CEAA 2012.

(4) Notwithstanding clause (3), the First Nation is not required to conduct an additional environmental assessment if the First Nation decides to adopt an environmental assessment that Canada conducts in respect of that project.

(5) If the First Nation elects to use a process consistent with CEAA (1992), the following applies:

(a) When the First Nation is considering the approval, regulation, funding or undertaking of a project on Kitsumkalum First Nation Land that is not described in the exclusion list as defined in CEAA (1992), the Council of the First Nation shall ensure that an environmental assessment of the project is carried out in accordance with a process that is consistent with that of CEAA (1992). Such assessment shall be carried out as early as practicable in the planning stages of the project before an irrevocable decision is made.

(b) The First Nation shall not approve, regulate, fund, or undertake the project unless the Council has concluded, taking into consideration the results of the environmental assessment, any economically and technically feasible mitigation measures identified as necessary during the assessment, and any public comments received during the assessment, that the project is unlikely to cause any significant adverse environmental effects or that any such effects are justifiable under the circumstances.

D.R.

(c) If the First Nation approves, regulates, funds, or undertakes the project, the First Nation shall ensure that all mitigation measures referred to paragraph (b) above are implemented at its expense or it is satisfied that another person or body will ensure their implementation. The Council shall also consider whether a follow-up program, as defined in CEAA (1992), is appropriate in the circumstances and if so, shall design a follow-up program and ensure its implementation.

(6) If the First Nation elects to use a process that is consistent with CEAA 2012, the following applies unless it is inconsistent with any amendments made to CEAA 2012 in the future or any legislation that replaces CEAA 2012:

(a) If the project is a "designated project" as defined in CEAA 2012, the First Nation shall conduct an environmental assessment of that project in accordance with a process that is consistent with that of CEAA 2012.

(b) If the project is a "project" as defined in section 66 of CEAA 2012, the First Nation shall not carry out the project on Kitsumkalum First Nation Land, or exercise any power or perform any duty or function conferred on it under the Land Code or a First Nation law that would permit the project to be carried out, in whole or in part, on Kitsumkalum First Nation Land, unless the Council of the First Nation determines that the carrying out of the project

(i) is not likely to cause significant adverse environmental effects as defined in CEAA 2012; or

(ii) is likely to cause significant adverse environmental effects and the Council decides that those effects are justified in the circumstances.

(7) All processes shall be conducted at the expense of the First Nation or of the proponent of the project.

(8) The provisions in this Annex are without prejudice to any environmental assessment process that the First Nation may develop in accordance with the Act and the Framework Agreement for incorporation in First Nation laws respecting environmental assessment.

D.R.

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Selected Criteria:
Registry: ILRS
Band: 681 - Kitsumkalum
EOT Active: Active

Printed on: 2019/10/16 10:45 am UNCLASSIFIED

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 1 Canada Lands Surveys Record 70907

PIN: **900028530** LOT 1 Canada Lands Surveys Record 70907

Registration #: 6094352 Registration Date: 2016/09/02 12:23:39PM
Grantee: HEATHER ASHLEY BOHN
Evidence of Title: Certificate of Possession 403030514 Active
EOT Legal Description: LOT 1 CLSR 70907

Legal Description: LOT 10 Canada Lands Surveys Record 70907

PIN: **900028589** LOT 10 Canada Lands Surveys Record 70907

Registration #: 6075351 Registration Date: 2013/10/31 6:54:12PM
Grantee: SARAH WINNIFRED WESLEY
Evidence of Title: Certificate of Possession 403021357 Active
EOT Legal Description: LOT 10 CLSR 70907

Legal Description: LOT 101 Regional Survey British-Columbia 2428

PIN: **903019503** LOT 101 Regional Survey British-Columbia 2428

Registration #: 6083525 Registration Date: 2015/02/20 2:55:37PM
Grantee: RONALD MARTIN BARTLETT
Evidence of Title: Certificate of Possession 403025912 Active
EOT Legal Description: LOT 101 RSBC 2428

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 105 Regional Survey British-Columbia 2388

PIN: **903017468** LOT 105 Regional Survey British-Columbia 2388

Registration #: 6075508 Registration Date: 2013/11/08 5:06:18PM
Grantee: STEVEN JOSEPH WESLEY
Evidence of Title: Certificate of Possession 403021420 Active
EOT Legal Description: LOT 105 RSBC 2388

Legal Description: LOT 106 Regional Survey British-Columbia 2388

PIN: **902015733** LOT 106 Regional Survey British-Columbia 2388

Registration #: 271758 Registration Date: 1999/07/05 2:36:50PM
Grantee: GORDON JAMES ROBERT
Evidence of Title: Certificate of Possession 129627 Active
EOT Legal Description: LOT 106 RSBC 2388

Legal Description: LOT 108 Regional Survey British-Columbia 2388

PIN: **903017469** LOT 108 Regional Survey British-Columbia 2388

Registration #: 6075509 Registration Date: 2013/11/08 6:38:33PM
Grantee: DIANE ELIZABETH COLLINS
Evidence of Title: Certificate of Possession 403021421 Active
EOT Legal Description: LOT 108 RSBC 2388

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Printed on: 2019/10/16 10:45 am UNCLASSIFIED

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 109 Regional Survey British-Columbia 2388

PIN: **903017467** LOT 109 Regional Survey British-Columbia 2388

Registration #: 6075498 Registration Date: 2013/11/08 2:54:16PM
Grantee: PATRICIA SHIRLEY BOLTON
Evidence of Title: Certificate of Possession 403021417 Active
EOT Legal Description: LOT 109 RSBC 2388

Legal Description: LOT 11 Canada Lands Surveys Record 51118

PIN: **900041228** LOT 11 Canada Lands Surveys Record 51118

Registration #: 116886 Registration Date: 1988/04/22 12:00:00AM
Grantee: 681 Kitsumkalum
Evidence of Title: Band Active
EOT Legal Description: LOT 11 CLSR 51118

Legal Description: LOT 110 Regional Survey British-Columbia 2388

PIN: **903017470** LOT 110 Regional Survey British-Columbia 2388

Registration #: 6075511 Registration Date: 2013/11/08 6:50:11PM
Grantee: JOHN DAVID CHRISTIANSEN
Evidence of Title: Certificate of Possession 403021422 Active
EOT Legal Description: LOT 110 RSBC 2388

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 12 Canada Lands Surveys Record 51118

PIN: **900028597** LOT 12 Canada Lands Surveys Record 51118

Registration #: 2953 Registration Date: 1968/07/18 12:00:00AM
Grantee: HAROLD JAMES BOLTON
Evidence of Title: Certificate of Possession 14907 Active
EOT Legal Description: LOT 12 CLSR 51118

Legal Description: LOT 13 Canada Lands Surveys Record 51118

PIN: **900028605** LOT 13 Canada Lands Surveys Record 51118

Registration #: 270150 Registration Date: 1999/05/06 11:18:51AM
Grantee: WILLIAM EDWARD BOLTON
Evidence of Title: Certificate of Possession 129027 Active
EOT Legal Description: LOT 13 CLSR 51118

Legal Description: LOT 14 Canada Lands Surveys Record 51118

PIN: **900028613** LOT 14 Canada Lands Surveys Record 51118

Registration #: 270155 Registration Date: 1999/05/06 1:28:58PM
Grantee: IRENE SPALDING
Evidence of Title: Certificate of Possession 129033 Active
EOT Legal Description: LOT 14 CLSR 51118

Reserve: 07646 - KITSUMKAYLUM NO. 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 15 Canada Lands Surveys Record 70907

PIN: **900028621** LOT 15 Canada Lands Surveys Record 70907

Registration #: 6080713 Registration Date: 2014/09/30 6:25:19PM
Grantee: GERALD PATRICK BOLTON - Interest Note: Undivided 1/9 interest
Evidence of Title: Certificate of Possession 403024423 Active
EOT Legal Description: LOT 15 CLSR 70907

Registration #: 6080713 Registration Date: 2014/09/30 6:25:19PM
Grantee: DAVID MARK BOLTON - Interest Note: Undivided 1/9 interest
Evidence of Title: Certificate of Possession 403024421 Active
EOT Legal Description: LOT 15 CLSR 70907

Registration #: 6080713 Registration Date: 2014/09/30 6:25:19PM
Grantee: SHEILA COLLEEN BOLTON - Interest Note: Undivided 1/9 interest
Evidence of Title: Certificate of Possession 403024426 Active
EOT Legal Description: LOT 15 CLSR 70907

Registration #: 6080713 Registration Date: 2014/09/30 6:25:19PM
Grantee: MALCOLM DARRELL BOLTON - Interest Note: Undivided 1/9 interest
Evidence of Title: Certificate of Possession 403024425 Active
EOT Legal Description: LOT 15 CLSR 70907

Registration #: 6080713 Registration Date: 2014/09/30 6:25:19PM
Grantee: ALVINA ROBERTA FRIESEN - Interest Note: Undivided 1/9 interest
Evidence of Title: Certificate of Possession 403024428 Active
EOT Legal Description: LOT 15 CLSR 70907

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 15 Canada Lands Surveys Record 70907

PIN: **900028621** LOT 15 Canada Lands Surveys Record 70907

Registration #: 6080713 Registration Date: 2014/09/30 6:25:19PM
Grantee: RUSSELL THOMAS BOLTON - Interest Note: Undivided 1/9 interest
Evidence of Title: Certificate of Possession 403024422 Active
EOT Legal Description: LOT 15 CLSR 70907

Registration #: 6080713 Registration Date: 2014/09/30 6:25:19PM
Grantee: THERESA EMMA BOLTON - Interest Note: Undivided 1/9 interest
Evidence of Title: Certificate of Possession 403024427 Active
EOT Legal Description: LOT 15 CLSR 70907

Registration #: 6080713 Registration Date: 2014/09/30 6:25:19PM
Grantee: LYNN ELIZABETH BOLTON - Interest Note: Undivided 1/9 interest
Evidence of Title: Certificate of Possession 403024420 Active
EOT Legal Description: LOT 15 CLSR 70907

Registration #: 6080713 Registration Date: 2014/09/30 6:25:19PM
Grantee: CATHERINE FRANCES EMMA BOLTON - Interest Note: Undivided 1/9 interest
Evidence of Title: Certificate of Possession 403024424 Active
EOT Legal Description: LOT 15 CLSR 70907

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 16 Canada Lands Surveys Record 51118

PIN: **900028639** LOT 16 Canada Lands Surveys Record 51118

Registration #: 271350 Registration Date: 1999/06/18 10:00:11AM
Grantee: DONALD JOSEPH ROBERTS - Interest Note: JOINT TENANT
MILDRED SELINA ROBERTS - Interest Note: JOINT TENANT
Evidence of Title: Certificate of Possession 129503 Active
EOT Legal Description: LOT 16 CLSR 51118

Legal Description: LOT 17 Canada Lands Surveys Record 51118

PIN: **900028647** LOT 17 Canada Lands Surveys Record 51118

Registration #: 270153 Registration Date: 1999/05/06 11:25:01AM
Grantee: VICTOR JAMES SPALDING
Evidence of Title: Certificate of Possession 129030 Active
EOT Legal Description: LOT 17 CLSR 51118

Legal Description: LOT 2 Canada Lands Surveys Record 70907

PIN: **902015352** LOT 2 Canada Lands Surveys Record 70907

Registration #: 271200 Registration Date: 1999/06/11 8:07:00AM
Grantee: LLOYD KENNETH WILLIAMS
Evidence of Title: Certificate of Possession 129411 Active
EOT Legal Description: LOT 2 CLSR 70907

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 3 Canada Lands Surveys Record 70907

PIN: **903023967** LOT 3 Canada Lands Surveys Record 70907

Registration #: 6103664 Registration Date: 2017/12/27 11:21:57AM
Grantee: MELODIE PATRICIA HOY
Evidence of Title: Certificate of Possession 403035022 Active
EOT Legal Description: LOT 3 CLSR 70907

Legal Description: LOT 30 Canada Lands Surveys Record 58736

PIN: **900028662** LOT 30 Canada Lands Surveys Record 58736

Registration #: 307121 Registration Date: 2003/03/17 11:01:31AM
Grantee: DONALD TERRENCE ROBERTS - Interest Note: JOINT TENANT
Evidence of Title: Certificate of Possession 143570 Active
EOT Legal Description: LOT 30 CLSR 58736

Legal Description: LOT 44 Canada Lands Surveys Record 71002

PIN: **903017699** LOT 44 Canada Lands Surveys Record 71002

Registration #: 6075875 Registration Date: 2013/12/10 12:20:35PM
Grantee: STEVEN WAYNE ROBERTS
Evidence of Title: Certificate of Possession 403021752 Active
EOT Legal Description: LOT 44 CLSR 71002

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 45 Canada Lands Surveys Record 71002

PIN: **903017700** LOT 45 Canada Lands Surveys Record 71002

Registration #: 6075733 Registration Date: 2013/12/10 12:16:04PM
Grantee: DONALD JEFFREY SPALDING
Evidence of Title: Certificate of Possession 403021751 Active
EOT Legal Description: LOT 45 CLSR 71002

Legal Description: LOT 46 Canada Lands Surveys Record 71002

PIN: **902015726** LOT 46 Canada Lands Surveys Record 71002

Registration #: 271635 Registration Date: 1999/06/29 8:48:15AM
Grantee: SHIRLEY WINNIFRED BOLAN - Interest Note: JOINT TENANT
WILLIAM MELVIN BOLAN - Interest Note: JOINT TENANT
Evidence of Title: Certificate of Possession 129582 Active
EOT Legal Description: LOT 46 CLSR 71002

Legal Description: LOT 48 Canada Lands Surveys Record 71002

PIN: **902015725** LOT 48 Canada Lands Surveys Record 71002

Registration #: 271632 Registration Date: 1999/06/29 8:40:06AM
Grantee: REYNOLD MELVIN LOCKERBY
Evidence of Title: Certificate of Possession 129581 Active
EOT Legal Description: LOT 48 CLSR 71002

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 49 Canada Lands Surveys Record 71002

PIN: **903017701** LOT 49 Canada Lands Surveys Record 71002

Registration #: 6075876 Registration Date: 2013/12/10 12:05:37PM
Grantee: CHRISTINE DIANNA MUNROE
Evidence of Title: Certificate of Possession 403021750 Active
EOT Legal Description: LOT 49 CLSR 71002

Legal Description: LOT 5 Canada Lands Surveys Record 70907

PIN: **903017802** LOT 5 Canada Lands Surveys Record 70907

Registration #: 6075877 Registration Date: 2014/01/13 3:42:00PM
Grantee: BETTY DONNA WEBB
Evidence of Title: Certificate of Possession 403022079 Active
EOT Legal Description: LOT 5 CLSR 70907

Legal Description: LOT 50 Canada Lands Surveys Record 71002

PIN: **902015353** LOT 50 Canada Lands Surveys Record 71002

Registration #: 271202 Registration Date: 1999/06/11 8:10:46AM
Grantee: ARLENE PHYLLIS SPALDING - Interest Note: JOINT TENANT
EDWARD RONALD VICTOR SPALDING - Interest Note: JOINT TENANT
Evidence of Title: Certificate of Possession 129413 Active
EOT Legal Description: LOT 50 CLSR 71002

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 51 Canada Lands Surveys Record 71002

PIN: **903019369** LOT 51 Canada Lands Surveys Record 71002

Registration #: 6083523 Registration Date: 2015/01/15 3:44:53PM
Grantee: SUSAN ELIZABETH SPALDING
Evidence of Title: Certificate of Possession 403025509 Active
EOT Legal Description: LOT 51 CLSR 71002

Legal Description: LOT 52 Canada Lands Surveys Record 71002

PIN: **902015354** LOT 52 Canada Lands Surveys Record 71002

Registration #: 271203 Registration Date: 1999/06/11 8:13:36AM
Grantee: CHARLOTTE MILDRED GUNO
Evidence of Title: Certificate of Possession 129414 Active
EOT Legal Description: LOT 52 CLSR 71002

Legal Description: LOT 53 Canada Lands Surveys Record 71002

PIN: **902015355** LOT 53 Canada Lands Surveys Record 71002

Registration #: 271204 Registration Date: 1999/06/11 8:16:36AM
Grantee: SANDRA TRUDINE CHRISTIANSEN - Interest Note: JOINT TENANT
WILLIAM JOSEPH CHRISTIANSEN - Interest Note: JOINT TENANT
Evidence of Title: Certificate of Possession 129415 Active
EOT Legal Description: LOT 53 CLSR 71002

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 54 Canada Lands Surveys Record 71002

PIN: **902015351** LOT 54 Canada Lands Surveys Record 71002

Registration #: 271199 Registration Date: 1999/06/11 8:04:50AM
Grantee: CAROL DONNA SAM - Interest Note: JOINT TENANT
MAURICE SAM - Interest Note: JOINT TENANT
Evidence of Title: Certificate of Possession 129410 Active
EOT Legal Description: LOT 54 CLSR 71002

Legal Description: LOT 55 Regional Survey British-Columbia 2447

PIN: **903017472** LOT 55 Regional Survey British-Columbia 2447

Registration #: 6075512 Registration Date: 2013/11/08 7:08:27PM
Grantee: GERALD PATRICK BOLTON
Evidence of Title: Certificate of Possession 403021423 Active
EOT Legal Description: LOT 55 RSBC 2447

Legal Description: LOT 56 Regional Survey British-Columbia 2447

PIN: **903017473** LOT 56 Regional Survey British-Columbia 2447

Registration #: 6075513 Registration Date: 2013/11/08 7:21:46PM
Grantee: DAVID PETER BOHN - Interest Note: Undivided 1/2 interest
Evidence of Title: Certificate of Possession 403021425 Active
EOT Legal Description: LOT 56 RSBC 2447

Registration #: 6075513 Registration Date: 2013/11/08 7:21:46PM
Grantee: CYNTHIA ROSE BOHN - Interest Note: Undivided 1/2 interest
Evidence of Title: Certificate of Possession 403021424 Active
EOT Legal Description: LOT 56 RSBC 2447

Reserve: 07646 - KITSUMKAYLUM NO. 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 58 Regional Survey British-Columbia 2447

PIN: **903017695** LOT 58 Regional Survey British-Columbia 2447

Registration #: 6076195 Registration Date: 2013/12/09 6:02:17PM
Grantee: LAURA ELIZABETH MILLER
Evidence of Title: Certificate of Possession 403021745 Active
EOT Legal Description: LOT 58 RSBC 2447

Legal Description: LOT 59 Regional Survey British-Columbia 2447

PIN: **903017474** LOT 59 Regional Survey British-Columbia 2447

Registration #: 6075596 Registration Date: 2013/11/13 7:21:12PM
Grantee: STERLING KELLY ROBINSON - Interest Note: Undivided 1/2 interest
Evidence of Title: Certificate of Possession 403021450 Active
EOT Legal Description: LOT 59 RSBC 2447

Registration #: 6075596 Registration Date: 2013/11/13 7:21:12PM
Grantee: GERALDINE GALE ROBINSON - Interest Note: Undivided 1/2 interest
Evidence of Title: Certificate of Possession 403021451 Active
EOT Legal Description: LOT 59 RSBC 2447

Legal Description: LOT 6 Canada Lands Surveys Record 70907

PIN: **900028555** LOT 6 Canada Lands Surveys Record 70907

Registration #: 6098001 Registration Date: 2017/02/01 2:10:11PM
Grantee: FREDERICK RONALD WESLEY
Evidence of Title: Certificate of Possession 403031930 Active
EOT Legal Description: LOT 6 CLSR 70907

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 60 Regional Survey British-Columbia 2447

PIN: **903017475** LOT 60 Regional Survey British-Columbia 2447

Registration #: 6075597 Registration Date: 2013/11/13 7:28:00PM
Grantee: SHIHAN EMMA BOLTON
Evidence of Title: Certificate of Possession 403021452 Active
EOT Legal Description: LOT 60 RSBC 2447

Legal Description: LOT 61 Regional Survey British-Columbia 2447

PIN: **903017476** LOT 61 Regional Survey British-Columbia 2447

Registration #: 6075607 Registration Date: 2013/11/14 11:36:58AM
Grantee: STELLA JOSIE GEROW - Interest Note: Undivided 1/2 interest
Evidence of Title: Certificate of Possession 403021456 Active
EOT Legal Description: LOT 61 RSBC 2447

Registration #: 6075607 Registration Date: 2013/11/14 11:36:58AM
Grantee: PETER ERNEST GEROW - Interest Note: Undivided 1/2 interest
Evidence of Title: Certificate of Possession 403021457 Active
EOT Legal Description: LOT 61 RSBC 2447

Legal Description: LOT 62 Regional Survey British-Columbia 2447

PIN: **903019037** LOT 62 Regional Survey British-Columbia 2447

Registration #: 6081722 Registration Date: 2014/11/04 1:04:22PM
Grantee: JANICE PEARL ROBINSON
Evidence of Title: Certificate of Possession 403024756 Active
EOT Legal Description: LOT 62 RSBC 2447

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 63 Regional Survey British-Columbia 2447

PIN: **903017477** LOT 63 Regional Survey British-Columbia 2447

Registration #: 6075608 Registration Date: 2013/11/14 11:53:22AM
Grantee: RUSSELL THOMAS BOLTON
Evidence of Title: Certificate of Possession 403021458 Active
EOT Legal Description: LOT 63 RSBC 2447

Legal Description: LOT 64 Regional Survey British-Columbia 2447

PIN: **903017478** LOT 64 Regional Survey British-Columbia 2447

Registration #: 6075609 Registration Date: 2013/11/14 12:03:51PM
Grantee: LYNN ELIZABETH BOLTON
Evidence of Title: Certificate of Possession 403021459 Active
EOT Legal Description: LOT 64 RSBC 2447

Legal Description: LOT 65 Regional Survey British-Columbia 2447

PIN: **903017479** LOT 65 Regional Survey British-Columbia 2447

Registration #: 6075611 Registration Date: 2013/11/14 12:11:38PM
Grantee: WALLACE HENRY MILLER
Evidence of Title: Certificate of Possession 403021460 Active
EOT Legal Description: LOT 65 RSBC 2447

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 66 Regional Survey British-Columbia 2447

PIN: **903017480** LOT 66 Regional Survey British-Columbia 2447

Registration #: 6075612 Registration Date: 2013/11/14 12:22:28PM
Grantee: ELIZABETH JANICE TREMBLAY - Interest Note: Undivided 1/2 interest
Evidence of Title: Certificate of Possession 403021461 Active
EOT Legal Description: LOT 66 RSBC 2447

Registration #: 6075612 Registration Date: 2013/11/14 12:22:28PM
Grantee: ERICK CHRISTIANSEN - Interest Note: Undivided 1/2 interest
Evidence of Title: Certificate of Possession 403021462 Active
EOT Legal Description: LOT 66 RSBC 2447

Legal Description: LOT 68 Regional Survey British-Columbia 2447

PIN: **903017481** LOT 68 Regional Survey British-Columbia 2447

Registration #: 6075613 Registration Date: 2013/11/14 12:32:50PM
Grantee: CRYSTAL GAIL ROBERTS - Interest Note: Undivided 1/2 interest
Evidence of Title: Certificate of Possession 403021463 Active
EOT Legal Description: LOT 68 RSBC 2447

Registration #: 6075613 Registration Date: 2013/11/14 12:32:50PM
Grantee: ALLAN LAWRENCE BOLTON - Interest Note: Undivided 1/2 interest
Evidence of Title: Certificate of Possession 403021464 Active
EOT Legal Description: LOT 68 RSBC 2447

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 69 Regional Survey British-Columbia 2447

PIN: **903017482** LOT 69 Regional Survey British-Columbia 2447

Registration #: 6075614 Registration Date: 2013/11/14 12:39:27PM
Grantee: WAYNE ARNOLD ROBINSON
Evidence of Title: Certificate of Possession 403021465 Active
EOT Legal Description: LOT 69 RSBC 2447

Legal Description: LOT 7 Canada Lands Surveys Record 70907

PIN: **903017696** LOT 7 Canada Lands Surveys Record 70907

Registration #: 6075878 Registration Date: 2013/12/09 7:32:06PM
Grantee: BRIAN PATRICK MCCARTHY
Evidence of Title: Certificate of Possession 403021746 Active
EOT Legal Description: LOT 7 CLSR 70907

Legal Description: LOT 70 Regional Survey British-Columbia 2447

PIN: **903021649** LOT 70 Regional Survey British-Columbia 2447

Registration #: 6094216 Registration Date: 2016/09/06 2:04:39PM
Grantee: BERNICE LILY GLORY BOLTON
Evidence of Title: Certificate of Possession 403030521 Active
EOT Legal Description: LOT 70 RSBC 2447

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 71 Regional Survey British-Columbia 2447

PIN: **903017483** LOT 71 Regional Survey British-Columbia 2447

Registration #: 6075616 Registration Date: 2013/11/14 12:48:36PM
Grantee: LILLIAN MAE SAMSON
Evidence of Title: Certificate of Possession 403021466 Active
EOT Legal Description: LOT 71 RSBC 2447

Legal Description: LOT 73 Regional Survey British-Columbia 2447

PIN: **903017484** LOT 73 Regional Survey British-Columbia 2447

Registration #: 6075617 Registration Date: 2013/11/14 12:55:22PM
Grantee: WAYNE HERBERT BOLTON
Evidence of Title: Certificate of Possession 403021467 Active
EOT Legal Description: LOT 73 RSBC 2447

Legal Description: LOT 74 Regional Survey British-Columbia 2447

PIN: **903017485** LOT 74 Regional Survey British-Columbia 2447

Registration #: 6075618 Registration Date: 2013/11/14 1:02:21PM
Grantee: VERNON HERBERT HORNER
Evidence of Title: Certificate of Possession 403021468 Active
EOT Legal Description: LOT 74 RSBC 2447

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 75 Regional Survey British-Columbia 2447

PIN: **903017486** LOT 75 Regional Survey British-Columbia 2447

Registration #: 6075621 Registration Date: 2013/11/14 1:09:23PM
Grantee: SAMUEL LAWRENCE LOCKERBY
Evidence of Title: Certificate of Possession 403021470 Active
EOT Legal Description: LOT 75 RSBC 2447

Legal Description: LOT 79 Regional Survey British-Columbia 2428

PIN: **902005392** LOT 79 Regional Survey British-Columbia 2428

Registration #: 219060 Registration Date: 1994/02/23 8:55:17AM
Grantee: GEORGE FELIX BROWN - Interest Note: JOINT TENANT
LAURA HELEN BROWN - Interest Note: JOINT TENANT
Evidence of Title: Certificate of Possession 107160 Active
EOT Legal Description: LOT 79 RSBC 2428

Legal Description: LOT 8 Canada Lands Surveys Record 51118

PIN: **900028563** LOT 8 Canada Lands Surveys Record 51118

Registration #: 270147 Registration Date: 1999/05/06 11:11:00AM
Grantee: RONALD DICK WESLEY - Interest Note: JOINT TENANT
SANDRA ELLEN WESLEY - Interest Note: JOINT TENANT
Evidence of Title: Certificate of Possession 129024 Active
EOT Legal Description: LOT 8 CLSR 51118

Registration #: 44627 Registration Date: 1976/01/02 12:00:00AM
Grantee: 681 Kitsumkalum
Evidence of Title: Band Active
EOT Legal Description: LOT 8 CLSR 51118

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 81 Regional Survey British-Columbia 2428

PIN: **903019504** LOT 81 Regional Survey British-Columbia 2428

Registration #: 6083522 Registration Date: 2015/02/20 3:13:14PM
Grantee: NINA MICHELLE PEDEN
Evidence of Title: Certificate of Possession 403025913 Active
EOT Legal Description: LOT 81 RSBC 2428

Legal Description: LOT 82 Regional Survey British-Columbia 2428

PIN: **903017466** LOT 82 Regional Survey British-Columbia 2428

Registration #: 6075492 Registration Date: 2013/11/08 1:37:17PM
Grantee: RICHARD WESLEY
Evidence of Title: Certificate of Possession 403021414 Active
EOT Legal Description: LOT 82 RSBC 2428

Legal Description: LOT 84 Regional Survey British-Columbia 2428

PIN: **902006481** LOT 84 Regional Survey British-Columbia 2428

Registration #: 231054 Registration Date: 1995/03/06 10:50:41AM
Grantee: BARBARA MARILYN KRAUSE
Evidence of Title: Certificate of Possession 111133 Active
EOT Legal Description: LOT 84 RSBC 2428

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 85 Regional Survey British-Columbia 2428

PIN: **903021665** LOT 85 Regional Survey British-Columbia 2428

Registration #: 6094324 Registration Date: 2016/09/09 7:34:34PM
Grantee: FRANCES CECELIA CHRISTIANSEN - Interest Note: Undivided 1/2 interest
Evidence of Title: Certificate of Possession 403030560 Active
EOT Legal Description: LOT 85 RSBC 2428

Registration #: 6094324 Registration Date: 2016/09/09 7:34:34PM
Grantee: JOHN CHRISTIANSEN - Interest Note: Undivided 1/2 interest
Evidence of Title: Certificate of Possession 403030559 Active
EOT Legal Description: LOT 85 RSBC 2428

Legal Description: LOT 88 Regional Survey British-Columbia 2428

PIN: **903021277** LOT 88 Regional Survey British-Columbia 2428

Registration #: 6107364 Registration Date: 2018/09/27 12:03:26PM
Grantee: DWAYNE EDWARD HORNER
Evidence of Title: Certificate of Possession 403037319 Active
EOT Legal Description: LOT 88 RSBC 2428

Legal Description: LOT 9 Canada Lands Surveys Record 51118

PIN: **900028571** LOT 9 Canada Lands Surveys Record 51118

Registration #: 271349 Registration Date: 1999/06/18 9:58:00AM
Grantee: ANNETTE BOLTON - Interest Note: JOINT TENANT
LAWRENCE ALEXANDER BOLTON - Interest Note: JOINT TENANT
Evidence of Title: Certificate of Possession 129502 Active
EOT Legal Description: LOT 9 CLSR 51118

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07646 - KITSUMKAYLUM NO. 1
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 91 Regional Survey British-Columbia 2428

PIN: **903017471** LOT 91 Regional Survey British-Columbia 2428

Registration #: 6075495 Registration Date: 2013/11/08 2:41:38PM
Grantee: GEORGE COOLEY
Evidence of Title: Certificate of Possession 403021416 Active
EOT Legal Description: LOT 91 RSBC 2428

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07648 - ZIMAGORD NO. 3
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Reserve: 07648 - ZIMAGORD NO. 3

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 1 Regional Survey British-Columbia 1920

PIN: **900034454** LOT 1 Regional Survey British-Columbia 1920

Registration #: 283798 Registration Date: 2000/09/29 1:50:39PM
Grantee: LYNN ELIZABETH BOLTON - Interest Note: AN UNDIVIDED 1/9 INTEREST
Evidence of Title: Certificate of Possession 134413 Active
EOT Legal Description: LOT 1 RSBC 1920

Registration #: 283798 Registration Date: 2000/09/29 1:50:39PM
Grantee: GERALD PATRICK BOLTON - Interest Note: AN UNDIVIDED 1/9 INTEREST
Evidence of Title: Certificate of Possession 134416 Active
EOT Legal Description: LOT 1 RSBC 1920

Registration #: 287210 Registration Date: 2001/03/20 9:10:22AM
Grantee: SHEILA COLLEEN BOLTON - Interest Note: UNDIVIDED 2/9 INTEREST
Evidence of Title: Certificate of Possession 135861 Active
EOT Legal Description: LOT 1 RSBC 1920

Registration #: 283798 Registration Date: 2000/09/29 1:50:39PM
Grantee: MALCOLM DARRELL BOLTON - Interest Note: AN UNDIVIDED 1/9 INTEREST
Evidence of Title: Certificate of Possession 134418 Active
EOT Legal Description: LOT 1 RSBC 1920

Registration #: 283798 Registration Date: 2000/09/29 1:50:39PM
Grantee: DAVID MARK BOLTON - Interest Note: AN UNDIVIDED 1/9 INTEREST
Evidence of Title: Certificate of Possession 134414 Active
EOT Legal Description: LOT 1 RSBC 1920

INDIAN LANDS REGISTRY SYSTEM

Evidence of Title / Lawful Possessors Report

Sorted by: Legal Description

Reserve: 07648 - ZIMAGORD NO. 3
Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

Legal Description: LOT 1 Regional Survey British-Columbia 1920

PIN: **900034454** LOT 1 Regional Survey British-Columbia 1920

Registration #: 374737 Registration Date: 2010/09/28 3:55:40PM
Grantee: RUSSELL THOMAS BOLTON - Interest Note: UNDIVIDED 1/3 INTEREST
Evidence of Title: Certificate of Possession 168473 Active
EOT Legal Description: LOT 1 RSBC 1920

Legal Description: PCL A LS 3151

PIN: **900022954** PCL A LS 3151

Registration #: 59391 Registration Date: 1978/09/06 12:00:00AM
Grantee: WILFORD CLIFFORD BOLTON
Evidence of Title: Notice of Entitlement 9819 Active
EOT Legal Description: PCL A LS 3151

--- END OF REPORT ---

Count of Active EOTs in Report:	**80**
Count of Inactive EOTs in Report:	**0**
Count of Active CPs in Report:	**77**
Count of Inactive CPs in Report:	**0**
Total Count of EOTs in Report:	**80**

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Selected Criteria:
Registry: ILRS
Band: 681 - Kitsumkalum
Instrument: Effective
Pertains To: Both
Include Sub-surface Parcels: No

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Transfer

PIN: 900028563 LOT 8 CLSR 51118

Instrument Date:	1975/11/10	Term:	
Registration Number	44627	Effective Date:	
Registration Date:	1976/01/02 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.92 Acres
IOGC #:			
Land Affected:	LOT 8 CLSR 51118		
Grantor(s):	JEFFREY HERBERT SPALDING		
Grantee(s):	681 Kitsumkalum		
Remarks:	BAND LAND		

PIN: 900041228 LOT 11 CLSR 51118

Instrument Date:	1980/02/05	Term:	
Registration Number	67995	Effective Date:	
Registration Date:	1980/02/21 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	1.19 Acres
IOGC #:			
Land Affected:	LOT 11 CLSR 51118		
Grantor(s):	SIMON LOCKERBY		
Grantee(s):	REYNOLD MELVIN LOCKERBY - Certificate of Possession 31004		
Remarks:			

PIN: 900041228 LOT 11 CLSR 51118

Instrument Date:	1988/01/28	Term:	
Registration Number	116886	Effective Date:	
Registration Date:	1988/04/22 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	1.19 Acres
IOGC #:			
Land Affected:	LOT 11 CLSR 51118		
Grantor(s):	REYNOLD MELVIN LOCKERBY		
Grantee(s):	681 Kitsumkalum		
Remarks:	BAND LAND		

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Transfer

PIN: 900028605 LOT 13 CLSR 51118

Instrument Date:	1988/08/19	Term:	
Registration Number	119386	Effective Date:	
Registration Date:	1988/10/31 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.92 Acres
IOGC #:			

Land Affected: LOT 13 CLSR 51118

Grantor(s): WILFRED CLIFFORD BOLTON
Grantee(s): WILLIAM EDWARD BOLTON - Certificate of Possession 47398
Remarks:

PIN: 900028548 LOT 5 CLSR 51118

Instrument Date:	1989/08/24	Term:	
Registration Number	126764	Effective Date:	
Registration Date:	1989/10/23 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.92 Acres
IOGC #:			

Land Affected: LOT 5 CLSR 51118

Grantor(s): EDWARD RONALD VICTOR SPALDING
Grantee(s): 681 Kitsumkalum
Remarks: BAND LAND

PIN: 900028589 LOT 10 CLSR 51118

Instrument Date:	1999/04/28	Term:	
Registration Number	270144	Effective Date:	
Registration Date:	1999/05/06 10:57:33AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 10 CLSR 70907

Grantor(s): STANLEY ARTHUR WESLEY
Grantee(s): STANLEY ARTHUR WESLEY - Interest Note: JOINT TENANT - Certificate of Possession 129022
SARAH WINNIFRED WESLEY - Interest Note: JOINT TENANT - Certificate of Possession 129022
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Transfer

PIN: 900028571 LOT 9 CLSR 51118

Instrument Date: 1999/05/21
Registration Number 271349
Registration Date: 1999/06/18 9:58:00AM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area:
IOGC #:
Land Affected: LOT 9 CLSR 70907
Grantor(s): LAWRENCE ALEXANDER BOLTON
Grantee(s): ANNETTE BOLTON - Interest Note: JOINT TENANT - Certificate of Possession 129502
LAWRENCE ALEXANDER BOLTON - Interest Note: JOINT TENANT - Certificate of Possession 129502
Remarks: ANNETTE BOLTON AKA ANNETTE ELIZABETH GEORGINA HARRIETT BOLTON

PIN: 900028639 LOT 16 CLSR 51118

Instrument Date: 1999/05/25
Registration Number 271350
Registration Date: 1999/06/18 10:00:11AM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area:
IOGC #:
Land Affected: LOT 16 CLSR 70907
Grantor(s): DONALD JOSEPH ROBERTS
Grantee(s): DONALD JOSEPH ROBERTS - Interest Note: JOINT TENANT - Certificate of Possession 129503
MILDRED SELINA ROBERTS - Interest Note: JOINT TENANT - Certificate of Possession 129503
Remarks:

PIN: 900028654 LOT 28 CLSR 58736

Instrument Date: 1999/06/02
Registration Number 271630
Registration Date: 1999/06/29 8:33:45AM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area:
IOGC #:
Land Affected: LOT 28 CLSR 58736
Grantor(s): REYNOLD MELVIN LOCKERBY
Grantee(s): 681 Kitsumkalum
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Transfer

PIN: 900028670 LOT 32 CLSR 58736

Instrument Date:	1999/06/02	Term:	
Registration Number	271634	Effective Date:	
Registration Date:	1999/06/29 8:45:17AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			
Land Affected:	LOT 32 CLSR 58736		
Grantor(s):	SHIRLEY WINNIFRED BOLAN WILLIAM MELVIN BOLAN		
Grantee(s):	681 Kitsumkalum		
Remarks:			

Reserve General

Instrument Date:	2000/03/08	Term:	
Registration Number	279232	Effective Date:	
Registration Date:	2000/03/16 10:59:03AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	8.77 Hectares
IOGC #:			
Land Affected:	AS SHOWN AS HIGHWAY R/W ON CLSR 60728 EXCEPT PTN AS DESCRIBED IN DOCUMENT		
Grantor(s):	CROWN CANADA		
Grantee(s):	CROWN BC		
Remarks:	OCPC #1999-351 REG #269259 - TRANSFER OF ADMINISTRATION AND CONTROL OF FEDERAL PROPERTY		

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Surrender

Reserve General

Instrument Date:	1943/09/11	Term:	
Registration Number	11625	Effective Date:	1943/09/30
Registration Date:	1969/07/22 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	1,124.70 Acres
IOGC #:			

Land Affected: WHOLE OF RESERVE

Grantor(s): 681 - Kitsumkalum
Grantee(s): CROWN CANADA

Remarks: ACCEPTING OCPC #7611 REG #X16584 TIMBER SALE CANCELLED SEE REG X24897

Reserve General

Instrument Date:	1951/03/20	Term:	
Registration Number	X15756	Effective Date:	1951/04/18
Registration Date:	1973/05/28 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:	ROAD	Area:	14.21 Acres
IOGC #:			

Land Affected: CLSR RD3410

Grantor(s): 681 - Kitsumkalum
Grantee(s): CROWN CANADA

Remarks: ACCEPTING OCPC #1882 ATT'D SEE EASEMENT REG #X16809

Reserve General

Instrument Date:	1951/05/16	Term:	
Registration Number	11563	Effective Date:	1951/08/29
Registration Date:	1969/07/21 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:	FOR LEASE	Area:	15.47 Acres
IOGC #:			

Land Affected: AS DESCRIBED BY METES & BOUNDS

Grantor(s): 681 - Kitsumkalum
Grantee(s): CROWN CANADA

Remarks: RAILWAY LOGGING R/W & LOADING GROUNDS ACCEPTING OCPC #4454 ATT'

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Settlement Agreement

Reserve General

Instrument Date:	1995/02/10	Term:	
Registration Number	232030	Effective Date:	
Registration Date:	1995/04/20 10:48:16AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: AS DESCRIBED IN AGREEMENT

Grantor(s): CROWN CANADA

Grantee(s): 681 Kitsumkalum
CROWN BRITISH COLUMBIA

Remarks: AGREES TO COMPENSATION,AGREES TO RECCOMMEND THAT CERTAIN LANDS BE TRANSFERRED TO PROVINCE FOR HIGHWAY PURPOSES OR OTHER WORKS OF PUBLIC UTILITY,AGREES TO RECOMMEND THAT CERTAIN LANDS BE ADDE TO RESERVES, AGEES TO OTHER TERMS AND CONDITIONS

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Request

PIN: 900028563 LOT 8 CLSR 51118

Instrument Date:	1983/10/28	Term:	
Registration Number	91379	Effective Date:	
Registration Date:	1983/12/12 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.92 Acres
IOGC #:			

Land Affected: LOT 8 CLSR 51118

Grantor(s):

Grantee(s): RONALD DICK WESLEY - Interest Note: JOINT TENANT - Certificate of Possession 37509
SANDRA ELLEN WESLEY - Interest Note: JOINT TENANT - Certificate of Possession 37509

Remarks:

PIN: 900028605 LOT 13 CLSR 51118

Instrument Date:	1999/04/27	Term:	
Registration Number	270150	Effective Date:	
Registration Date:	1999/05/06 11:18:51AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 13 CLSR 70907

Grantor(s): WILLIAM EDWARD BOLTON

Grantee(s): WILLIAM EDWARD BOLTON - Certificate of Possession 129027

Remarks: REQUEST FOR REPLACEMENT OF TITLE

PIN: 900028571 LOT 9 CLSR 51118

Instrument Date:	1999/04/27	Term:	
Registration Number	270149	Effective Date:	
Registration Date:	1999/05/06 11:16:37AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 9 CLSR 70907

Grantor(s): LAWRENCE ALEXANDER BOLTON

Grantee(s): LAWRENCE ALEXANDER BOLTON - Certificate of Possession 129026

Remarks: REQUEST FOR REPLACEMENT OF TITLE

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Request

PIN: 900028530 LOT 1 CLSR 51118

Instrument Date:	1999/04/27	Term:	
Registration Number	270145	Effective Date:	
Registration Date:	1999/05/06 11:00:05AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 1 CLSR 70907

Grantor(s): VICTORIA ROBERTS
Grantee(s): VICTORIA ROBERTS - Certificate of Possession 129023

Remarks: REQUEST FOR REPLACEMENT OF TITLE

PIN: 900028621 LOT 15 CLSR 51118

Instrument Date:	1999/04/28	Term:	
Registration Number	270151	Effective Date:	
Registration Date:	1999/05/06 11:21:09AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 15 CLSR 70907

Grantor(s): BENJAMIN CHRISTOPHER BOLTON
Grantee(s): BENJAMIN CHRISTOPHER BOLTON - Certificate of Possession 129028

Remarks: REQUEST FOR REPLACEMENT OF TITLE

PIN: 900028639 LOT 16 CLSR 51118

Instrument Date:	1999/04/28	Term:	
Registration Number	270152	Effective Date:	
Registration Date:	1999/05/06 11:23:07AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 16 CLSR 70907

Grantor(s): DONALD JOSEPH ROBERTS
Grantee(s): DONALD JOSEPH ROBERTS - Certificate of Possession 129029

Remarks: REQUEST FOR REPLACEMENT OF TITLE

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Request

PIN: 900028555 LOT 6 CLSR 51118

Instrument Date:	1999/04/28	Term:	
Registration Number	270148	Effective Date:	
Registration Date:	1999/05/06 11:14:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 6 CLSR 70907

Grantor(s): WINNIFRED WESLEY
Grantee(s): WINNIFRED WESLEY - Certificate of Possession 129025

Remarks: REQUEST FOR REPLACEMENT OF TITLE

PIN: 900028563 LOT 8 CLSR 51118

Instrument Date:	1999/04/29	Term:	
Registration Number	270147	Effective Date:	
Registration Date:	1999/05/06 11:11:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 8 CLSR 70907

Grantor(s): RONALD DICK WESLEY
SANDRA ELLEN WESLEY
Grantee(s): RONALD DICK WESLEY - Interest Note: JOINT TENANT - Certificate of Possession 129024
SANDRA ELLEN WESLEY - Interest Note: JOINT TENANT - Certificate of Possession 129024

Remarks: REQUEST FOR REPLACEMENT OF TITLE

PIN: 900028647 LOT 17 CLSR 51118

Instrument Date:	1999/04/29	Term:	
Registration Number	270153	Effective Date:	
Registration Date:	1999/05/06 11:25:01AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 17 CLSR 70907

Grantor(s): VICTOR JAMES SPALDING
Grantee(s): VICTOR JAMES SPALDING - Certificate of Possession 129030

Remarks: REQUEST FOR REPLACEMENT OF TITLE

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Relinquishment

PIN: 900041251 PARCEL A EXCEPT RIGHT OF WAY S A & C CLSR 73961 AND EXCEPT LOT 101 I 2428 CLSR 59793

Instrument Date:	1992/10/09	Term:	
Registration Number	211679	Effective Date:	1992/10/09
Registration Date:	1993/02/25 1:19:55PM	Expiry Date:	
		Actual Expiry Date:	
Purpose:	RESIDENTIAL	Area:	
IOGC #:			

Land Affected: PCL A PLAN 59793 CLSR

Grantor(s): WESTAR TIMBER LTD
Grantee(s): CROWN CANADA

Remarks: LEASE REG# 53243 SUPPORTING DOCUMENTATION TRANSFERRING INTERES TO WESTAR TIMBER LTD ATT'D TO REG NO 211680

Reserve General

Instrument Date:	1992/12/14	Term:	
Registration Number	211680	Effective Date:	1992/12/14
Registration Date:	1993/02/25 1:22:49PM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	14.21 Acres
IOGC #:			

Land Affected: RIGHT-OF-WAY AS SHOWN ON CLSR RD3410

Grantor(s): SKEENA CELLULOSE INC
WESTAR TIMBER LTD
Grantee(s): CROWN CANADA

Remarks: EASEMENT REG# X16809 SUPPORTING DOCUMENTATION TRANSFERRING INTEREST TO GRANTOR ATT'D

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Prov OC

Reserve General

Instrument Date:	1923/07/26	Term:	
Registration Number	92925	Effective Date:	
Registration Date:	1984/02/20 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	1,155.00 Acres
IOGC #:			
Land Affected:	RIGHT BANK OF SKEENA RIVER AT MOUTH OF KITSUMKAYLUM RIVER		
Grantor(s):	CROWN BRITISH COLUMBIA		
Grantee(s):			
Remarks:	OC#911 CONFIRMS RESERVE ACCEPTS MIN OF DEC #112954		

Reserve General

Instrument Date:	1938/07/29	Term:	
Registration Number	8042	Effective Date:	
Registration Date:	1969/02/14 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	1,155.00 Acres
IOGC #:			
Land Affected:	AT THE MOUTH OF THE KITSUMKAYLUM RIVER AS SHOWN ON CLSR TBC162		
Grantor(s):	CROWN BRITISH COLUMBIA		
Grantee(s):	CROWN CANADA		
Remarks:	OC #1036 TRANSFERS MANAGEMENT & CONTROL SEE REG #4111-118		

Reserve General

Instrument Date:	1969/05/13	Term:	
Registration Number	4111-118	Effective Date:	
Registration Date:	1971/02/26 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	1,155.00 Acres
IOGC #:			
Land Affected:	WHOLE OF RESERVE		
Grantor(s):	CROWN BRITISH COLUMBIA		
Grantee(s):	CROWN CANADA		
Remarks:	OC#1555 WAIVES REVISIONARY INTEREST PROV OC REG #8042		

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Prov OC

Reserve General

Instrument Date:	2000/03/06	Term:	
Registration Number	279233	Effective Date:	
Registration Date:	2000/03/16 11:01:16AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	8.78 Acres
IOGC #:			
Land Affected:	PTNS OF ROAD R/W SHOWN ON CLSR PLAN RD3293		
Grantor(s):	CROWN BC		
Grantee(s):	CROWN CANADA		
Remarks:	OC #185 TRANSFER OF ADMINISTRATION AND CONTROL		

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Permit

Reserve General

Instrument Date:	1964/05/25	Term:	
Registration Number	11572	Effective Date:	1964/05/25
Registration Date:	1969/07/21 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:	HYDRO LINE	Area:	
IOGC #:			

Land Affected: WHOLE OF RESERVE

Grantor(s): CROWN CANADA
Grantee(s): BRITISH COLUMBIA HYDRO & POWER AUTHORITY

Remarks: AUTHORIZING BCR REG #11570

Reserve General

Instrument Date:	1977/07/26	Term:	
Registration Number	55216	Effective Date:	1977/07/26
Registration Date:	1977/10/25 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:	HYDRO & COMMUNIC	Area:	
IOGC #:			

Land Affected: AS SHOWN IN RED ON SCHEDULE A ATT'D

Grantor(s): CROWN CANADA
Grantee(s): BRITISH COLUMBIA TELEPHONE COMPANY
BRITISH COLUMBIA HYDRO & POWER AUTHORITY

Remarks: HYDRO & TELECOMMUNICATIONS EXTENSIONS REG #111641 & #111642

Reserve General

Instrument Date:	2018/07/13	Term:	5y 0m 1d
Registration Number	6110133	Effective Date:	2018/05/21
Registration Date:	2018/10/17 2:45:48PM	Expiry Date:	2023/05/21
		Actual Expiry Date:	
Purpose:	QUARRY	Area:	0.00
IOGC #:			

Land Affected: AREA ON NORTHERN BOUNDARY, WEST OF RAIL LINE, AS DESCRIBED ON "DEVELOPMENT PLAN KITSUMKALUM QUARRY" MAP, FORMING PART OF APPENDIX B

Grantor(s): Crown Canada
Grantee(s): KALUM QUARRY LIMITED PARTNERSHIP

Remarks: PERMIT# 1-681-07646-2018-2022. AUTHORIZES EXTRACTION OF NON-METALLIC MINERALS.

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

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Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

OCPC

Reserve General

Instrument Date:	1909/10/01	Term:	
Registration Number	14435	Effective Date:	1909/10/01
Registration Date:	1969/10/31 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:	RAILWAY	Area:	
IOGC #:			
Land Affected:	R/W AS DESCRIBED		
Grantor(s):	CROWN CANADA		
Grantee(s):	GRAND TRUNK PACIFIC RAILWAY COMPANY		
Remarks:	PC#2026 AUTHORIZES TRANSFER OF LAND. SEE OCPC REG #14153		

Reserve General

Instrument Date:	1924/07/19	Term:	
Registration Number	12073	Effective Date:	
Registration Date:	1969/08/11 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	1,155.00 Acres
IOGC #:			
Land Affected:	RIGHT BANK OF SKEENA RIVER AT MOUTH OF KITSUMKAYLUM RIVER		
Grantor(s):	CROWN CANADA		
Grantee(s):			
Remarks:	PC #1265 CONFIRMS RESERVE		

Reserve General

Instrument Date:	1928/06/20	Term:	
Registration Number	14153	Effective Date:	1928/06/20
Registration Date:	1969/10/20 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:	RAILWAY	Area:	30.30 Acres
IOGC #:			
Land Affected:	RIGHT OF WAY CLSR RR885A		
Grantor(s):	CROWN CANADA		
Grantee(s):	GRAND TRUNK PACIFIC RAILWAY COMPANY		
Remarks:	PC 1006 TRANSFERS R/W SEE PATENT 21445 DATED DEC. 1. 1928 SALES BOOK #1, FOLIO 395, SALE 1 FILE 22168/16GTP		

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

OCPC

Reserve General

Instrument Date:	1943/09/30	Term:	
Registration Number	X16584	Effective Date:	
Registration Date:	1973/07/12 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			
Land Affected:	WHOLE OF RESERVE		
Grantor(s):	CROWN CANADA		
Grantee(s):	681 Kitsumkalum		
Remarks:	PC#7611 ACCEPTS TIMBER SURRENDER #1542 REG #11625		

Reserve General

Instrument Date:	1974/05/30	Term:	
Registration Number	X24897	Effective Date:	
Registration Date:	1974/08/26 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			
Land Affected:	WHOLE OF RESERVE		
Grantor(s):	CROWN CANADA		
Grantee(s):	681 Kitsumkalum		
Remarks:	PC#1211 CANCELS TIMBER SURRENDER REG#11625 & OCPC REG#X16584		

Reserve General

Instrument Date:	1999/03/04	Term:	
Registration Number	269259	Effective Date:	
Registration Date:	1999/03/26 10:09:02AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:	ROAD	Area:	8.77 Hectares
IOGC #:			
Land Affected:	CLSR 60728 EXCEPT PTN OF SAID HIGHWAY RIGHT OF WAY WITHIN IN THE BEDS OF THE SKEENA & KITSUMKAYLUM RIVERS, PTN OF SAID HIGHWAY RIGHT OF WAY WITHIN RAILWAY CLSR RR885A		
Grantor(s):	CROWN CANADA		
Grantee(s):	CROWN BRITISH COLUMBIA		
Remarks:	PC #1999-351 - PURSUANT TO SUBSECTION 35(1) OF THE INDIAN ACT CONSENTS TO THE TAKING OF THE LANDS AND PURSUANT TO SUBSECTION 35(3) OF THE INDIAN ACT AUTHORIZES THE TRANSFER OF THE LANDS		

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

OCPC

Reserve General

Instrument Date:	2001/01/23	Term:	
Registration Number	286623	Effective Date:	
Registration Date:	2001/02/19 2:54:59PM	Expiry Date:	
		Actual Expiry Date:	
Purpose:	ADDITION	Area:	3.55 Hectares
IOGC #:			
Land Affected:	PORTIONS SHOWN ON CLSR 60728		
Grantor(s):	CROWN CANADA		
Grantee(s):	681 Kitsumkalum		
Remarks:	PC #2001-114 ADDITION TO RESERVE		

Mortgage

PIN: 902004119 RIGHT-OF-WAY A CLSR 73961

Instrument Date:	1987/07/31	Term:	
Registration Number	211684	Effective Date:	
Registration Date:	1993/02/25 1:34:06PM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			
Land Affected:	RIGHT-OF-WAY A PLAN 73961 CLSR		
Grantor(s):	SKEENA CELLULOSE INC		
Grantee(s):	FIRST CITY TRUST COMPANY - Interest Note: TRUSTEE		
Remarks:	LEASE REG #211681 FIRST & SECOND SUPPLEMENTAL INDENTURES ATTACHI		

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

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Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Minutes Of Decision

Reserve General

Instrument Date:	1890/01/01	Term:	
Registration Number	117002	Effective Date:	
Registration Date:	1988/05/09 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	1,040.00 Acres
IOGC #:			
Land Affected:	RIGHT BANK OF SKEENA RIVER AT MOUTH OF KITSUMKAYLUM RIVER		
Grantor(s):	ROYAL COMMISSION		
Grantee(s):	681 Kitsumkalum		
Remarks:	ALLOTS RESERVE ALSO SEE REG NOS 64648 PG207 & 2875-072 PG122		

Reserve General

Instrument Date:	1891/10/10	Term:	
Registration Number	2875-72	Effective Date:	
Registration Date:	1970/11/20 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	1,124.70 Acres
IOGC #:			
Land Affected:	RIGHT BANK OF SKEENA RIVER		
Grantor(s):	COMMISSIONER O"REILLY		
Grantee(s):	681 Kitsumkalum		
Remarks:	ALLOTS RESERVE. SEE ALSO REG #64648 PG 207		

Reserve General

Instrument Date:	1916/06/30	Term:	
Registration Number	112954	Effective Date:	
Registration Date:	1987/07/20 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	1,155.00 Acres
IOGC #:			
Land Affected:	RIGHT BANK OF SKEENA RIVER AT MOUTH OF KITSUMKAYLUM RIVER		
Grantor(s):	ROYAL COMMISSION		
Grantee(s):	681 Kitsumkalum		
Remarks:	CONFIRMS RESERVE PG 589		

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Deed

Reserve General

Instrument Date: 1962/08/15
Registration Number X16812
Registration Date: 1973/07/25 12:00:00AM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area:
IOGC #:
Land Affected: AS DESCRIBED IN DOCUMENT
Grantor(s): CELGAR LIMITED
COLUMBIA CELLULOSE COMPANY LIMITED
Grantee(s): NATIONAL TRUST COMPANY LIMITED
Remarks: THIRD SUPPLEMENTAL INDENTURE SECURING CELGAR'S FIRST MORTGAGE BONDS LEASE REG #X16810

Death Certificate

PIN: 900028662 LOT 30 CLSR 58736

Instrument Date: 2002/11/06
Registration Number 307121
Registration Date: 2003/03/17 11:01:31AM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area:
IOGC #:
Land Affected: LOT 30 CLSR 58736
Grantor(s): Deceased JUDITH CAROL ROBERTS (DECEASED)
Grantee(s): DONALD TERRENCE ROBERTS - Interest Note: JOINT TENANT - Certificate of Possession 143570
Remarks: SURVIVING JOINT TENANT

PIN: 900028589 LOT 10 CLSR 70907

Instrument Date: 2011/02/02
Registration Number 6075351
Registration Date: 2013/10/31 6:54:12PM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area: 0.00
IOGC #:
Land Affected: LOT 10 CLSR 70907
Grantor(s): Deceased STANLEY ARTHUR WESLEY
Grantee(s): SARAH WINNIFRED WESLEY - Certificate of Possession 403021357
Remarks: TRANSFER TO SURVIVING JOINT TENANT

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Caveat

PIN: 900028662 LOT 30 CLSR 58736

Instrument Date:	1976/10/06	Term:	
Registration Number	49560	Effective Date:	
Registration Date:	1976/10/22 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 30 CLSR 58736

Grantor(s): REGISTRAR
Grantee(s): DONALD TERRANCE ROBERTS

Remarks: CLAIMS AN INTEREST IN LOT.SEE HOUSING LOAN APPLICATION ATT'D

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR Allotment

PIN: 903017468 LOT 105 RSBC 2388

Instrument Date:	2012/11/08	Term:	
Registration Number	6075508	Effective Date:	
Registration Date:	2013/11/08 5:06:18PM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.00
IOGC #:			

Land Affected: LOT 105 RSBC 2388

Grantor(s): 681 - Kitsumkalum
Grantee(s): STEVEN JOSEPH WESLEY - Certificate of Possession 403021420
Remarks:

PIN: 903017466 LOT 82 RSBC 2428

Instrument Date:	2012/11/08	Term:	
Registration Number	6075492	Effective Date:	
Registration Date:	2013/11/08 1:37:17PM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.00
IOGC #:			

Land Affected: LOT 82 RSBC 2428

Grantor(s): 681 - Kitsumkalum
Grantee(s): RICHARD WESLEY - Certificate of Possession 403021414
Remarks:

PIN: 903017470 LOT 110 RSBC 2388

Instrument Date:	2012/11/08	Term:	
Registration Number	6075511	Effective Date:	
Registration Date:	2013/11/08 6:50:11PM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.00
IOGC #:			

Land Affected: LOT 110 RSBC 2388

Grantor(s): 681 - Kitsumkalum
Grantee(s): JOHN DAVID CHRISTIANSEN - Certificate of Possession 403021422
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

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Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR Allotment

PIN: 903017471 LOT 91 RSBC 2428

Instrument Date: 2012/11/08
Registration Number 6075495
Registration Date: 2013/11/08 2:41:38PM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area: 0.00
IOGC #:
Land Affected: LOT 91 RSBC 2428
Grantor(s): 681 - Kitsumkalum
Grantee(s): GEORGE COOLEY - Certificate of Possession 403021416
Remarks: AKA GEORGE EDWARD COOLEY

PIN: 903017473 LOT 56 RSBC 2447

Instrument Date: 2012/11/08
Registration Number 6075513
Registration Date: 2013/11/08 7:21:46PM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area: 0.00
IOGC #:
Land Affected:
Grantor(s): 681 - Kitsumkalum
Grantee(s): CYNTHIA ROSE BOHN - Interest Note: Undivided 1/2 interest - Certificate of Possession 403021424
DAVID PETER BOHN - Interest Note: Undivided 1/2 interest - Certificate of Possession 403021425
Remarks:

PIN: 903017474 LOT 59 RSBC 2447

Instrument Date: 2012/11/08
Registration Number 6075596
Registration Date: 2013/11/13 7:21:12PM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area: 0.00
IOGC #:
Land Affected: LOT 59 RSBC 2447
Grantor(s): 681 - Kitsumkalum
Grantee(s): GERALDINE GALE ROBINSON - Interest Note: Undivided 1/2 interest - Certificate of Possession 403021451
STERLING KELLY ROBINSON - Interest Note: Undivided 1/2 interest - Certificate of Possession 403021450
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR Allotment

PIN: 903017475 LOT 60 RSBC 2447

Instrument Date: 2012/11/08 Term:
Registration Number 6075597 Effective Date:
Registration Date: 2013/11/13 7:28:00PM Expiry Date:
Actual Expiry Date:
Purpose: Area: 0.00
IOGC #:
Land Affected: LOT 60 RSBC 2447
Grantor(s): 681 - Kitsumkalum
Grantee(s): SHIHAN EMMA BOLTON - Certificate of Possession 403021452
Remarks:

PIN: 903017483 LOT 71 RSBC 2447

Instrument Date: 2012/11/08 Term:
Registration Number 6075616 Effective Date:
Registration Date: 2013/11/14 12:48:36PM Expiry Date:
Actual Expiry Date:
Purpose: Area: 0.00
IOGC #:
Land Affected: LOT 71 RSBC 2447
Grantor(s): 681 - Kitsumkalum
Grantee(s): LILLIAN MAE SAMSON - Certificate of Possession 403021466
Remarks:

PIN: 903017485 LOT 74 RSBC 2447

Instrument Date: 2012/11/08 Term:
Registration Number 6075618 Effective Date:
Registration Date: 2013/11/14 1:02:21PM Expiry Date:
Actual Expiry Date:
Purpose: Area: 0.00
IOGC #:
Land Affected: LOT 74 RSBC 2447
Grantor(s): 681 - Kitsumkalum
Grantee(s): VERNON HERBERT HORNER - Certificate of Possession 403021468
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

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Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR Allotment

PIN: 903017486 LOT 75 RSBC 2447

Instrument Date: 2012/11/08 Term:
Registration Number 6075621 Effective Date:
Registration Date: 2013/11/14 1:09:23PM Expiry Date:
Actual Expiry Date:
Purpose: Area: 0.00
IOGC #:
Land Affected: LOT 75 RSBC 2447
Grantor(s): 681 - Kitsumkalum
Grantee(s): SAMUEL LAWRENCE LOCKERBY - Certificate of Possession 403021470
Remarks:

PIN: 903017479 LOT 65 RSBC 2447

Instrument Date: 2012/11/08 Term:
Registration Number 6075611 Effective Date:
Registration Date: 2013/11/14 12:11:38PM Expiry Date:
Actual Expiry Date:
Purpose: Area: 0.00
IOGC #:
Land Affected: LOT 65 RSBC 2447
Grantor(s): 681 - Kitsumkalum
Grantee(s): WALLACE HENRY MILLER - Certificate of Possession 403021460
Remarks:

PIN: 903017482 LOT 69 RSBC 2447

Instrument Date: 2012/11/08 Term:
Registration Number 6075614 Effective Date:
Registration Date: 2013/11/14 12:39:27PM Expiry Date:
Actual Expiry Date:
Purpose: Area: 0.00
IOGC #:
Land Affected: LOT 69 RSBC 2447
Grantor(s): 681 - Kitsumkalum
Grantee(s): WAYNE ARNOLD ROBINSON - Certificate of Possession 403021465
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR Allotment

PIN: 903017472 LOT 55 RSBC 2447

Instrument Date: 2012/11/08
Registration Number 6075512
Registration Date: 2013/11/08 7:08:27PM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area: 0.00
IOGC #:
Land Affected:
Grantor(s): 681 - Kitsumkalum
Grantee(s): GERALD PATRICK BOLTON - Certificate of Possession 403021423
Remarks:

PIN: 903017476 LOT 61 RSBC 2447

Instrument Date: 2012/11/08
Registration Number 6075607
Registration Date: 2013/11/14 11:36:58AM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area: 0.00
IOGC #:
Land Affected: LOT 61 RSBC 2447
Grantor(s): 681 - Kitsumkalum
Grantee(s): STELLA JOSIE GEROW - Interest Note: Undivided 1/2 interest - Certificate of Possession 403021456
PETER ERNEST GEROW - Interest Note: Undivided 1/2 interest - Certificate of Possession 403021457
Remarks:

PIN: 903017477 LOT 63 RSBC 2447

Instrument Date: 2012/11/08
Registration Number 6075608
Registration Date: 2013/11/14 11:53:22AM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area: 0.00
IOGC #:
Land Affected: LOT 63 2447 RSBC 2447
Grantor(s): 681 - Kitsumkalum
Grantee(s): RUSSELL THOMAS BOLTON - Certificate of Possession 403021458
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR Allotment

PIN: 903017478 LOT 64 RSBC 2447

Instrument Date: 2012/11/08
Registration Number 6075609
Registration Date: 2013/11/14 12:03:51PM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area: 0.00
IOGC #:
Land Affected: LOT 64 RSBC 2447
Grantor(s): 681 - Kitsumkalum
Grantee(s): LYNN ELIZABETH BOLTON - Certificate of Possession 403021459
Remarks:

PIN: 903017480 LOT 66 RSBC 2447

Instrument Date: 2012/11/08
Registration Number 6075612
Registration Date: 2013/11/14 12:22:28PM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area: 0.00
IOGC #:
Land Affected: LOT 66 RSBC 2447
Grantor(s): 681 - Kitsumkalum
Grantee(s): ERICK CHRISTIANSEN - Interest Note: Undivided 1/2 interest - Certificate of Possession 403021462
ELIZABETH JANICE TREMBLAY - Interest Note: Undivided 1/2 interest - Certificate of Possession 403021461
Remarks:

PIN: 903017481 LOT 68 RSBC 2447

Instrument Date: 2012/11/08
Registration Number 6075613
Registration Date: 2013/11/14 12:32:50PM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area: 0.00
IOGC #:
Land Affected: LOT 68 RSBC 2447
Grantor(s): 681 - Kitsumkalum
Grantee(s): ALLAN LAWRENCE BOLTON - Interest Note: Undivided 1/2 interest - Certificate of Possession 403021464
CRYSTAL GAIL ROBERTS - Interest Note: Undivided 1/2 interest - Certificate o Possession 403021463
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR Allotment

PIN: 903017484 LOT 73 RSBC 2447

Instrument Date: 2012/11/08
Registration Number 6075617
Registration Date: 2013/11/14 12:55:22PM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area: 0.00
IOGC #:
Land Affected: LOT 73 RSBC 2447
Grantor(s): 681 - Kitsumkalum
Grantee(s): WAYNE HERBERT BOLTON - Certificate of Possession 403021467
Remarks:

PIN: 903017467 LOT 109 RSBC 2388

Instrument Date: 2012/11/08
Registration Number 6075498
Registration Date: 2013/11/08 2:54:16PM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area: 0.00
IOGC #:
Land Affected: LOT 109 RSBC 2388
Grantor(s): 681 - Kitsumkalum
Grantee(s): PATRICIA SHIRLEY BOLTON - Certificate of Possession 403021417
Remarks:

PIN: 903017469 LOT 108 RSBC 2388

Instrument Date: 2012/11/08
Registration Number 6075509
Registration Date: 2013/11/08 6:38:33PM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area: 0.00
IOGC #:
Land Affected: LOT 108 RSBC 2388
Grantor(s): 681 - Kitsumkalum
Grantee(s): DIANE ELIZABETH COLLINS - Certificate of Possession 403021421
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR Allotment

PIN: 903017695 LOT 58 RSBC 2447

Instrument Date: 2012/11/08
Registration Number 6076195
Registration Date: 2013/12/09 6:02:17PM
Purpose:
IOGC #:
Land Affected: LOT 58 RSBC 2447
Grantor(s): 681 - Kitsumkalum
Grantee(s): LAURA ELIZABETH MILLER - Certificate of Possession 403021745
Remarks:
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Area: 0.00

PIN: 903017696 LOT 7 CLSR 70907

Instrument Date: 2012/11/08
Registration Number 6075878
Registration Date: 2013/12/09 7:32:06PM
Purpose:
IOGC #:
Land Affected: LOT 7 CLSR 70907
Grantor(s): 681 - Kitsumkalum
Grantee(s): BRIAN PATRICK MCCARTHY - Certificate of Possession 403021746
Remarks:
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Area: 0.00

PIN: 903017701 LOT 49 CLSR 71002

Instrument Date: 2012/11/08
Registration Number 6075876
Registration Date: 2013/12/10 12:05:37PM
Purpose:
IOGC #:
Land Affected: LOT 49 CLSR 71002
Grantor(s): 681 - Kitsumkalum
Grantee(s): CHRISTINE DIANNA MUNROE - Certificate of Possession 403021750
Remarks:
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Area: 0.00

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR Allotment

PIN: 903017700 LOT 45 CLSR 71002

Instrument Date: 2012/11/08 Term:
Registration Number 6075733 Effective Date:
Registration Date: 2013/12/10 12:16:04PM Expiry Date:
Actual Expiry Date:
Purpose: Area: 0.00
IOGC #:
Land Affected: LOT 45 CLSR 71002
Grantor(s): 681 - Kitsumkalum
Grantee(s): DONALD JEFFREY SPALDING - Certificate of Possession 403021751
Remarks:

PIN: 903017699 LOT 44 CLSR 71002

Instrument Date: 2012/11/08 Term:
Registration Number 6075875 Effective Date:
Registration Date: 2013/12/10 12:20:35PM Expiry Date:
Actual Expiry Date:
Purpose: Area: 0.00
IOGC #:
Land Affected: LOT 44 CLSR 71002
Grantor(s): 681 - Kitsumkalum
Grantee(s): STEVEN WAYNE ROBERTS - Certificate of Possession 403021752
Remarks:

PIN: 903017802 LOT 5 CLSR 70907

Instrument Date: 2012/11/08 Term:
Registration Number 6075877 Effective Date:
Registration Date: 2014/01/13 3:42:00PM Expiry Date:
Actual Expiry Date:
Purpose: Area: 0.00
IOGC #:
Land Affected: LOT 5 CLSR 70907
Grantor(s): 681 - Kitsumkalum
Grantee(s): BETTY DONNA WEBB - Certificate of Possession 403022079
Land Affected:LOT 5 CLSR 70907
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR Allotment

PIN: 903019503 LOT 101 RSBC 2428

Instrument Date:	2013/07/23	Term:	
Registration Number	6083525	Effective Date:	
Registration Date:	2015/02/20 2:55:37PM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.00
IOGC #:			

Land Affected: LOT 101 RSBC 2428
Grantor(s): 681 - Kitsumkalum
Grantee(s): RONALD MARTIN BARTLETT - Certificate of Possession 403025912
Remarks:

PIN: 903019504 LOT 81 RSBC 2428

Instrument Date:	2013/07/23	Term:	
Registration Number	6083522	Effective Date:	
Registration Date:	2015/02/20 3:13:14PM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.00
IOGC #:			

Land Affected: LOT 81 RSBC 2428
Grantor(s): 681 - Kitsumkalum
Grantee(s): NINA MICHELLE PEDEN - Certificate of Possession 403025913
Remarks:

PIN: 903019369 LOT 51 CLSR 71002

Instrument Date:	2013/07/23	Term:	
Registration Number	6083523	Effective Date:	
Registration Date:	2015/01/15 3:44:53PM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.00
IOGC #:			

Land Affected: LOT 51 CLSR 71002
Grantor(s): 681 - Kitsumkalum
Grantee(s): SUSAN ELIZABETH SPALDING - Certificate of Possession 403025509
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR Allotment

PIN: 903019037 LOT 62 RSBC 2447

Instrument Date: 2014/04/21 Term:
Registration Number 6081722 Effective Date:
Registration Date: 2014/11/04 1:04:22PM Expiry Date:
Actual Expiry Date:
Purpose: Area: 0.00
IOGC #:
Land Affected: LOT 62 RSBC 2447
Grantor(s): 681 - Kitsumkalum
Grantee(s): JANICE PEARL ROBINSON - Certificate of Possession 403024756
Remarks:

PIN: 903021277 LOT 88 RSBC 2428

Instrument Date: 2015/12/15 Term:
Registration Number 6092523 Effective Date:
Registration Date: 2016/06/06 7:38:57PM Expiry Date:
Actual Expiry Date:
Purpose: Area: 0.00
IOGC #:
Land Affected: LOT 88 RSBC 2428
Grantor(s): 681 - Kitsumkalum
Grantee(s): Estate of DOROTHY GRACE HORNER
Remarks:

PIN: 903021665 LOT 85 RSBC 2428

Instrument Date: 2016/01/29 Term:
Registration Number 6094324 Effective Date:
Registration Date: 2016/09/09 7:34:34PM Expiry Date:
Actual Expiry Date:
Purpose: Area: 0.00
IOGC #:
Land Affected: LOT 85 RSBC 2428
Grantor(s): 681 - Kitsumkalum
Grantee(s): FRANCES CECELIA CHRISTIANSEN - Interest Note: Undivided 1/2 interest - Certificate of Possession 403030560
JOHN CHRISTIANSEN - Interest Note: Undivided 1/2 interest - Certificate of Possession 403030559
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR Allotment

PIN: 903021649 LOT 70 RSBC 2447

Instrument Date:	2016/02/09	Term:	
Registration Number	6094216	Effective Date:	
Registration Date:	2016/09/06 2:04:39PM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.00
IOGC #:			

Land Affected: LOT 70 RSBC 2447

Grantor(s): 681 - Kitsumkalum
Grantee(s): BERNICE LILY GLORY BOLTON - Certificate of Possession 403030521

Remarks:

PIN: 903023967 LOT 3 CLSR 70907

Instrument Date:	2017/11/30	Term:	
Registration Number	6103664	Effective Date:	
Registration Date:	2017/12/27 11:21:57AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.00
IOGC #:			

Land Affected: LOT 3 CLSR 70907

Grantor(s): 681 - Kitsumkalum
Grantee(s): MELODIE PATRICIA HOY - Certificate of Possession 403035022

Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR

PIN: 902015352 LOT 2 CLSR 70907

Instrument Date:	1909/05/31	Term:	
Registration Number	271200	Effective Date:	
Registration Date:	1999/06/11 8:07:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 2 CLSR 70907

Grantor(s): 681 - Kitsumkalum
Grantee(s): LLOYD KENNETH WILLIAMS - Certificate of Possession 129411
Remarks:

Reserve General

Instrument Date:	1963/06/05	Term:	
Registration Number	11570	Effective Date:	
Registration Date:	1969/07/21 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:	HYDRO LINE	Area:	
IOGC #:			

Land Affected: AS DESCRIBED IN DOCUMENT

Grantor(s): 681 - Kitsumkalum
Grantee(s): BRITISH COLUMBIA HYDRO & POWER AUTHORITY
Remarks: BAND AUTHORIZES EASEMENT. SEE PERMIT REG #11572

PIN: 900028605 LOT 13 CLSR 51118

Instrument Date:	1968/02/22	Term:	
Registration Number	2952	Effective Date:	
Registration Date:	1968/07/18 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.92 Acres
IOGC #:			

Land Affected: LOT 13 CLSR 51118

Grantor(s): 681 - Kitsumkalum
Grantee(s): WILFORD CLIFFORD BOLTON - Certificate of Possession 14908
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR

PIN: 900028597 LOT 12 CLSR 51118

Instrument Date:	1968/02/22	Term:	
Registration Number	2953	Effective Date:	
Registration Date:	1968/07/18 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	1.19 Acres
IOGC #:			

Land Affected: LOT 12 CLSR 51118

Grantor(s): 681 - Kitsumkalum
Grantee(s): HAROLD JAMES BOLTON - Certificate of Possession 14907
Remarks:

PIN: 900028563 LOT 8 CLSR 51118

Instrument Date:	1968/02/22	Term:	
Registration Number	2959	Effective Date:	
Registration Date:	1968/07/18 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.92 Acres
IOGC #:			

Land Affected: LOT 8 CLSR 51118

Grantor(s): 681 - Kitsumkalum
Grantee(s): JEFFREY HERBERT SPALDING - Certificate of Possession 14903
Remarks:

PIN: 900028621 LOT 15 CLSR 51118

Instrument Date:	1968/02/22	Term:	
Registration Number	2951	Effective Date:	
Registration Date:	1968/07/18 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.92 Acres
IOGC #:			

Land Affected: LOT 15 CLSR 51118

Grantor(s): 681 - Kitsumkalum
Grantee(s): BENJAMIN CHRISTOPHER BOLTON - Certificate of Possession 14909
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR

PIN: 900028571 LOT 9 CLSR 51118

Instrument Date:	1968/02/22	Term:	
Registration Number	2958	Effective Date:	
Registration Date:	1968/07/18 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	1.19 Acres
IOGC #:			

Land Affected: LOT 9 CLSR 51118

Grantor(s): 681 - Kitsumkalum
Grantee(s): LAWRENCE ALEXANDER BOLTON - Certificate of Possession 14904
Remarks:

PIN: 900028647 LOT 17 CLSR 51118

Instrument Date:	1968/02/22	Term:	
Registration Number	2948	Effective Date:	
Registration Date:	1968/07/18 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.92 Acres
IOGC #:			

Land Affected: LOT 17 CLSR 51118

Grantor(s): 681 - Kitsumkalum
Grantee(s): HERBERT SPALDING - Certificate of Possession 14911
Remarks:

PIN: 900028530 LOT 1 CLSR 51118

Instrument Date:	1968/02/22	Term:	
Registration Number	2954	Effective Date:	
Registration Date:	1968/07/18 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.92 Acres
IOGC #:			

Land Affected: LOT 1 CLSR 51118

Grantor(s): 681 - Kitsumkalum
Grantee(s): JAMES BOLTON - Certificate of Possession 14901
Remarks:

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR

PIN: 900028589 LOT 10 CLSR 51118

Instrument Date: 1968/02/22 Term:
Registration Number 2956 Effective Date:
Registration Date: 1968/07/18 12:00:00AM Expiry Date:
Actual Expiry Date:
Purpose: Area: 1.19 Acres
IOGC #:
Land Affected: LOT 10 CLSR 51118
Grantor(s): 681 - Kitsumkalum
Grantee(s): STANLEY ARTHUR WESLEY - Certificate of Possession 14905
Remarks:

PIN: 900041228 LOT 11 CLSR 51118

Instrument Date: 1968/02/22 Term:
Registration Number 2955 Effective Date:
Registration Date: 1968/07/18 12:00:00AM Expiry Date:
Actual Expiry Date:
Purpose: Area: 1.19 Acres
IOGC #:
Land Affected: LOT 11 CLSR 51118
Grantor(s): 681 - Kitsumkalum
Grantee(s): SIMON LOCKERBY - Certificate of Possession 14906
Remarks:

PIN: 900028639 LOT 16 CLSR 51118

Instrument Date: 1968/02/22 Term:
Registration Number 2950 Effective Date:
Registration Date: 1968/07/18 12:00:00AM Expiry Date:
Actual Expiry Date:
Purpose: Area: 0.92 Acres
IOGC #:
Land Affected: LOT 16 CLSR 51118
Grantor(s): 681 - Kitsumkalum
Grantee(s): DONALD JOSEPH ROBERTS - Certificate of Possession 14910
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR

PIN: 900028555 LOT 6 CLSR 51118

Instrument Date:	1968/03/22	Term:	
Registration Number	2960	Effective Date:	
Registration Date:	1968/07/18 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	1.31 Acres
IOGC #:			

Land Affected: LOT 6 CLSR 51118

Grantor(s): 681 - Kitsumkalum
Grantee(s): JOSEPH WESLEY - Certificate of Possession 14902

Remarks:

Reserve General

Instrument Date:	1968/06/07	Term:	
Registration Number	3468-94	Effective Date:	
Registration Date:	1971/01/22 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: WHOLE OF RESERVE

Grantor(s): 681 - Kitsumkalum
Grantee(s): CROWN CANADA

Remarks: KITSUMKAYLUM BAND NOW CALLED KITSUMKALUM BAND. LETTER ATT'D

PIN: 900028548 LOT 5 CLSR 51118

Instrument Date:	1974/07/12	Term:	
Registration Number	37423	Effective Date:	
Registration Date:	1974/11/18 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.92 Acres
IOGC #:			

Land Affected: LOT 5 CLSR 51118

Grantor(s): 681 - Kitsumkalum
Grantee(s): EDWARD RONALD VICTOR SPALDING - Certificate of Possession 21709

Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR

PIN: 900028613 LOT 14 CLSR 51118

Instrument Date:	1976/01/28	Term:	
Registration Number	45580	Effective Date:	
Registration Date:	1976/03/03 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.92 Acres
IOGC #:			

Land Affected: LOT 14 CLSR 51118

Grantor(s): 681 - Kitsumkalum
Grantee(s): JEFFREY HERBERT SPALDING - Certificate of Possession 27229

Remarks:

PIN: 900028662 LOT 30 CLSR 58736

Instrument Date:	1977/07/26	Term:	
Registration Number	57327	Effective Date:	
Registration Date:	1978/04/04 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 30 CLSR 58736

Grantor(s): 681 - Kitsumkalum
Grantee(s): DONALD TERRANCE ROBERTS - Interest Note: JOINT TENANT - Certificate of Possession 29069
JUDITH CAROL ROBERTS - Interest Note: JOINT TENANT - Certificate of Possession 29069

Remarks: SEE LETTER DATED 13 DEC 77 ATT'D RE CAVEAT

PIN: 900028654 LOT 28 CLSR 58736

Instrument Date:	1980/04/28	Term:	
Registration Number	69017	Effective Date:	
Registration Date:	1980/05/15 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.24 Acres
IOGC #:			

Land Affected: LOT 28 CLSR 58736

Grantor(s): 681 - Kitsumkalum
Grantee(s): REYNOLD MELVIN LOCKERBY - Certificate of Possession 31349

Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR

PIN: 900028670 LOT 32 CLSR 58736

Instrument Date:	1981/12/08	Term:	
Registration Number	80465	Effective Date:	
Registration Date:	1982/02/23 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.23 Acres
IOGC #:			

Land Affected: LOT 32 CLSR 58736

Grantor(s): 681 - Kitsumkalum
Grantee(s): SHIRLEY WINNIFRED BOLAN - Interest Note: JOINT TENANT - Certificate of Possession 34302
WILLIAM MELVIN BOLAN - Interest Note: JOINT TENANT - Certificate of Possession 34302
Remarks:

PIN: 900028563 LOT 8 CLSR 51118

Instrument Date:	1983/01/14	Term:	
Registration Number	86370	Effective Date:	
Registration Date:	1983/02/25 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.92 Acres
IOGC #:			

Land Affected: LOT 8 CLSR 51118

Grantor(s): 681 - Kitsumkalum
Grantee(s): RONALD DICK WESLEY - Interest Note: JOINT TENANT - Certificate of Possession 36238
SANDRA ELLEN WESLEY - Interest Note: JOINT TENANT - Certificate of Possession 36238
Remarks:

Reserve General

Instrument Date:	1985/10/01	Term:	
Registration Number	111641	Effective Date:	
Registration Date:	1987/04/09 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: AS DESCRIBED IN DOCUMENT

Grantor(s): CROWN CANADA
Grantee(s): BRITISH COLUMBIA TELEPHONE COMPANY
Remarks: EXTENDS TELEPHONE FACILITIES. SEE PERMIT REG #55216

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR

Reserve General

Instrument Date: 1986/02/07
Registration Number 111642
Registration Date: 1987/04/09 12:00:00AM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area:
IOGC #:
Land Affected: AS SHOWN ON DRAWING #YP3-T083-0009 ATT'D
Grantor(s): CROWN CANADA
Grantee(s): BRITISH COLUMBIA TELEPHONE COMPANY
Remarks: EXTENDS TELEPHONE FACILITIES. SEE PERMIT REG #55216

PIN: 902005392 LOT 79 RSBC 2428

Instrument Date: 1993/12/17
Registration Number 219060
Registration Date: 1994/02/23 8:55:17AM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area:
IOGC #:
Land Affected: LOT 79 PLAN 2428 RSBC
Grantor(s): 681 - Kitsumkalum
Grantee(s): GEORGE FELIX BROWN - Interest Note: JOINT TENANT - Certificate of Possession 107160
LAURA HELEN BROWN - Interest Note: JOINT TENANT - Certificate of Possession 107160
Remarks:

PIN: 902006481 LOT 84 RSBC 2428

Instrument Date: 1995/01/10
Registration Number 231054
Registration Date: 1995/03/06 10:50:41AM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area:
IOGC #:
Land Affected: LOT 84 RSBC 2428
Grantor(s): 681 - Kitsumkalum
Grantee(s): BARBARA MARILYN KRAUSE - Certificate of Possession 111133
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

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Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR

PIN: 902015353 LOT 50 CLSR 71002

Instrument Date: 1999/05/31
Registration Number 271202
Registration Date: 1999/06/11 8:10:46AM
Purpose:
IOGC #:
Land Affected: LOT 50 CLSR 71002
Grantor(s): 681 - Kitsumkalum
Grantee(s): ARLENE PHYLLIS SPALDING - Interest Note: JOINT TENANT - Certificate of Possession 129413
EDWARD RONALD VICTOR SPALDING - Interest Note: JOINT TENANT - Certificate of Possession 129413
Remarks:
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Area:

PIN: 902015351 LOT 54 CLSR 71002

Instrument Date: 1999/05/31
Registration Number 271199
Registration Date: 1999/06/11 8:04:50AM
Purpose:
IOGC #:
Land Affected: LOT 54 CLSR 71002
Grantor(s): 681 - Kitsumkalum
Grantee(s): CAROL DONNA SAM - Interest Note: JOINT TENANT - Certificate of Possession 129410
MAURICE SAM - Interest Note: JOINT TENANT - Certificate of Possession 129410
Remarks:
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Area:

PIN: 902015355 LOT 53 CLSR 71002

Instrument Date: 1999/05/31
Registration Number 271204
Registration Date: 1999/06/11 8:16:36AM
Purpose:
IOGC #:
Land Affected: LOT 53 CLSR 71002
Grantor(s): 681 - Kitsumkalum
Grantee(s): SANDRA TRUDINE CHRISTIANSEN - Interest Note: JOINT TENANT - Certificate of Possession 129415
WILLIAM JOSEPH CHRISTIANSEN - Interest Note: JOINT TENANT - Certificate of Possession 129415
Remarks:
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Area:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR

PIN: 902015733 LOT 106 RSBC 2388

Instrument Date:	1999/05/31	Term:	
Registration Number	271758	Effective Date:	
Registration Date:	1999/07/05 2:36:50PM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 106 RSBC 2388

Grantor(s): 681 - Kitsumkalum
Grantee(s): GORDON JAMES ROBERT - Certificate of Possession 129627
Remarks:

PIN: 902015354 LOT 52 CLSR 71002

Instrument Date:	1999/05/31	Term:	
Registration Number	271203	Effective Date:	
Registration Date:	1999/06/11 8:13:36AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 52 CLSR 71002

Grantor(s): 681 - Kitsumkalum
Grantee(s): CHARLOTTE MILDRED GUNO - Certificate of Possession 129414
Remarks:

PIN: 902015725 LOT 48 CLSR 71002

Instrument Date:	1999/06/04	Term:	
Registration Number	271632	Effective Date:	
Registration Date:	1999/06/29 8:40:06AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 48 CLSR 71002

Grantor(s): 681 - Kitsumkalum
Grantee(s): REYNOLD MELVIN LOCKERBY - Certificate of Possession 129581
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

BCR

PIN: 902015726 LOT 46 CLSR 71002

Instrument Date:	1999/06/04	Term:	
Registration Number	271635	Effective Date:	
Registration Date:	1999/06/29 8:48:15AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 46 CLSR 71002

Grantor(s): 681 - Kitsumkalum

Grantee(s): SHIRLEY WINNIFRED BOLAN - Interest Note: JOINT TENANT - Certificate of Possession 129582
WILLIAM MELVIN BOLAN - Interest Note: JOINT TENANT - Certificate of Possession 129582

Remarks:

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Assignment

Reserve General

Instrument Date:	1952/05/21	Term:	
Registration Number	X24448	Effective Date:	
Registration Date:	1974/07/04 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	1,124.70 Acres
IOGC #:			
Land Affected:	WHOLE OF RESERVE		
Grantor(s):	CARL POHLE		
Grantee(s):	THE BEAVERS LOGGING COMPANY LIMITED		
Remarks:	SEE TIMBER LICENSE REG #X24446		

Reserve General

Instrument Date:	1962/07/02	Term:	
Registration Number	X16811	Effective Date:	
Registration Date:	1973/07/25 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	28.74 Acres
IOGC #:			
Land Affected:	CLSR RR3484 & CLSR 3410		
Grantor(s):	COLUMBIA CELLULOSE COMPANY LIMITED		
Grantee(s):	CELGAR LIMITED		
Remarks:	SEE LEASE REG #X16810 & EASEMENT REG #X16809		

Reserve General

Instrument Date:	1970/01/01	Term:	
Registration Number	1878-34	Effective Date:	
Registration Date:	1970/07/21 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	55.60 Acres
IOGC #:			
Land Affected:	AS SHOWN ON SKETCH ATT'D		
Grantor(s):	CELGAR LIMITED		
Grantee(s):	SKEENA KRAFT LIMITED		
Remarks:	SEE PERMIT REG #1877-034		

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Admin Transfer

PIN: 900028647 LOT 17 CLSR 51118

Instrument Date: 1972/08/09
Registration Number 28557
Registration Date: 1972/09/27 12:00:00AM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area: 0.92 Acres
IOGC #:
Land Affected: LOT 17 CLSR 51118
Grantor(s): Estate of ESTATE OF HERBERT SPALDING
Grantee(s): ELIZABETH SPALDING - Certificate of Possession 19837
Remarks: QUIT CLAIM LETTERS ATT'D

PIN: 900028530 LOT 1 CLSR 51118

Instrument Date: 1976/03/04
Registration Number 45640
Registration Date: 1976/03/09 12:00:00AM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area:
IOGC #:
Land Affected: LOT 1 CLSR 51118
Grantor(s): Estate of ESTATE OF JAMES BOLTON
Grantee(s): VICTORIA ROBERTS - Certificate of Possession 27235
Remarks:

PIN: 900028555 LOT 6 CLSR 51118

Instrument Date: 1982/11/16
Registration Number 85306
Registration Date: 1982/12/13 12:00:00AM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
Area: 1.31 Acres
IOGC #:
Land Affected: LOT 6 CLSR 51118
Grantor(s): Estate of ESTATE OF JOSEPH WESLEY
Grantee(s): WINNIFRED WESLEY - Certificate of Possession 35860
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Admin Transfer

PIN: 900028647 LOT 17 CLSR 51118

Instrument Date:	1988/04/07	Term:	
Registration Number	117610	Effective Date:	
Registration Date:	1988/06/15 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	0.92 Acres
IOGC #:			

Land Affected: LOT 17 CLSR 51118

Grantor(s): Estate of ESTATE OF ELIZABETH LAVINA SPALDING
Grantee(s): VICTOR JAMES SPALDING - Certificate of Possession 46734

Remarks:

PIN: 900028613 LOT 14 CLSR 51118

Instrument Date:	1999/04/29	Term:	
Registration Number	270155	Effective Date:	
Registration Date:	1999/05/06 1:28:58PM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 14 CLSR 70907

Grantor(s): Estate of ESTATE OF JEFFREY HERBERT SPALDING
Grantee(s): IRENE SPALDING - Certificate of Possession 129033

Remarks: APPOINTMENT OF ADMINISTRATOR ATTACHED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Admin Transfer

PIN: 900028621 LOT 15 CLSR 70907

Instrument Date: 2010/04/22
Registration Number 6080713
Registration Date: 2014/09/30 6:25:19PM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
IOGC #:
Area: 0.00

Land Affected: LOT 15 CLSR 70907

Grantor(s): Estate of BENJAMIN CHRISTOPHER BOLTON

Grantee(s): CATHERINE FRANCES EMMA BOLTON - Interest Note: Undivided 1/9 interest - Certificate of Possession 403024424
MALCOLM DARRELL BOLTON - Interest Note: Undivided 1/9 interest - Certificate of Possession 403024425
SHEILA COLLEEN BOLTON - Interest Note: Undivided 1/9 interest - Certificate of Possession 403024426
THERESA EMMA BOLTON - Interest Note: Undivided 1/9 interest - Certificate of Possession 403024427
ALVINA ROBERTA FRIESEN - Interest Note: Undivided 1/9 interest - Certificate of Possession 403024428
LYNN ELIZABETH BOLTON - Interest Note: Undivided 1/9 interest - Certificate of Possession 403024420
DAVID MARK BOLTON - Interest Note: Undivided 1/9 interest - Certificate of Possession 403024421
RUSSELL THOMAS BOLTON - Interest Note: Undivided 1/9 interest - Certificate of Possession 403024422
GERALD PATRICK BOLTON - Interest Note: Undivided 1/9 interest - Certificate of Possession 403024423

Remarks: AKA BENJAMIN BOLTON
AKA THERESA EMMA DRAKE

PIN: 900028530 LOT 1 CLSR 70907

Instrument Date: 2015/08/05
Registration Number 6094352
Registration Date: 2016/09/02 12:23:39PM
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Purpose:
IOGC #:
Area: 0.00

Land Affected: LOT 1 CLSR 70907

Grantor(s): Estate of VICTORIA ROBERTS

Grantee(s): HEATHER ASHLEY BOHN - Certificate of Possession 403030514

Remarks:

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07646 - KITSUMKAYLUM 1
Band: 681 - Kitsumkalum

Admin Transfer

PIN: 903021277 LOT 88 RSBC 2428

Instrument Date: 2016/09/16
Registration Number 6107364
Registration Date: 2018/09/27 12:03:26PM
Purpose:
IOGC #:
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Area: 0.00
Land Affected: LOT 88 RSBC 2428
Grantor(s): Estate of DOROTHY GRACE HORNER
Grantee(s): DWAYNE EDWARD HORNER - Certificate of Possession 403037319
Remarks: DOROTHY HORNER AKA DOROTHY GRACE HORNER, DWAYNE HORNER AKA DWAYNE EDWARD HORNER

PIN: 900028555 LOT 6 CLSR 70907

Instrument Date: 2016/12/01
Registration Number 6098001
Registration Date: 2017/02/01 2:10:11PM
Purpose:
IOGC #:
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Area: 0.00
Land Affected: LOT 6 CLSR 70907
Grantor(s): Estate of WINNIFRED WESLEY
Grantee(s): FREDERICK RONALD WESLEY - Certificate of Possession 403031930
Remarks:

Addendum

Reserve General

Instrument Date: 1969/06/01
Registration Number 10657
Registration Date: 1969/06/16 12:00:00AM
Purpose:
IOGC #:
Term:
Effective Date:
Expiry Date:
Actual Expiry Date:
Area: 1.73 Acres
Land Affected: R/W CLSR 55376
Grantor(s): CROWN CANADA
Grantee(s): BRITISH COLUMBIA TELEPHONE COMPANY
Remarks: AMENDS LAND DESCRIPTION OF PERMIT REG #10656 INSTRUMENT DATE APPROXIMATE

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07647 - DALK-KA-GILA-QUOEUX 2
Band: 681 - Kitsumkalum

Settlement Agreement

Reserve General

Instrument Date:	1995/02/10	Term:	
Registration Number	232030	Effective Date:	
Registration Date:	1995/04/20 10:48:16AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: AS DESCRIBED IN AGREEMENT

Grantor(s): CROWN CANADA

Grantee(s): 681 Kitsumkalum
CROWN BRITISH COLUMBIA

Remarks: AGREES TO COMPENSATION,AGREES TO RECCOMMEND THAT CERTAIN LANDS BE TRANSFERRED TO PROVINCE FOR HIGHWAY PURPOSES OR OTHER WORKS OF PUBLIC UTILITY,AGREES TO RECOMMEND THAT CERTAIN LANDS BE ADDE TO RESERVES, AGEES TO OTHER TERMS AND CONDITIONS

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07647 - DALK-KA-GILA-QUOEUX 2
Band: 681 - Kitsumkalum

Prov OC

Reserve General

Instrument Date:	1923/07/26	Term:	
Registration Number	92925	Effective Date:	
Registration Date:	1984/02/20 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	182.00 Acres
IOGC #:			
Land Affected:	SKEENA DIST ON RT BK OF KITSUMKAYLUM RVR 5 MI FROM MOUTH		
Grantor(s):	CROWN BRITISH COLUMBIA		
Grantee(s):			
Remarks:	OC #911. CONFIRMS RESERVE ACCEPTS MIN. OF DEC. REG. #112954		

Reserve General

Instrument Date:	1938/07/29	Term:	
Registration Number	8042	Effective Date:	
Registration Date:	1969/02/14 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	182.00 Acres
IOGC #:			
Land Affected:	SKEENA DIST RT BK KITSUMKAYLUM RVR 5MI FRM MOUTH CLSR TBC160		
Grantor(s):	CROWN BRITISH COLUMBIA		
Grantee(s):	CROWN CANADA		
Remarks:	OC#1036 TRANSFERS MANAGEMENT & CONTROL PROV OC REG #4111-118		

Reserve General

Instrument Date:	1969/05/13	Term:	
Registration Number	4111-118	Effective Date:	
Registration Date:	1971/02/26 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			
Land Affected:	WHOLE OF RESERVE		
Grantor(s):	CROWN BRITISH COLUMBIA		
Grantee(s):	CROWN CANADA		
Remarks:	OC #1555 WAIVES REVERSIONARY INTEREST IN PROV OC REG #8042		

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07647 - DALK-KA-GILA-QUOEUX 2
Band: 681 - Kitsumkalum

Prov OC

Reserve General

Instrument Date:	1999/10/07	Term:	
Registration Number	278433	Effective Date:	
Registration Date:	2000/02/15 8:50:05AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	40.50 Hectares
IOGC #:			
Land Affected:	DISTRICT LOT 8061 CLSR 78428		
Grantor(s):	CROWN BRITISH COLUMBIA		
Grantee(s):	CROWN CANADA		
Remarks:	TRANSFERS ADMINISTRATION AND CONTROL AND BENEFIT OF LANDS DESCRIBED IN PERPETUITY TO CROWN CANADA ACCEPTANCE OF A TRANSFE OF ADMINISTRATION AND CONTROL OF REAL PROPERTY FRO A PROVINCE ATTACHED		

OCPC

Reserve General

Instrument Date:	1924/07/19	Term:	
Registration Number	12073	Effective Date:	
Registration Date:	1969/08/11 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	182.00 Acres
IOGC #:			
Land Affected:	SKEENA DIST RT BK KITSUMKAYLUM RVR 5 MI FROM MOUTH		
Grantor(s):	CROWN CANADA		
Grantee(s):			
Remarks:	PC #1265 CONFIRMS RESERVE		

Reserve General

Instrument Date:	2000/01/12	Term:	
Registration Number	277971	Effective Date:	
Registration Date:	2000/02/01 8:34:39AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	40.50 Hectares
IOGC #:			
Land Affected:	DISTRICT LOT 8061 CLSR 78428		
Grantor(s):	CROWN CANADA		
Grantee(s):	681 Kitsumkalum		
Remarks:	PC #2000-27 ADDITION TO RESERVE		

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07647 - DALK-KA-GILA-QUOEUX 2
Band: 681 - Kitsumkalum

Minutes Of Decision

Reserve General

Instrument Date:	1891/10/10	Term:	
Registration Number	2875-72	Effective Date:	
Registration Date:	1970/11/20 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	133.00 Acres
IOGC #:			

Land Affected: RIGHT BANK OF KITSUMKAYLUM RVR 5 MI FROM MOUTH

Grantor(s): COMMISSIONER O'REILLY
Grantee(s): 681 Kitsumkalum

Remarks: ALLOTS RESERVE PG 122 SEE ALSO REG # 64648 PG 209

Reserve General

Instrument Date:	1916/06/30	Term:	
Registration Number	112954	Effective Date:	
Registration Date:	1987/07/20 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	182.00 Acres
IOGC #:			

Land Affected: SKEENA DIST. ON RT BK OF KITSUMKAYLUM RVR. 5 MI FROM MOUTH

Grantor(s): ROYAL COMMISSION
Grantee(s): 681 Kitsumkalum

Remarks: PG 589 CONFIRMS RESERVE (PREV FISHING # 2)

Ministerial Order

Reserve General

Instrument Date:	1966/03/16	Term:	
Registration Number	7200	Effective Date:	
Registration Date:	1968/12/20 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	182.00 Acres
IOGC #:			

Land Affected: WHOLE OF RESERVE

Grantor(s): MINISTER
Grantee(s): 681 Kitsumkalum

Remarks: RESERVE NAME CHANGE TO DALK-KA-GILA-QUOEUX #2 BCR REG# 13527 FR FISHERY NO. 2

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07647 - DALK-KA-GILA-QUOEUX 2
Band: 681 - Kitsumkalum

BCR

Reserve General

Instrument Date:	1965/07/15	Term:	
Registration Number	13527	Effective Date:	
Registration Date:	1969/09/24 1:55:00PM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			
Land Affected:			
Grantor(s):	681 - Kitsumkalum		
Grantee(s):			
Remarks:	THAT THE NAME OF KITSUNKAYLUM FISHERY NO 2 RESERVE BE CHANGE TO DALK-KA-GILA-QUOEUX NO 2		

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07648 - ZIMAGORD 3
Band: 681 - Kitsumkalum

Transfer

PIN: 900034454 LOT 1 RSBC 1920

Instrument Date: 2001/02/09 Term:
Registration Number 287210 Effective Date:
Registration Date: 2001/03/20 9:10:22AM Expiry Date:
Actual Expiry Date:
Purpose: Area:
IOGC #:
Land Affected: LOT 1 RSBC 1920
Grantor(s): ALVINA ROBERTA FRIESEN
Grantee(s): SHEILA COLLEEN BOLTON - Interest Note: UNDIVIDED 2/9 INTEREST - Certificate of Possession 135861
Remarks: GRANTEE RECEIVES AN UNDIVIDED 1/9 INTEREST AND RETAINS AN UNDIVID 1/9 INTEREST RECEIVED THROUGH REG #283798 FOR ADDITIONAL INTERES SEE REG #283798

PIN: 900034454 LOT 1 RSBC 1920

Instrument Date: 2006/11/14 Term:
Registration Number 345828 Effective Date:
Registration Date: 2007/02/19 2:17:18PM Expiry Date:
Actual Expiry Date:
Purpose: Area:
IOGC #:
Land Affected: LOT 1 RSBC 1920
Grantor(s): CATHERINE FRANCES EMMA BOLTON
Grantee(s): RUSSELL THOMAS BOLTON - Interest Note: UNDIVIDED 2/9 INTEREST - Certificate of Possession 156932
Remarks: GRANTEE RECEIVES AN UNDIVIDED 1/9 INTEREST AND RETAINS AN UNDIVID 1/9 INTEREST RECEIVED THROUGH REG #283798 FOR ADDITIONAL INTERES SEE REG #287210 AND REG #283798

PIN: 900034454 LOT 1 RSBC 1920

Instrument Date: 2010/08/17 Term:
Registration Number 374737 Effective Date:
Registration Date: 2010/09/28 3:55:40PM Expiry Date:
Actual Expiry Date:
Purpose: Area:
IOGC #:
Land Affected: LOT 1 RSBC 1920
Grantor(s): THERESA EMMA DRAKE
Grantee(s): RUSSELL THOMAS BOLTON - Interest Note: UNDIVIDED 1/3 INTEREST - Certificate of Possession 168473
Remarks: GRANTEE RECEIVES AN UNDIVIDED 1/9 INTEREST AND RETAINS AN UNDIVID 2/9 INTEREST RECEIVED THROUGH REG #345828 FOR ADDITIONAL INTERES SEE REG #287210 AND #283798

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

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Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07648 - ZIMAGORD 3
Band: 681 - Kitsumkalum

Settlement Agreement

Reserve General

Instrument Date:	1995/02/10	Term:	
Registration Number	232030	Effective Date:	
Registration Date:	1995/04/20 10:48:16AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: AS DESCRIBED IN AGREEMENT

Grantor(s): CROWN CANADA
Grantee(s): 681 Kitsumkalum
CROWN BRITISH COLUMBIA

Remarks: AGREES TO COMPENSATION,AGREES TO RECCOMMEND THAT CERTAIN LANDS BE TRANSFERRED TO PROVINCE FOR HIGHWAY PURPOSES OR OTHER WORKS OF PUBLIC UTILITY,AGREES TO RECOMMEND THAT CERTAIN LANDS BE ADDE TO RESERVES, AGEES TO OTHER TERMS AND CONDITIONS

Revocation

Reserve General

Instrument Date:	1987/05/08	Term:	
Registration Number	117008	Effective Date:	1987/05/08
Registration Date:	1988/05/10 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: WHOLE OF RESERVE

Grantor(s): 681 - Kitsumkalum
Grantee(s): CROWN CANADA

Remarks: REVOKES SURRENDER REG #13805 SEE ACCEPTING OCPC 1988-569 ATT

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07648 - ZIMAGORD 3
Band: 681 - Kitsumkalum

Prov OC

Reserve General

Instrument Date:	1923/07/26	Term:	
Registration Number	92925	Effective Date:	
Registration Date:	1984/02/20 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			
Land Affected:	SKEENA DIST ON RIGHT BANK OF SKEENA RIV		
Grantor(s):	CROWN BRITISH COLUMBIA		
Grantee(s):			
Remarks:	OC #911 CONFIRMS & ACCEPTS MINUTES OF DECISION REG #112954		

Reserve General

Instrument Date:	1938/07/29	Term:	
Registration Number	8042	Effective Date:	
Registration Date:	1969/02/14 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	77.00 Acres
IOGC #:			
Land Affected:	SKEENA DIST ON RIGHT BANK SKEENA RIV		
Grantor(s):	CROWN BRITISH COLUMBIA		
Grantee(s):	CROWN CANADA		
Remarks:	OC #1036 TRANSFERS MANAGEMENT & CONTROL SEE REG #4111-118		

Reserve General

Instrument Date:	1969/05/13	Term:	
Registration Number	4111-118	Effective Date:	
Registration Date:	1971/02/26 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			
Land Affected:	WHOLE OF RESERVE		
Grantor(s):	CROWN BRITISH COLUMBIA		
Grantee(s):	CROWN CANADA		
Remarks:	OC #1555 WAIVES REVISIONARY INTEREST IN PROV OC REG #8042		

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07648 - ZIMAGORD 3
Band: 681 - Kitsumkalum

Prov OC

Reserve General

Instrument Date:	2000/03/06	Term:	
Registration Number	279233	Effective Date:	
Registration Date:	2000/03/16 11:01:16AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	1.62 Acres
IOGC #:			
Land Affected:	PTN SHOWN ON CLSR PLAN 60713		
Grantor(s):	CROWN BRITISH COLUMBIA		
Grantee(s):	CROWN CANADA		
Remarks:	OC #185 TRANSFER OF ADMINISTRATION AND CONTROL		

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07648 - ZIMAGORD 3
Band: 681 - Kitsumkalum

OCPC

Reserve General

Instrument Date:	1909/10/01	Term:	
Registration Number	14435	Effective Date:	
Registration Date:	1969/10/31 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:	RAILWAY	Area:	
IOGC #:			
Land Affected:	AS DESCRIBED		
Grantor(s):	CROWN CANADA		
Grantee(s):	GRAND TRUNK PACIFIC RAILWAY		
Remarks:	PC #2026 RECOMMENDS LAND ACQUISITION		

Reserve General

Instrument Date:	1924/07/19	Term:	
Registration Number	12073	Effective Date:	
Registration Date:	1969/08/11 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	77.00 Acres
IOGC #:			
Land Affected:	SKEENA DIST ON RIGHT BANK SKEENA RIV		
Grantor(s):	CROWN CANADA		
Grantee(s):			
Remarks:	PC #1265 CONFIRMS RESERVE		

Reserve General

Instrument Date:	1928/06/20	Term:	
Registration Number	14153	Effective Date:	
Registration Date:	1969/10/20 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:	RAILWAY	Area:	3.01 Acres
IOGC #:			
Land Affected:	RIGHT OF WAY CLSR RR883A		
Grantor(s):	CROWN CANADA		
Grantee(s):	GRAND TRUNK PACIFIC RAILWAY COMPANY		
Remarks:	PC 1006, TRANSFERS R/W, SEE PATENT 21443 DATED NOVEMBER 30, 1928, SALES BOOK #1, FOLIO 387, SALE 1 FILE 22168-17GTP		

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07648 - ZIMAGORD 3
Band: 681 - Kitsumkalum

OCPC

Reserve General

Instrument Date:	1978/08/09	Term:	
Registration Number	72868	Effective Date:	
Registration Date:	1981/02/03 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:	ROAD	Area:	6.20 Acres
IOGC #:			
Land Affected:	CLSR 60713		
Grantor(s):	CROWN CANADA		
Grantee(s):	CROWN BRITISH COLUMBIA		
Remarks:	PC #2469 RESERVING ALL MINES & MINERALS		

Reserve General

Instrument Date:	2001/01/23	Term:	
Registration Number	286623	Effective Date:	
Registration Date:	2001/02/19 2:54:59PM	Expiry Date:	
		Actual Expiry Date:	
Purpose:	ADDITION	Area:	0.66 Hectares
IOGC #:			
Land Affected:	OLD HIGHWAY NO. 16 CLSR 60713		
Grantor(s):	CROWN CANADA		
Grantee(s):	681 Kitsumkalum		
Remarks:	PC #2001-114 ADDITION TO RESERVE		

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07648 - ZIMAGORD 3
Band: 681 - Kitsumkalum

Minutes Of Decision

Reserve General

Instrument Date:	1891/10/10	Term:	
Registration Number	13806	Effective Date:	
Registration Date:	1969/10/07 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	73.00 Acres
IOGC #:			
Land Affected:	ON RIGHT BANK OF SKEENA RIV AT MOUTH OF ZIMAGORD RIV		
Grantor(s):	COMMISSIONER OREILLY		
Grantee(s):	681 Kitsumkalum		
Remarks:	ALLOTS RESERVE SEE ALSO 2875-072 PG 123 & 64648 PG 209		

Reserve General

Instrument Date:	1916/06/30	Term:	
Registration Number	112954	Effective Date:	
Registration Date:	1987/07/20 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			
Land Affected:	SKEENA DIST ON RIGHT BANK OF SKEENA RIV		
Grantor(s):	ROYAL COMMISSION		
Grantee(s):	681 Kitsumkalum		
Remarks:	CONFIRMS RESERVE		

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07648 - ZIMAGORD 3
Band: 681 - Kitsumkalum

BCR

PIN: 900022954 PCL A LS 3151

Instrument Date:	1978/07/07	Term:	
Registration Number	59391	Effective Date:	
Registration Date:	1978/09/06 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	2.30 Acres
IOGC #:			

Land Affected: PCL A LS 3151 (M&B BASED ON CLSR 60713)

Grantor(s): 681 - Kitsumkalum
Grantee(s): WILFORD CLIFFORD BOLTON - Notice of Entitlement 9819
Remarks:

PIN: 900034454 LOT 1 RSBC 1920

Instrument Date:	1988/02/17	Term:	
Registration Number	118677	Effective Date:	
Registration Date:	1988/09/21 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 1 RSBC 1920

Grantor(s): 681 - Kitsumkalum
Grantee(s): EMMA BOLTON - Certificate of Possession 47163
Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07648 - ZIMAGORD 3
Band: 681 - Kitsumkalum

Admin Transfer

PIN: 900034454 LOT 1 RSBC 1920

Instrument Date:	2000/08/23	Term:	
Registration Number	283798	Effective Date:	
Registration Date:	2000/09/29 1:50:39PM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			

Land Affected: LOT 1 RS 1920

Grantor(s): Estate of ESTATE OF EMMA BOLTON

Grantee(s): ALVINA ROBERTA FRIESEN - Interest Note: AN UNDIVIDED 1/9 INTEREST - Certificate of Possession 134421
CATHERINE FRANCES EMMA BOLTON - Interest Note: AN UNDIVIDED 1/9 INTEREST - Certificate of Possession 134417
DAVID MARK BOLTON - Interest Note: AN UNDIVIDED 1/9 INTEREST - Certificate of Possession 134414
GERALD PATRICK BOLTON - Interest Note: AN UNDIVIDED 1/9 INTEREST - Certificate of Possession 134416
LYNN ELIZABETH BOLTON - Interest Note: AN UNDIVIDED 1/9 INTEREST - Certificate of Possession 134413
MALCOLM DARRELL BOLTON - Interest Note: AN UNDIVIDED 1/9 INTEREST - Certificate of Possession 134418
RUSSELL THOMAS BOLTON - Interest Note: AN UNDIVIDED 1/9 INTEREST - Certificate of Possession 134415
SHEILA COLLEEN BOLTON - Interest Note: AN UNDIVIDED 1/9 INTEREST - Certificate of Possession 134419
THERESA EMMA DRAKE - Interest Note: AN UNDIVIDED 1/9 INTEREST - Certificate of Possession 134420

Remarks:

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07649 - PORT ESSINGTON
Band: 681 - Kitsumkalum
680 - Kitselas

Registrar's Note

Reserve General

Instrument Date:	2004/11/01	Term:	
Registration Number	******	Effective Date:	
Registration Date:	2004/12/01 7:24:59AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			
Land Affected:	WHOLE OF RESERVE		
Grantor(s):			
Grantee(s):			
Remarks:	PORT ESSINGTON IS A RESERVE WITHIN THE MEANING OF SECTION 2(J) OF THE 1927 INDIAN ACT		

Deed

Reserve General

Instrument Date:	1902/03/07	Term:	
Registration Number	X12902	Effective Date:	
Registration Date:	1972/09/29 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			
Land Affected:	PART OF TOWNSITE OF ESSINGTON PLAN 537 AS DESCRIBED BY METES & BOUNDS		
Grantor(s):	ROBERT CUNNINGHAM		
Grantee(s):	CROWN CANADA		
Remarks:	SEE SUPREME COURT RULING ATTACHED		

Certificate Of Title

Reserve General

Instrument Date:	1902/03/24	Term:	
Registration Number	X12903	Effective Date:	
Registration Date:	1972/09/29 12:00:00AM	Expiry Date:	
		Actual Expiry Date:	
Purpose:		Area:	
IOGC #:			
Land Affected:	PART OF RESERVED MAP 537 TOWN OF PORT ESSINGTON		
Grantor(s):	ROBERT CUNNINGHAM		
Grantee(s):	CROWN CANADA		
Remarks:	CERTIFICATE OF TITLE #7616C VESTS TITLE IN CROWN CANADA		

INDIAN LANDS REGISTRY SYSTEM

Instrument Report

Sorted by: Instrument Date

Printed on: 2019/10/16 10:44 am UNCLASSIFIED

Region/Province: British Columbia/BRITISH COLUMBIA
Reserve: 07649 - PORT ESSINGTON
Band: 681 - Kitsumkalum
680 - Kitselas

--- END OF REPORT ---

Count of Instrument Type:

	Total
Addendum - 001	1
Admin Transfer - 002	10
Assignment - 003	3
BCR - 004	34
BCR Allotment - 210	35
Caveat - 006	1
Certificate Of Title - 008	1
Death Certificate - 076	2
Deed - 080	2
Ministerial Order - 015	1
Minutes Of Decision - 066	4
Mortgage - 016	1
OCPC - 017	9
Permit - 018	3
Prov OC - 019	5
Registrar's Note - 083	1
Relinquishment - 022	2
Request - 023	9
Revocation - 024	1
Settlement Agreement - 101	1
Surrender - 027	3
Transfer - 028	14

INDIAN LANDS REGISTRY SYSTEM

Reserve General Abstract Report

Selected Criteria:

Band: 681 - Kitsumkalum

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

MINUTES OF DECISION

Instrument Date:	1890/01/01	Term:	
Registration Number:	117002	Effective Date:	
Registration Date:	1988/05/09 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	1,040.000 Acres
Land Affected:	RIGHT BANK OF SKEENA RIVER AT MOUTH OF KITSUMKAYLUM RIVER		
Grantor(s):	ROYAL COMMISSION		
Grantee(s):	681 Kitsumkalum		
Remarks:	ALLOTS RESERVE ALSO SEE REG NOS 64648 PG207 & 2875-072 PG122		

MINUTES OF DECISION

Instrument Date:	1891/10/10	Term:	
Registration Number:	2875-72	Effective Date:	
Registration Date:	1970/11/20 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	1,124.700 Acres
Land Affected:	RIGHT BANK OF SKEENA RIVER		
Grantor(s):	COMMISSIONER O"REILLY		
Grantee(s):	681 Kitsumkalum		
Remarks:	ALLOTS RESERVE. SEE ALSO REG #64648 PG 207		

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

OCPC

Instrument Date:	1909/10/01	Term:	
Registration Number:	14435	Effective Date:	1909/10/01
Registration Date:	1969/10/31 12:00:00AM	Expiry Date:	
OCPC/MO Number:	PC #2026	Purpose:	RAILWAY
Land Affected:	R/W AS DESCRIBED		
Grantor(s):	CROWN CANADA		
Grantee(s):	GRAND TRUNK PACIFIC RAILWAY COMPANY		
Remarks:	PC#2026 AUTHORIZES TRANSFER OF LAND. SEE OCPC REG #14153		

MINUTES OF DECISION

Instrument Date:	1916/06/30	Term:	
Registration Number:	112954	Effective Date:	
Registration Date:	1987/07/20 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	1,155.000 Acres
Land Affected:	RIGHT BANK OF SKEENA RIVER AT MOUTH OF KITSUMKAYLUM RIVER		
Grantor(s):	ROYAL COMMISSION		
Grantee(s):	681 Kitsumkalum		
Remarks:	CONFIRMS RESERVE PG 589		

INDIAN LANDS REGISTRY SYSTEM

Reserve General Abstract Report

Selected Criteria:

Band: 681 - Kitsumkalum

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

PROV OC

Instrument Date:	1923/07/26	Term:	
Registration Number:	92925	Effective Date:	
Registration Date:	1984/02/20 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	1,155.000 Acres
Land Affected:	RIGHT BANK OF SKEENA RIVER AT MOUTH OF KITSUMKAYLUM RIVER		
Grantor(s):	CROWN BRITISH COLUMBIA		
Remarks:	OC#911 CONFIRMS RESERVE ACCEPTS MIN OF DEC #112954		

OCPC

Instrument Date:	1924/07/19	Term:	
Registration Number:	12073	Effective Date:	
Registration Date:	1969/08/11 12:00:00AM	Expiry Date:	
OCPC/MO Number:	PC #1265	Purpose:	
		Area:	1,155.000 Acres
Land Affected:	RIGHT BANK OF SKEENA RIVER AT MOUTH OF KITSUMKAYLUM RIVER		
Grantor(s):	CROWN CANADA		
Remarks:	PC #1265 CONFIRMS RESERVE		

INDIAN LANDS REGISTRY SYSTEM

Reserve General Abstract Report

Selected Criteria:

Band: 681 - Kitsumkalum

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

OCPC

Instrument Date:	1928/06/20	Term:	
Registration Number:	14153	Effective Date:	1928/06/20
Registration Date:	1969/10/20 12:00:00AM	Expiry Date:	
OCPC/MO Number:	PC #1006	Purpose:	RAILWAY
		Area:	30.300 Acres
Land Affected:	RIGHT OF WAY CLSR RR885A		
Grantor(s):	CROWN CANADA		
Grantee(s):	GRAND TRUNK PACIFIC RAILWAY COMPANY		
Remarks:	PC 1006 TRANSFERS R/W SEE PATENT 21445 DATED DEC. 1. 1928 SALES BOOK #1, FOLIO 395, SALE 1 FILE 22168/16GTP		

PROV OC

Instrument Date:	1938/07/29	Term:	
Registration Number:	8042	Effective Date:	
Registration Date:	1969/02/14 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	1,155.000 Acres
Land Affected:	AT THE MOUTH OF THE KITSUMKAYLUM RIVER AS SHOWN ON CLSR TBC162		
Grantor(s):	CROWN BRITISH COLUMBIA		
Grantee(s):	CROWN CANADA		
Remarks:	OC #1036 TRANSFERS MANAGEMENT & CONTROL SEE REG #4111-118		

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

SURRENDER

Instrument Date:	1943/09/11	Term:	
Registration Number:	11625	Effective Date:	1943/09/30
Registration Date:	1969/07/22 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	1,124.700 Acres
Land Affected:	WHOLE OF RESERVE		
Grantor(s):	681 - Kitsumkalum		
Grantee(s):	CROWN CANADA		
Remarks:	ACCEPTING OCPC #7611 REG #X16584 TIMBER SALE CANCELLED SEE REG X24897		

OCPC

Instrument Date:	1943/09/30	Term:	
Registration Number:	X16584	Effective Date:	
Registration Date:	1973/07/12 12:00:00AM	Expiry Date:	
OCPC/MO Number:	PC #7611	Purpose:	
Land Affected:	WHOLE OF RESERVE		
Grantor(s):	CROWN CANADA		
Grantee(s):	681 Kitsumkalum		
Remarks:	PC#7611 ACCEPTS TIMBER SURRENDER #1542 REG #11625		

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

SURRENDER

Instrument Date:	1951/03/20	Term:	
Registration Number:	X15756	Effective Date:	1951/04/18
Registration Date:	1973/05/28 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	ROAD
		Area:	14.210 Acres
Land Affected:	CLSR RD3410		
Grantor(s):	681 - Kitsumkalum		
Grantee(s):	CROWN CANADA		
Remarks:	ACCEPTING OCPC #1882 ATT'D SEE EASEMENT REG #X16809		

EASEMENT

Instrument Date:	1951/04/18	Term:	
Registration Number:	X16809	Effective Date:	1951/04/18
Registration Date:	1973/07/25 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	ROAD
		Area:	14.210 Acres
Land Affected:	CLSR RD3410		
Grantor(s):	CROWN CANADA		
Grantee(s):	COLUMBIA CELLULOSE COMPANY LIMITED		
Remarks:	LOGGING ROAD R/W SEE SURRENDER REG #X15756		

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

SURRENDER

Instrument Date:	1951/05/16	Term:	
Registration Number:	11563	Effective Date:	1951/08/29
Registration Date:	1969/07/21 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	FOR LEASE
		Area:	15.470 Acres
Land Affected:	AS DESCRIBED BY METES & BOUNDS		
Grantor(s):	681 - Kitsumkalum		
Grantee(s):	CROWN CANADA		
Remarks:	RAILWAY LOGGING R/W & LOADING GROUNDS ACCEPTING OCPC #4454 ATT'D		

LICENCE

Instrument Date:	1951/07/07	Term:	1y 0m 0d
Registration Number:	X24446	Effective Date:	1951/05/01
Registration Date:	1974/07/04 12:00:00AM	Expiry Date:	1952/04/30
OCPC/MO Number:		Purpose:	
		Area:	1,124.700 Acres
Land Affected:	WHOLE OF RESERVE		
Grantor(s):	CROWN CANADA		
Grantee(s):	CARL POHLE		
Remarks:	TO REMOVE TIMBER		

INDIAN LANDS REGISTRY SYSTEM

Reserve General Abstract Report

Selected Criteria:

Band: 681 - Kitsumkalum

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

LEASE

Instrument Date:	1952/01/02	Term:	21y 0m 0d
Registration Number:	X16810	Effective Date:	1951/04/01
Registration Date:	1973/07/25 12:00:00AM	Expiry Date:	1972/03/31
OCPC/MO Number:		Purpose:	RAILWAY
		Area:	14.530 Acres
Land Affected:	CLSR RR3484		
Grantor(s):	CROWN CANADA		
Grantee(s):	COLUMBIA CELLULOSE COMPANY LIMITED		
Remarks:	OPTION TO RENEW. RAILWAY LOADING SPUR		

ASSIGNMENT

Instrument Date:	1952/05/21	Term:	
Registration Number:	X24448	Effective Date:	
Registration Date:	1974/07/04 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	1,124.700 Acres
Land Affected:	WHOLE OF RESERVE		
Grantor(s):	CARL POHLE		
Grantee(s):	THE BEAVERS LOGGING COMPANY LIMITED		
Remarks:	SEE TIMBER LICENSE REG #X24446		

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

ASSIGNMENT

Instrument Date:	1962/07/02	Term:	
Registration Number:	X16811	Effective Date:	
Registration Date:	1973/07/25 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	28.740 Acres
Land Affected:	CLSR RR3484 & CLSR 3410		
Grantor(s):	COLUMBIA CELLULOSE COMPANY LIMITED		
Grantee(s):	CELGAR LIMITED		
Remarks:	SEE LEASE REG #X16810 & EASEMENT REG #X16809		

DEED

Instrument Date:	1962/08/15	Term:	
Registration Number:	X16812	Effective Date:	
Registration Date:	1973/07/25 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
Land Affected:	AS DESCRIBED IN DOCUMENT		
Grantor(s):	CELGAR LIMITED COLUMBIA CELLULOSE COMPANY LIMITED		
Grantee(s):	NATIONAL TRUST COMPANY LIMITED		
Remarks:	THIRD SUPPLEMENTAL INDENTURE SECURING CELGAR'S FIRST MORTGAGE BONDS LEASE REG #X16810		

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

BCR

Instrument Date:	1963/06/05	Term:	
Registration Number:	11570	Effective Date:	
Registration Date:	1969/07/21 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	HYDRO LINE
Land Affected:	AS DESCRIBED IN DOCUMENT		
Grantor(s):	681 - Kitsumkalum		
Grantee(s):	BRITISH COLUMBIA HYDRO & POWER AUTHORITY		
Remarks:	BAND AUTHORIZES EASEMENT. SEE PERMIT REG #11572		

PERMIT

Instrument Date:	1964/03/31	Term:	10y 0m 0d
Registration Number:	11571	Effective Date:	1964/03/16
Registration Date:	1969/07/21 12:00:00AM	Expiry Date:	1974/03/15
OCPC/MO Number:		Purpose:	
		Area:	70.080 Acres
Land Affected:	AS DESCRIBED IN DOCUMENT		
Grantor(s):	CROWN CANADA		
Grantee(s):	CANADIAN NATIONAL RAILWAY COMPANY		
Remarks:	TO REMOVE & PROCESS ROCK. RELINQUISHED SEE PERMIT REG#X19092		

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

PERMIT

Instrument Date:	1964/05/25	Term:	
Registration Number:	11572	Effective Date:	1964/05/25
Registration Date:	1969/07/21 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	HYDRO LINE
Land Affected:	WHOLE OF RESERVE		
Grantor(s):	CROWN CANADA		
Grantee(s):	BRITISH COLUMBIA HYDRO & POWER AUTHORITY		
Remarks:	AUTHORIZING BCR REG #11570		

PERMIT

Instrument Date:	1964/10/09	Term:	5y 0m 0d
Registration Number:	1877-34	Effective Date:	1965/01/01
Registration Date:	1970/07/21 12:00:00AM	Expiry Date:	1969/12/31
OCPC/MO Number:		Purpose:	
		Area:	55.600 Acres
Land Affected:	PARCELS A & B AS DESCRIBED		
Grantor(s):	CROWM CANADA		
Grantee(s):	CELGAR LIMITED		
Remarks:	LOGGING OPERATION AUTHORIZING BCR ATT'D SEE ASSIGNMENT REG #1878-034		

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

PERMIT

Instrument Date:	1966/02/16	Term:	5y 0m 0d
Registration Number:	10656	Effective Date:	1965/10/01
Registration Date:	1969/06/16 12:00:00AM	Expiry Date:	1970/09/30
OCPC/MO Number:		Purpose:	HYDRO LINE
		Area:	3.600 Acres
Land Affected:	AS SHOWN ON SKETCH ATT'D		
Grantor(s):	CROWN CANADA		
Grantee(s):	BRITISH COLUMBIA TELEPHONE COMPANY		
Remarks:	AUTHORIZING BCR ATT'D OPTION TO RENEW SEE ADDENDUM REG #10657		

BCR

Instrument Date:	1968/06/07	Term:	
Registration Number:	3468-94	Effective Date:	
Registration Date:	1971/01/22 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
Land Affected:	WHOLE OF RESERVE		
Grantor(s):	681 - Kitsumkalum		
Grantee(s):	CROWN CANADA		
Remarks:	KITSUMKAYLUM BAND NOW CALLED KITSUMKALUM BAND. LETTER ATT'D		

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

PROV OC

Instrument Date:	1969/05/13	Term:	
Registration Number:	4111-118	Effective Date:	
Registration Date:	1971/02/26 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	1,155.000 Acres
Land Affected:	WHOLE OF RESERVE		
Grantor(s):	CROWN BRITISH COLUMBIA		
Grantee(s):	CROWN CANADA		
Remarks:	OC#1555 WAIVES REVISIONARY INTEREST PROV OC REG #8042		

ADDENDUM

Instrument Date:	1969/06/01	Term:	
Registration Number:	10657	Effective Date:	
Registration Date:	1969/06/16 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	1.730 Acres
Land Affected:	R/W CLSR 55376		
Grantor(s):	CROWN CANADA		
Grantee(s):	BRITISH COLUMBIA TELEPHONE COMPANY		
Remarks:	AMENDS LAND DESCRIPTION OF PERMIT REG #10656 INSTRUMENT DATE APPROXIMATE		

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

ASSIGNMENT

Instrument Date:	1970/01/01	Term:	
Registration Number:	1878-34	Effective Date:	
Registration Date:	1970/07/21 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	55.600 Acres
Land Affected:	AS SHOWN ON SKETCH ATT'D		
Grantor(s):	CELGAR LIMITED		
Grantee(s):	SKEENA KRAFT LIMITED		
Remarks:	SEE PERMIT REG #1877-034		

PERMIT

Instrument Date:	1970/09/08	Term:	2y 3m 0d
Registration Number:	6399-203	Effective Date:	1970/01/01
Registration Date:	1971/05/21 12:00:00AM	Expiry Date:	1972/03/31
OCPC/MO Number:		Purpose:	
		Area:	56.350 Acres
Land Affected:	AS SHOWN ON SKETCH ATT'D		
Grantor(s):	CROWN CANADA		
Grantee(s):	CANADIAN CELLULOSE COMPANY		
Remarks:	LOGGING OPERATION		

INDIAN LANDS REGISTRY SYSTEM

Reserve General Abstract Report

Selected Criteria:

Band: 681 - Kitsumkalum

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

PERMIT

Instrument Date:	1971/10/28	Term:	5y 0m 0d
Registration Number:	9735-329	Effective Date:	1970/10/01
Registration Date:	1971/12/14 12:00:00AM	Expiry Date:	1975/09/30
OCPC/MO Number:		Purpose:	HYDRO LINE
		Area:	1.730 Acres
Land Affected:	CLSR 55376		
Grantor(s):	CROWN CANADA		
Grantee(s):	BRITISH COLUMBIA TELEPHONE COMPANY		
Remarks:	AUTHORIZING BCR ATT'D		

LICENCE

Instrument Date:	1972/04/01	Term:	2y 0m 0d
Registration Number:	X19526	Effective Date:	1972/04/01
Registration Date:	1973/11/26 12:00:00AM	Expiry Date:	1974/03/31
OCPC/MO Number:		Purpose:	
Land Affected:	AS SHOWN ON SKETCH ATT'D		
Grantor(s):	CROWN CANADA		
Grantee(s):	CANADIAN CELLULOSE COMPANY LIMITED		
Remarks:	TEMPORARY OCCUPATION FOR LOGGING OPERATION. SEE REG #39885		

INDIAN LANDS REGISTRY SYSTEM

Reserve General Abstract Report

Selected Criteria:

Band: 681 - Kitsumkalum

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

PERMIT

Instrument Date:	1972/09/03	Term:	1y 6m 13d
Registration Number:	X19092	Effective Date:	1972/09/03
Registration Date:	1973/11/06 12:00:00AM	Expiry Date:	1974/03/15
OCPC/MO Number:		Purpose:	
Land Affected:	AS DESCRIBED IN SCHEDULE A ATT'D		
Grantor(s):	CROWN CANADA		
Grantee(s):	CANADIAN NATIONAL RAILWAY COMPANY		
Remarks:	TO REMOVE & PROCESS ROCK. RELINQUISHES INTEREST IN REG#11571		

LEASE

Instrument Date:	1973/04/01	Term:	1y 0m 0d
Registration Number:	X17383	Effective Date:	1973/04/01
Registration Date:	1973/08/16 12:00:00AM	Expiry Date:	1974/03/31
OCPC/MO Number:		Purpose:	
		Area:	2.000 Acres
Land Affected:	AS SHOWN OUTLINED IN RED ON SKETCH ATT'D		
Grantor(s):	CANADIAN NATIONAL RAILWAY COMPANY		
Grantee(s):	CROWN CANADA		
Remarks:	OPTION TO RENEW. TOURIST FACILITIES SITE. BCR ATT'D PERMIT REG #11571		

INDIAN LANDS REGISTRY SYSTEM

Reserve General Abstract Report

Selected Criteria:

Band: 681 - Kitsumkalum

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

ADDENDUM

Instrument Date:	1974/04/25	Term:	
Registration Number:	39885	Effective Date:	
Registration Date:	1975/04/15 12:00:00AM	Expiry Date:	1975/03/31
OCPC/MO Number:		Purpose:	
Land Affected:	AS SHOWN ON SKETCH ATT'D TO LICENSE REG #X19526		
Grantor(s):	CROWN CANADA		
Grantee(s):	CANADIAN CELLULOSE COMPANY LIMITED		
Remarks:	EXTENDS TERM OF LICENSE REG #X19526		

OCPC

Instrument Date:	1974/05/30	Term:	
Registration Number:	X24897	Effective Date:	
Registration Date:	1974/08/26 12:00:00AM	Expiry Date:	
OCPC/MO Number:	PC #1211	Purpose:	
Land Affected:	WHOLE OF RESERVE		
Grantor(s):	CROWN CANADA		
Grantee(s):	681 Kitsumkalum		
Remarks:	PC#1211 CANCELS TIMBER SURRENDER REG#11625 & OCPC REG#X16584		

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

SURRENDER

Instrument Date:	1976/02/10	Term:	21y 0m 1d
Registration Number:	49247	Effective Date:	1976/02/10
Registration Date:	1976/09/30 12:00:00AM	Expiry Date:	1997/02/10
OCPC/MO Number:		Purpose:	FOR LEASE
		Area:	71.220 Acres
Land Affected:	PCL A CLSR 59793		
Grantor(s):	681 - Kitsumkalum		
Grantee(s):	CROWN CANADA		
Remarks:	ACCEPTING OCPC #1976-2150 ATT'D. SEE LEASE REG #53243		

PERMIT

Instrument Date:	1976/09/10	Term:	5y 0m 0d
Registration Number:	49829	Effective Date:	1975/10/01
Registration Date:	1976/11/12 12:00:00AM	Expiry Date:	1980/09/30
OCPC/MO Number:		Purpose:	HYDRO LINE
Land Affected:	R/W CLSR 55376		
Grantor(s):	CROWN CANADA		
Grantee(s):	BRITISH COLUMBIA TELEPHONE COMPANY		
Remarks:	AUTHORIZING BCR ATT'D		

INDIAN LANDS REGISTRY SYSTEM

Reserve General Abstract Report

Selected Criteria:

Band: 681 - Kitsumkalum

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

PERMIT

Instrument Date:	1977/07/26	Term:	
Registration Number:	55216	Effective Date:	1977/07/26
Registration Date:	1977/10/25 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	HYDRO & COMMUNIC
Land Affected:	AS SHOWN IN RED ON SCHEDULE A ATT'D		
Grantor(s):	CROWN CANADA		
Grantee(s):	BRITISH COLUMBIA TELEPHONE COMPANY BRITISH COLUMBIA HYDRO & POWER AUTHORITY		
Remarks:	HYDRO & TELECOMMUNICATIONS EXTENSIONS REG #111641 & #111642		

PERMIT

Instrument Date:	1978/04/01	Term:	18y 0m 0d
Registration Number:	62270	Effective Date:	1978/04/01
Registration Date:	1979/02/26 12:00:00AM	Expiry Date:	1996/03/31
OCPC/MO Number:		Purpose:	HYDRO LINE
Land Affected:	AS SHOWN IN RED ON SKETCH MARKED EXHIBIT A ATT'D		
Grantor(s):	CROWN CANADA		
Grantee(s):	CANADIAN CELLULOSE COMPANY LIMITED		
Remarks:	20 FT WIDE POWERLINE R/W		

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

PERMIT

Instrument Date:	1985/01/25	Term:	8y 0m 0d
Registration Number:	100137	Effective Date:	1982/01/01
Registration Date:	1985/02/04 12:00:00AM	Expiry Date:	1989/12/31
OCPC/MO Number:		Purpose:	
Land Affected:	AS SHOWN OUTLINED IN RED ON SCHEDULE B ATT'D		
Grantor(s):	CROWN CANADA		
Grantee(s):	CANADIAN NATIONAL RAILWAY COMPANY		
Remarks:	QUARRY OPERATION. RELINQUISHES INTEREST IN PERMIT REG#X19092		

BCR

Instrument Date:	1985/10/01	Term:	
Registration Number:	111641	Effective Date:	
Registration Date:	1987/04/09 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
Land Affected:	AS DESCRIBED IN DOCUMENT		
Grantor(s):	CROWN CANADA		
Grantee(s):	BRITISH COLUMBIA TELEPHONE COMPANY		
Remarks:	EXTENDS TELEPHONE FACILITIES. SEE PERMIT REG #55216		

INDIAN LANDS REGISTRY SYSTEM

Reserve General Abstract Report

Selected Criteria:

Band: 681 - Kitsumkalum

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

BCR

Instrument Date:	1986/02/07	Term:	
Registration Number:	111642	Effective Date:	
Registration Date:	1987/04/09 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
Land Affected:	AS SHOWN ON DRAWING #YP3-T083-0009 ATT'D		
Grantor(s):	CROWN CANADA		
Grantee(s):	BRITISH COLUMBIA TELEPHONE COMPANY		
Remarks:	EXTENDS TELEPHONE FACILITIES. SEE PERMIT REG #55216		

RELINQUISHMENT

Instrument Date:	1992/12/14	Term:	
Registration Number:	211680	Effective Date:	1992/12/14
Registration Date:	1993/02/25 1:22:49PM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	14.210 Acres
Land Affected:	RIGHT-OF-WAY AS SHOWN ON CLSR RD3410		
Grantor(s):	SKEENA CELLULOSE INC WESTAR TIMBER LTD		
Grantee(s):	CROWN CANADA		
Remarks:	EASEMENT REG# X16809 SUPPORTING DOCUMENTATION TRANSFERRING INTEREST TO GRANTOR ATT'D		

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

SETTLEMENT AGREEMENT

Instrument Date:	1995/02/10	Term:	
Registration Number:	232030	Effective Date:	
Registration Date:	1995/04/20 10:48:16AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
Land Affected:	AS DESCRIBED IN AGREEMENT		
Grantor(s):	CROWN CANADA		
Grantee(s):	681 Kitsumkalum CROWN BRITISH COLUMBIA		
Remarks:	AGREES TO COMPENSATION,AGREES TO RECCOMMEND THAT CERTAIN LANDS BE TRANSFERRED TO PROVINCE FOR HIGHWAY PURPOSES OR OTHER WORKS OF PUBLIC UTILITY,AGREES TO RECOMMEND THAT CERTAIN LANDS BE ADDED TO RESERVES, AGEES TO OTHER TERMS AND CONDITIONS		

OCPC

Instrument Date:	1999/03/04	Term:	
Registration Number:	269259	Effective Date:	
Registration Date:	1999/03/26 10:09:02AM	Expiry Date:	
OCPC/MO Number:	PC #1999-351	Purpose:	ROAD
		Area:	8.770 Hectares
Land Affected:	CLSR 60728 EXCEPT PTN OF SAID HIGHWAY RIGHT OF WAY WITHIN IN THE BEDS OF THE SKEENA & KITSUMKAYLUM RIVERS, PTN OF SAID HIGHWAY RIGHT OF WAY WITHIN RAILWAY CLSR RR885A		
Grantor(s):	CROWN CANADA		
Grantee(s):	CROWN BRITISH COLUMBIA		
Remarks:	PC #1999-351 - PURSUANT TO SUBSECTION 35(1) OF THE INDIAN ACT CONSENTS TO THE TAKING OF THE LANDS AND PURSUANT TO SUBSECTION 35(3) OF THE INDIAN ACT AUTHORIZES THE TRANSFER OF THE LANDS		

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

PROV OC

Instrument Date:	2000/03/06	Term:	
Registration Number:	279233	Effective Date:	
Registration Date:	2000/03/16 11:01:16AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	8.780 Acres
Land Affected:	PTNS OF ROAD R/W SHOWN ON CLSR PLAN RD3293		
Grantor(s):	CROWN BC		
Grantee(s):	CROWN CANADA		
Remarks:	OC #185 TRANSFER OF ADMINISTRATION AND CONTROL		

TRANSFER

Instrument Date:	2000/03/08	Term:	
Registration Number:	279232	Effective Date:	
Registration Date:	2000/03/16 10:59:03AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	8.770 Hectares
Land Affected:	AS SHOWN AS HIGHWAY R/W ON CLSR 60728 EXCEPT PTN AS DESCRIBED IN DOCUMENT		
Grantor(s):	CROWN CANADA		
Grantee(s):	CROWN BC		
Remarks:	OCPC #1999-351 REG #269259 - TRANSFER OF ADMINISTRATION AND CONTROL OF FEDERAL PROPERTY		

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

OCPC

Instrument Date:	2001/01/23	Term:	
Registration Number:	286623	Effective Date:	
Registration Date:	2001/02/19 2:54:59PM	Expiry Date:	
OCPC/MO Number:	PC #2001-114	Purpose:	ADDITION
		Area:	3.550 Hectares
Land Affected:	PORTIONS SHOWN ON CLSR 60728		
Grantor(s):	CROWN CANADA		
Grantee(s):	681 Kitsumkalum		
Remarks:	PC #2001-114 ADDITION TO RESERVE		

PERMIT

Instrument Date:	2013/04/03	Term:	4y 0m 1d
Registration Number:	6071782	Effective Date:	2013/10/30
Registration Date:	2013/04/16 7:53:39PM	Expiry Date:	2017/10/30
OCPC/MO Number:		Purpose:	QUARRY
Land Affected:	Area on northern boundary, West of rail line, as described on "Development Plan Kitsumkalum Quarry" map, forming part of Appendix B.		
Grantor(s):	Crown Canada		
Grantee(s):	Kalum Quarry Limited Partnership		
Remarks:	Permit #1-681-07646-2012. Authorizes extraction of non-metallic minerals.		

INDIAN LANDS REGISTRY SYSTEM

Reserve General Abstract Report

Selected Criteria:

Band: 681 - Kitsumkalum

Reserve: 07646 - KITSUMKAYLUM 1

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

PERMIT

Instrument Date:	2018/07/13	Term:	5y 0m 1d
Registration Number:	6110133	Effective Date:	2018/05/21
Registration Date:	2018/10/17 2:45:48PM	Expiry Date:	2023/05/21
OCPC/MO Number:		Purpose:	QUARRY
Land Affected:	AREA ON NORTHERN BOUNDARY, WEST OF RAIL LINE, AS DESCRIBED ON "DEVELOPMENT PLAN KITSUMKALUM QUARRY" MAP, FORMING PART OF APPENDIX B		
Grantor(s):	Crown Canada		
Grantee(s):	KALUM QUARRY LIMITED PARTNERSHIP		
Remarks:	PERMIT# 1-681-07646-2018-2022. AUTHORIZES EXTRACTION OF NON-METALLIC MINERALS.		

Reserve: 07647 - DALK-KA-GILA-QUOEUX 2

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

MINUTES OF DECISION

Instrument Date:	1891/10/10	Term:	
Registration Number:	2875-72	Effective Date:	
Registration Date:	1970/11/20 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	133.000 Acres
Land Affected:	RIGHT BANK OF KITSUMKAYLUM RVR 5 MI FROM MOUTH		
Grantor(s):	COMMISSIONER O'REILLY		
Grantee(s):	681 Kitsumkalum		
Remarks:	ALLOTS RESERVE PG 122 SEE ALSO REG # 64648 PG 209		

MINUTES OF DECISION

Instrument Date:	1916/06/30	Term:	
Registration Number:	112954	Effective Date:	
Registration Date:	1987/07/20 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	182.000 Acres
Land Affected:	SKEENA DIST. ON RT BK OF KITSUMKAYLUM RVR. 5 MI FROM MOUTH		
Grantor(s):	ROYAL COMMISSION		
Grantee(s):	681 Kitsumkalum		
Remarks:	PG 589 CONFIRMS RESERVE (PREV FISHING # 2)		

Reserve: 07647 - DALK-KA-GILA-QUOEUX 2

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

PROV OC

Instrument Date:	1923/07/26	Term:	
Registration Number:	92925	Effective Date:	
Registration Date:	1984/02/20 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	182.000 Acres
Land Affected:	SKEENA DIST ON RT BK OF KITSUMKAYLUM RVR 5 MI FROM MOUTH		
Grantor(s):	CROWN BRITISH COLUMBIA		
Remarks:	OC #911. CONFIRMS RESERVE ACCEPTS MIN. OF DEC. REG. #112954		

OCPC

Instrument Date:	1924/07/19	Term:	
Registration Number:	12073	Effective Date:	
Registration Date:	1969/08/11 12:00:00AM	Expiry Date:	
OCPC/MO Number:	PC #1265	Purpose:	
		Area:	182.000 Acres
Land Affected:	SKEENA DIST RT BK KITSUMKAYLUM RVR 5 MI FROM MOUTH		
Grantor(s):	CROWN CANADA		
Remarks:	PC #1265 CONFIRMS RESERVE		

Reserve: 07647 - DALK-KA-GILA-QUOEUX 2

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

PROV OC

Instrument Date:	1938/07/29	Term:	
Registration Number:	8042	Effective Date:	
Registration Date:	1969/02/14 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	182.000 Acres

Land Affected: SKEENA DIST RT BK KITSUMKAYLUM RVR 5MI FRM MOUTH CLSR TBC160
Grantor(s): CROWN BRITISH COLUMBIA
Grantee(s): CROWN CANADA
Remarks: OC#1036 TRANSFERS MANAGEMENT & CONTROL PROV OC REG #4111-118

BCR

Instrument Date:	1965/07/15	Term:	
Registration Number:	13527	Effective Date:	
Registration Date:	1969/09/24 1:55:00PM	Expiry Date:	
OCPC/MO Number:		Purpose:	

Land Affected:
Grantor(s): 681 - Kitsumkalum
Remarks: THAT THE NAME OF KITSUNKAYLUM FISHERY NO 2 RESERVE BE CHANGE TO DALK-KA-GILA-QUOEUX NO 2

Reserve: 07647 - DALK-KA-GILA-QUOEUX 2

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

MINISTERIAL ORDER

Instrument Date:	1966/03/16	Term:	
Registration Number:	7200	Effective Date:	
Registration Date:	1968/12/20 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	182.000 Acres

Land Affected: WHOLE OF RESERVE
Grantor(s): MINISTER
Grantee(s): 681 Kitsumkalum
Remarks: RESERVE NAME CHANGE TO DALK-KA-GILA-QUOEUX #2 BCR REG# 13527 FROM FISHERY NO. 2

PROV OC

Instrument Date:	1969/05/13	Term:	
Registration Number:	4111-118	Effective Date:	
Registration Date:	1971/02/26 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	

Land Affected: WHOLE OF RESERVE
Grantor(s): CROWN BRITISH COLUMBIA
Grantee(s): CROWN CANADA
Remarks: OC #1555 WAIVES REVERSIONARY INTEREST IN PROV OC REG #8042

Reserve: 07647 - DALK-KA-GILA-QUOEUX 2

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

SETTLEMENT AGREEMENT

Instrument Date:	1995/02/10	Term:	
Registration Number:	232030	Effective Date:	
Registration Date:	1995/04/20 10:48:16AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
Land Affected:	AS DESCRIBED IN AGREEMENT		
Grantor(s):	CROWN CANADA		
Grantee(s):	681 Kitsumkalum CROWN BRITISH COLUMBIA		
Remarks:	AGREES TO COMPENSATION,AGREES TO RECCOMMEND THAT CERTAIN LANDS BE TRANSFERRED TO PROVINCE FOR HIGHWAY PURPOSES OR OTHER WORKS OF PUBLIC UTILITY,AGREES TO RECOMMEND THAT CERTAIN LANDS BE ADDED TO RESERVES, AGEES TO OTHER TERMS AND CONDITIONS		

PROV OC

Instrument Date:	1999/10/07	Term:	
Registration Number:	278433	Effective Date:	
Registration Date:	2000/02/15 8:50:05AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	40.500 Hectares
Land Affected:	DISTRICT LOT 8061 CLSR 78428		
Grantor(s):	CROWN BRITISH COLUMBIA		
Grantee(s):	CROWN CANADA		
Remarks:	TRANSFERS ADMINISTRATION AND CONTROL AND BENEFIT OF LANDS DESCRIBED IN PERPETUITY TO CROWN CANADA ACCEPTANCE OF A TRANSFER OF ADMINISTRATION AND CONTROL OF REAL PROPERTY FRO A PROVINCE ATTACHED		

INDIAN LANDS REGISTRY SYSTEM

Reserve General Abstract Report

Selected Criteria:

Band: 681 - Kitsumkalum

Reserve: 07647 - DALK-KA-GILA-QUOEUX 2

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

OCPC

Instrument Date:	2000/01/12	Term:	
Registration Number:	277971	Effective Date:	
Registration Date:	2000/02/01 8:34:39AM	Expiry Date:	
OCPC/MO Number:	PC #2000-27	Purpose:	
		Area:	40.500 Hectares
Land Affected:	DISTRICT LOT 8061 CLSR 78428		
Grantor(s):	CROWN CANADA		
Grantee(s):	681 Kitsumkalum		
Remarks:	PC #2000-27 ADDITION TO RESERVE		

Reserve: 07648 - ZIMAGORD 3

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

MINUTES OF DECISION

Instrument Date:	1891/10/10	Term:	
Registration Number:	13806	Effective Date:	
Registration Date:	1969/10/07 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	73.000 Acres
Land Affected:	ON RIGHT BANK OF SKEENA RIV AT MOUTH OF ZIMAGORD RIV		
Grantor(s):	COMMISSIONER OREILLY		
Grantee(s):	681 Kitsumkalum		
Remarks:	ALLOTS RESERVE SEE ALSO 2875-072 PG 123 & 64648 PG 209		

OCPC

Instrument Date:	1909/10/01	Term:	
Registration Number:	14435	Effective Date:	
Registration Date:	1969/10/31 12:00:00AM	Expiry Date:	
OCPC/MO Number:	PC #2026	Purpose:	RAILWAY
Land Affected:	AS DESCRIBED		
Grantor(s):	CROWN CANADA		
Grantee(s):	GRAND TRUNK PACIFIC RAILWAY		
Remarks:	PC #2026 RECOMMENDS LAND ACQUISITION		

Reserve: 07648 - ZIMAGORD 3

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

MINUTES OF DECISION

Instrument Date:	1916/06/30	Term:	
Registration Number:	112954	Effective Date:	
Registration Date:	1987/07/20 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
Land Affected:	SKEENA DIST ON RIGHT BANK OF SKEENA RIV		
Grantor(s):	ROYAL COMMISSION		
Grantee(s):	681 Kitsumkalum		
Remarks:	CONFIRMS RESERVE		

PROV OC

Instrument Date:	1923/07/26	Term:	
Registration Number:	92925	Effective Date:	
Registration Date:	1984/02/20 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
Land Affected:	SKEENA DIST ON RIGHT BANK OF SKEENA RIV		
Grantor(s):	CROWN BRITISH COLUMBIA		
Remarks:	OC #911 CONFIRMS & ACCEPTS MINUTES OF DECISION REG #112954		

Reserve: 07648 - ZIMAGORD 3

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

OCPC

Instrument Date:	1924/07/19	Term:	
Registration Number:	12073	Effective Date:	
Registration Date:	1969/08/11 12:00:00AM	Expiry Date:	
OCPC/MO Number:	PC #1265	Purpose:	
		Area:	77.000 Acres
Land Affected:	SKEENA DIST ON RIGHT BANK SKEENA RIV		
Grantor(s):	CROWN CANADA		
Remarks:	PC #1265 CONFIRMS RESERVE		

OCPC

Instrument Date:	1928/06/20	Term:	
Registration Number:	14153	Effective Date:	
Registration Date:	1969/10/20 12:00:00AM	Expiry Date:	
OCPC/MO Number:	PC #1006	Purpose:	RAILWAY
		Area:	3.010 Acres
Land Affected:	RIGHT OF WAY CLSR RR883A		
Grantor(s):	CROWN CANADA		
Grantee(s):	GRAND TRUNK PACIFIC RAILWAY COMPANY		
Remarks:	PC 1006, TRANSFERS R/W, SEE PATENT 21443 DATED NOVEMBER 30, 1928, SALES BOOK #1, FOLIO 387, SALE 1 FILE 22168-17GTP		

Reserve: 07648 - ZIMAGORD 3

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

PROV OC

Instrument Date:	1938/07/29	Term:	
Registration Number:	8042	Effective Date:	
Registration Date:	1969/02/14 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	77.000 Acres
Land Affected:	SKEENA DIST ON RIGHT BANK SKEENA RIV		
Grantor(s):	CROWN BRITISH COLUMBIA		
Grantee(s):	CROWN CANADA		
Remarks:	OC #1036 TRANSFERS MANAGEMENT & CONTROL SEE REG #4111-118		

SURRENDER

Instrument Date:	1952/04/16	Term:	
Registration Number:	13805	Effective Date:	1952/05/16
Registration Date:	1969/10/07 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	73.990 Acres
Land Affected:	ON RIGHT BANK SKEENA RIV AT JCT OF MOLYBDENUM		
Grantor(s):	681 - Kitsumkalum		
Grantee(s):	CROWN CANADA		
Remarks:	ACCEPTING OCPC 2882 ATT'D PURPOSE: TIMBER		

Reserve: 07648 - ZIMAGORD 3

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

PROV OC

Instrument Date:	1969/05/13	Term:	
Registration Number:	4111-118	Effective Date:	
Registration Date:	1971/02/26 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
Land Affected:	WHOLE OF RESERVE		
Grantor(s):	CROWN BRITISH COLUMBIA		
Grantee(s):	CROWN CANADA		
Remarks:	OC #1555 WAIVES REVISIONARY INTEREST IN PROV OC REG #8042		

OCPC

Instrument Date:	1978/08/09	Term:	
Registration Number:	72868	Effective Date:	
Registration Date:	1981/02/03 12:00:00AM	Expiry Date:	
OCPC/MO Number:	PC #2469	Purpose:	ROAD
		Area:	6.200 Acres
Land Affected:	CLSR 60713		
Grantor(s):	CROWN CANADA		
Grantee(s):	CROWN BRITISH COLUMBIA		
Remarks:	PC #2469 RESERVING ALL MINES & MINERALS		

Reserve: 07648 - ZIMAGORD 3

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

REVOCATION

Instrument Date:	1987/05/08	Term:	
Registration Number:	117008	Effective Date:	1987/05/08
Registration Date:	1988/05/10 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
Land Affected:	WHOLE OF RESERVE		
Grantor(s):	681 - Kitsumkalum		
Grantee(s):	CROWN CANADA		
Remarks:	REVOKES SURRENDER REG #13805 SEE ACCEPTING OCPC 1988-569 ATT		

SETTLEMENT AGREEMENT

Instrument Date:	1995/02/10	Term:	
Registration Number:	232030	Effective Date:	
Registration Date:	1995/04/20 10:48:16AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
Land Affected:	AS DESCRIBED IN AGREEMENT		
Grantor(s):	CROWN CANADA		
Grantee(s):	681 Kitsumkalum CROWN BRITISH COLUMBIA		
Remarks:	AGREES TO COMPENSATION,AGREES TO RECCOMMEND THAT CERTAIN LANDS BE TRANSFERRED TO PROVINCE FOR HIGHWAY PURPOSES OR OTHER WORKS OF PUBLIC UTILITY,AGREES TO RECOMMEND THAT CERTAIN LANDS BE ADDED TO RESERVES, AGEES TO OTHER TERMS AND CONDITIONS		

Reserve: 07648 - ZIMAGORD 3

Region/Province: British Columbia/BRITISH COLUMBIA
Band: 681 - Kitsumkalum

PROV OC

Instrument Date:	2000/03/06	Term:	
Registration Number:	279233	Effective Date:	
Registration Date:	2000/03/16 11:01:16AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
		Area:	1.620 Acres
Land Affected:	PTN SHOWN ON CLSR PLAN 60713		
Grantor(s):	CROWN BRITISH COLUMBIA		
Grantee(s):	CROWN CANADA		
Remarks:	OC #185 TRANSFER OF ADMINISTRATION AND CONTROL		

OCPC

Instrument Date:	2001/01/23	Term:	
Registration Number:	286623	Effective Date:	
Registration Date:	2001/02/19 2:54:59PM	Expiry Date:	
OCPC/MO Number:	PC #2001-114	Purpose:	ADDITION
		Area:	.655 Hectares
Land Affected:	OLD HIGHWAY NO. 16 CLSR 60713		
Grantor(s):	CROWN CANADA		
Grantee(s):	681 Kitsumkalum		
Remarks:	PC #2001-114 ADDITION TO RESERVE		

INDIAN LANDS REGISTRY SYSTEM

Reserve General Abstract Report

Selected Criteria:

Band: 681 - Kitsumkalum

Reserve: 07649 - PORT ESSINGTON

Region/Province: British Columbia/BRITISH COLUMBIA
Band(s): 681 - Kitsumkalum
Band(s): 680 - Kitselas

DEED

Instrument Date:	1902/03/07	Term:	
Registration Number:	X12902	Effective Date:	
Registration Date:	1972/09/29 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
Land Affected:	PART OF TOWNSITE OF ESSINGTON PLAN 537 AS DESCRIBED BY METES & BOUNDS		
Grantor(s):	ROBERT CUNNINGHAM		
Grantee(s):	CROWN CANADA		
Remarks:	SEE SUPREME COURT RULING ATTACHED		

CERTIFICATE OF TITLE

Instrument Date:	1902/03/24	Term:	
Registration Number:	X12903	Effective Date:	
Registration Date:	1972/09/29 12:00:00AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
Land Affected:	PART OF RESERVED MAP 537 TOWN OF PORT ESSINGTON		
Grantor(s):	ROBERT CUNNINGHAM		
Grantee(s):	CROWN CANADA		
Remarks:	CERTIFICATE OF TITLE #7616C VESTS TITLE IN CROWN CANADA		

INDIAN LANDS REGISTRY SYSTEM

Reserve General Abstract Report

Selected Criteria:

Band: 681 - Kitsumkalum

Reserve: 07649 - PORT ESSINGTON

Region/Province: British Columbia/BRITISH COLUMBIA
Band(s): 681 - Kitsumkalum
Band(s): 680 - Kitselas

REGISTRAR'S NOTE

Instrument Date:	2004/11/01	Term:	
Registration Number:	******	Effective Date:	
Registration Date:	2004/12/01 7:24:59AM	Expiry Date:	
OCPC/MO Number:		Purpose:	
Land Affected:	WHOLE OF RESERVE		
Remarks:	PORT ESSINGTON IS A RESERVE WITHIN THE MEANING OF SECTION 2(J) OF THE 1927 INDIAN ACT		

--- END OF REPORT ---

TETRA TECH

OQM | Organizational Quality Management Program

Supplemental Phase II Environmental Site Assessment
Kitsumkalum First Nation

PRESENTED TO

Kitsumkalum First Nation
Indigenous and Northern Affairs Canada

MAY 17, 2017
ISSUED FOR USE
FILE: 704-ENV.VENV03133-01

Tetra Tech Canada Inc.
150, 1715 Dickson Avenue
Kelowna, BC V1Y 9G6 CANADA
Tel 250.862.4832 Fax 250.862.2941

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EXECUTIVE SUMMARY

Tetra Tech Canada Inc. (Tetra Tech) was retained by the Kitsumkalum First Nation (KFN) and Indigenous and Northern Affairs Canada (INAC) to conduct a Supplemental Phase II Environmental Site Assessment (ESA) of selected lands within the KFN's Kitsumkalum IR No. 1 located near Terrace, BC (herein referred to as the "Sites").

This work follows the recommendations made in Tetra Tech's Phase II ESA report completed in 2016 on the KFN Kitsumkalum IR No. 1 and Zimagord IR #3 lands. Tetra Tech understands that the Supplemental Phase II ESA was commissioned to determine the environmental condition of the reserve lands as part of the treaty negotiations. The objectives of this Supplemental Phase II ESA were to assess background groundwater quality, further assess the possible presence of buried wood waste at the historic log sorting and reloading area (Area of Potential Environmental Concern (APEC) 1), and delineate the extent of soil with a toluene concentration greater than the applicable guidelines found south of the former Kalum sawmill site (APEC 8).

The overall results of the Supplemental Phase II ESA are summarized in the following tables.

Supplemental Phase II ESA Findings

APEC	Identified COCs Exceeding CCME Guidelines and/or CSR standards	
	Soil	**Groundwater / Surface Water**
APEC 1 (IR No. 1) Historic Log Sorting and Reloading Area	Based on observations at previous test locations and locations investigated as part of this Supplemental Phase II ESA, buried wood waste appeared to be most prevalent in test locations at the southern end of the former log sort and reloading yard. At four locations along the southeast perimeter the wood waste layer ranged from approximately 2 to 4 m thick. At locations elsewhere, buried wood waste appeared to be localized and less than 1 m thick.	<u>Groundwater (MW15-102 and MW15-105):</u> ▪ Field pH exceeds the FIWQG Range ▪ Aluminum, arsenic, and iron exceed FIWQG ▪ Aluminum, iron and manganese exceed CDWQG for operational, taste, or aesthetic concerns only. ▪ Arsenic exceeds CDWQG and CSR DW standards ▪ Cadmium exceeds FIWQG at MW15-105 ▪ MW15-102 and MW15-105 contain elevated concentrations of tannins and lignins <u>Surface water:</u> ▪ Surface water sample 16SW101 is considered to have parameters at concentrations that are representative of background, since the sample location is upstream of APEC 1. Therefore, parameters aluminum, chromium, and copper that were previously exceeding at sample SW15-101 are considered elevated as compared to concentrations identified at 16SW101.
APEC 8 (IR No. 1) Off-site: Former Kalum Forest Products Mill Site	Low levels of hydrocarbons were identified in 5 of the 9 testpits completed at varied depths of 0.5 m to 3 mbgs at concentrations exceeding the CCME standards. Due to the varied depths and widely spaced locations where benzene and toluene were found and the current uncertainty of the source, delineating these exceedances may not be practical.	▪ Groundwater assessed during Phase II ESA contained hydrocarbon concentrations below the applicable guidelines/standards.

APEC	Identified COCs Exceeding CCME Guidelines and/or CSR standards	
	Soil	Groundwater / Surface Water
Background Monitoring Wells	Test locations for the purpose of groundwater assessment only	▪ Manganese exceeded the CDWQG during the October 2016 monitoring event only. ▪ Selenium exceeded FIWQG at one of the three locations during the October 2016 monitoring event only.

Notes:
APEC - Area of Potential Environmental Concern
CCME - Canadian Council of Ministers of the Environment guidelines protective of soil, water and sediment.
CSR – BC Contaminated Sites Regulation standards protective of soil, water and sediment.
CSR DW – CSR standards protective of drinking water
FIWQG – Federal Interim Groundwater Quality Guidelines protective of freshwater aquatic life
CDWQG – Guidelines for Canadian Drinking Water Quality
COC – Contaminant of Concern

Summary of Natural Background Groundwater Results with Previous and Current Findings

APEC	Comparison of Identified COCs to Natural Background Concentrations
APEC 1 (IR No. 1) Historic Log Sorting and Reloading Area	▪ Concentrations of field pH, aluminum, arsenic, cadmium, copper, iron, and manganese exceed relevant guidelines/standards and are outside of the natural background concentration range.
APEC 6 (IR No. 1) Old Quarry Road Dumpsite	▪ Concentrations of aluminum, copper, iron and zinc exceed relevant guidelines and are outside of the natural background concentration range. . ▪ Field pH, cadmium, and manganese were identified to be within the natural background range.
APEC 7 (IR No. 1) Tempo Gas Station	▪ Cadmium exceeded FIWQG and was outside the natural background range. ▪ Field pH and manganese were identified to be within the natural background range.
APEC 8 (IR No. 1) Off-site: Former Kalum Forest Products Mill Site	▪ Field pH, aluminum, cadmium, copper, iron, lead, and manganese exceeded relevant guidelines and were outside the natural background ranges.

Dissolved metals concentrations in the three background wells are generally lower than in the wells installed on APECs 1, 6, 7 and 8. It is noted that the soils in APECs 1, 6, 7 and 8 do not have elevated metal concentrations. The metal soil concentrations in these areas are similar to those found in the other areas investigated, namely APECs 2, 3, 4, and 9. Therefore, the source of the elevated dissolved metals in groundwater at APECs 1, 6, 7 and 8 has not been confirmed.

Therefore, APECs 1, 6, 7, and 8 are considered Areas of Environmental Concern (AECs).

Based on the overall findings of the Phase II ESA and Supplemental Phase II ESA of the Sites and current land uses, we have provided a summary of the impacts found within each AEC and recommended potential remedial options.

Recommendations and Potential Remedial Options

AEC#	Further Investigation Required	Estimated Soil Impacts > CCME	Groundwater/ Surface Water Impacts > CCME	Sediment Impacts > CCME	Remedial Option
AEC 1 (IR No. 1) Historic Log Sorting and Reloading Area	Yes	None	pH, aluminum, arsenic, cadmium, copper and iron and manganese	none	Risk Assessment /Management of elevated metals in groundwater
AEC 6 (IR No. 1) Old Quarry Road Dumpsite	Yes	Zinc > RL but < CL CCME guidelines	aluminum, copper, iron and zinc	N/A	Risk Assessment/ Management of elevated metals in groundwater
AEC 7 (IR No. 1) Tempo Gas Station	Yes	Arsenic and nickel, 10 m^3	Cadmium	N/A	Risk Assessment/ Management of elevated metals in soil and groundwater
AEC 8 (IR No. 1) Off-site: Former Kalum Forest Products Mill Site	Yes – onsite and off-site	Benzene and Toluene, volume unknown	pH, aluminum, cadmium, copper, iron and lead, and manganese	N/A	Risk Assessment/ Management of elevated hydrocarbons in metals in groundwater Risk Assessment /Management/Remediation of elevated hydrocarbons in soil

Notes:
AEC – Area of Environmental Concern
CCME – Canadian Council of Ministers of the Environment guidelines protective of soil, water and sediment.
RL – Residential/Parkland use
CL – Commercial Land use

Prior to proceeding with the risk assessment/risk management approach for remediation of AECs 1, 6, 7, and 8, the following Phase III ESA tasks are recommended:

- Survey all existing monitoring wells installed on IR No. 1 to assess groundwater flows across the aquifer and to determine where the aquifer is recharging from/discharging to;
- Monitor groundwater elevations in all monitoring wells during three seasons (i.e. spring, summer, and fall);
- Collect groundwater samples from all monitoring wells with previously identified metal exceedances at AECs 1, 6, 7 and 8 and the three background wells, during the spring, summer and fall monitoring events and submit all samples to a laboratory for dissolved metals analysis;
- Collect surface water samples from an upstream location on the Kitsumkalum River and in an area where groundwater from AEC 1 may be discharging to the river based on the findings of Tasks 1 and 2 above during the spring, summer and fall monitoring events. Submit all samples to a laboratory for total and dissolved metals, and pH analysis;
- Review available data for the Kitsumkalum drinking water wells and if required collect samples from the Kitsumkalum drinking water wells (pre-treatment) during the spring, summer, and fall monitoring events;

- Depending upon the results of samples collected or reviewed from the Kitsumkalum drinking water wells. If necessary, install two deep monitoring wells within AEC 1 to an approximate depth of 15 to 20 m to confirm metal concentrations within deeper part of aquifer likely to be accessed for drinking water. Collect groundwater samples from the two newly installed monitoring wells and submit to a laboratory for dissolved metals analysis.
- Conduct a biophysical survey of aquatic receiving environment to look for evidence of adverse impact from AEC 1;
- Complete six additional testpits at AEC 8: four within the Former Kalum Forest Products Mill Site and two within the adjacent reserve lands (i.e., one between 17TP05 and 17TP06 and one to the east of 17TP06) and collect up to twelve soil samples for benzene and toluene analysis;
- Advance three boreholes completed as monitoring wells within the Former Kalum Forest Products Mill Site and collect up to six soil samples for benzene and toluene analysis;
- Sample existing monitoring wells and the three newly installed monitoring wells located at AEC 8 and submit to a laboratory for benzene and toluene analysis;
- Install up to three soil vapour probes at identified benzene and toluene soil exceedances at AEC 8 and collect soil vapour samples from the newly installed soil vapour probes for hydrocarbon analysis; and
- Collect a sediment sample at the direction of KFN at a location where the flood channels in the vicinity of AEC 8 enters the Kitsumkalum River and submit to a laboratory for benzene and toluene analysis.

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LIST OF TABLES IN TEXT

APPENDIX SECTIONS

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FIGURES

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ACRONYMS & ABBREVIATIONS

Acronyms/ Abbreviations	Definition
APEC	Area of Potential Environmental Concern
AST	above-ground storage tank
AW	Standards / Guidelines Protective of Aquatic Life
BTEXS	Benzene, Toluene, Ethylbenzene, Xylene, Styrene
CALA	Canadian Association for Laboratory Accreditation
CCME	Canadian Council of Ministers of the Environment
CL	Commercial Land Use
COC	Contaminant of Concern
CSR	British Columbia Contaminated Sites Regulation
CWS	Canada-Wide Standard
DW	Standards / Guidelines Protective of Drinking Water
EMA	Environmental Management Act
ESA	Environmental Site Assessment
FIWQG	Federal Interim Groundwater Quality Guidelines
HEPH	Heavy Extractable Petroleum Hydrocarbons
IACR	Index of Additive Cancer Risk
INAC	Indigenous and Northern Affairs Canada
IL	Industrial Land Use
ISQG	Interim Sediment Quality Guidelines
LEPH	Light Extractable Petroleum Hydrocarbons
LFG	Landfill Gas
mbgs	metres below ground surface
MDL	Laboratory Method Detection Limit
MoE	British Columbia Ministry of Environment
MTBE	Methyl-tertiary-butyl-ether
NAPL	Non-aqueous phase liquid
NCSCS	National Classification System for Contaminated Sites
OSHA	Occupational Safety and Health Association

Acronyms/ Abbreviations	Definition
PEL	Probable Effect Level
ppm	parts per million
QA/QC	Quality Assurance / Quality Control
QMS	Quality Management System
PAH	Polycyclic Aromatic Hydrocarbons
PCOC	Potential Contaminant of Concern
PHC	Petroleum Hydrocarbon Fractions
PVC	Polyvinyl Chloride
RDL	Reportable Detection Limit
RL	Residential Land Use
RPD	Relative Percentage Difference
SLRA	Screening Level Risk Assessment
TPE	Total Potency Equivalents
VH	Volatile Hydrocarbons
VOC	Volatile Organic Compounds
VPH	Volatile Petroleum Hydrocarbons

LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of the Kitsumkalum First Nation, Indigenous and Northern Affairs Canada and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than the Kitsumkalum First Nation, Indigenous and Northern Affairs Canada or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in Tetra Tech's Services Agreement. Tetra Tech's General Conditions are provided in Appendix A of this report

1.0 INTRODUCTION

1.1 General

Tetra Tech Canada Inc. (Tetra Tech) was retained by the Kitsumkalum First Nation (KFN) and Indigenous and Northern Affairs Canada (INAC) to conduct a Supplemental Phase II Environmental Site Assessment (ESA) of select lands within the KFN's Kitsumkalum IR No. 1 located near Terrace, BC (herein referred to as the "Sites").

This work follows the recommendations made in Tetra Tech's Phase II ESA report completed in 2016 on the KFN Kitsumkalum IR No. 1 and Zimagord IR #3 lands. Tetra Tech understands that the Supplemental Phase II ESA was commissioned to determine the environmental condition of the reserve lands as part of the treaty negotiations. The objectives of this Supplemental Phase II ESA were to assess background groundwater quality, further assess the possible presence of buried wood waste at the historic log sorting and reloading area (Area of Potential Environmental Concern (APEC) 1), and delineate the extent of soil with a toluene concentration greater than the applicable guidelines found south of the former Kalum sawmill site (APEC 8).

A change order was signed by Mr. Steve Roberts, Band Manager of the KFN, on September 22, 2016.

1.2 Site Description

The land description, approximate global position and a general description of the Sites is provided below.

Land Description

- Kitsumkalum IR No. 1 – Regional District of Kitimat – Stikine, 0.5 km west of Terrace, BC.

Global Position of the Site (Approximate Centre of the Reserve)

- Latitude: 54º 31' 31.1" N
- Longitude: 128º 40' 25.7" W

General Description

- IR No. 1 is located to the west of the City of Terrace. The southernmost boundaries of the Reserve are along the Yellowhead highway. The Kitsumkalum River borders the east side of the Reserve, which enters the Skeena River near the south east corner. The north and west sides of the Reserve are bounded by forested land.

1.3 Background

The recommendations for further soil and groundwater quality investigation arising from the findings of the 2016 Phase II ESA are detailed as follows:

Table A: Recommendations from 2016 Phase II ESA

Location	2016 Phase II ESA Findings which Warrant Further Investigation	Recommendation for Further Investigation
Historic Log Sorting and Reloading Area – IR No. 1 (APEC 1)	<u>Groundwater:</u> ▪ Dissolved aluminum, arsenic, cadmium, and iron in collected groundwater samples exceeded the Federal Interim Groundwater Quality Guidelines (FIGQG) ▪ Dissolved aluminum, iron and manganese in collected groundwater samples exceeded the Guidelines for Canadian Drinking Water Quality (GCDWQ) ▪ Dissolved cadmium in groundwater exceeded the BC Contaminated Site Regulation aquatic life standard (CSR AW standard) ▪ Elevated concentrations of tannins and lignins were found in groundwater samples collected from groundwater monitoring wells MW15-102 and MW15-105 <u>Surface Water:</u> ▪ Aluminum, chromium, copper and iron exceeded the Canadian Council of Ministers of the Environment (CCME) aquatic life protection (AW) guideline in a collected surface water sample (SW15-01). <u>Buried Wood Waste</u> ▪ Information provided by the community following completion of the 2016 Phase II ESA suggested additional areas to investigate for the presence of buried wood waste	▪ Conduct additional research of available databases for information on regional groundwater background concentration estimates of iron, cadmium and manganese ▪ Install and sample three new groundwater wells to attempt to assess background concentrations of aluminum, cadmium, copper, iron and manganese within the aquifer underlying IR No. 1 ▪ Re-sample MW15-102 and MW15-105 ▪ Re-sample surface water in an undisturbed area upstream from SW15-101 ▪ Excavate testpits at locations identified to Tetra Tech by the community to assess possible presence of buried wood waste
Old Quarry Road Dumpsite – IR No. 1 (APEC 6)	<u>Groundwater:</u> ▪ Dissolved aluminum, copper, iron, and zinc exceeded FIGQG ▪ Iron and manganese exceeded GCDWQ	▪ Conduct research and an investigation into background groundwater quality as described above
Tempo Gas Station – IR No. 1 (APEC 7)	<u>Groundwater:</u> ▪ Dissolved cadmium concentrations exceeded FIGQG ▪ Dissolved manganese exceed GCDWQ	▪ Conduct research and an investigation into background groundwater quality as described above

Location	2016 Phase II ESA Findings which Warrant Further Investigation	Recommendation for Further Investigation
Former Kalum Forest Products Mill Site (off-site) – IR No. 1 (APEC 8)	Groundwater: ▪ Dissolved aluminum and iron concentrations exceeded CCME AW standards ▪ Dissolved aluminum, cadmium, copper, iron and lead exceeded FIGQG ▪ Dissolved aluminum, iron and manganese exceeded GCDWQ Soil: ▪ Toluene marginally exceeded the CCME industrial land use standard in a collected soil sample	▪ Conduct research and an investigation into background groundwater quality as described above ▪ Conduct an onsite testpitting investigation to assess the extent of the identified toluene exceedance in soil

2.0 SCOPE OF SERVICES

The following Supplemental Phase II ESA scope of work was prepared based on the recommendations made in the Phase II ESA report.

- Alerting BC One Call and hiring an independent utility locating contractor [CMH Underground Utilities of Terrace, BC (CMH)] to locate underground utilities at planned drilling and testpitting locations;
- Preparing a site-specific health and safety plan that was implemented during the Supplemental Phase II ESA site works;
- Monitoring the excavation of 17 testpits to a maximum depth of 4.5 metres below ground surface (mbgs) using a 2000 Case 580 Super M backhoe supplied by Kitsumkalum Public Works (KPW) of Terrace, BC;
- Supervising the advancement of three boreholes (16MW1 to 16MW3) and their subsequent installation into background groundwater monitoring wells to a maximum depth of 6.1 mbgs using a track-mounted sonic rig provided by Blue Max Drilling Inc. (Blue Max) of Terrace, BC;
- Logging subsurface soil conditions at testpit and borehole locations; collecting soil samples; and, submitting selected testpit soil samples to Maxxam Analytics (Maxxam) of Burnaby, BC for laboratory analyses of potential contaminants of concern (PCOCs) identified during the Phase II ESA;
- Purging and collecting groundwater samples from two previously installed monitoring wells (15MW102 and 15MW105) and from the newly installed groundwater monitoring wells and submitting the samples to Maxxam for laboratory analysis of PCOCs;
- Collecting one surface water sample (16SW101) on the Kitsumkalum River foreshore of APEC 1 and submitting the samples to Maxxam for laboratory analysis of PCOCs;
- Marking the location of each borehole, testpit, and monitoring well using a handheld Trimble Geo XT; and
- Preparing this Supplemental Phase II ESA report outlining the fieldwork, comparing all analytical results to applicable guidelines and standards from the Canadian Council of Ministers of the Environment (CCME) and the Contaminated Sites Regulation (CSR), and providing recommendations for further investigative and/or remedial actions, if necessary.

3.0 METHODOLOGY

Tetra Tech completed the Supplemental Phase II ESA field program between October 25 and 30, 2016; and March 1 and 2, 2017. During the project work, KPW provided a backhoe, excavator and operators; and Blue Max provided a remote operated track-mounted sonic drill-rig and operators. KFN band representatives, were also present during the testpitting and drilling programs to assist in the field work program, liaise with community members, and expand upon the site history where able.

At the start of each field day, Tetra Tech conducted a site and task specific safety meeting with all onsite personnel. The site works and methodologies employed during the field program are detailed in the following subsections.

3.1 Sampling Locations

The following table (Table B) describes which Supplemental Phase II ESA sampling locations were used to investigate each APEC and the rationale for the placement of each.

Table B: Phase II ESA Sampling Locations

APECs		Testpit/Borehole/Monitoring Well Locations and Rationale
APEC 1 (IR No. 1)	Historic Log Sorting and Reloading Area	▪ Groundwater Monitoring Wells MW15-102 and MW15-105 – Monitoring wells installed during the 2016 Phase II ESA were resampled. Both are spaced approximately in the middle of the historic log sorting area and former Valard Construction yard to confirm parameters exceeding the FIWQG during the 2016 Phase II ESA. ▪ Testpits 16TP07 and 16TP08 – Located across the middle of the historic log sorting area and Valard construction yard at locations where community representatives suspected wood waste was buried. 16TP-7 is located roughly 30 m northeast of MW15-102 and TP16-8 is located approximately 30 m northeast of MW15-105. Advanced to assess for buried wood waste. ▪ Testpits 16TP04 to 16TP06 and 16TP08 to 16TP11 – Locations surround a treed area in the south portion of the historic log sorting and reloading area to assess for buried wood waste. ▪ Surface Water Sample 16SW101 – Located approximately 330 m northeast of the historic log sorting and reloading area along the Kitsumkalum River at a point where logs formerly began entering a storage pond. To assess for impacts and PCOCs associated with historic log sorting and reloading.
APEC 8 (IR No. 1)	Off-site: Former Kalum Forest Products Mill Site	▪ Testpits 16TP01 to 16TP03 and 17TP01 to 17TP04– Located to the west, south, and east of monitoring well MW15-802; 17TP05 located midway between MW15-802 and MW15-803; and 17TP06 located south of MW15-803 to assess the extent of soil with a toluene concentration exceeding the CCME guideline identified during the 2016 Phase II ESA at this monitoring well location.
Background Groundwater Monitoring Wells	Kitsumkalum IR No. 1	▪ Monitoring wells 16MW1 to 16MW3 – 16MW1 was advanced approximately 30 m west of the treed area in the south portion of APEC 1 and 2. 16MW2 was advanced approximately 150 m east of the Kitsumkalum Quarry located in the north portion of the KFN IR No. 1. 16MW3 was advanced at the end of a residential cul-de-sac located west of the historic log sorting and reloading area. To assess whether dissolved metal concentrations identified during the 2016 Phase II ESA may be related to naturally occurring conditions.

The Supplemental Phase II ESA sampling locations at APEC 1 and APEC 8 are shown on Figures 2 to 5 and Figures 6 to 8, respectively. The background monitoring well locations are shown on Figures 9 and 10.

3.2 Utility Locates and GPR Survey

Prior to the commencement of the field program, Tetra Tech contacted BC One Call and other utility companies to obtain utility information pertinent to the Sites and retained a private utility locating company, CMH to locate underground utilities in the proposed testpitting and drilling areas. A GPR survey was conducted at testpits 16TP-7 and 16TP-8. All other testpit locations were heavily vegetated and not suited to surveying with GPR.

3.3 Testpit Completion and Soil Sampling

From October 28 to 29, 2016, and March 1 and 2, 2017; Tetra Tech monitored the advancement of testpits within APECs 1 and 8 using a backhoe and excavator provided by KPW. A total of 17 testpits (16TP01 to 16TP11 and 17TP01 to 17TP04) were advanced to a maximum depth of 4.5 mbgs. Following the logging of subsurface soil conditions, soil samples were collected directly from the walls of the testpits to a depth of 1.0 m and from the backhoe bucket for deeper depths. Soil samples were collected in approximately 0.5 m intervals, where changes in

soil conditions were observed and from depths where contamination was suspected. Sampling intervals for each testpit are shown on the logs in Appendix B.

Tetra Tech's field representative wore new nitrile sampling gloves during the collection of each soil sample to prevent cross-contamination. Each soil sample was collected into clean, labeled, laboratory-supplied glass jars for laboratory analysis. The sample jars were completely filled with soil to minimize loss of volatile constituents. All sample jars were stored in an ice-chilled cooler and then shipped under chain-of-custody protocol to Maxxam.

Headspace measurements of soil vapour were conducted on all collected soil samples using a portable Eagle RKI gas monitor with methane elimination. Headspace measurements were obtained by filling a plastic bag approximately one-third full of soil and measuring the resulting soil vapour after the soil and air had reached equilibrium. Headspace measurements are depicted on the attached logs.

Following sampling, testpits were backfilled using the material excavated which was semi-compacted using the backhoe bucket.

3.4 Borehole Completion, Groundwater Monitoring Well Installation and Development

On October 27 and 28, 2016, Tetra Tech monitored the advancement of three boreholes and installation of monitoring wells (16MW1 to 16MW3) within each borehole using a track-mounted sonic drill rig provided by Blue Max. Sampling intervals for each borehole, and well completion details for each monitoring well are shown on the logs in Appendix B.

Soil samples were collected directly from soil cores produced during drilling. Headspace measurements were completed on duplicates of all collected soil samples as described in Section 3.3 above. Headspace measurements are depicted on the attached borehole logs in Appendix B. The purpose of these test locations were to assess background ground water quality therefore no soil samples were submitted to laboratory for analysis.

Monitoring wells were constructed of 50 mm nominal flush threaded schedule 40 polyvinyl chloride (PVC) and comprised of a 1.2 m to 2.0 m length of machine slotted screen (10 slot or 0.25 mm in width). Solid PVC pipe was used for the remainder of the well. The borehole annulus was backfilled with silica sand to an elevation of approximately 0.3 m above the slotted interval. Bentonite was placed above the sand-pack to ground surface in the borehole to provide a hydraulic seal. At ground surface, the PVC pipe was set in a steel monument that was cemented into place.

On October 28, 2016, the newly installed background groundwater monitoring wells were developed using a high density polyethylene tubing with a foot valve and surge block until a minimum of five well volumes were removed.

3.5 Groundwater Sampling

On October 27, 2016, Tetra Tech sampled the existing monitoring wells MW15-102 and MW15-105 in APEC 1. On October 30, 2016, and March 1, 2017; Tetra Tech sampled the newly installed background monitoring wells 16MW1 to 16MW3. Prior to groundwater sampling, Tetra Tech measured the water level in each well. Measured groundwater levels are shown on the attached borehole logs and in Table 1a and 1b.

To sample groundwater, Tetra Tech used a low flow peristaltic pump to purge the well prior to sampling. Groundwater purging continued until at least three consecutive measurements of pH, temperature, and electrical conductivity were within 10% of each other.

Following purging, Tetra Tech collected groundwater samples using the low flow peristaltic pump. Groundwater samples were collected directly from the peristaltic pump into clean, labeled, new laboratory-supplied containers. Samples for dissolved metals were field-filtered and preserved with nitric acid. The groundwater samples were placed in ice-chilled coolers for temporary storage and transported to Maxxam using chain-of-custody procedures.

3.6 Surface Water Sampling

On October 30, 2016, Tetra Tech collected a surface water sample 16SW101 from a part of the Kitsumkalum River northeast of APEC 1. The surface water sample was collected using fresh nitrile gloves and placing the clean, labeled, new laboratory-supplied containers into the River at the selected test location. The sample was then placed in an ice-chilled cooler for temporary storage and transported to Maxxam using chain-of-custody procedures.

3.7 Analytical Testing

Maxxam is a Canadian Association for Laboratory Accreditation (CALA) accredited laboratory that is qualified to analyze the samples using CCME and British Columbia Ministry of Environment (MoE)-approved procedures. Soil, groundwater, and surface water samples were analyzed by Maxxam using CCME and MoE approved laboratory methods.

Soil samples were selected for laboratory testing of PCOCs based on knowledge of the APECs and field screening (Eagle RKI readings) during testpitting and borehole drilling. Groundwater samples were selected for laboratory analysis based on the analytical results from the 2016 Phase II ESA. The following Table (Table C) details the parameters analyzed at the two APECs and background monitoring wells:

Table C: Supplemental Phase II ESA Analytical Testing

APEC	Testing Locations	Analyzed Parameters
APEC 1 (IR No. 1) Historic Log Sorting and Reloading Area	16SW101, MW15-102, MW16-105	**Groundwater** : Dissolved metals, tannins and lignins **Surface water:** Total metals, tannins and lignins
APEC 8 (IR No. 1) Off-site: Former Kalum Forest Products Mill Site	16TP01 to 16TP03 and 17TP01 to 17TP06	**Soil** : Benzene, Toluene, Ethylbenzene, Xylenes and Styrene
Background Monitoring Wells (IR No. 1)	16MW1, 16MW2, 16MW3	**Groundwater:** Dissolved metals

3.8 Survey

The 17 testpit locations, three newly installed background monitoring wells and newly established surface water location completed in October 2016 were horizontally measured using a Trimble Geo XT handheld GPS. The accuracy of the Trimble Geo XT is anticipated to be ±1 m. The six testpit locations completed in March 2017 were horizontally measured using a navigational GPS. The accuracy of the navigational GPS is anticipated to be ±3 m. An elevation survey of the background monitoring wells was not in the scope of this Supplemental Phase II ESA.

3.9 Quality Assurance / Quality Control

During the Supplemental Phase II ESA, Tetra Tech implemented a Quality Assurance/Quality Control (QA/QC) program to ensure the integrity of the sampling methodology and analytical testing. The QA/QC program adhered to Tetra Tech's in-house Quality Management System (QMS), which was designed to generate representative

samples, minimize the potential for cross-contamination between sampling locations and samples, and reduce the potential for systematic bias.

To assess for analytical accuracy, Tetra Tech submitted duplicate groundwater samples for analytical testing as follows:

- Groundwater sample 16MW1 (duplicate designated 00MW1) – analyzed for dissolved metals.
- Groundwater sample 16MW2 (duplicate designated 00MW2) – analyzed for dissolved metals.
- Soil sample 17TP04 @ 0.5 m (duplicate designated 00TP04 @ 0.5 m) – analyzed for BTEXS, MTBE, VH and VPH.
- Soil sample 17TP06 @ 0.1 m (duplicate designated 00TP06 @ 0.1 m) – analyzed for BTEXS, MTBE, VH and VPH.

The RPD calculations for the original and duplicate groundwater samples are included in Table 5, and discussed in Section 6.4. The original soil samples were all non-detect, therefore, no RPD's could be calculated.

4.0 SUBSURFACE OBSERVATIONS

4.1 Soil Conditions

Detailed descriptions of soil stratigraphy encountered at each testpit and background borehole location are presented on the attached logs in Appendix B. Soil conditions encountered were similar as observed during the Phase II ESA. Further discussion regarding observed wood waste within test locations is included in Section 6.0.

4.2 Hydrogeology

At APEC 1, groundwater at wells MW15-102 and MW15-105 was measured October 17 and found at depths of 4.4 mbgs and 4.6 mbgs, respectively. Groundwater at the background monitoring wells 16MW1, 16MW2, and 16MW3, was noted to be at 1.5 mbgs, 3.6 mbgs, and 4.2 mbgs, respectively on October 30, 2016; and at 1.4 mbgs, 1.7 mbgs, and 3.9 mbgs on March 1, 2017.

Groundwater flow direction was not measured during this Supplemental Phase II ESA. During the 2016 Phase II ESA, the data indicated that the general groundwater flow direction was towards the southeast.

5.0 ASSESSMENT STANDARDS AND GUIDELINES

The applicable assessment standards and guidelines are outlined in detail in Tetra Tech's 2016 Phase II ESA report. Below is a summary of the applicable assessment Standards and guidelines and how they apply to the Sites.

5.1 Federal CCME Guidelines

5.1.1 Soil Guidelines

As the samples were taken on First Nations reserve land and the potential future land uses are currently undecided, the soil sample laboratory results have been compared to the residential/parkland land use (RL), commercial land use (CL), and industrial land use (IL) guidelines. The federal soil guidelines applicable to the Site are stipulated in the following documents:

- CCME Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil (2001, Revised in 2008);
- CCME Soil Quality Guidelines for the Protection of Environmental and Human Health and Protection of Potable Groundwater for Residential/Parkland, Commercial and Industrial land use (1999, Revised in 2013); and
- CCME Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health Polycyclic Aromatic Hydrocarbons (CCME 2010).

The CCME soil guidelines for the supplemental work are summarized in Table 2.

5.1.2 Groundwater Guidelines

Groundwater samples analysed during this Supplemental Phase II ESA were compared to the:

- The most stringent of the Tier 2 Guidelines protective of Inhalation, Soil Organisms Direct Contact and Freshwater Life detailed in the Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites (FIWQG) (Updated 2015); and,
- Guidelines for Canadian Drinking Water Quality (CDWQG) (Health Canada 2014).

The FIWQG and the CDWQG for the supplemental work are summarized in Table 3.

5.1.3 Surface Water

The FIWQG provide guidance on the application of federal standards to groundwater and receiving waterbodies. For receiving surface waterbodies the FIWQG states that the Canadian Water Quality Guidelines for the Protection of Aquatic Life would apply, and as such have been applied to all surface water samples assessed.

The CCME surface water guidelines are summarize in Table 4.

5.2 BC Contaminated Sites Regulation Assessment Standards

The provincial standards that would be considered applicable to the Sites are stipulated in the following document:

- *Environmental Management Act* (EMA), Contaminated Sites Regulation (CSR), B.C. Reg. 375/96, deposited 1996/12/16, O.C. 1480/96, effective 1997/04/01 [including amendments up to B.C. Reg. 4/2014, effective January 31, 2014].

5.2.1 Soil Assessment Standards

The potential future land uses of the lands are currently undecided therefore CSR Schedules 4 and 10 generic standards and Schedule 5 matrix standards for RL, CL, and IL were all used for comparison of the laboratory results. The site-specific factors from Schedule 5 which were applied were: intake of contaminated soil, toxicity to soil invertebrates and plants, groundwater used for drinking water, and groundwater flow to surface water used by freshwater aquatic life.

All applicable CSR soil standards are included in Table 2 for this supplemental work.

5.2.2 CSR Groundwater Assessment Standards

Tetra Tech's assessment of groundwater use and surface water receptors in the area indicate that CSR groundwater standards for the protection of drinking water (DW) and for flow to surface water used by freshwater aquatic life (fAW) are applicable.

The CSR groundwater and surface water standards are summarized in Tables 3a, 3b and 4.

6.0 DISCUSSION AND ANALYTICAL RESULTS

The following sections summarize the field observations for wood waste; compares the soil, groundwater, and surface water analytical results collected during this Supplemental Phase II ESA to the applicable CCME guidelines and CSR standards; and discusses observed background groundwater quality at newly installed monitoring wells 16MW1 to 16MW3 in comparison to groundwater quality identified at the APECs.

Laboratory certificates are attached as Appendix C.

6.1 APEC 1: Historic Log Sorting and Reloading Area

Wood Waste Investigation

Based on information provided by community members, additional testpits were excavated to investigate the possible presence of buried wood waste in the former log sorting and reloading area (APEC 1). The following table (Table D) lists the current and historical test locations in APEC 1 where a distinguishable layer of buried wood waste was inferred to be present within the depth investigated.

Table D: Buried Wood Debris Summary

Testpit/Borehole	Completed by	Approximate Depth Interval of Buried Wood Debris (mbgs)
MW15-103	Tetra Tech	0.7 to 0.8
MW15-105		0.4 to 0.8
TP15-201		0.9 to 1
16TP-5		1.3 to 1.9
16TP-10		0m to 1
LSTP-2	Pottinger Gaherty	1.3 to 1.5
LSTP-15	Pottinger Gaherty	0 to 0.9
OW1	Pott	0 to 1.8
OW2		0 to 1.8
OW3		0 to 4.3
OW4		0 to 4

Wood waste observations from both previous investigations and this Supplemental Phase II ESA are summarized on Figure 3.

Buried wood waste appeared to be most prevalent in test locations at the southern end of the former log sorting and reloading yard. At four locations along the southeast perimeter, the wood waste layer ranged from approximately 2 to 4 m thick. At locations elsewhere, buried wood waste appeared to be localized and less than a metre thick.

Groundwater Analytical Results

Monitoring wells MW15-102 to MW15-105 were resampled during the Supplemental Phase II ESA for parameters exceeding the FIWQG during the Phase II ESA. See Section 6.1.4 for a comparison of the groundwater analytical results to background concentrations established during this Supplemental Phase II ESA. The following table (Table E) summarizes the groundwater analytical results for the two monitoring wells.

Table E: Groundwater Analytical Results for APEC 1

Location within APEC	Monitoring Well ID	Analyzed Parameters	Analytical Results
Historic log sorting and reloading yard, north end.	MW15-102	Dissolved metals, Tannins and Lignins	**pH is outside the FIWQG range** **> FIWQG for aluminum, arsenic, and iron** **> CDWQG for aluminum, arsenic, iron and manganese** *> CSR DW for arsenic* Results were similar to 2015 sampling event with copper and cadmium not exceeding FIWQG in 2016 and arsenic exceeding the CSR DW in 2016. Additionally tannins and lignins were less in 2016 by half but still elevated.
On the east shoulder of the Kalum Forest Service Road, midpoint of the Historic log sorting and reloading yard.	MW15-105	Dissolved metals, Tannins and Lignins, Phenols	**pH is outside the FIWQG range** **> FIWQG for aluminum, arsenic, cadmium, and iron** **> CDWQG for arsenic, iron, and manganese** *> CSR DW for arsenic* Results were similar to 2015 sampling event with cadmium less than 2015 but still exceeding FIWQG in 2016 and arsenic exceeding the CSR DW in 2016. Tannins and lignins were also similar in 2016.

Notes:
> FIWQG - Greater than the applicable FIWQG protective of freshwater aquatic life for the parameters indicated
> CDWQG – Greater than the applicable Guidelines for Canadian Drinking Water Quality Results were similar to 2015 sampling event with copper and cadmium not exceeding FIWQG in 2016 and arsenic exceeding the CSR DW in 2016
> CSR DW - Greater than the applicable CSR standards protective drinking water for the parameters indicated

Groundwater analytical results for APEC 1 can be found in Table 3a and on Figure 4.

Tetra Tech considers MW15-102 and MW15-105 with tannins and lignins concentrations of 9,580 µg/L in 2016 and 21,800 µg/L and 8,360 µg/L in 2016 and 8470 µg/L in 2015, respectively, to have potentially been impacted by decaying wood debris or naturally occurring organics.

Elevated metals concentrations (i.e., aluminum, arsenic, cadmium, iron and/or manganese) identified in MW15-102 and MW15-105 are discussed further in Section 6.1.4 in comparison to identified background concentrations to assess whether due to background or activities conducted at APEC 1.

Surface Water Analytical Results

One surface water sample (16SW101) was collected approximately 330 m northeast of the historic log sorting and reloading area along the Kitsumkalum River, in a channel of the Kitsumkalum River that is located upstream of the formerly engineered log holding pond. The following table (Table F) summarizes the analytical results for surface water:

Table F: Surface Water Analytical Results for APEC 1

Location within APEC	Surface Water Sample ID	Analyzed Parameters	Analytical Results
Upstream of former log holding pond.	16SW101	Metals, Tannins & Lignins	**> CCME AW for iron** **> CDWQG for iron and manganese** < CSR AW and DW standards Tannins and Lignins are non-detect

Notes:
< CSR AW and DW standards - Less than the applicable CSR standards protective of freshwater aquatic life and drinking water
> CCME AW - Greater than the applicable CCME standards protective of freshwater aquatic life for the parameters indicated
> CDWQG – Greater than the applicable Guidelines for Canadian Drinking Water Quality

Surface water analytical results for APEC 1 can be found in Table 4 and Figure 5.

The surface water sample collected during this Supplemental Phase II ESA is considered to have parameters at concentrations that are representative of background, since the sample location is upstream of APEC 1. Therefore, based on laboratory analytical results, parameters aluminum, chromium, and copper that were previously exceeding in the 2016 Phase II ESA at sample SW15-101 are considered elevated as compared to concentrations identified at 16SW101.

6.2 APEC 8: Off-site: Former Kalum Forest Products Mill Site

Soil Analytical Results

Testpits 16TP01 to 16TP03 and 17TP01 to 17TP04 were advanced to the west, south, and east of monitoring well MW15-802; testpit 17TP05 was advanced approximately midway between MW15-802 and MW15-803; and testpit 17TP06 was advanced south of MW15-803 for the purpose of delineating a toluene exceedance identified at 0.5 mbgs during the 2016 Phase II ESA advancement of MW15-802. The following table (Table G) summarizes the analytical results for soil from the nine testpits.

Table G: Soil Analytical Results for APEC 8

Testpit ID	Location within APEC	Soil Sample Depth (mbgs)	Analyzed Parameters	Analytical Results
16TP01	West of MW15-802	0.5	VPH, BTEXS, MTBE	**Toluene > CCME RL, CL & IL** < CSR standards
		1.3		< CCME guidelines and < CSR standards
		2.4		< CCME guidelines and < CSR standards
16TP02	South of MW15-802	0.5		**Toluene > CCME RL, CL & IL** < CSR standards
		2.5		**Benzene > CCME RL, CL & IL** < CSR standards
16TP03	East of MW15-802	0.5		< CCME guidelines and < CSR standards
		1.5		< CCME guidelines and < CSR standards

Table G: Soil Analytical Results for APEC 8

Testpit ID	Location within APEC	Soil Sample Depth (mbgs)	Analyzed Parameters	Analytical Results
17TP01	South of MW15-802 and 16TP2	0.3		< CCME guidelines and < CSR standards
		1.0		< CCME guidelines and < CSR standards
		3.0		< CCME guidelines and < CSR standards
17TP02	Southwest of MW15-802 and 16TP2	0.5		< CCME guidelines and < CSR standards
		2.0		**Toluene > CCME RL, CL & IL** < CSR standards
		3.0		< CCME guidelines and < CSR standards
17TP03	Southwest of MW15-802 and 16TP1	0.15		< CCME guidelines and < CSR standards
		1.5		< CCME guidelines and < CSR standards
		3.0		< CCME guidelines and < CSR standards
17TP04	West of MW15-802 and 16TP1	0.5		< CCME guidelines and < CSR standards
		Duplicate at 0.5		< CCME guidelines and < CSR standards
		1.0		< CCME guidelines and < CSR standards
		3.0		< CCME guidelines and < CSR standards
17TP05	Midway between MW15-802 and MW15-803	0.5		< CCME guidelines and < CSR standards
		1.0		< CCME guidelines and < CSR standards
		3.0		**Benzene > CCME RL, CL & IL** < CSR standards
17TP06	South of MW15-803	0.1		< CCME guidelines and < CSR standards
		Duplicate at 0.1		< CCME guidelines and < CSR standards
		3.0		< CCME guidelines and < CSR standards

Notes:
< CCME guidelines - Less than the CCME RL, CL and IL Guidelines
< CSR standards - Less than the CSR RL, CL and IL Standards
> CCME - Greater than the CCME RL, CL or IL Standards for the parameters indicated
> CSR standards - Greater than the CSR RL, CL or IL Standards for the parameters indicated

Soil analytical results for APEC 8 are shown in Table 2 and on Figure 7.

Based on the analytical results of this supplemental investigation and the 2016 Phase II ESA, low levels of hydrocarbons were identified in 5 of the 9 testpits completed at varied depths of 0.5 m to 3 mbgs at concentrations exceeding the CCME standards. Due to the varied depths and widely spaced locations where benzene and toluene were found and the current uncertainty of the source, delineating these exceedances may not be practical.

6.3 Background Comparison of Groundwater Analytical Results

To assess naturally occurring concentrations of dissolved metals in the groundwater aquifer underlying I.R. No. 1, Tetra Tech installed groundwater monitoring wells 16MW1 to 16MW3 at locations deemed to be isolated from obvious possible sources of human caused contamination. Two rounds of groundwater samples collected from these wells and analyzed for dissolved metals. The analytical results from 16MW1 to 16MW3 were then compared to dissolved metal concentrations measured at APECs 1, 6, 7, and 8.

Dissolved metal concentrations exceeding relevant standards within 16MW1 to 16MW3 include manganese at each of the wells, and selenium at one of the three well locations during the October 2016 monitoring event. No exceedances were identified in these three monitoring wells during the March 2017 monitoring event.

The following table (Table H) summarizes the analytical groundwater exceedances identified at APEC 1 during the 2016 Phase II ESA and this Supplemental Phase II and compares the results to the 16MW1 to 16MW3 concentrations.

Table H: APEC 1 Groundwater Analytical Results for Background Comparison

Parameter	CDWQG	FIGWG RL/CL/IL	BC CSR		Background (16MW1-16MW3) (µg/L)	MW15-102 (µg/L)	MW15-105 (µg/L)
			AW	DW			
Field pH	-	6.5 - 9	-	-	6.62 to 7.98	**6.08 - 6.18**	**6.05 - 6.25**
Aluminum	100	5	-	9500	<3.0 to 23.2	**194 - 213**	**36.9 - 46.5**
Arsenic	10	5	50	10	<0.1 to 1.74	**6.03 - 13.2**	**4.59 - 16.6**
Cadmium	5	0.09	0.5	5	<0.01 to 0.072	0.041 - **0.271**	**0.265 - 2.66**
Copper	1000	3.3	60	1000	<0.20 to 1.15	0.30 - **29.9**	0.45 - 2.41
Iron	300	300	-	-	<5 to 38.7	**68,800 - 68,900**	**18,200 - 36,300**
Manganese	50	-	-	-	<1 to 402	**6,770 - 7,930**	**11,200 - 11,600**

Notes:
RED & **Bold** – concentrations exceed relevant guidelines/standards and background concentration range
< MDL – Less than the laboratory method detection limits

As shown in Table H above, all identified exceedances in groundwater at APEC 1 are above the concentrations identified in 16MW1 to 16MW3.

The following table (Table I) summarizes the analytical results for the parameters exceeding relevant standards/guidelines at APEC 6, 7 and 8 during the 2016 Phase II ESA.

Table I: APECs 6, 7 and 8 Groundwater Analytical Results for Background Comparison

Parameter	CDWQG	FIWQG RL/CL/IL	BC CSR		Background (16MW1-16MW3) (µg/L)	APEC 6 MW15-604 (µg/L)	APEC 7 MW15-703 (µg/L)	APEC 8 MW15-802 (µg/L)
			AW	DW				
Field pH	-	6.5 - 9	-	-	6.62 to 7.98	**6.30**	**6.47**	**6.15**
Aluminum	100	5-100	-	9500	<3.0 to 23.2	**40.3**	15.8	**540**
Cadmium	5	0.09	0.1-0.5	5	<0.01 to 0.072	0.042	**0.093**	**0.180**
Copper	1000	2-3.1	20-60	1000	<0.20 to 1.15	**4.56**	0.88	**2.83**
Iron	300	300	-	-	<5 to 38.7	**587**	6.6	**2,350**
Lead	10	2.1	2.1	50	<2.0	**-**	-	**5.41**
Manganese	50	-	-	-	<1 to 402	**110**	**124**	**1,010**
Zinc	5000	30	75-900	5000	<5.0	**40**	<MDL	-

Notes:
RED & **Bold** – concentrations exceed relevant guidelines/standards and background concentration range
Green & **Bold**– concentrations exceed relevant guidelines/standards, but are within the background concentration range
< MDL – Less than the laboratory method detection limits

At APEC 6, the parameters with concentrations exceeding the relevant guidelines and background concentration ranges include aluminum, copper, iron, and zinc. Field pH and manganese have concentrations exceeding FIWQG and CDWQG, but are within the background concentration range.

At APEC 7, cadmium was identified to exceed FIWQG and the background concentration range. Field pH and manganese have concentrations exceeding FIWQG and CDWQG, but are within the background concentration range.

At APEC 8, the parameters with concentrations exceeding the relevant guidelines and background concentration ranges include: field pH, aluminum; iron, cadmium, copper, lead, and manganese.

Summary

Dissolved metals concentrations in the three background wells are generally lower than in the wells installed on APECs 1, 6, 7 and 8. It is noted that the soils in APECs 1, 6, 7 and 8 do not have elevated metal concentrations. The metal soil concentrations in these areas are similar to those found in the other areas investigated, namely APECs 2, 3, 4, and 9. Therefore, the source of the elevated dissolved metals in groundwater at APECs 1, 6, 7 and 8 has not been confirmed.

6.4 Quality Assurance/Quality Control Results and Discussion

Tetra Tech compared the relative percent differences (RPD) between groundwater duplicate sample pairs as part of the QA/QC program. The calculated RPD values for groundwater are presented in Table 5. During the Supplemental Phase II ESA, the accuracy of laboratory analyses is assessed by calculating the RPD values for duplicate pairs when the result of each analysis was greater than a multiple of five of the MDL. Elevated analytical variability is common when analyte concentrations are within a factor of five of the MDL. The soil duplicate sample pairs were less than the MDL therefore RPDs could not be calculated.

All the calculated RPD values were less than the RPD discussion trigger. Therefore, Tetra Tech considers the results of the laboratory analyses acceptable for the present application and no re-testing or further review of the analytical data is warranted.

Additionally, Maxxam conducts an internal QA/QC on the laboratory analysis for all the samples and those batches were within acceptable limits. Thus, the analytical results were considered representative of the soil, surface water and groundwater samples obtained from the Sites.

7.0 SUMMARY AND CONCLUSIONS

The overall analytical results of the Supplemental Phase II ESA are summarized in the following table (Table J) below.

Table J: Supplemental Phase II ESA Findings

	Identified COCs Exceeding CCME Guidelines and/or CSR standards	
	Soil	**Groundwater / Surface Water**
APEC 1 (IR No. 1) Historic Log Sorting and Reloading Area	Based on observations at previous test locations and locations investigated as part of this Supplemental Phase II ESA, buried wood waste appeared to be most prevalent in test locations at the southern end of the former log sort and reloading yard. At four locations along the southeast perimeter the wood waste layer ranged from approximately 2 to 4 m thick. At locations elsewhere, buried wood waste appeared to be localized and less than 1 m thick.	<u>Groundwater (MW15-102 and MW15-105):</u> ▪ Field pH exceeds the FIWQG Range ▪ Aluminum, arsenic, and iron exceed FIWQG ▪ Aluminum, iron and manganese exceed CDWQG for operational, taste, or aesthetic concerns only ▪ Arsenic exceeds CDWQG and CSR DW standards ▪ Cadmium exceeds FIWQG at MW15-105 ▪ MW15-102 and MW15-105 contain elevated concentrations of tannins and lignins <u>Surface water:</u> Surface water sample 16SW101 is considered to have parameters at concentrations that are representative of background, since the sample location is upstream of APEC 1. Therefore, parameters aluminum, chromium, and copper that were previously exceeding at sample SW15-101 are considered elevated as compared to concentrations identified at 16SW101.
APEC 8 (IR No. 1) Off-site: Former Kalum Forest Products Mill Site	Low levels of hydrocarbons were identified in five of the nine testpits completed at varied depths of 0.5 m to 3 mbgs at concentrations exceeding the CCME standards. Due to the varied depths and widely spaced locations where benzene and toluene were found and the current uncertainty of the source, delineating these exceedances may not be practical.	▪ Groundwater assessed during Phase II ESA contained hydrocarbon concentrations below the applicable guidelines/standards.
Background Monitoring Wells	Test locations for the purpose of groundwater assessment only	▪ Manganese exceeded the CDWQG during the October 2016 monitoring event only ▪ Selenium exceeded FIWQG at one of the three locations during the October 2016 monitoring event only

Notes:
APEC - Area of Potential Environmental Concern
CSR – BC Contaminated Sites Regulation standards protective of soil, water and sediment.
CSR DW – CSR standards protective of drinking water
FIWQG – Federal Interim Groundwater Quality Guidelines protective of freshwater aquatic life
CDWQG – Guidelines for Canadian Drinking Water Quality
COC – Contaminant of Concern

The following table (Table K) summarizes the comparison of groundwater parameters exceeding relevant guidelines or standards at APECs 1, 6, 7, and 8 during the 2016 Phase II ESA and this Supplemental Phase II ESA, to the natural background results.

Table K: Summary of Natural Background Groundwater Results with Previous and Current Findings

	Comparison of Identified COCs to Natural Background Concentrations
APEC 1 (IR No. 1) Historic Log Sorting and Reloading Area	▪ Concentrations of field pH, aluminum, arsenic, cadmium, copper, iron, and manganese exceed relevant guidelines/standards and are outside of the natural background concentration range.
APEC 6 (IR No. 1) Old Quarry Road Dumpsite	▪ Concentrations of aluminum, copper, iron and zinc exceed relevant guidelines and are outside of the natural background concentration range. . ▪ Field pH, cadmium, and manganese were identified to be within the natural background range.
APEC 7 (IR No. 1) Tempo Gas Station	▪ Cadmium exceeded FIWQG and was outside the natural background range. ▪ Field pH and manganese were identified to be within the natural background range.
APEC 8 (IR No. 1) Off-site: Former Kalum Forest Products Mill Site	▪ Field pH, aluminum, cadmium, copper, iron, lead, and manganese exceeded relevant guidelines and were outside the natural background ranges.

Notes:
APEC - Area of Potential Environmental Concern
CCME - Canadian Council of Ministers of the Environment guidelines protective of soil, water and sediment.
CSR – BC Contaminated Sites Regulation standards protective of soil, water and sediment.
CSR AW – CSR standards protective of freshwater aquatic life
CSR DW – CSR standards protective of drinking water
FIWQG – Federal Interim Groundwater Quality Guidelines protective of freshwater aquatic life
CDWQG – Guidelines for Canadian Drinking Water Quality
COC – Contaminant of Concern

Dissolved metals concentrations in the three background wells are generally lower than in the wells installed on APECs 1, 6, 7 and 8. It is noted that the soils in APECs 1, 6, 7 and 8 do not have elevated metal concentrations. The metal soil concentrations in these areas are similar to those found in the other areas investigated, namely APECs 2, 3, 4, and 9. Therefore, the source of the elevated dissolved metals in groundwater at APECs 1, 6, 7 and 8 has not been confirmed.

Therefore, APECs 1, 6, 7, and 8 are considered Areas of Environmental Concern (AECs).

8.0 NATIONAL CLASSIFICATION SYSTEM FOR CONTAMINATED SITES SCORE

The National Classification System for Contaminated Sites (NCSCS) is a method for evaluating contaminated sites according to current or potential adverse impact on human health and the environment. NCSCS scores were completed during the Phase II ESA for applicable APEC as follows: APECs 1, 2, 6, 7 and 8. No observed evidence of contamination was found at APEC 5 and analytical results for all samples collected at APECs 3, 4 and 9 were below CCME guidelines; as such the NCSCS pre-screening process indicated that these sites should not be classified with the NCSCS method.

The findings in this Supplemental Phase II ESA did not change the conclusions for APECs 1, 2, 6 and 7, therefore, the NCSCS scores for these APECs remain the same as provided in the Phase II ESA.

APEC 8: Soil concentrations of toluene were identified above the applicable CCME Soil Quality Guidelines in the Phase II ESA. In this Supplemental Phase II ESA, additional toluene exceedances were identified and additionally benzene was identified as a contaminant of concern. The Phase II ESA NCSCS score for APEC 8 was 60.1, which rates the site classification as Class 2 – Medium Priority for Action. The updated NCSCS score for APEC 8 was the same as the Phase II ESA.

The completed form for APEC 8 that provided detailed scoring are included in Appendix D.

9.0 RECOMMENDATIONS AND POTENTIAL REMEDIAL OPTIONS

Based on the overall findings of the Phase II ESA and Supplemental Phase II ESA of the Sites and current land uses, we have provided a summary of the impacts found within each AEC and recommended potential remedial options (Table L):

Table L: Recommendations and Potential Remedial Options

AEC#	Further Investigation Required	Estimated Soil Impacts >CCME	Groundwater/Surface Water Impacts >CCME	Sediment Impacts >CCME	Remedial Option
AEC 1 (IR No. 1) Historic Log Sorting and Reloading Area	Yes	None	pH, aluminum, arsenic, cadmium, copper and iron and manganese	none	Risk Assessment /Management of elevated metals in groundwater
AEC 6 (IR No. 1) Old Quarry Road Dumpsite	Yes	Zinc > RL but < CL CCME guidelines	aluminum, copper, iron and zinc	N/A	Risk Assessment/ Management of elevated metals in groundwater
AEC 7 (IR No. 1) Tempo Gas Station	Yes	Arsenic and nickel, 10 m^3	Cadmium	N/A	Risk Assessment/ Management of elevated metals in soil and groundwater
AEC 8 (IR No. 1) Off-site: Former Kalum Forest Products Mill Site	Yes – onsite and off-site	Benzene and Toluene, volume unknown	pH, aluminum, cadmium, copper, iron and lead, and manganese	N/A	Risk Assessment/ Management of elevated hydrocarbons in metals in groundwater Risk Assessment /Management/Remediation of elevated hydrocarbons in soil

Notes:
AEC - Area of Environmental Concern
CCME - Canadian Council of Ministers of the Environment guidelines protective of soil, water and sediment.
RL – Residential/Parkland use
CL – Commercial Land use

Prior to proceeding with the risk assessment/risk management approach for remediation of AECs 1, 6, 7, and 8, the following Phase III ESA tasks are recommended:

- Survey all existing monitoring wells installed on IR No.1 to assess groundwater flows across the aquifer and to determine where the aquifer is recharging from/discharging to;
- Monitor groundwater elevations in all monitoring wells during three seasons (i.e., spring, summer, and fall);
- Collect groundwater samples from all monitoring wells with previously identified metal exceedances at AECs 1, 6, 7, and 8 and the three background wells, during the spring, summer and fall monitoring events and submit all samples to a laboratory for dissolved metals analysis;
- Collect surface water samples from an upstream location on the Kitsumkalum River and in an area where groundwater from AEC 1 may be discharging to the river based on the findings of tasks 1 and 2 above during the spring, summer, and fall monitoring events. Submit all samples to a laboratory for total and dissolved metals, and pH analysis;
- Review available data for the Kitsumkalum drinking water wells and if required collect samples from the Kitsumkalum drinking water wells (pre-treatment) during the spring, summer, and fall monitoring events;
- Depending upon the results of samples collected or reviewed from the Kitsumkalum drinking water wells. If necessary, install two deep monitoring wells within AEC 1 to an approximate depth of 15 to 20 m to confirm metal concentrations within deeper part of aquifer likely to be accessed for drinking water. Collect groundwater samples from the two newly installed monitoring wells and submit to a laboratory for dissolved metals analysis.
- Conduct a biophysical survey of aquatic receiving environment to look for evidence of adverse impact from AEC 1;
- Complete six additional testpits at AEC 8: four within the Former Kalum Forest Products Mill Site and two within the adjacent reserve lands (i.e., one between 17TP05 and 17TP06 and one to the east of 17TP06) and collect up to twelve soil samples for benzene and toluene analysis;
- Advance three boreholes completed as monitoring wells within the Former Kalum Forest Products Mill Site and collect up to six soil samples for benzene and toluene analysis;
- Sample existing monitoring wells and the three newly installed monitoring wells located at AEC 8 and submit to a laboratory for benzene and toluene analysis;
- Install up to three soil vapour probes at identified benzene and toluene soil exceedances at AEC 8 and collect soil vapour samples from the newly installed soil vapour probes for hydrocarbon analysis; and,
- Collect a sediment sample at the direction of KFN at a location where the flood channels in the vicinity of AEC8 enters the Kitsumkalum River and submit to a laboratory for benzene and toluene analysis.

10.0 CLOSURE

This report has been prepared based on the scope of work and for the use of Kitsumkalum First Nations and Indigenous and Northern Affairs Canada, which includes distribution as required for the purposes for which this assessment was commissioned. The assessment has been carried out in accordance with generally accepted engineering practice. No other warranty is made, either express or implied. Professional judgment has been applied in developing the recommendations in this report.

This report was prepared by personnel with professional experience in investigations of this nature and who specifically conducted the investigations at this Site. Reference should be made to the 'Geoenvironmental Report – General Conditions' attached in Appendix A that forms a part of this report.

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
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REFERENCES

CCME, 2008. Canada-Wide Standard for Petroleum Hydrocarbons (PHC) in Soil: Scientific Rationale, Supporting Technical Document.

Golder Associates, 2014 Report. Kitsumkalum First Nation British Columbia – Phase I Environmental Site Assessment

CCME Soil Quality Guidelines for the Protection of Environmental and Human Health and Protection of Potable Groundwater for Residential/Parkland, Commercial and Industrial land use (1999, Revised in 2013);

CCME Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health Polycyclic Aromatic Hydrocarbons (Revised in 2010);

CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life (Marine) and Aquatic Life (Freshwater) (Updated 2014); and

CCME Sediment Quality Guidelines for the Protection of Aquatic Life (2002).

Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites (Updated 2015)

Guidelines for Canadian Drinking Water Quality (Health Canada 2014)

MoE, 2014. Contaminated Sites Regulation, BC Reg. 375/96, including amendments up to January 31, 2014.

MoE, 2005. Technical Guidance 6 on Contaminated Properties - Applying Water Quality Standards to Groundwater and Surface Water.

TABLES

Table 1a: Groundwater Monitoring Data - APEC 1

Well Location	Ground Surface Elevation (m)	Top of Casing Elevation (m)	Stick Up (m)	Monitoring Well Total Depth (mbTOC)	Groundwater levels (mBTOC)			Groundwater Levels (mbg)			Groundwater Elevation (m)		
	19-Dec-15	19-Dec-15			20-Nov-15	19-Dec-15	30-Oct-16	20-Nov-15	19-Dec-15	30-Oct-16	20-Nov-15	19-Dec-15	30-Oct-16
MW15-101	97.148	97.931	0.783	6.993	-	3.838	-	-	3.055	-	-	94.093	-
MW15-102	97.716	98.486	0.770	4.609	-	3.716	4.399	-	2.946	3.629	-	94.770	94.087
MW15-103	99.045	99.845	0.800	5.858	-	4.437	-	-	3.637	-	-	95.408	-
MW15-104	98.776	99.576	0.800	5.452	-	4.524	-	-	3.724	-	-	95.052	-
MW15-105	96.759	97.597	0.838	5.482	-	4.706	4.588	-	3.868	3.750	-	92.891	93.009
MW15-106	98.338	99.133	0.795	3.195	-	-	-	-	-	-	-	-	-
OW-4	-	-	0.915	7.014	5.693	5.918	-	4.778	5.003	-	-	-	-

Notes:
mbg - metres below grade
mBTOC - metres below top of casing.
Monitoring wells were surveyed on December 19, 2015. The fire hydrant on the north end of APEC 1 yard was used as a benchmark (100 m).

Table 1b: Groundwater Monitoring Data - Background Wells

Well Location	Ground Surface Elevation (m)	Top of Casing Elevation (m)	Stick Up (m)	Monitoring Well Total Depth (mbTOC)	Groundwater levels (mBTOC)	Groundwater Levels (mbg)	Groundwater Elevation (m)	Groundwater levels (mBTOC)	Groundwater Levels (mbg)	Groundwater Elevation (m)
	30-Oct-16	30-Oct-16			30-Oct-16	30-Oct-16	30-Oct-16	1-Mar-17	1-Mar-17	1-Mar-17
16MW1	N/A	N/A	0.55	4.644	2.013	1.463	N/A	1.907	1.357	N/A
16MW2	N/A	N/A	0.89	6.268	4.472	3.582	N/A	2.639	1.749	N/A
16MW3	N/A	N/A	0.88	5.534	5.064	4.184	N/A	4.786	3.906	N/A

Notes:
mbg - metres below grade
mBTOC - metres below top of casing.
N/A - Not available

Table 2: Soil Analytical Results - APEC 8

Parameter	Unit	CCME Residential/Parkland[1,2]	CCME Commercial[1,2]	CCME Industrial[1,2]	CSR - RL[3]	CSR - CL[3]	CSR - IL[3]	MW15-802			16TP1			16TP2		16TP3		17TP01			17TP02			17TP03		
								0.5 m	DUP 207	2.0 m	0.5 m	1.3 m	2.4 m	0.5 m	2.5 m	0.5 m	1.5 m	0.3 m	1 m	3 m	0.5 m	2 m	3 m	0.15 m	1.5 m	3 m
								18-Dec-2015		18-Dec-2015	28-Oct-2016	28-Oct-2016	28-Oct-2016	28-Oct-2016	28-Oct-2016	28-Oct-2016	28-Oct-2016	1-Mar-2017	1-Mar-2017	1-Mar-2017	2-Mar-2017	2-Mar-2017	2-Mar-2017	2-Mar-2017	2-Mar-2017	2-Mar-2017
Physical Parameters																										
Moisture	%	-	-	-	-	-	-	13	12	9.0	65	25	21	50	8.6	13	14	5.9	27	21	5.8	9.2	9.6	18	17	21
BTEXS & MTBE																										
Benzene	µg/g	0.0068	0.03	0.0068	0.03	0.0068	0.03	0.04 [4]	0.04 [4]	0.04 [4]	<0.0050	<0.0050	<0.0050	*<0.024*	<0.0050	<0.0050	**0.018**	<0.0050	<0.0050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	µg/g	0.08	0.37	0.08	0.37	0.08	0.37	1.5 [4]	2.5 [4]	2.5 [4]	**0.11**	0.044	0.073	**0.80**	<0.020	0.076	**0.17**	0.080	0.036	0.028	<0.02	<0.02	0.058	0.061	**0.15**	0.025	<0.02	<0.02	0.032
Ethylbenzene	µg/g	0.018	0.082	0.018	0.082	0.018	0.082	1 [4]	7 [4]	7 [4]	<0.010	<0.010	<0.010	*<0.047*	<0.010	0.012	0.011	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Xylenes (m & p)	µg/g	-	-	-	-	-	-	-	-	-	<0.040	<0.040	<0.040	<0.19	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Xylene (o)	µg/g	-	-	-	-	-	-	-	-	-	<0.040	<0.040	<0.040	<0.19	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Xylenes Total	µg/g	2.4	11	2.4	11	2.4	11	5 [4]	20 [4]	20 [4]	<0.040	<0.040	<0.040	<0.19	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Styrene	µg/g	5	5	50	50	50	50	5	50	50	<0.030	<0.030	<0.030	<0.14	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
MTBE	µg/g	-	-	-	-	-	-	320 [5]	700 [5]	700 [5]	<0.10	<0.10	<0.10	<0.47	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hydrocarbons																										
VH_{6-10}	µg/g	-	-	-	-	-	-	-	-	-	<10	<10	<10	<47	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
VPH C_{6-10}	µg/g	-	-	-	-	-	-	200	200	200	<10	<10	<10	<47	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Laboratory Work Order Number								B5B3354	B5B3354	B5B3354	B697701	B697701	B697701	B697701	B697701	B697701	B697701	R2355037	R2355037	R2355037	R2355037	R2355037	R2355037	R2355037	R2355037	R2355037
Laboratory Identification Number								NW8951	NW8943	NW8953	PX9415	PX9429	PX9432	PX9429	PX9432	PX9433	PX9447	QQ7735	QQ7737	QQ7739	QQ7741	QQ7743	QQ7744	QQ7745	QQ7746	QQ7749

Notes:

[1] Canadian Council of Ministers of the Environment (CCME) (Updated 2013). Soil Quality Guidelines for the Protection of Environmental and Human Health, for coarse and fine soils under Residential/Parkland, Commercial and Industrial land use. Most conservative value applied

[2] Canadian Council of Ministers of the Environment (CCME) (2008). Canada-Wide Standards for Petroleum Hydrocarbons (PHCs) in Soil, for fine and coarse soils under Residential/Parkland, Commercial and Industrial land use. Most conservative value applied

[3] BC Contaminated Sites Regulation (BC Reg. 375/96, includes amendments up to B.C. Reg. 184/2016, July 19, 2016 - Schedules 4, 5 and 10) for Residential (RL), Commercial (CL) and Industrial (IL) land use. Schedule 5 pathways include intake of contaminated soil, groundwater used for drinking water, toxicity to soil invertebrates and plants and groundwater flow to surface water used by freshwater aquatic life

[4] CSR Schedule 5 parameter
[5] CSR Schedule 10 parameter
"-" No applicable guideline/standard
BOLD - Greater than CCME Guideline
Shaded - Greater than CSR Standard
Italic - Detection limit greater than gudeline

Table 2: Soil Analytical Results - APEC 8

Parameter	Unit	CCME Residential/Parkland[1,2]		CCME Commercial[1,2]		CCME Industrial[1,2]		CSR - RL[3]	CSR - CL[3]	CSR - IL[3]	17TP04				17TP05			17TP06		
											0.5 m		1 m	3 m	0.5 m	1 m	3 m	0.1 m		3 m
											2-Mar-2017	Duplicate	2-Mar-2017	2-Mar-2017	2-Mar-2017	2-Mar-2017	2-Mar-2017	2-Mar-2017	Duplicate	2-Mar-2017
Physical Parameters																				
Moisture	%	-	-	-	-	-	-	-	-	-	14	15	4.8	10	4.3	4.9	19	6.7	22	5.1
BTEXS & MTBE																				
Benzene	µg/g	0.0068	0.03	0.0068	0.03	0.0068	0.03	0.04 [4]	0.04 [4]	0.04 [4]	<0.005	*<0.01* [8]	<0.005	<0.005	<0.005	<0.005	**0.016**	<0.005	<0.005	0.0053
Toluene	µg/g	0.08	0.37	0.08	0.37	0.08	0.37	1.5 [4]	2.5 [4]	2.5 [4]	<0.02	<0.04 [8]	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.079	<0.02
Ethylbenzene	µg/g	0.018	0.082	0.018	0.082	0.018	0.082	1 [4]	7 [4]	7 [4]	<0.01	*<0.02* [8]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
Xylenes (m & p)	µg/g	-	-	-	-	-	-	-	-	-	<0.04	<0.08 [8]	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Xylene (o)	µg/g	-	-	-	-	-	-	-	-	-	<0.04	<0.08 [8]	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Xylenes Total	µg/g	2.4	11	2.4	11	2.4	11	5 [4]	20 [4]	20 [4]	<0.04	<0.08	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Styrene	µg/g	5	5	50	50	50	50	5	50	50	<0.03	<0.06 [8]	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
MTBE	µg/g	-	-	-	-	-	-	320 [5]	700 [5]	700 [5]	<0.1	<0.2 [8]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hydrocarbons																				
VH_{6-10}	µg/g	-	-	-	-	-	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
VPH C_{6-10}	µg/g	-	-	-	-	-	-	200	200	200	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Laboratory Work Order Number											R2355037	R2355037	R2355037	R2355037	R2355037	R2355037	R2355037	R2355037	R2355037	R2355037
Laboratory Identification Number											QQ7751	QQ7775	QQ7761	QQ7763	QQ7765	QQ7766	QQ7768	QQ7769	QQ7776	QQ7773

Notes:

[1] Canadian Council of Ministers of the Environment (CCME) (Updated 2013). Soil Quality Guidelines for the Protection of Environmental and Human Health, for coarse and fine soils under Residential/Parkland, Commercial and Industrial land use. Most conservative value applied

[2] Canadian Council of Ministers of the Environment (CCME) (2008). Canada-Wide Standards for Petroleum Hydrocarbons (PHCs) in Soil, for fine and coarse soils under Residential/Parkland, Commercial and Industrial land use. Most conservative value applied

[3] BC Contaminated Sites Regulation (BC Reg. 375/96, includes amendments up to B.C. Reg. 184/2016, July 19, 2016 - Schedules 4, 5 and 10) for Residential (RL), Commercial (CL) and Industrial (IL) land use. Schedule 5 pathways include intake of contaminated soil, groundwater used for drinking water, toxicity to soil invertebrates and plants and groundwater flow to surface water used by freshwater aquatic life

[4] CSR Schedule 5 parameter

[5] CSR Schedule 10 parameter

"-" No applicable guideline/standard

BOLD - Greater than CCME Guideline

Shaded - Greater than CSR Standard

Italic - Detection limit greater than gudeline

Table 3a: Groundwater Analytical Results - APEC 1

Parameter	Unit	Canadian Drinking Water[1]	FIGQG[2]		BC CSR[3]		APEC 1							
			Residential / Parkland	Commercial / Industrial	AW	DW	MW15-101	MW15-102		MW15-103	MW15-104	MW15-105		OW-4
							19-Dec-2015	19-Dec-2015	27-Oct-2016	19-Dec-2015	19-Dec-2015	19-Dec-2015	27-Oct-2016	20-Nov-2015
Physical Parameters														
Dissolved Hardness	µg/L	-	-	-	-	-	128,000	144,000	164,000	149,000	52,300	200,000	225,000	74,100
Field pH	pH Units	-	6.5-9	6.5-9	-	-	6.75	6.18	6.08	5.95	5.83	6.25	6.05	5.73
Dissolved Metals														
Aluminum	µg/L	100	5 [4]	5 [4]	-	9500	23.1	**194**	**213**	30.5	31.9	46.5	36.9	**299**
Antimony	µg/L	6	2000	2000	200	6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	µg/L	10	5	5	50	10	0.98	6.03	13.2	3.67	0.73	4.59	16.6	5.74
Barium	µg/L	1000	2900	2900	10,000	1000	62.9	206	236	211	52.2	237	282	35.5
Beryllium	µg/L	-	5.3	5.3	53	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bismuth	µg/L	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Boron	µg/L	5000	1500	1500	50,000	5000	<50	<50	<50	<50	<50	<50	<50	<50
Cadmium	µg/L	5	0.09	0.09	0.5 [6]	5	0.367	0.271	0.041	1.71	0.198	2.66	0.265	0.017
Calcium	µg/L	-	-	-	-	-	39,700	45,600	51,000	44,900	16,800	68,400	76,600	24,100
Chromium	µg/L	50	8.9	8.9	10 [5]	50	<1.0	2.2	3.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	µg/L	-	-	-	40	-	2.87	25.8	21.2	26.3	2.33	12.4	15.0	3.95
Copper	µg/L	1000	3.3 [6]	3.3 [6]	60 [6]	1000	2.34	29.9	0.30	0.58	0.50	2.41	0.45	0.52
Iron	µg/L	300	300	300	-	- [9]	21.3	**68,800**	**68,900**	**10,600**	139	**18,200**	**36,300**	**12,200**
Lead	µg/L	10	5.2 [6]	5.2 [6]	60 [6]	10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Lithium	µg/L	-	-	-	-	730 [7]	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Magnesium	µg/L	-	-	-	-	100,000	7100	7300	8860	8910	2500	7140	8230	3380
Manganese	µg/L	50	-	-	-	- [9]	**2300**	**6770**	**7930**	**16,200**	**245**	**11,200**	**11,600**	**2640**
Mercury	µg/L	1	0.026	0.026	1	1	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Molybdenum	µg/L	-	73	73	10,000	250	3.8	2.4	2.2	<1.0	<1.0	<1.0	1.3	<1.0
Nickel	µg/L	-	128 [6]	128 [6]	1100 [6]	-	2.8	9.5	2.4	17.4	5.0	2.6	1.7	6.1
Potassium	µg/L	-	-	-	-	-	3980	4810	5390	2300	1380	3990	4150	7390
Selenium	µg/L	50	1	1	10	10	0.28	0.32	<0.10	<0.10	<0.10	<0.10	<0.10	0.14
Silicon	µg/L	-	-	-	-	-	6390	7600	7960	8470	8070	7090	7240	11,700
Silver	µg/L	-	0.25	0.25	15 [6]	-	<0.020	0.057	<0.020	0.023	<0.020	0.020	<0.020	<0.020
Sodium	µg/L	200,000	-	-	-	200,000	35,100	3050	3670	5280	1900	5860	3240	1320
Strontium	µg/L	-	-	-	-	22,000 [7]	299	264	311	329	84.9	330	386	69.7
Sulphur	µg/L	-	-	-	-	-	20,500	12,100	8800	<3000	<3000	23,700	26,800	<3000
Thallium	µg/L	-	0.8	0.8	3	-	<0.050	0.111	0.073	<0.050	<0.050	<0.050	0.056	<0.050
Tin	µg/L	-	-	-	-	22,000 [7]	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Titanium	µg/L	-	100	100	1000	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Uranium	µg/L	20	15	15	3000	20	0.68	1.68	1.36	<0.10	<0.10	1.10	0.64	<0.10
Vanadium	µg/L	-	-	-	-	-	<5.0	8.4	12.9	<5.0	<5.0	<5.0	<5.0	<5.0
Zinc	µg/L	5000	30	30	900 [6]	5000	22.2	20.6	27.3	14.9	6.9	7.5	8.3	29.3
Zirconium	µg/L	-	-	-	-	-	<0.50	1.05	1.29	<0.50	<0.50	<0.50	<0.50	<0.50
Tannins & Lignins														
Tannins & Lignins	µg/L	-	-	-	-	-	1690	21,800	9580	2130	<100	8470	8360	-
Phenols														
Phenol	µg/L	-	4	4	-	11,000 [7]	<0.50	<0.50	-	<0.50	<0.50	<0.50	-	-
Nonchlorinated Phenols	µg/L	-		-	10	-	-	<0.50	-	<0.50	<0.50	<0.50	-	-
Total Chlorophenols	µg/L	-		-	-	-	-	<0.10	-	<0.10	<0.10	<0.10	-	-
2-Chlorophenol	µg/L	-	330	330	8.5-650 [8]	0.1	<0.10	<0.10	-	<0.10	<0.10	<0.10	-	-
3 & 4 -Chlorophenol	µg/L	-	-	-	8.5-650 [8]	0.1	<0.10	<0.10	-	<0.10	<0.10	<0.10	-	-
Monochlorophenols	µg/L	-	-	-	8.5-650 [8]	0.1	-	<0.10	-	<0.10	<0.10	<0.10	-	-
2,3- Dichlorophenol	µg/L	-	-	-	2.5-340 [8]	0.3	<0.10	<0.10	-	<0.10	<0.10	<0.10	-	-
2,6-dichlorophenol	µg/L	-	-	-	2.5-340 [8]	0.3	<0.10	<0.10	-	<0.10	<0.10	<0.10	-	-
2,4 & 2,5-Dichlorophenol	µg/L	0.3	0.2	0.2	2.5-340 [8]	0.3	<0.10	<0.10	-	<0.10	<0.10	<0.10	-	-
3,4 Dichlorophenol	µg/L	-	-	-	2.5-340 [8]	0.3	<0.10	<0.10	-	<0.10	<0.10	<0.10	-	-
3,5-Dichlorophenol	µg/L	-	-	-	2.5-340 [8]	0.3	<0.10	<0.10	-	<0.10	<0.10	<0.10	-	-
Dichlorophenols	µg/L	-	-	-	2.5-340 [8]	0.3	-	<0.10	-	<0.10	<0.10	<0.10	-	-
2,3,4-Trichlorophenol	µg/L	-	-	-	1-270 [8]	2	<0.10	<0.10	-	<0.10	<0.10	<0.10	-	-
2,3,5-Trichlorophenol	µg/L	-	-	-	1-270 [8]	2	<0.10	<0.10	-	<0.10	<0.10	<0.10	-	-
2,3,6-Trichlorophenol	µg/L	-	-	-	1-270 [8]	2	<0.10	<0.10	-	<0.10	<0.10	<0.10	-	-
2,4,5-Trichlorophenol	µg/L	-	160	160	1-270 [8]	2	<0.10	<0.10	-	<0.10	<0.10	<0.10	-	-
2,4,6-Trichlorophenol	µg/L	2	18	18	1-270 [8]	2	<0.10	<0.10	-	<0.10	<0.10	<0.10	-	-
3,4,5-Trichlorophenol	µg/L	-	-	-	1-270 [8]	2	<0.10	<0.10	-	<0.10	<0.10	<0.10	-	-
Trichlorophenols	µg/L	-	-	-	1-270 [8]	2	-	<0.10	-	<0.10	<0.10	<0.10	-	-
2,3,4,5-Tetrachlorophenol	µg/L	-	-	-	2-180 [8]	1	<0.10	<0.10	-	<0.10	<0.10	<0.10	-	-
2,3,4,6-Tetrachlorophenol	µg/L	1	1	1	2-180 [8]	1	<0.10	<0.10	-	<0.10	<0.10	<0.10	-	-
2,3,5,6-Tetrachlorophenol	µg/L	-	-	-	2-180 [8]	1	<0.10	<0.10	-	<0.10	<0.10	<0.10	-	-
Tetrachlorophenol	µg/L	-	-	-	2-180 [8]	1	-	<0.10	-	<0.10	<0.10	<0.10	-	-
Pentachlorophenol	µg/L	30	0.5	0.5	1-27.5 [8]	30	<0.10	<0.10	-	<0.10	<0.10	<0.10	-	-
2,4-Dimethylphenol	µg/L	-	3900	3900	-	730 [7]	<0.50	<0.50	-	<0.50	<0.50	<0.50	-	-
2,6-Dimethylphenol	µg/L	-	-	-	-	22 [7]	<0.50	<0.50	-	<0.50	<0.50	<0.50	-	-
3,4-Dimethylphenol	µg/L	-	-	-	-	37 [7]	<0.50	<0.50	-	<0.50	<0.50	<0.50	-	-
2,4-Dinitrophenol	µg/L	-	1100	1100	-	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	-	-
4,6-Dinitro-2-methylphenol	µg/L	-	-	-	-	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	-	-
2-Methylphenol	µg/L	-	-	-	-	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	-	-
3-&4-Methylphenol	µg/L	-	-	-	-	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	-	-
2-Nitrophenol	µg/L	-	-	-	-	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	-	-
4-Nitrophenol	µg/L	-	-	-	-	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	-	-
Laboratory Work Order Number							B5B3354	B5B3354	B697701	B5B3354	B5B3354	B5B3354	B697701	B5A4445
Laboratory Identification Number							NW8974	NW8975	PX9386	NW8976	NW8977	NW8978	PX9387	NR9369

Notes:

[1] Health Canada Federal-Provincial-Territorial Committee on Drinking Water (October 2014). Guidelines for Canadian Drinking Water Quality Summary Table. Operation guideline applied for aluminum and aesthetic objectives applied for copper, iron, manganese, sodium and zinc

[2] Environment Canada (Revised March 2014). Federal Interim Groundwater Quality Guidelines (FIGQG) for fine and coarse soils under Residential/Parkland and Commercial/Industrial land uses. Most conservative values applied for protection of freshwater aquatic life, inhalation and soil organisms direct contact

[3] BC Contaminated Sites Regulation (BC Reg. 375/96, includes amendments up to B.C. Reg. 184/2016, July 19, 2016 - Schedules 6 and 10) for freshwater aquatic life (AW) and drinking water (DW)

[4] Guideline/standard varies with pH. Value shown based on pH median of 6.07

[5] Guideline/standard is for Chromium VI

[6] Guideline/standard varies with hardness. Values shown based on hardness median of 146.5 mg/L

[7] CSR Schedule 10 parameter

[8] Standard varies with pH, temperature and substance isomer

[9] Stage 8 Amendment of the CSR applies

"-" No applicable guideline/standard

BOLD - Greater than CDWQG Guideline

Shaded - Greater than FIWQ Guideline

Underlined - Greater than CSR AW Standard

Red text - Greater than CSR DW Standard

Table 3b: Groundwater Analytical Results - Background Wells

Parameter	Unit	Canadian Drinking Water[1]	FIGQG[2]		BC CSR[3]		Background Wells							
			Residential / Parkland	Commercial / Industrial	AW	DW	16MW1			16MW2			16MW3	
							30-Oct-2016	Duplicate	1-Mar-2017	30-Oct-2016	1-Mar-2017	Duplicate	30-Oct-2016	1-Mar-2017
Physical Parameters														
Dissolved Hardness	µg/L	-	-	-	-	-	80,200	82,500	105,000	322,000	120,000	120,000	238,000	143,000
Field pH	pH Units	-	6.5-9	6.5-9	-	-	7.79	-	7.98	6.77	7.20	-	6.62	6.70
Dissolved Metals														
Aluminum	µg/L	100	100 [4]	100 [4]	-	9500	12.8	23.2	3.4	4.3	5.8	6	<3.0	3.2
Antimony	µg/L	6	2000	2000	200	6	0.74	0.76	<0.5	<0.50	<0.5	<0.5	<0.50	<0.5
Arsenic	µg/L	10	5	5	50	10	1.66	1.63	1.74	0.22	<0.1	<0.1	0.24	<0.1
Barium	µg/L	1000	2900	2900	10,000	1000	42.6	43.6	35.3	133	38.9	39.2	52.5	29.3
Beryllium	µg/L	-	5.3	5.3	53	-	<0.10	<0.10	<0.1	<0.10	<0.1	<0.1	<0.10	<0.1
Bismuth	µg/L	-	-	-	-	-	<1.0	<1.0	<1	<1.0	<1	<1	<1.0	<1
Boron	µg/L	5000	1500	1500	50,000	5000	<50	<50	150	<50	<50	<50	<50	<50
Cadmium	µg/L	5	0.09	0.09	0.5 [6]	5	0.011	0.011	<0.01	0.045	<0.01	<0.01	0.072	0.031
Calcium	µg/L	-	-	-	-	-	25,400	25,900	29,100	106,000	40,400	40,400	77,700	47,000
Chromium	µg/L	50	8.9	8.9	10 [5]	50	<1.0	<1.0	<1	<1.0	<1	<1	<1.0	<1
Cobalt	µg/L	-	-	-	40	-	<0.50	<0.50	<0.2	0.74	<0.2	<0.2	1.53	<0.2
Copper	µg/L	1000	2.8 [6]	2.8 [6]	50 [6]	1000	0.60	0.72	1.15	0.29	0.81	1.14	<0.20	0.75
Iron	µg/L	300	300	300	-	- [9]	16.5	20.6	<5	10.2	<5	<5	38.7	<5
Lead	µg/L	10	4.0 [6]	4.0 [6]	60 [6]	10	<0.20	<0.20	<0.2	<0.20	<0.2	<0.2	<0.20	<0.2
Lithium	µg/L	-	-	-	-	730 [7]	<5.0	<5.0	3.3	<5.0	<2	<2	<5.0	<2
Magnesium	µg/L	-	-	-	-	100,000	4060	4350	7830	13,700	4580	4540	10,600	6190
Manganese	µg/L	50	-	-	-	- [9]	**98.2**	**101**	12.5	**88.6**	<1	<1	**402**	18.2
Mercury	µg/L	1	0.026	0.026	1	1	<0.010	<0.010	<0.01	<0.010	<0.01	<0.01	<0.010	<0.01
Molybdenum	µg/L	-	73	73	10,000	250	8.7	8.7	10	1.4	1.9	1.8	<1.0	<1
Nickel	µg/L	-	110 [6]	110 [6]	1100 [6]	-	<1.0	<1.0	<1	<1.0	<1	<1	1.3	<1
Potassium	µg/L	-	-	-	-	-	3240	3120	5460	2560	1050	1070	2040	1220
Selenium	µg/L	50	1	1	10	10	1.11	1.06	0.6	0.32	0.12	0.12	<0.10	<0.1
Silicon	µg/L	-	-	-	-	-	3940	3790	4450	3080	2030	2040	5700	5140
Silver	µg/L	-	0.25	0.25	15 [6]	-	<0.020	<0.020	<0.02	<0.020	<0.02	<0.02	<0.020	<0.02
Sodium	µg/L	200,000	-	-	-	200,000	68,100	66,900	53,300	6390	2460	2580	5990	4570
Strontium	µg/L	-	-	-	-	22,000 [7]	199	199	229	1930	671	672	440	259
Sulphur	µg/L	-	-	-	-	-	7400	7700	18200	55,000	15,000	15,700	24,100	14,400
Thallium	µg/L	-	0.8	0.8	3	-	<0.050	<0.050	<0.01	<0.050	<0.01	<0.01	<0.050	<0.01
Tin	µg/L	-	-	-	-	22,000 [7]	<5.0	<5.0	<5	<5.0	<5	<5	<5.0	<5
Titanium	µg/L	-	100	100	1000	-	<5.0	<5.0	<5	<5.0	<5	<5	<5.0	<5
Uranium	µg/L	20	15	15	3000	20	3.3	3.26	3.91	1.76	0.53	0.53	0.23	<0.1
Vanadium	µg/L	-	-	-	-	-	<5.0	<5.0	<5	<5.0	<5	<5	<5.0	<5
Zinc	µg/L	5000	30	30	900 [6]	5000	<5.0	<5.0	<5	<5.0	<5	<5	<5.0	<5
Zirconium	µg/L	-	-	-	-	-	<0.50	<0.50	<0.5	<0.50	<0.5	<0.5	<0.50	<0.5
Laboratory Work Order Number							B697701	B697701	R2355037	B697701	R2355037	R2355037	B697701	R2355037
Laboratory Identification Number							PX9382	PX9385	QQ7732	PX9383	QQ7733	QQ7777	PX9384	QQ7734

Notes:

[1] Health Canada Federal-Provincial-Territorial Committee on Drinking Water (October 2014). Guidelines for Canadian Drinking Water Quality Summary Table. Operation guideline applied for aluminum and aesthetic objectives applied for copper, iron, manganese, sodium and zinc

[2] Environment Canada (Revised March 2014). Federal Interim Groundwater Quality Guidelines (FIGQG) for fine and coarse soils under Residential/Parkland and Commercial/Industrial land uses. Most conservative values applied for protection of freshwater aquatic life, inhalation and soil organisms direct contact. Guideline only applies to MW15-802 and MW15-803

[3] BC Contaminated Sites Regulation (BC Reg. 375/96, includes amendments up to B.C. Reg. 184/2016, July 19, 2016 - Schedules 6 and 10) for freshwater aquatic life (AW) and drinking water (DW)

[4] Guideline/standard varies with pH. Value shown based on pH median of 6.99

[5] Guideline/standard is for Chromium VI

[6] Guideline/standard varies with hardness. Values shown based on hardness median of 120 mg/L

[7] CSR Schedule 10 parameter

[8] Standard varies with pH, temperature and substance isomer

[9] Stage 8 Amendment of the CSR applies

"-" No applicable guideline/standard

**Location is within 10 m of a surface water body. CCME AW guidelines have been applied in place of FIWGQ guidelines

BOLD - Greater than CDWQG Guideline

Shaded - Greater than FIWQ Guideline

Underlined - Greater than CSR AW Standard

Red text - Greater than CSR DW Standard

Table 4: Surface Water Analytical Results

Parameter	Canadian Drinking Water[1]	CCME - AW[2]	CSR - AW[3]	CSR - DW[3]	SW15-101	SW15-102	16SW101
					17-Nov-2015	17-Nov-2015	26-Oct-2016
Physical Parameters							
Hardness as $CaCO_3$	-	-	-	-	35,000	52,000	50,600
Tannins & Lignins							
Tannins & Lignins	-	-	-	-	1060	230	<100
Total Metals							
Aluminum	100	5 [4]	-	9500	**1280**	**447**	18.7
Antimony	6	-	200	6	<0.50	<0.50	<0.50
Arsenic	10	5	50	10	0.51	0.54	0.59
Barium	1000	-	10,000	1000	42.3	28.0	25.3
Beryllium	-	-	53	-	<0.10	<0.10	<0.10
Bismuth	-	-	-	-	<1.0	<1.0	<1.0
Boron	5000	1500	50,000	5000	<50	<50	<50
Cadmium	5	0.09	0.3 [6]	5	0.054	0.027	0.057
Calcium	-	-	-	-	10,900	16,700	17,200
Chromium	50	1 [5]	10 [5]	50	1.5	<1.0	<1.0
Cobalt	-	-	40	-	0.82	<0.50	<0.50
Copper	1000	2 [6]	20-30 [6]	1000	2.60	1.65	0.24
Iron	300	300	-	6500	**3070**	**1210**	**655**
Lead	10	1 [6]	40-50 [6]	10	0.60	0.21	<0.20
Lithium	-	-	-	730 [7]	<5.0	<5.0	-
Magnesium	-	-	-	100,000	1900	2500	1850
Manganese	50	-	-	550	**60.0**	**183**	**139**
Mercury	1	0.026	1	1	<0.010	<0.010	<0.010
Molybdenum	-	73	10,000	250	<1.0	<1.0	<1.0
Nickel	-	25 [6]	250 [6]	-	2.1	<1.0	<1.0
Potassium	-	-	-	-	1580	978	939
Selenium	50	1	10	10	<0.10	<0.10	<0.10
Silicon	-	-	-	-	6760	4300	3780
Silver	-	0.25	0.5 [6]	-	<0.020	<0.020	<0.020
Sodium	200,000	-	-	200,000	1810	2310	4910
Strontium	-	-	-	22,000 [7]	78.8	136	94.6
Sulphur	-	-	-	-	<3000	3600	<3000
Thallium	-	0.8	3	-	<0.050	<0.050	<0.050
Tin	-	-	-	22,000 [7]	<5.0	<5.0	<5.0
Titanium	-	-	1000	-	67.8	27.2	<5.0
Uranium	20	15	3000	20	0.20	0.19	<0.10
Vanadium	-	-	-	-	<5.0	<5.0	<5.0
Zinc	5000	30	75 [6]	5000	10.0	5.4	<5.0
Zirconium	-	-	-	-	<0.50	<0.50	<0.50
Laboratory Work Order Number					B5A4445	B5A4445	B697701
Laboratory Identification Number					NR9322	NR9323	PX9381

Notes:

[1] Health Canada Federal-Provincial-Territorial Committee on Drinking Water (October 2014). Guidelines for Canadian Drinking Water Quality Summary Table. Operation guideline applied for aluminum and aesthetic objectives applied for copper, iron, manganese, sodium and zinc.

[2] Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)

[3] BC Contaminated Sites Regulation (BC Reg. 375/96, includes amendments up to B.C. Reg. 184/2016, July 19, 2016 - Schedules 6 and 10) for freshwater aquatic life (AW) and drinking water (DW)

[4] Guideline/standard varies with pH. Most conservative value applied.

[5] Guideline/standard is for Chromium VI

[6] Guideline/standard varies with hardness. Values shown based on hardness of 35 mg/L to 52 mg/L

"-" No applicable guideline/standard

BOLD - Greater than CDWQG Guideline

Shaded - Greater than CCME AW Guideline

Underlined - Greater than CSR AW Standard

Red text - Greater than CSR DW Standard

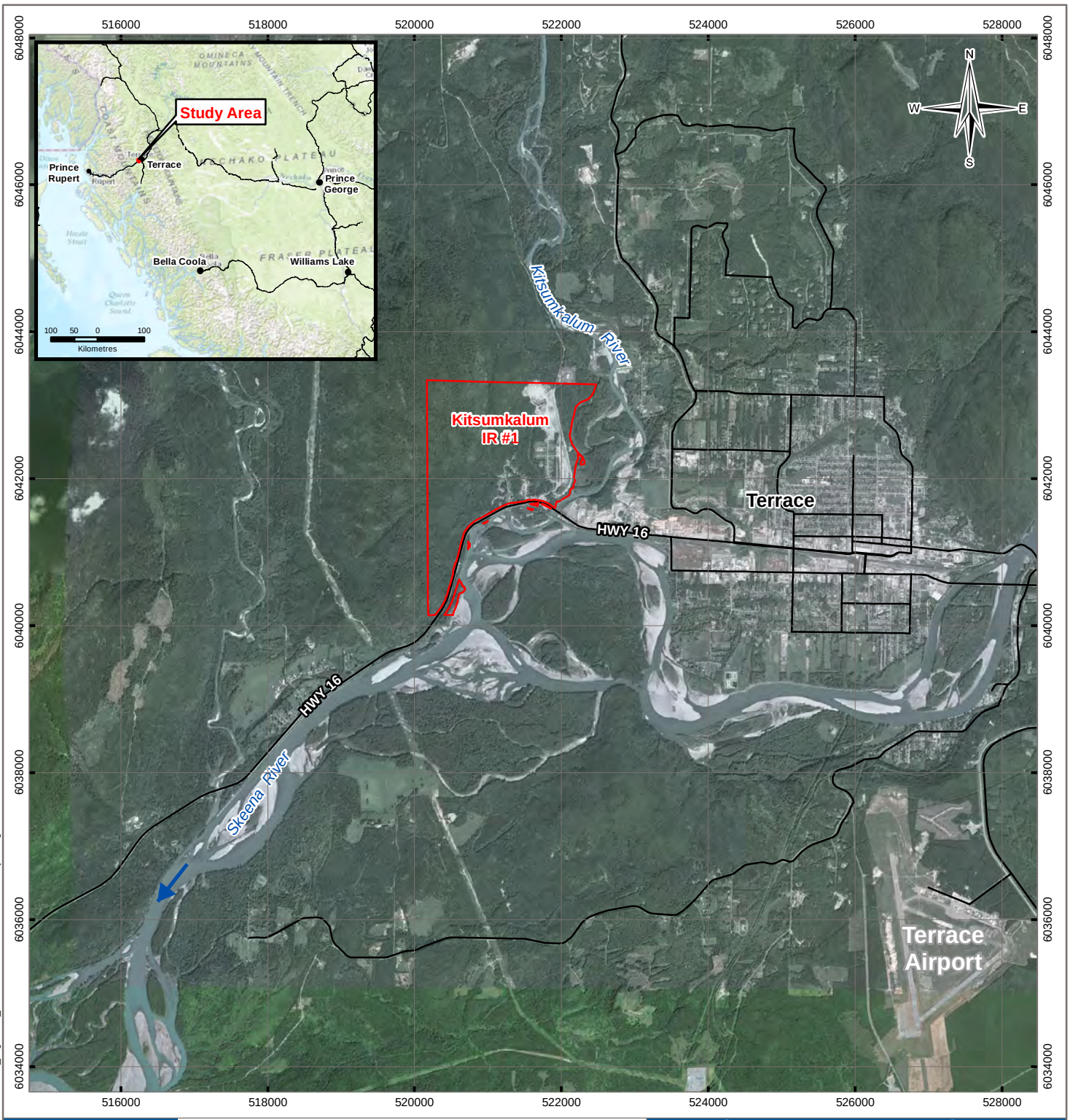
Table 5: Groundwater Quality Assurance/Quality Control Analytical Results

Parameter	Unit	RDL	16MW1	00MW1	RPD (%)	16MW2	00MW2	RPD (%)
			30-Oct-2016			1-Mar-2017		
Physical Parameters								
Dissolved Hardness	µg/L	500	80,200	82,500	3	120,000	120,000	0
Dissolved Metals								
Aluminum	µg/L	3	12.8	23.2	-	5.8	6	-
Antimony	µg/L	0.5	0.74	0.76	-	<0.5	<0.5	-
Arsenic	µg/L	0.1	1.66	1.63	2	<0.1	<0.1	-
Barium	µg/L	1	42.6	43.6	2	38.9	39.2	1
Beryllium	µg/L	0.1	<0.10	<0.10	-	<0.1	<0.1	-
Bismuth	µg/L	1	<1.0	<1.0	-	<1	<1	-
Boron	µg/L	50	<50	<50	-	<50	<50	-
Cadmium	µg/L	0.01	0.011	0.011	-	<0.01	<0.01	-
Calcium	µg/L	50	25,400	25,900	2	40,400	40,400	0
Chromium	µg/L	1	<1.0	<1.0	-	<1	<1	-
Cobalt	µg/L	0.5	<0.50	<0.50	-	<0.2	<0.2	-
Copper	µg/L	0.2	0.60	0.72	-	0.81	1.14	24
Iron	µg/L	5	16.5	20.6	-	<5	<5	-
Lead	µg/L	0.2	<0.20	<0.20	-	<0.2	<0.2	-
Lithium	µg/L	5	<5.0	<5.0	-	<2	<2	-
Magnesium	µg/L	50	4060	4350	7	4580	4540	1
Manganese	µg/L	1	98.2	101	3	<1	<1	-
Mercury	µg/L	0.01	<0.010	<0.010	-	<0.01	<0.01	-
Molybdenum	µg/L	1	8.7	8.7	0	1.9	1.8	-
Nickel	µg/L	1	<1.0	<1.0	-	<1	<1	-
Potassium	µg/L	50	3240	3120	4	1050	1070	1
Selenium	µg/L	0.1	1.11	1.06	5	0.12	0.12	0
Silicon	µg/L	100	3940	3790	4	2030	2040	0
Silver	µg/L	0.02	<0.020	<0.020	-	<0.02	<0.02	-
Sodium	µg/L	50	68,100	66,900	2	2460	2580	3
Strontium	µg/L	1	199	199	0	671	672	0
Sulphur	µg/L	3000	7400	7700	-	15000	15700	-
Thallium	µg/L	0.05	<0.050	<0.050	-	<0.01	<0.01	-
Tin	µg/L	5	<5.0	<5.0	-	<5	<5	-
Titanium	µg/L	5	<5.0	<5.0	-	<5	<5	-
Uranium	µg/L	0.1	3.3	3.26	1	0.53	0.53	0
Vanadium	µg/L	5	<5.0	<5.0	-	<5	<5	-
Zinc	µg/L	5	<5.0	<5.0	-	<5	<5	-
Zirconium	µg/L	0.5	<0.50	<0.50	-	<0.5	<0.5	-
Laboratory Work Order Number			B697701	B697701		R2355037	R2355037	
Laboratory Identification Number			PX9382	PX9385		QQ7733	QQ7777	

NOTES:

-	Not analyzed or RPD not calculated.
<	Concentration is less than the laboratory detection limit indicated.
RDL	Laboratory Reportable Detection Limit
RPD	RPD is Relative Percentage Difference calculated as RPD=[C2-C1]/[(C1+C2)/2] where C1,C2 = concentrations of parameters in 1st and 2nd sample respectively.
BOLD	RPDs have only been considered where a concentration is greater than 5 times the RDL High RPDs are in bold (groundwater metals were compared against a 30% screening threshold and groundwater VOCs and other organics were compared to a 45% screening threshold, as recommended by BC Ministry of Environment Q&A, and BC Environmental

FIGURES



LEGEND

- Reserve Boundary
- Major Road

NOTES
Base data source:
Imagery from ESRI; DigitalGlobe (2010).

STATUS
ISSUED FOR USE

SUPPLEMENTAL PHASE II ENVIRONMENTAL SITE ASSESSMENT KITSUMKALUM IR #1

Site Location Plan

PROJECTION	DATUM	CLIENT
UTM Zone 9	NAD83	Kitsumkalum First Nation

Scale: 1:75,000
1 0.5 0 1
Kilometres

FILE NO. VENV03133-01_Figure01_Site.mxd

PROJECT NO.	DWN	CKD	APVD	REV
ENV.VENV03133-01	MEZ	SL	DT	0

OFFICE	DATE
Tt - VANC	May 12, 2017

TETRA TECH

Figure 1

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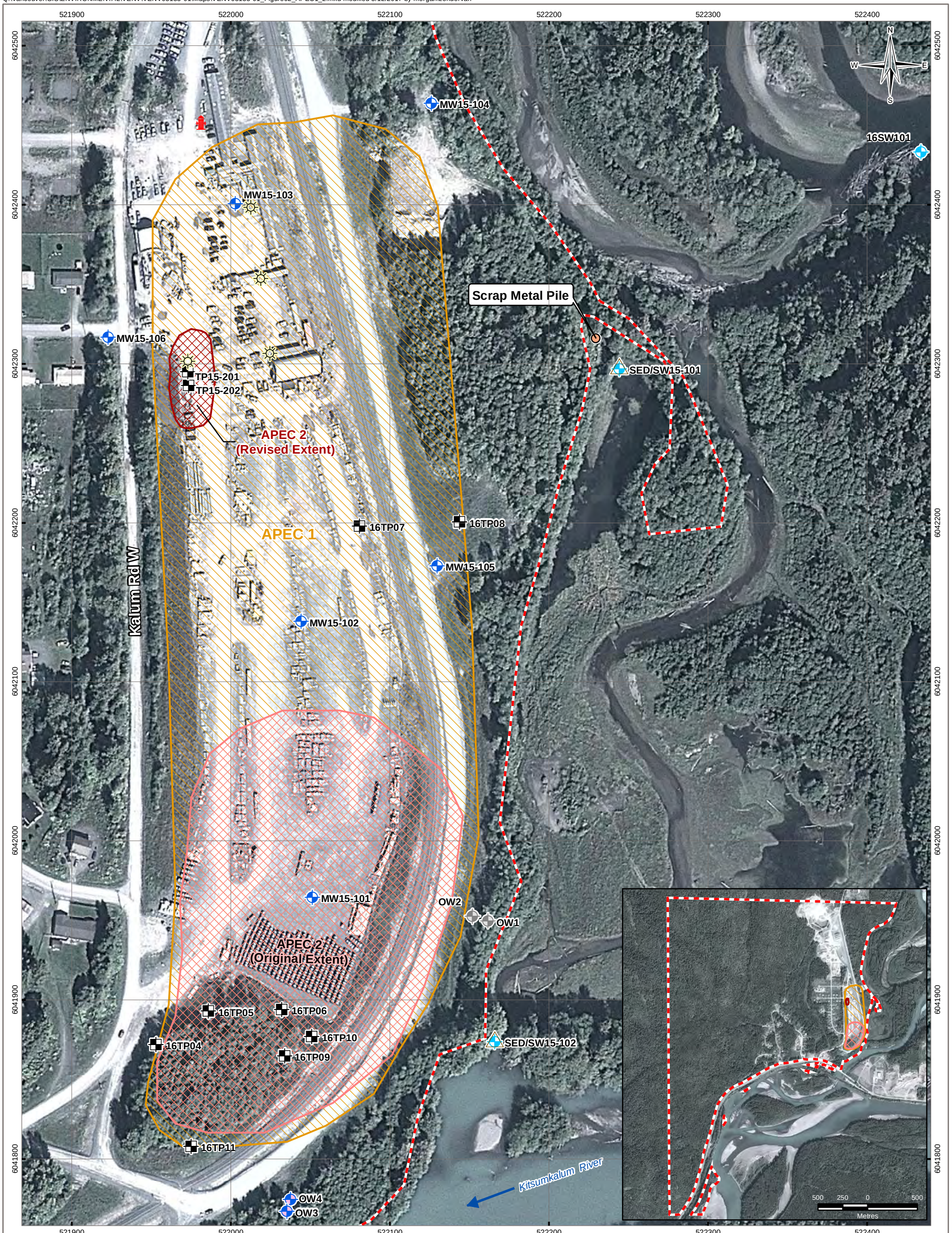

LEGEND

- Site Feature (see label for description)
- Testpit
- Monitoring Well
- Existing Monitoring Well
- Existing Monitoring Well (not found, presumed destroyed)
- Surface Water Sample
- Sediment and Surface Water Sample
- Fire Hydrant
- Lamp Post
- Reserve Boundary

Area of Potential Environmental Concern (APEC)

- APEC 1
- APEC 2 (Revised Extent)
- APEC 2 (Original Extent)

NOTES
Base data source: Imagery from Google; DigitalGlobe (2013)

STATUS
ISSUED FOR USE

SUPPLEMENTAL PHASE II ENVIRONMENTAL SITE ASSESSMENT KITSUMKALUM IR #1

APEC 1 Site Plan
Kitsumkalum IR #1

PROJECTION: UTM Zone 9	DATUM: NAD83			CLIENT: Kitsumkalum First Nation
Scale: 1:2,250 (40 20 0 40 Metres)				TETRA TECH
FILE NO.: VENV03133-01_Figure02_APEC1_2.mxd				
PROJECT NO.: ENV.VENV03133-01	DWN: MEZ	CKD: SL	APVD: DT	REV: 0
OFFICE: Tt - VANC	DATE: May 12, 2017			Figure 2

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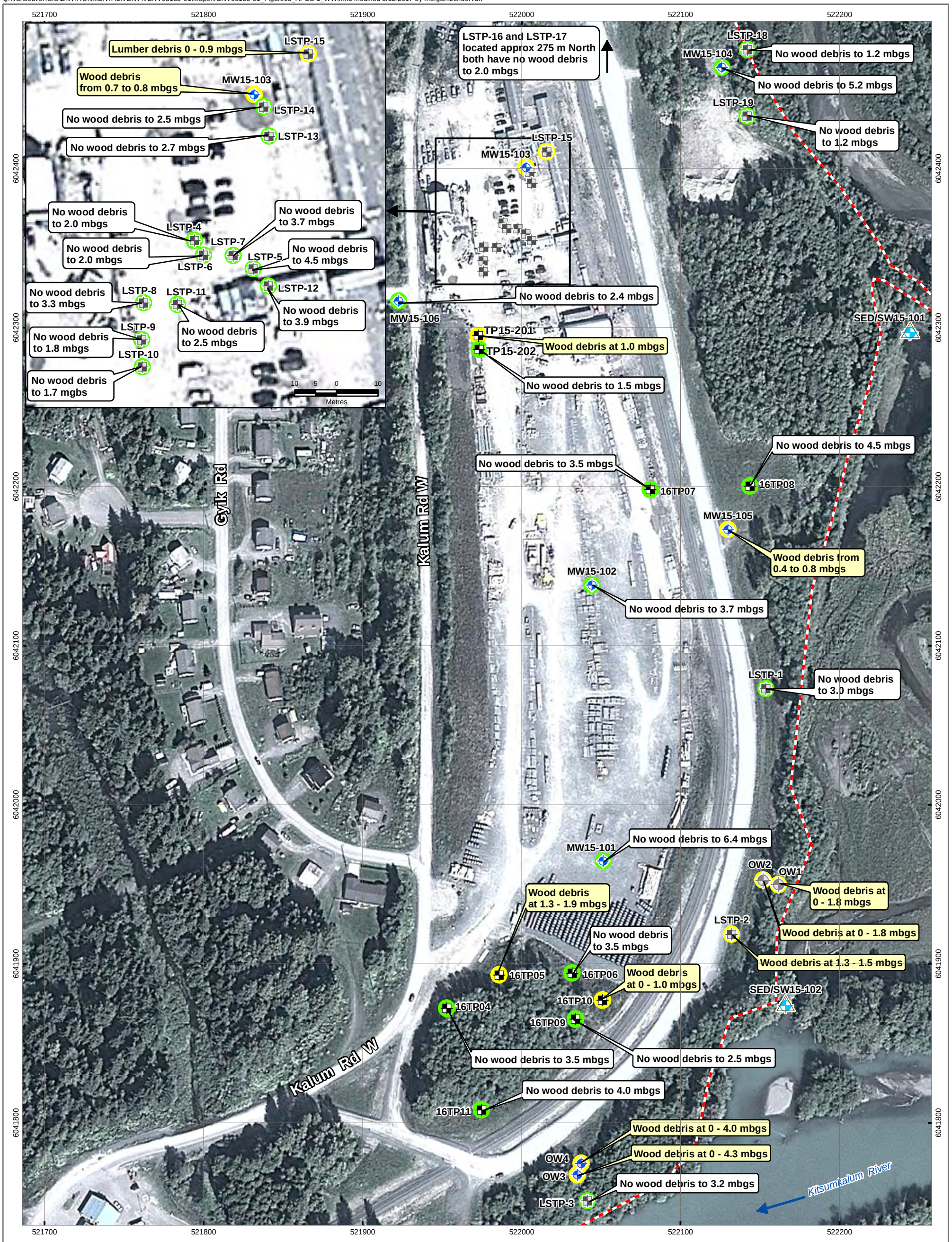

LEGEND

- Tetra Tech Testpit
- Tetra Tech Monitoring Well
- Existing Monitoring Well
- Existing Monitoring Well (not found, presumed destroyed)
- Sediment and Surface Water Sample Location
- PGL Testpit Location (Approximate Location)
- Wood Debris Encountered (mbgs = metres below ground surface)
- No Wood Debris Encountered
- Reserve Boundary

NOTES
Base data source: Imagery from Google; DigitalGlobe (2013)

N W E S

STATUS
ISSUED FOR USE

SUPPLEMENTAL PHASE II ENVIRONMENTAL SITE ASSESSMENT KITSUMKALUM IR #1

APEC 1
Wood Debris Summary

PROJECTION: UTM Zone 9	DATUM: NAD83				CLIENT: Kitsumkalum First Nation
Scale: 1:2,250 (40 20 0 40 Metres)					TETRA TECH
FILE NO.: VENV03133-01_Figure03_APEC 1_WW.mxd					
PROJECT NO.: ENV.VENV03133-01	DWN: MEZ	CKD: SL	APVD: DT	REV: 0	Figure 3
OFFICE: Tt - VANC	DATE: May 12, 2017				

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521700 521800 521900 522000 522100 522200

6042400 6042300 6042200 6042100 6042000 6041900 6041800 6041700

Parameter	Unit	MW15-103
		19-Dec-2015
Physical Parameters		
Field pH	pH Units	5.95
Dissolved Metals		
Aluminum	µg/L	30.5
Arsenic	µg/L	3.67
Cadmium	µg/L	1.71
Copper	µg/L	0.58
Iron	µg/L	**10,600**
Manganese	µg/L	**16,200**
Tannins & Lignins		
Tannins & Lignins	µg/L	2130

Parameter	Unit	MW15-104
		19-Dec-2015
Physical Parameters		
Field pH	pH Units	5.83
Dissolved Metals		
Aluminum	µg/L	31.9
Arsenic	µg/L	0.73
Cadmium	µg/L	0.198
Copper	µg/L	0.50
Iron	µg/L	139
Manganese	µg/L	**245**
Tannins & Lignins		
Tannins & Lignins	µg/L	<100

Parameter	Unit	MW15-102	
		19-Dec-2015	27-Oct-2016
Physical Parameters			
Field pH	pH Units	6.18	6.08
Dissolved Metals			
Aluminum	µg/L	**194**	**213**
Arsenic	µg/L	6.03	**13.2**
Cadmium	µg/L	0.271	0.041
Copper	µg/L	29.9	0.30
Iron	µg/L	**68,800**	**68,900**
Manganese	µg/L	**6770**	**7930**
Tannins & Lignins			
Tannins & Lignins	µg/L	21,800	9580

Parameter	Unit	MW15-105	
		19-Dec-2015	27-Oct-2016
Physical Parameters			
Field pH	pH Units	6.25	6.05
Dissolved Metals			
Aluminum	µg/L	46.5	36.9
Arsenic	µg/L	4.59	**16.6**
Cadmium	µg/L	2.66	0.265
Copper	µg/L	2.41	0.45
Iron	µg/L	**18,200**	**36,300**
Manganese	µg/L	**11,200**	**11,600**
Tannins & Lignins			
Tannins & Lignins	µg/L	8470	8360

Parameter	Unit	MW15-101
		19-Dec-2015
Physical Parameters		
Field pH	pH Units	6.75
Dissolved Metals		
Aluminum	µg/L	23.1
Arsenic	µg/L	0.98
Cadmium	µg/L	0.367
Copper	µg/L	2.34
Iron	µg/L	21.3
Manganese	µg/L	**2300**
Tannins & Lignins		
Tannins & Lignins	µg/L	1690

Parameter	Unit	OW-4
		20-Nov-2015
Physical Parameters		
Field pH	pH Units	5.73
Dissolved Metals		
Aluminum	µg/L	**299**
Arsenic	µg/L	5.74
Cadmium	µg/L	0.017
Copper	µg/L	0.52
Iron	µg/L	**12,200**
Manganese	µg/L	**2640**

Parameter	Unit	Canadian Drinking Water [1]	FIGQG [2]		BC CSR [3]	
			Residential / Parkland	Commercial / Industrial	AW	DW
Physical Parameters						
Field pH	pH Units	-	6.5-9	6.5-9	-	-
Dissolved Metals						
Aluminum	µg/L	100	5 [4]	5 [4]	-	9500
Arsenic	µg/L	10	5	5	50	10
Cadmium	µg/L	5	0.09	0.09	0.5 [5]	5
Copper	µg/L	1000	3.3 [5]	3.3 [5]	60 [5]	1000
Iron	µg/L	300	300	300	-	- [6]
Manganese	µg/L	50	-	-	-	- [6]
Tannins & Lignins						
Tannins & Lignins	µg/L	-	-	-	-	-

Notes:

[1] Health Canada Federal-Provincial-Territorial Committee on Drinking Water (October 2014). Guidelines for Canadian Drinking Water Quality Summary Table. Operation guideline applied for aluminum and aesthetic objectives applied for copper, iron, manganese, sodium and zinc

[2] Environment Canada (Revised March 2014). Federal Interim Groundwater Quality Guidelines (FIGQG) for fine and coarse soils under Residential/Parkland and Commercial/Industrial land uses. Most conservative values applied for protection of freshwater aquatic life, inhalation and soil organisms direct contact

[3] BC Contaminated Sites Regulation (BC Reg. 375/96, includes amendments up to B.C. Reg. 184/2016, July 19, 2016 - Schedules 6 and 10) for freshwater aquatic life (AW) and drinking water (DW)

[4] Guideline/standard varies with pH. Value shown based on pH median of 6.07

[5] Guideline/standard varies with hardness. Values shown based on hardness median of 146.5 mg/L

[6] Stage 8 Amendment of the CSR applies

"-" No applicable guideline/standard

BOLD - Greater than CDWQG Guideline

Shaded - Greater than FIWQ Guideline

Underlined - Greater than CSR AW Standard

Red text - Greater than CSR DW Standard

MW15-104 MW15-103 MW15-106 Dry Gyik Rd APEC 2 (Revised Extent) APEC 1 MW15-105 MW15-102 MW15-101 APEC 2 (Original Extent) OW2 OW1 OW4 OW3

N W E S

LEGEND

- Monitoring Well (Greater than CCME Guideline, FIWQG Guideline or CSR Standard)
- Monitoring Well (Not Tested); MW15-102, ; OW4,
- Existing Monitoring Well (not found, presumed destroyed)
- Reserve Boundary

Area of Potential Environmental Concern (APEC)

- APEC 1
- APEC 2 (Revised Extent)
- APEC 2 (Original Extent)

NOTES
Base data source: Imagery from Google; DigitalGlobe (2013)

STATUS
ISSUED FOR USE

SUPPLEMENTAL PHASE II ENVIRONMENTAL SITE ASSESSMENT KITSUMKALUM IR #1

APEC 1
Groundwater Analytical Results

PROJECTION UTM Zone 9	**DATUM** NAD83	**CLIENT** Kitsumkalum First Nation
Scale: 1:2,500 (50 25 0 50 Metres)		
FILE NO. VENV03133-01_Figure04_APEC 1and2_GW.mxd		TETRA TECH
PROJECT NO. ENV.VENV03133-01	**DWN** MEZ / **CKD** SL / **APVD** DT / **REV** 0	**Figure 4**
OFFICE Tt - VANC	**DATE** May 12, 2017	

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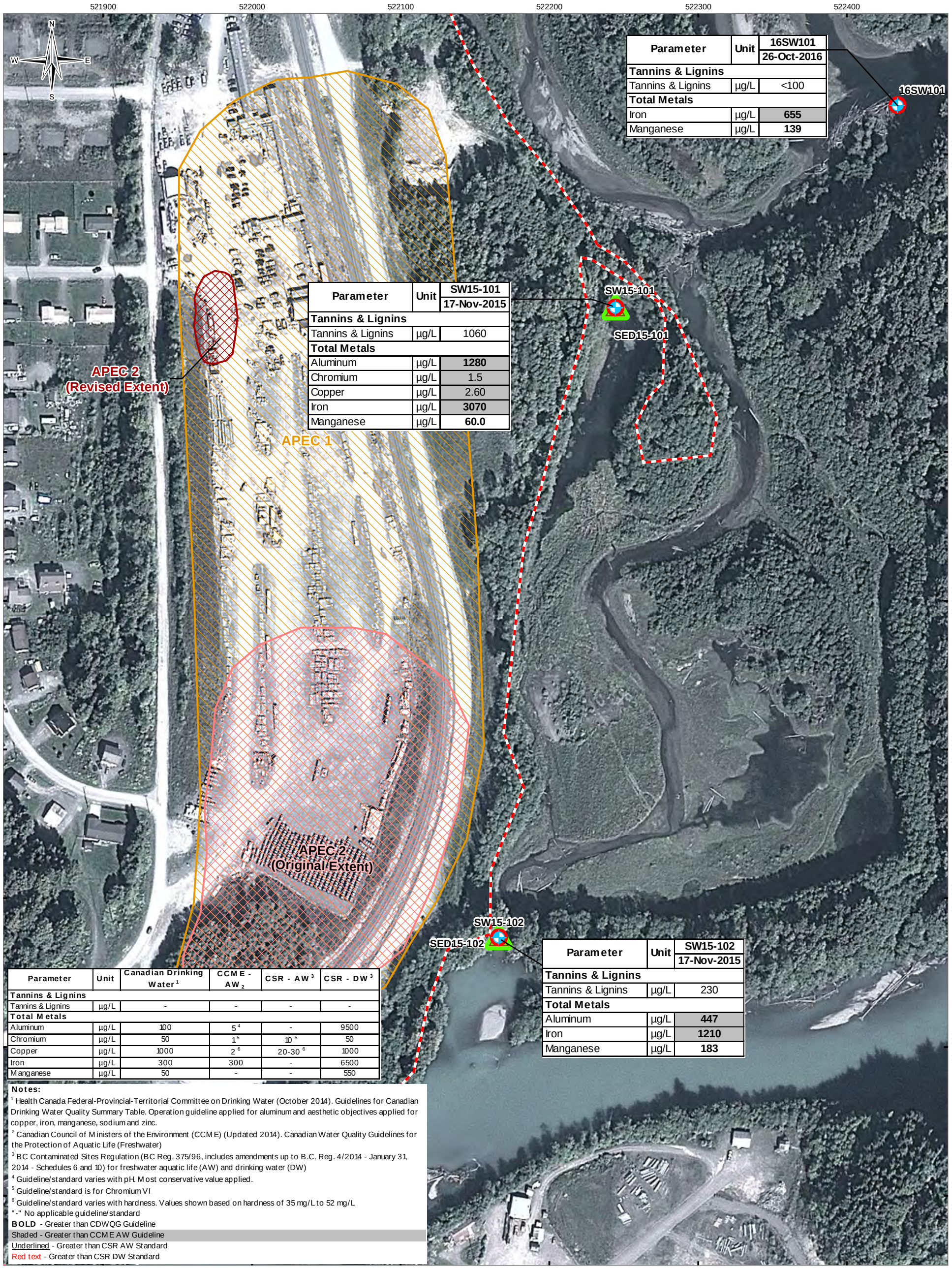

Parameter	Unit	SW15-101 17-Nov-2015
Tannins & Lignins		
Tannins & Lignins	µg/L	1060
Total Metals		
Aluminum	µg/L	**1280**
Chromium	µg/L	1.5
Copper	µg/L	2.60
Iron	µg/L	**3070**
Manganese	µg/L	**60.0**

Parameter	Unit	16SW101 26-Oct-2016
Tannins & Lignins		
Tannins & Lignins	µg/L	<100
Total Metals		
Iron	µg/L	**655**
Manganese	µg/L	**139**

Parameter	Unit	SW15-102 17-Nov-2015
Tannins & Lignins		
Tannins & Lignins	µg/L	230
Total Metals		
Aluminum	µg/L	**447**
Iron	µg/L	**1210**
Manganese	µg/L	**183**

Parameter	Unit	Canadian Drinking Water[1]	CCME - AW[2]	CSR - AW[3]	CSR - DW[3]
Tannins & Lignins					
Tannins & Lignins	µg/L	-	-	-	-
Total Metals					
Aluminum	µg/L	100	5[4]	-	9500
Chromium	µg/L	50	1[5]	10[5]	50
Copper	µg/L	1000	2[6]	20-30[6]	1000
Iron	µg/L	300	300	-	6500
Manganese	µg/L	50	-	-	550

Notes:

[1] Health Canada Federal-Provincial-Territorial Committee on Drinking Water (October 2014). Guidelines for Canadian Drinking Water Quality Summary Table. Operation guideline applied for aluminum and aesthetic objectives applied for copper, iron, manganese, sodium and zinc.

[2] Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)

[3] BC Contaminated Sites Regulation (BC Reg. 375/96, includes amendments up to B.C. Reg. 4/2014 - January 31, 2014 - Schedules 6 and 10) for freshwater aquatic life (AW) and drinking water (DW)

[4] Guideline/standard varies with pH. Most conservative value applied.

[5] Guideline/standard is for Chromium VI

[6] Guideline/standard varies with hardness. Values shown based on hardness of 35 mg/L to 52 mg/L

"-" No applicable guideline/standard

BOLD - Greater than CDWQG Guideline

Shaded - Greater than CCME AW Guideline

Underlined - Greater than CSR AW Standard

Red text - Greater than CSR DW Standard

LEGEND

- Surface and Sediment Sample (Collected at Same Location)
- Sediment Sample (Less than the CCME Guideline, FIWQG Guideline and CSR Standard)
- Surface Water Sample (Greater than CCME Guideline, FIWQG Guideline or CSR Standard)
- Reserve Boundary

Area of Potential Environmental Concern (APEC)

- APEC 1
- APEC 2 (Revised Extent)
- APEC 2 (Original Extent)

NOTES
Base data source: Imagery from Google; DigitalGlobe (2013)

STATUS
ISSUED FOR USE

SUPPLEMENTAL PHASE II ENVIRONMENTAL SITE ASSESSMENT KITSUMKALUM IR #1

APEC 1
Surface Water and Sediment Analytical Results

PROJECTION UTM Zone 9	**DATUM** NAD83	**CLIENT** Kitsumkalum First Nation
Scale: 1:2,500 (50 25 0 50 Metres)		TETRA TECH
FILE NO. VENV03133-01_Figure05_APEC 1and2_SW.mxd		
PROJECT NO. ENV.VENV03133-01	**DWN** MEZ / **CKD** SL / **APVD** DT / **REV** 0	**Figure 5**
OFFICE Tt - VANC	**DATE** May 12, 2017	

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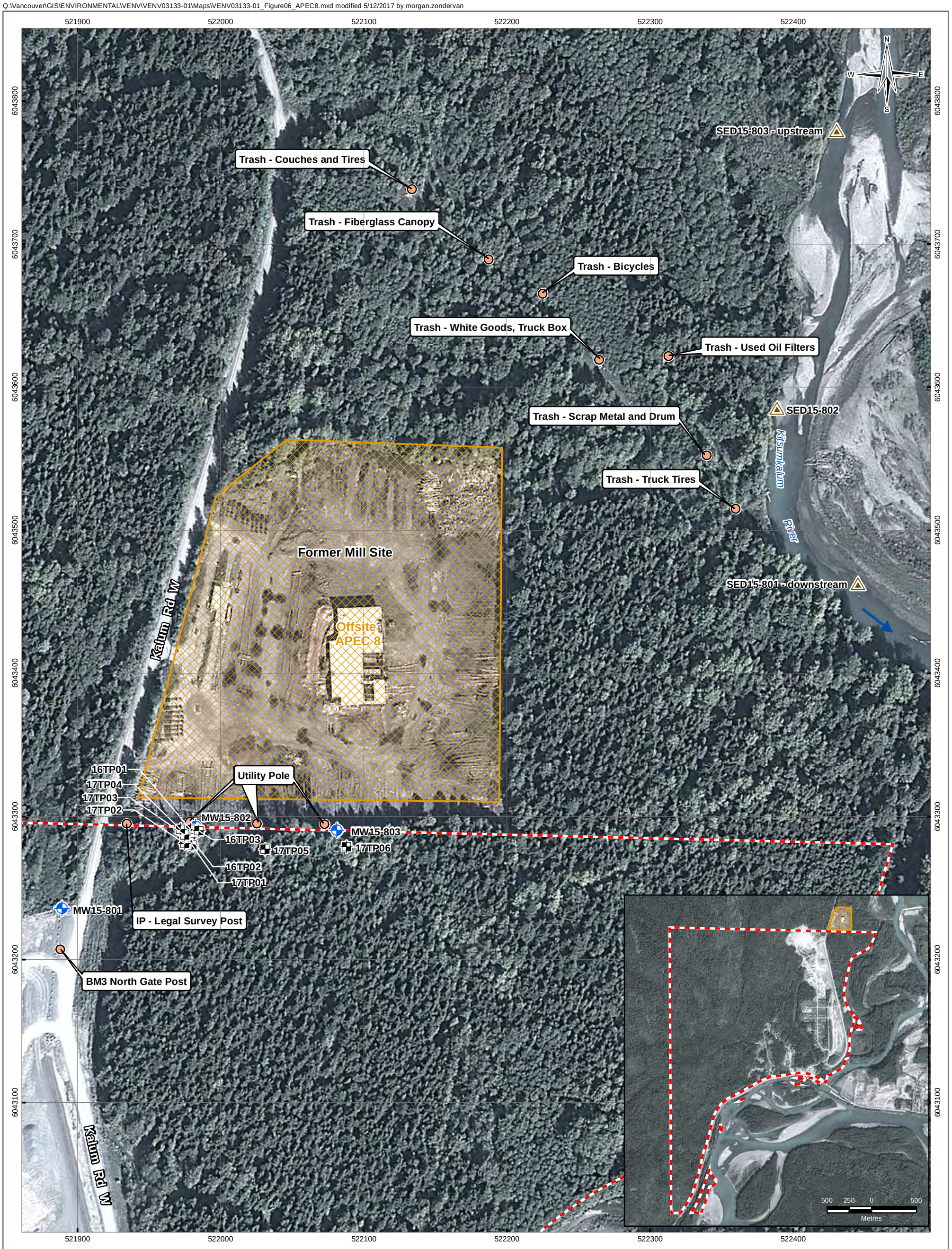

LEGEND

- Site Feature (see labels for description)
- Sediment Sample
- Monitoring Well
- Testpit
- Reserve Boundary
- Approximate Area of Potential Environmental Concern (APEC)

NOTES
Base data source: Imagery from Google; DigitalGlobe (2013)

STATUS
ISSUED FOR USE

SUPPLEMENTAL PHASE II ENVIRONMENTAL SITE ASSESSMENT KITSUMKALUM IR #1

Offsite APEC 8 Site Plan
Kitsumkalum IR #1

PROJECTION	DATUM	CLIENT
UTM Zone 9	NAD83	Kitsumkalum First Nation

Scale: 1:2,500
50 25 0 50
Metres

FILE NO.
VENV03133-01_Figure06_APEC8.mxd

PROJECT NO.	DWN	CKD	APVD	REV
ENV.VENV03133-01	MEZ	SL	DT	0

OFFICE	DATE
Tt - VANC	May 12, 2017

TETRA TECH

Figure 6

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521900 521950 522000 522050 522100

6043450 6043400 6043350 6043300 6043250 6043200 6043150

Offsite APEC 8

Former Mill Site

Kalum Rd W

Parameter	Unit	16TP1		
		0.5 m	1.3 m	2.4 m
		28-Oct-2016	28-Oct-2016	28-Oct-2016
BTEXS & MTBE				
Benzene	µg/g	*<0.024*	<0.0050	<0.0050
Toluene	µg/g	**0.80**	<0.020	0.076
Ethylbenzene	µg/g	*<0.047*	<0.010	0.012

Parameter	Unit	17TP04			
		0.5 m		1 m	3 m
		2-Mar-2017	Duplicate	2-Mar-2017	2-Mar-2017
BTEXS & MTBE					
Benzene	µg/g	<0.005	*<0.01* [8]	<0.005	<0.005
Toluene	µg/g	<0.02	<0.04 [8]	<0.02	<0.02
Ethylbenzene	µg/g	<0.01	*<0.02* [8]	<0.01	<0.01

Parameter	Unit	MW15-802		
		0.5 m	DUP 207	2.0m
		18-Dec-2016	18-Dec-2016	18-Dec-2016
BTEXS & MTBE				
Benzene	µg/g	<0.0050	<0.0050	<0.0050
Toluene	µg/g	**0.11**	0.044	0.073
Ethylbenzene	µg/g	<0.010	<0.010	<0.010

Parameter	Unit	17TP05		
		0.5 m	1 m	3 m
		2-Mar-2017	2-Mar-2017	2-Mar-2017
BTEXS & MTBE				
Benzene	µg/g	<0.005	<0.005	**0.016**
Toluene	µg/g	<0.02	<0.02	<0.02
Ethylbenzene	µg/g	<0.01	<0.01	<0.01

Parameter	Unit	17TP06		
		0.1 m		3 m
		2-Mar-2017	Duplicate	2-Mar-2017
BTEXS & MTBE				
Benzene	µg/g	<0.005	<0.005	0.0053
Toluene	µg/g	<0.02	0.079	<0.02
Ethylbenzene	µg/g	<0.01	0.01	<0.01

Parameter	Unit	17TP03		
		0.15 m	1.5 m	3 m
		2-Mar-2017	2-Mar-2017	2-Mar-2017
BTEXS & MTBE				
Benzene	µg/g	<0.005	<0.005	<0.005
Toluene	µg/g	<0.02	<0.02	0.032
Ethylbenzene	µg/g	<0.01	<0.01	<0.01

IP - Legal Survey Post

Utility Pole

Utility Pole

Utility Pole

17TP04

MW15-802

16TP03

17TP03

16TP01

16TP02

17TP01

17TP02

17TP05

17TP06

MW15-803

MW15-801

BM3 North Gate Post

Parameter	Unit	16TP3	
		0.5 m	1.5 m
		28-Oct-2016	28-Oct-2016
BTEXS & MTBE			
Benzene	µg/g	<0.0050	<0.0050
Toluene	µg/g	0.036	0.028
Ethylbenzene	µg/g	<0.010	<0.010

Parameter	Unit	17TP02		
		0.5 m	2 m	3 m
		2-Mar-2017	2-Mar-2017	2-Mar-2017
BTEXS & MTBE				
Benzene	µg/g	<0.005	<0.005	<0.005
Toluene	µg/g	0.061	**0.15**	0.025
Ethylbenzene	µg/g	<0.01	<0.01	<0.01

Parameter	Unit	16TP2	
		0.5 m	2.5 m
		28-Oct-2016	28-Oct-2016
BTEXS & MTBE			
Benzene	µg/g	<0.0050	**0.018**
Toluene	µg/g	**0.17**	0.080
Ethylbenzene	µg/g	0.011	<0.010

Parameter	Unit	17TP01		
		0.3 m	1 m	3 m
		1-Mar-2017	1-Mar-2017	1-Mar-2017
BTEXS & MTBE				
Benzene	µg/g	<0.005	<0.005	<0.005
Toluene	µg/g	<0.02	<0.02	0.058
Ethylbenzene	µg/g	<0.01	<0.01	<0.01

Parameter	Unit	CCME Residential/Parkland [1,2]		CCME Commercial [1,2]		CCME Industrial [1,2]		CSR - RL [3]	CSR - CL [3]	CSR - IL [3]	Protocol 4 [6]
BTEXS & MTBE											
Benzene	µg/g	0.0068	0.03	0.0068	0.03	0.0068	0.03	0.04 [4]	0.04 [4]	0.04 [4]	-
Toluene	µg/g	0.08	0.37	0.08	0.37	0.08	0.37	15 [4]	2.5 [4]	2.5 [4]	-
Ethylbenzene	µg/g	0.018	0.082	0.018	0.082	0.018	0.082	1 [4]	7 [4]	7 [4]	-

Notes:

[1] Canadian Council of Ministers of the Environment (CCME) (Updated 2013). Soil Quality Guidelines for the Protection of Environmental and Human Health, for coarse and fine soils under Residential/Parkland, Commercial and Industrial land use. Most conservative value applied

[2] Canadian Council of Ministers of the Environment (CCME) (2008). Canada-Wide Standards for Petroleum Hydrocarbons (PHCs) in Soil, for fine and coarse soils under Residential/Parkland, Commercial and Industrial land use. Most conservative value applied

[3] BC Contaminated Sites Regulation (BC Reg. 375/96, includes amendments up to B.C. Reg. 184/2016, July 19, 2016 - Schedules 4, 5 and 10) for Residential (RL), Commercial (CL) and Industrial (IL) land use. Schedule 5 pathways include intake of contaminated soil, groundwater used for drinking water, toxicity to soil invertebrates and plants and groundwater flow to surface water used by freshwater aquatic life

[4] CSR Schedule 5 parameter

[5] CSR Schedule 10 parameter

[6] Protocol 4 Regional Background For Contaminated Sites Determining Background Soil Quality - Region 6 Skeena Values (used for soils to a maximum depth of 3 m from the soil surface at a site)

** VPH_{6-10} standards have been applied to F1 (C_6-C_{10}), LEPH standards have been applied to F2 (C_{10}-C_{16}) and HEPH standards have been applied to F3 (C_{16}-C_{34})

"-" No applicable guideline/standard

BOLD - Greater than CCME Guideline

Shaded - Greater than CSR Standard

Italic - Detection limit greater than gudeline

LEGEND

- Site Feature (see labels for description)
- Testpit (Less than CCME Guideline and CSR Standard)
- Testpit (Greater than CCME Guidline or CSR Standard)
- Monitoring Well (Not Tested)
- Monitoring Well (Greater than CCME Guideline or CSR Standard)
- Reserve Boundary
- Approximate Area of Potential Environmental Concern (APEC)

NOTES
Base data source: Imagery from Google; DigitalGlobe (2013)

STATUS
ISSUED FOR USE

SUPPLEMENTAL PHASE II ENVIRONMENTAL SITE ASSESSMENT KITSUMKALUM IR #1

Offsite APEC 8
Soil Analytical Results

PROJECTION: UTM Zone 9	DATUM: NAD83	CLIENT: Kitsumkalum First Nation		
Scale: 1:1,000 (20 10 0 20 Metres)				
FILE NO.: VENV03133-01_Figure07_APEC8_Soil.mxd		TETRA TECH		
PROJECT NO.: ENV.VENV03133-01	DWN: MEZ	CKD: SL	APVD: DT	REV: 0
OFFICE: Tt - VANC	DATE: May 12, 2017	Figure 7		

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LEGEND

- Monitoring Well
- Reserve Boundary

NOTES
Base data source: Imagery from Google; DigitalGlobe (2013)

STATUS
ISSUED FOR USE

SUPPLEMENTAL PHASE II ENVIRONMENTAL SITE ASSESSMENT KITSUMKALUM IR #1

Background Monitoring Well Locations

PROJECTION UTM Zone 9		**DATUM** NAD83		**CLIENT** Kitsumkalum First Nation
Scale: 1:4,000 — 50 25 0 50 — Metres				TETRA TECH
FILE NO. VENV03133-01_Figure08_Background.mxd				
PROJECT NO. ENV.VENV03133-01	**DWN** MEZ	**CKD** SL	**APVD** DT	**REV** 0
OFFICE Tt - VANC	**DATE** May 12, 2017			**Figure 8**

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Parameter	Unit	16MW2		
		30-Oct-2016	1-Mar-2017	Duplicate
Physical Parameters				
Field pH	pH Units	6.77	7.20	-
Dissolved Metals				
Aluminum	µg/L	4.3	5.8	6
Arsenic	µg/L	0.22	<0.1	<0.1
Cadmium	µg/L	0.045	<0.01	<0.01
Copper	µg/L	0.29	0.81	1.14
Iron	µg/L	10.2	<5	<5
Lead	µg/L	<0.20	<0.2	<0.2
Manganese	µg/L	**88.6**	<1	<1
Selenium	µg/L	0.32	0.12	0.12

Parameter	Unit	16MW3	
		30-Oct-2016	1-Mar-2017
Physical Parameters			
Field pH	pH Units	6.62	6.70
Dissolved Metals			
Aluminum	µg/L	<3.0	3.2
Arsenic	µg/L	0.24	<0.1
Cadmium	µg/L	0.072	0.031
Copper	µg/L	<0.20	0.75
Iron	µg/L	38.7	<5
Lead	µg/L	<0.20	<0.2
Manganese	µg/L	**402**	18.2
Selenium	µg/L	<0.10	<0.1

Parameter	Unit	APEC 8		
		MW15-801**	MW15-802	MW15-803
Physical Parameters		19-Dec-2015	19-Dec-2015	19-Dec-2015
Field pH	pH Units	6.05	6.15	6.36
Dissolved Metals				
Aluminum	µg/L	**142**	**540**	78.3
Arsenic	µg/L	0.80	2.54	2.74
Cadmium	µg/L	0.024	0.180	0.029
Copper	µg/L	0.97	2.83	0.39
Iron	µg/L	**1260**	**2350**	**9780**
Lead	µg/L	<0.20	5.41	<0.20
Manganese	µg/L	**192**	**1010**	**4720**
Selenium	µg/L	<0.10	0.17	0.13

Parameter	Unit	APEC 1							
		MW15-101	MW15-102		MW15-103	MW15-104	MW15-105		OW-4
Physical Parameters		19-Dec-2015	19-Dec-2015	27-Oct-2016	19-Dec-2015	19-Dec-2015	19-Dec-2015	27-Oct-2016	20-Nov-2015
Field pH	pH Units	6.75	6.18	6.08	5.95	5.83	6.25	6.05	5.73
Dissolved Metals									
Aluminum	µg/L	23.1	**194**	**213**	30.5	319	46.5	36.9	**299**
Arsenic	µg/L	0.98	6.03	**13.2**	3.67	0.73	4.59	**16.6**	5.74
Cadmium	µg/L	0.367	0.271	0.041	1.71	0.198	2.66	0.265	0.017
Copper	µg/L	2.34	29.9	0.30	0.58	0.50	2.41	0.45	0.52
Iron	µg/L	213	**68,800**	**68,900**	**10,600**	139	**18,200**	**36,300**	**12,200**
Lead	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Manganese	µg/L	**2300**	**6770**	**7930**	**16,200**	**245**	**11,200**	**11,600**	**2640**
Selenium	µg/L	0.28	0.32	<0.10	<0.10	<0.10	<0.10	<0.10	0.14

Parameter	Unit	APEC 6
		MW15-604
		19-Dec-2015
Physical Parameters		
Field pH	pH Units	6.30
Dissolved Metals		
Aluminum	µg/L	40.3
Cadmium	µg/L	0.042
Copper	µg/L	4.56
Iron	µg/L	**587**
Manganese	µg/L	**110**
Zinc	µg/L	40

Parameter	Unit	APEC 7			
		MW15-701	MW15-702	MW15-703	MWDUP01
		19-Dec-2015	19-Dec-2015	19-Dec-2015	
Physical Parameters					
Field pH	pH Units			6.47	-
Dissolved Metals					
Cadmium	µg/L	0.116	0.073	0.093	0.084
Manganese	µg/L	**200**	**126**	**124**	**125**

Parameter	Unit	16MW1		
		30-Oct-2016	Duplicate	1-Mar-2017
Physical Parameters				
Field pH	pH Units	7.79	-	7.98
Dissolved Metals				
Aluminum	µg/L	12.8	23.2	3.4
Arsenic	µg/L	1.66	1.63	1.74
Cadmium	µg/L	0.011	0.011	<0.01
Copper	µg/L	0.60	0.72	1.15
Iron	µg/L	16.5	20.6	<5
Lead	µg/L	<0.20	<0.20	<0.2
Manganese	µg/L	**98.2**	**101**	12.5
Selenium	µg/L	1.11	1.06	0.6

Parameter	Unit	Canadian Drinking Water [1]	FIGQG [2]		BC CSR [3]	
			Residential / Parkland	Commercial / Industrial	AW	DW
Physical Parameters						
Field pH	pH Units	-	6.5-9	6.5-9	-	-
Dissolved Metals						
Aluminum	µg/L	100	100 [4]	100 [4]	-	9500
Arsenic	µg/L	10	5	5	50	10
Cadmium	µg/L	5	0.09	0.09	0.6 [5]	5
Copper	µg/L	1000	3.5 [5]	3.5 [5]	70 [5]	1000
Iron	µg/L	300	300	300	-	- [6]
Manganese	µg/L	50	-	-	-	- [6]
Selenium	µg/L	50	1	1	10	10

Notes:

[1] Health Canada Federal-Provincial-Territorial Committee on Drinking Water (October 2014). Guidelines for Canadian Drinking Water Quality Summary Table. Operation guideline applied for aluminum and aesthetic objectives applied for copper, iron, manganese, sodium and zinc

[2] Environment Canada (Revised March 2014). Federal Interim Groundwater Quality Guidelines (FIGQG) for fine and coarse soils under Residential/Parkland and Commercial/Industrial land uses. Most conservative values applied for protection of freshwater aquatic life, inhalation and soil organisms direct contact. Guideline only applies to MW15-802 and MW15-803

[3] BC Contaminated Sites Regulation (BC Reg. 375/96, includes amendments up to B.C. Reg. 184/2016, July 19, 2016 - Schedules 6 and 10) for freshwater aquatic life (AW) and drinking water (DW)

[4] Guideline/standard varies with pH. Value shown based on pH median of 6.77

[5] Guideline/standard varies with hardness. Values shown based on hardness median of 160 mg/L

[6] Stage 8 Amendment of the CSR applies

"-" No applicable guideline/standard

**Location is within 10 m of a surface water body. CCME AW guidelines have been applied in place of FIWGQ guidelines

BOLD - Greater than CDWQG Guideline

Shaded - Greater than FIWQ Guideline

Underlined - Greater than CSR AW Standard

Red text - Greater than CSR DW Standard

LEGEND

- Monitoring Well (Greater than CCME Guideline, FIWQG Guideline or CSR Standard)
- Reserve Boundary
- Approximate Area of Potential Environmental Concern (APEC)

NOTES
Base data source: Imagery from Google; DigitalGlobe (2013)

STATUS
ISSUED FOR USE

SUPPLEMENTAL PHASE II ENVIRONMENTAL SITE ASSESSMENT KITSUMKALUM IR #1

Background Monitoring Well Analytical Results

PROJECTION UTM Zone 9	**DATUM** NAD83	**CLIENT** Kitsumkalum First Nation
Scale: 1:8,000 (100 50 0 100 Metres)		
FILE NO. VENV03133-01_Figure09_BkgrndAnalytical.mxd		TETRA TECH
PROJECT NO. ENV.VENV03133-01	**DWN** MEZ / **CKD** SL / **APVD** DT / **REV** 0	**Figure 9**
OFFICE Tt - VANC	**DATE** May 12, 2017	

APPENDIX A

TETRA TECH'S GENERAL CONDITIONS

GENERAL CONDITIONS

GEOENVIRONMENTAL REPORT

This report incorporates and is subject to these “General Conditions”.

1.1 USE OF REPORT AND OWNERSHIP

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site or proposed development would necessitate a supplementary investigation and assessment.

This report and the assessments and recommendations contained in it are intended for the sole use of TETRA TECH’s client. TETRA TECH does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than TETRA TECH’s Client unless otherwise authorized in writing by TETRA TECH. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of TETRA TECH. Additional copies of the report, if required, may be obtained upon request.

1.2 ALTERNATE REPORT FORMAT

Where TETRA TECH submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed TETRA TECH’s instruments of professional service); only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by TETRA TECH shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of TETRA TECH’s instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except TETRA TECH. The Client warrants that TETRA TECH’s instruments of professional service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client’s current or future software and hardware systems.

1.1 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

1.2 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of the report, TETRA TECH may rely on information provided by persons other than the Client. While TETRA TECH endeavours to verify the accuracy of such information when instructed to do so by the Client, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information which may affect the report.

APPENDIX B

BOREHOLE LOGS

Kitsumkalum First Nation

Testpit No: **17TP01**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	UTM: 521980 E; 6043280 N; Z 9

Depth (m)	Method	Soil Description	Sample Type	Vapour readings (ppmv) 2 4 6 8	Notes and Comments	Depth (ft)
0						0
	Excavator	ORGANICS - silty, roots, hard, orange and red layers, (200 mm thick)				
		SAND - clean, damp, compact, grey, fine to medium sand				1
		- silty, olive grey, fine sand				2
		- clayey, grey, some oxidation				
1		SILT - some sand, trace to some clay, compact, olive grey to olive brown, fine sand				3
						4
		SAND AND GRAVEL - trace silt, some cobbles, gap graded, fine to coarse sand, rounded cobbles to 200 mm diameter				5
		- very wet				6
2						7
		- very cobbly				8
						9
3		END OF TESTPIT (3.00 metres)				10
		Note: Hole collapsing				11
						12
4						13
						14
						15
5						16
						17
						18
6						19
						20
						21
7						22
						23
7.5						24

TETRA TECH

Contractor: Kitsumkalum Public Works	Completion Depth: 3 m
Drilling Rig Type: Volvo 380 excavator	Start Date: 2017 March 1
Logged By: DT	Completion Date: 2017 March 1
Reviewed By: DW	Page 1 of 1

Kitsumkalum First Nation

Testpit No: **17TP02**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	UTM: 521975 E; 6043281 N; Z 9

Depth (m)	Method	Soil Description	Sample Type	Vapour readings (ppmv) 2 4 6 8	Notes and Comments	Depth (ft)
0		OVERBURDEN - bark mulch, silt and sand, debris, orange red, (150 mm thick)				0
		SAND - some gravel, trace silt, rootlets, moist, compact, olive brown, fine sand, rounded gravel				1
		- very gravelly				2
		- trace gravel, olive brown to olive grey, fine to medium sand				
		- water entering from the west				3
1	Excavator	SILT - trace to some clay, trace sand, damp to moist, compact, low plastic, grey, fine sand				4
						5
						6
2		SAND AND GRAVEL - trace silt, some cobbles, gap graded, wet, fine to coarse sand, rounded cobbles to 200 mm diameter				7
						8
						9
3		END OF TESTPIT (3.00 metres)				10
		Note: Hole collapsing				11
						12
4						13
						14
						15
5						16
						17
						18
6						19
						20
						21
7						22
						23
7.5						24

TETRA TECH

Contractor: Kitsumkalum Public Works	Completion Depth: 3 m
Drilling Rig Type: Volvo 380 excavator	Start Date: 2017 March 2
Logged By: DT	Completion Date: 2017 March 2
Reviewed By: DW	Page 1 of 1

Kitsumkalum First Nation

Testpit No: **17TP03**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	UTM: 521975 E; 6043287 N; Z 9

Depth (m)	Method	Soil Description	Sample Type	Vapour readings (ppmv) 2 4 6 8	Notes and Comments	Depth (ft)
0						0
	Excavator	OVERBURDEN - bark mulch, frozen, (100 mm thick)				
		SAND AND SILT - rootlets, compact, brown				
		SAND - trace silt, rootlets, moist, compact, olive brown, fine sand				
		- medium sand				
1		SILT - trace to some clay, trace sand, moist, compact, low plastic, grey, fine sand				
		- mottled grey, some oxidation				
2		SAND AND GRAVEL - trace silt, some cobbles, gap graded, wet, fine to coarse sand, rounded cobbles to 200 mm diameter				
		- frequent cobbles to 300 mm diameter				
3		END OF TESTPIT (3.00 metres)				
		Note: Hole collapsing				
4						
5						
6						
7						
7.5						

TETRA TECH

Contractor: Kitsumkalum Public Works	Completion Depth: 3 m
Drilling Rig Type: Volvo 380 excavator	Start Date: 2017 March 2
Logged By: DT	Completion Date: 2017 March 2
Reviewed By: DW	Page 1 of 1

Kitsumkalum First Nation

Testpit No: **17TP04**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	UTM: 521966 E; 6043291 N; Z 9

Depth (m)	Method	Soil Description	Sample Type	Vapour readings (ppmv) 2 4 6 8	Notes and Comments	Depth (ft)
0						0
	Excavator	ROOT MAT				
		SILT - sandy, rootlets, moist, compact, grey to orangish brown, fine sand				
		SAND - trace silt, moist, compact, dark brown, fine sand				
		GRAVEL - sandy, silty, homogeneous, well graded, moist, compact, rounded gravel				
		SAND - some gravel, damp to wet, compact, grey, medium sand, rounded gravel				
1						1 2 3 4 5
		SAND AND GRAVEL - some cobbles, 100 mm thick oxidized layers, cobbles to 350 mm diameter				
		- wet				6 7 8 9
2						
3		END OF TESTPIT (3.00 metres) Note: Hole collapsing				10 11 12
4						13 14 15
5						16 17 18
6						19 20 21
7						22 23
7.5						24

TETRA TECH

Contractor: Kitsumkalum Public Works	Completion Depth: 3 m
Drilling Rig Type: Volvo 380 excavator	Start Date: 2017 March 2
Logged By: DT	Completion Date: 2017 March 2
Reviewed By: DW	Page 1 of 1

Kitsumkalum First Nation

Testpit No: **17TP05**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	UTM: 522031 E; 6043277 N; Z 9

Depth (m)	Method	Soil Description	Sample Type	Vapour readings (ppmv) 2 4 6 8	Notes and Comments	Depth (ft)
0						0
	Excavator	SILT - sandy, rootlets, compact, brown to reddish brown, fine sand, (200 mm thick)				
		SAND - trace to no silt, homogeneous, damp, compact, medium sand - occasional roots				1
						2
						3
1		- no visible roots				4
						5
		- wet to very wet, medium to coarse sand				6
2						7
		- some gravel, some coarse sand, rounded gravel to 40 mm diameter				8
						9
3		END OF TESTPIT (3.00 metres) Note: Hole collapsing				10
						11
						12
4						13
						14
						15
5						16
						17
						18
6						19
						20
						21
						22
7						23
						24
7.5						

TETRA TECH

Contractor: Kitsumkalum Public Works	Completion Depth: 3 m
Drilling Rig Type: Volvo 380 excavator	Start Date: 2017 March 2
Logged By: DT	Completion Date: 2017 March 2
Reviewed By: DW	Page 1 of 1

Kitsumkalum First Nation

Testpit No: **17TP06**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	UTM: 522088 E; 6043279 N; Z 9

Depth (m)	Method	Soil Description	Sample Type	Vapour readings (ppmv) 2 4 6 8	Notes and Comments	Depth (ft)
0		SILT - sandy, roots, rootlets, compact, brown to reddish brown, fine sand, (100 mm thick)				0
		SAND - trace to no silt, homogeneous, damp, compact, fine sand				1
						2
						3
1		- some gravel, moist, fine to medium sand, rounded gravel				4
	Excavator	SAND AND GRAVEL - some cobbles, damp, 100 mm thick oxidized layers, cobbles to 150 mm diameter				5
		- 100 mm thick oxidized layer				6
2		- very wet				7
						8
						9
3		END OF TESTPIT (3.00 metres) Note: Hole collapsing				10
						11
						12
4						13
						14
						15
5						16
						17
						18
6						19
						20
						21
						22
7						23
7.5						24

TETRA TECH

Contractor: Kitsumkalum Public Works	Completion Depth: 3 m
Drilling Rig Type: Volvo 380 excavator	Start Date: 2017 March 2
Logged By: DT	Completion Date: 2017 March 2
Reviewed By: DW	Page 1 of 1

Kitsumkalum First Nation

Borehole No: **16MW01**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 2 4 6 8	Notes and Comments
0		GRAVEL - some cobbles, trace sand, well graded, wet, brown, subangular gravel, cobbles to 60 mm diameter, medium to coarse sand, no discernible odour		1-0.8m		Pipe stickup = 0.60 metres
1		SAND AND GRAVEL - some cobbles, trace silt, well graded, dry, grey, medium to coarse sand, subrounded to subangular gravel, no discernible odour		1-1.5m		
2						
3	Sonic	- some clay, wet CLAY - trace to some silt, homogeneous, damp to wet, high plastic, grey, no visible foreign material, no discernible odour		1-2.9m		
4				1-4.5m		
5						
6						
7		END OF BOREHOLE (6.2 metres) slough - 4.0 metres water - 1.40 metres below ground surface on October 30, 2016 Monitoring well installed to 3.8 metres				
7.5						

Oct30/16

16MW01

Depth (ft): 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

TETRA TECH

Contractor: Blue Max Drilling	Completion Depth: 6.2 m
Drilling Rig Type: Track Rig (LS250)	Start Date: 2016 October 27
Logged By: DT	Completion Date: 2016 October 27
Reviewed By: DW	Page 1 of 1

Kitsumkalum First Nation

Borehole No: **16MW02**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 2 4 6 8	Notes and Comments
0	Sonic	SAND AND GRAVEL - some silt, trace organic roots, well graded, wet, brown, medium to coarse sand, subrounded to subangular gravel, slight humic odour		2-0.8m		Pipe stickup = 0.89 metres
1		SAND - trace silt, homogeneous, dry to damp, brown, no visible foreign material, medium sand, no discernible odour				
2				2-2.0m		
		SAND AND GRAVEL - some silt, poorly graded, dry, brown to grey, no visible foreign material, fine to medium sand, no discernible odour				
3				2-3.0m		
		SAND - some silt, trace cobbles, poorly graded, damp to wet, brown, medium sand, well rounded to subrounded cobbles				
Oct30/16						
4				2-4.5m		
5		- increasing cobbles				
6		END OF BOREHOLE (6.1 metres) slough - 6.0 metres water - 3.58 metres below ground surface on October 30, 2016 Monitoring well installed to 5.5 metres				
7						
7.5						

16MW02

Depth (ft): 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Oct30/16

TETRA TECH

Contractor: Blue Max Drilling	Completion Depth: 6.1 m
Drilling Rig Type: Track Rig (LS250)	Start Date: 2016 October 28
Logged By: DT	Completion Date: 2016 October 28
Reviewed By: DW	Page 1 of 1

Kitsumkalum First Nation

Borehole No: **16MW03**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 2 4 6 8	Notes and Comments	16MW03	Depth (ft)
0								0
	Sonic	SAND (FILL) - homogeneous, damp, brown, trace wood material, medium sand, no discernible odour		3-0.5m		Pipe stickup = 0.88 metres		
1		SAND AND GRAVEL - trace cobbles, well graded cobbles, grey, fine to medium sand, subrounded to subangular gravel and cobbles, no discernible odour						
2				3-2.1m				
3								
4								
Oct30/16				3-4.5m				Oct30/16
5								
		GRAVEL - trace to some sand, poorly graded, subangular to subangular gravel, fine to medium sand		3-5.9m				
6		END OF BOREHOLE (6.1 metres) water - 4.18 metres below ground surface on October 30, 2016 Monitoring well installed to 5.8 metres						
7								
7.5								

TETRA TECH

Contractor: Blue Max Drilling	Completion Depth: 6.1 m
Drilling Rig Type: Track Rig (LS250)	Start Date: 2016 October 27
Logged By: DT	Completion Date: 2016 October 27
Reviewed By: DW	Page 1 of 1

Kitsumkalum First Nation

Testpit No: **16TP01**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 2 4 6 8	Notes and Comments	Depth (ft)
0							0
	Excavate	SAND (FILL) - some silt to silty, some organic material (roots), damp, brown, medium to coarse sand, no discernible odour		1-0.5m	■	Analyzed for BTEX and VPH	1
		- dark staining, slight humic odour - trace gravel, no visible foreign material, no discernible odour		1-1.0m	■		2
1		SILT - trace sand, homogeneous, blue, no visible foreign material, no discernible odour		1-1.3m	■	Analyzed for BTEX	3
							4
							5
							6
2		SAND AND GRAVEL - some silt, some cobbles, well graded, damp to wet, no visible foreign material, coarse sand, subangular to subrounded gravel and cobbles, no discernible odour		1-2.4m	■	Analyzed for BTEX	7
							8
		END OF TESTPIT (2.5 metres)					9
3							10
							11
							12
4							13
							14
							15
5							16
							17
							18
6							19
							20
							21
							22
7							23
							24
7.5							

TETRA TECH

Contractor: Kitsumkalum First Nation	Completion Depth: 2.5 m
Drilling Rig Type: Excavator	Start Date: 2016 October 28
Logged By: DT	Completion Date: 2016 October 28
Reviewed By: DW	Page 1 of 1

Kitsumkalum First Nation

Testpit No: **16TP02**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 2 4 6 8	Notes and Comments	Depth (ft)
0							0
	Excavate	SAND - some silt to silty, some organic material (roots), damp, brown, medium to coarse sand, no discernible odour, (200 mm thick)					
		SILT - trace sand, homogeneous, blue, no visible foreign material, no discernible odour		2-0.5m		Analyzed for BTEX and VPH	
				2-1.0m			
1		- 200 mm thick sand seam - homogeneous, damp, brown, no discernible odour					
				2-1.5m			
2		SAND AND GRAVEL - some silt, some cobbles, well graded, damp to wet, no visible foreign material, coarse sand, subangular to subrounded gravel and cobbles, no discernible odour					
				2-2.5m		Analyzed for BTEX and VPH	
		END OF TESTPIT (2.5 metres)					
3							
4							
5							
6							
7							
7.5							

TETRA TECH

Contractor: Kitsumkalum First Nation	Completion Depth: 2.5 m
Drilling Rig Type: Excavator	Start Date: 2016 October 28
Logged By: DT	Completion Date: 2016 October 28
Reviewed By: DW	Page 1 of 1

Kitsumkalum First Nation

Testpit No: **16TP03**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 2 4 6 8	Notes and Comments	Depth (ft)
0							0
	Excavate	SAND - some organics roots, dry to damp, brown to orange, medium to coarse sand - fine to medium sand for 400 mm - no visible roots - some silt to silty		3-0.5m	■	Analyzed for BTEX and VPH	1 2
1		SILT - some sand, homogeneous, damp, medium plastic, orange mottling, no discernible odour		3-1.0m	■		3 4
		SAND - some silt to silty, homogeneous, fine to medium sand, no visible foreign material, no discernible odour		3-1.5m	■	Analyzed for BTEX	5 6
2		SAND AND GRAVEL - some silt, some cobbles, well graded, damp to wet, no visible foreign material, coarse sand, subangular to subrounded gravel and cobbles, no discernible odour		3-2.4m	■		7 8
		END OF TESTPIT (2.5 metres)					9
3							10 11 12
4							13 14
							15 16
5							17 18
6							19 20
							21 22
7							23
7.5							24

TETRA TECH

Contractor: Kitsumkalum First Nation	Completion Depth: 2.5 m
Drilling Rig Type: Excavator	Start Date: 2016 October 28
Logged By: DT	Completion Date: 2016 October 28
Reviewed By: DW	Page 1 of 1

Kitsumkalum First Nation

Testpit No: **16TP04**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 2 4 6 8	Notes and Comments	Depth (ft)
0							0
	Excavate	SAND (FILL) - some gravel, some organic roots, trace cobbles, trace silt, poorly graded, damp, brown, medium sand, no discernible odour					
		- no visible organics after 0.7 m					
1				4-1.0m	■		3
		- some silt, dry, fine sand					
2							7
				4-2.7m	■		9
		- damp, loose, fine to medium sand					
3							10
		COBBLES - some sand, some gravel, homogeneous, well graded, damp to wet, no visible foreign material, subrounded to subangular gravel, medium sand		4-3.5m	■		11
		END OF TESTPIT (3.5 metres)					
4							13
5							16
6							20
7							23
7.5							24

TETRA TECH

Contractor: Kitsumkalum First Nation	Completion Depth: 3.5 m
Drilling Rig Type: Excavator	Start Date: 2016 October 29
Logged By: DT	Completion Date: 2016 October 29
Reviewed By: DW	Page 1 of 1

Kitsumkalum First Nation

Testpit No: **16TP05**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 2 4 6 8	Notes and Comments	Depth (ft)
0	Excavate	SAND AND GRAVEL (FILL) - some silt, some cobbles, trace boulders, root material throughout, well graded, dry to damp, brown, fine to medium sand, subrounded to subangular gravel, no discernible odour		5-0.5m	■		0
1		- some wood material from 1.2 to 1.9 m, two peices approximately 200 mm in diameter		5-1.2m	■		4
		- at 2.7 m, wood is decaying, dry, fine sand, decaying odour		5-1.8m	■		6
2		SILT - homogeneous, dry to damp, no visible foreign material, no discernible odour					7
3		SAND AND GRAVEL - some cobbles, well graded, damp to wet, no visible foreign material, fine to medium sand, subrounded to subangular gravel, no discernible odour		5-3.9m	■		13
4		END OF TESTPIT (4.0 metres)					
5							16
6							20
7							23
7.5							24

TETRA TECH

Contractor: Kitsumkalum First Nation	Completion Depth: 4 m
Drilling Rig Type: Excavator	Start Date: 2016 October 29
Logged By: DT	Completion Date: 2016 October 29
Reviewed By: DW	Page 1 of 1

Kitsumkalum First Nation

Testpit No: **16TP06**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 2 4 6 8	Notes and Comments	Depth (ft)
0	Excavate	SAND AND GRAVEL (FILL) - some silt, some roots, trace cobbles, trace wood pieces to 1.5 m, well graded, dry, fine sand, subrounded to subangular gravel and cobbles, some wood pieces to 75 mm diameter, no discernible odour		6-0.8m	■		0
1							1
2				6-2.4m	■		2
3		SAND - some gravel, homogeneous, poorly graded, dry to damp, no visible foreign material, medium to coarse sand, no discernible odour					3
4		SAND AND GRAVEL - river rock, homogeneous, well graded, damp to wet, no visible foreign material, medium sand, rounded to subrounded gravel and cobbles		6-3.4m	■		4
5		END OF TESTPIT (3.5 metres)					5
6							6
7							7
7.5							8
							9
							10
							11
							12
							13
							14
							15
							16
							17
							18
							19
							20
							21
							22
							23
							24

TETRA TECH

Contractor: Kitsumkalum First Nation	Completion Depth: 3.5 m
Drilling Rig Type: Excavator	Start Date: 2016 October 29
Logged By: DT	Completion Date: 2016 October 29
Reviewed By: DW	Page 1 of 1

Kitsumkalum First Nation

Testpit No: **16TP07**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 2 4 6 8	Notes and Comments	Depth (ft)
0							0
	Excavate	GRAVEL (FILL) - trace silt, trace sand, poorly graded, damp to wet, brown, subangular to angular gravel, fine to coarse sand, no discernible odour					
		SILT - sandy, some gravel, some cobbles, some small wood fragments to 1.5 m, brown to grey		7-0.8m	■		
1		- some clay to clayey, homogeneous, grey, no visible foreign material, no discernible odour					1 2 3 4 5
		SAND AND GRAVEL - some cobbles, trace roots, trace silt, trace clay, poorly graded, coarse sand, subangular to subrounded gravel and cobbles, no discernible odour					
2							6 7 8
				7-2.8m	■		9
3							10
		- trace boulders, damp to wet, fine to medium sand, increasing subrounded cobbles		7-3.5m	■		11
		END OF TESTPIT (3.5 metres)					
4							12 13 14 15 16
5							17 18 19
6							20 21 22
7							23
7.5							24

TETRA TECH

Contractor: Kitsumkalum First Nation	Completion Depth: 3.5 m
Drilling Rig Type: Excavator	Start Date: 2016 October 29
Logged By: DT	Completion Date: 2016 October 29
Reviewed By: DW	Page 1 of 1

Kitsumkalum First Nation

Testpit No: **16TP08**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 2 4 6 8	Notes and Comments	Depth (ft)
0							0
	Excavate	SAND AND GRAVEL - some silt, trace cobbles, roots to 1.0 m, well graded, dry, brown, fine to medium sand, subrounded to angular gravel and cobbles, no discernible odour		8-0.8m	■		
1		SILT - homogeneous, dry to damp, light brown, no visible foreign material, no discernible odour		8-1.5m	■		
2		SAND AND GRAVEL - some silt, some cobbles, trace boulders, poorly graded, damp, fine to medium sand, rounded to subangular gravel					
3		- damp to wet		8-3.0m	■		
4				8-4.5m	■		
		END OF TESTPIT (4.5 metres)					
5							
6							
7							
7.5							

Contractor: Kitsumkalum First Nation	Completion Depth: 4.5 m
Drilling Rig Type: Excavator	Start Date: 2016 October 29
Logged By: DT	Completion Date: 2016 October 29
Reviewed By: DW	Page 1 of 1

TETRA TECH

Kitsumkalum First Nation

Testpit No: **16TP09**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 2 4 6 8	Notes and Comments	Depth (ft)
0							0
	Excavate	SAND AND GRAVEL (FILL) - some cobbles, some wood and peat to 0.5 m, organics, well graded, brown, fine to medium sand, subrounded to subangular cobbles, no discernible odour		9-0.5m	■		
		SILT - homogeneous, dense, some orange mottling, no visible foreign material, no discernible odour					
1		SAND - trace gravel, homogeneous, damp, medium sand, no discernible odour		9-1.2m	■		
		SAND AND COBBLES - river rock, some gravel, homogeneous, damp, no visible foreign material, medium sand, rounded to subangular gravel and cobbles					
2		- wet		9-2.0m	■		
		END OF TESTPIT (2.5 metres)					
3							
4							
5							
6							
7							
7.5							24

TETRA TECH

Contractor: Kitsumkalum First Nation	Completion Depth: 2.5 m
Drilling Rig Type: Excavator	Start Date: 2016 October 29
Logged By: DT	Completion Date: 2016 October 29
Reviewed By: DW	Page 1 of 1

Kitsumkalum First Nation

Testpit No: **16TP10**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 2 4 6 8	Notes and Comments	Depth (ft)
0							0
	Excavate	SAND AND GRAVEL (FILL) - some large wood debris to 1.0 m, some cobbles, some silt, poorly graded, wood debris to 125 mm diameter, no discernible odour		0-0.8m			
1							1
							2
							3
							4
							5
							6
2		SILT - some sand, some gravel, trace cobbles, small roots and wood, homogeneous, blue, fine sand, no discernible odour		0-2.5m			7
							8
							9
3							10
		SAND - some cobbles, trace boulders, well graded, damp to wet, medium sand, subrounded to subangular cobbles, no discernible odour - some roots for 100 mm		0-3.9m			11
							12
4		END OF TESTPIT (4.0 metres)					13
							14
							15
							16
5							17
							18
							19
6							20
							21
							22
7							23
7.5							24

TETRA TECH

Contractor: Kitsumkalum First Nation	Completion Depth: 4 m
Drilling Rig Type: Excavator	Start Date: 2016 October 29
Logged By: DT	Completion Date: 2016 October 29
Reviewed By: DW	Page 1 of 1

Kitsumkalum First Nation

Testpit No: **16TP11**

Project: Supplemental Phase 2 ESA - Kitsumkalum IR #1	Project No: ENV.VENV03133-01
Location: Kitsumkalum First Nation IR #1	
British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 2 4 6 8	Notes and Comments	Depth (ft)
0							0
	Excavate	GRAVEL (FILL) - sandy, roots to 0.2 m, poorly graded, damp, grey, no visible foreign material, coarse sand, subangular gravel, no discernible odour		1-0.8m			
1							1 2 3 4 5 6
2		SAND AND GRAVEL - some cobbles, trace boulders, dry, brown, fine to medium sand, rounded to subrounded gravel		1-2.5m			7 8
		SILT - trace to some clay, homogeneous, damp, grey		1-3.0m			9
3		GRAVEL - some sand, trace cobbles, homogeneous, well graded, wet, rounded to subrounded gravel, fine to medium sand					10 11
				1-3.8m			12
4		END OF TESTPIT (4.0 metres)					13 14 15 16 17 18 19 20 21 22 23
5							
6							
7							
7.5							24

TETRA TECH

Contractor: Kitsumkalum First Nation	Completion Depth: 4 m
Drilling Rig Type: Excavator	Start Date: 2016 October 29
Logged By: DT	Completion Date: 2016 October 29
Reviewed By: DW	Page 1 of 1

APPENDIX C

LABORATORY CERTIFICATES

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: ENV.VENV03133-01

Attention:Darren Thomas

TETRA TECH EBA INC.
#1 - 4376 BOBAN DRIVE
NANAIMO, BC
Canada V9T 6A7

Your C.O.C. #: 517561-01-01, 517561-02-01, 517561-03-01, 517561-04-01

Report Date: 2017/03/09
Report #: R2355037
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B716010
Received: 2017/03/04, 09:43

Sample Matrix: Soil
Samples Received: 19

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/MTBE LH VH F1 in Soil - Field Pres. (1)	5	N/A	2017/03/08	BBY8SOP-00010/11/12	PBM BC Lab Manual
BTEX/MTBE LH VH F1 in Soil - Field Pres. (1)	14	N/A	2017/03/09	BBY8SOP-00010/11/12	PBM BC Lab Manual
Moisture	19	2017/03/07	2017/03/08	BBY8SOP-00017	BCMOE BCLM Dec2000 m
Volatile HC-BTEX for Soil	19	N/A	2017/03/09	BBY WI-00033	Auto Calc

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Hardness (calculated as CaCO3)	4	N/A	2017/03/09	BBY WI-00033	Auto Calc
Mercury (Dissolved) by CVAF	4	N/A	2017/03/07	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	4	N/A	2017/03/09	BBY7SOP-00002	EPA 6020A R1 m
Elements by CRC ICPMS (dissolved)	4	N/A	2017/03/08	BBY7SOP-00002	EPA 6020B R2 m
Filter and HNO3 Preserve for Metals	3	N/A	2017/03/08	BBY7 WI-00004	BCMOE Reqs 08/14
Filter and HNO3 Preserve for Metals	1	N/A	2017/03/09	BBY7 WI-00004	BCMOE Reqs 08/14

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Your Project #: ENV.VENV03133-01

Attention:Darren Thomas

TETRA TECH EBA INC.
#1 - 4376 BOBAN DRIVE
NANAIMO, BC
Canada V9T 6A7

Your C.O.C. #: 517561-01-01, 517561-02-01, 517561-03-01, 517561-04-01

Report Date: 2017/03/09
Report #: R2355037
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B716010
Received: 2017/03/04, 09:43

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) The extraction date for VOC, BTEX, VH, or F1 samples that are field preserved with methanol equals the date sampled, unless otherwise stated.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Letitia Prefontaine, B.Sc., Senior Project Manager
Email: LPrefontaine@maxxam.ca
Phone# (604)639-2616
==========
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B716010
Report Date: 2017/03/09

TETRA TECH EBA INC.
Client Project #: ENV.VENV03133-01

PHYSICAL TESTING (SOIL)

Maxxam ID		QQ7735	QQ7737	QQ7739	QQ7741	QQ7743		
Sampling Date		2017/03/01	2017/03/01	2017/03/01	2017/03/02	2017/03/02		
COC Number		517561-01-01	517561-01-01	517561-01-01	517561-01-01	517561-02-01		
	UNITS	17TP01 @ 0.3M	17TP01 @ 1.0M	17TP01 @ 3.0M	17TP02 @ 0.5M	17TP02 @ 2.0M	RDL	QC Batch
Physical Properties								
Moisture	%	5.9	27	21	5.8	9.2	0.30	8570302
RDL = Reportable Detection Limit								

Maxxam ID		QQ7744	QQ7745	QQ7746	QQ7749	QQ7751		
Sampling Date		2017/03/02	2017/03/02	2017/03/02	2017/03/02	2017/03/02		
COC Number		517561-02-01	517561-02-01	517561-02-01	517561-02-01	517561-02-01		
	UNITS	17TP02 @ 3.0M	17TP03 @ 0.15M	17TP03 @ 0.5M	17TP03 @ 3.0M	17TP04 @ 0.5M	RDL	QC Batch
Physical Properties								
Moisture	%	9.6	18	17	21	14	0.30	8570302
RDL = Reportable Detection Limit								

Maxxam ID		QQ7761	QQ7763	QQ7765	QQ7766	QQ7768		
Sampling Date		2017/03/02	2017/03/02	2017/03/02	2017/03/02	2017/03/02		
COC Number		517561-03-01	517561-03-01	517561-03-01	517561-03-01	517561-03-01		
	UNITS	17TP04 @ 1.0M	17TP04 @ 3.0M	17TP05 @ 0.5M	17TP05 @ 1.0M	17TP05 @ 3.0M	RDL	QC Batch
Physical Properties								
Moisture	%	4.8	10	4.3	4.9	19	0.30	8570302
RDL = Reportable Detection Limit								

Maxxam ID		QQ7769	QQ7773	QQ7775	QQ7776		
Sampling Date		2017/03/02	2017/03/02	2017/03/02	2017/03/02		
COC Number		517561-03-01	517561-04-01	517561-04-01	517561-04-01		
	UNITS	17TP06 @ 0.1M	17TP06 @ 3.0M	00TP04 @ 0.5M	00TP06 @ 0.1M	RDL	QC Batch
Physical Properties							
Moisture	%	6.7	5.1	15	22	0.30	8570302
RDL = Reportable Detection Limit							

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B716010
Report Date: 2017/03/09

TETRA TECH EBA INC.
Client Project #: ENV.VENV03133-01

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		QQ7732	QQ7733	QQ7734	QQ7777	
Sampling Date		2017/03/01	2017/03/01	2017/03/01	2017/03/01	
COC Number		517561-01-01	517561-01-01	517561-01-01	517561-04-01	
	UNITS	16MW1	16MW2	16MW3	00MW2	QC Batch
Calculated Parameters						
Filter and HNO3 Preservation	N/A	FIELD	FIELD	FIELD	FIELD	ONSITE

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Maxxam Job #: B716010
Report Date: 2017/03/09

TETRA TECH EBA INC.
Client Project #: ENV.VENV03133-01

CSR BTEX/VPH IN SOIL - FIELD PRESERVED (SOIL)

Maxxam ID		QQ7735	QQ7737	QQ7739	QQ7741	QQ7743		
Sampling Date		2017/03/01	2017/03/01	2017/03/01	2017/03/02	2017/03/02		
COC Number		517561-01-01	517561-01-01	517561-01-01	517561-01-01	517561-02-01		
	UNITS	17TP01 @ 0.3M	17TP01 @ 1.0M	17TP01 @ 3.0M	17TP02 @ 0.5M	17TP02 @ 2.0M	RDL	QC Batch
Volatiles								
VPH (VHW6 to 10 - BTEX)	mg/kg	<10	<10	<10	<10	<10	10	8569511
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	8572118
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	8572118
Toluene	mg/kg	<0.020	<0.020	0.058	0.061	0.15	0.020	8572118
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8572118
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	8572118
o-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	8572118
Styrene	mg/kg	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	8572118
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	8572118
VH C6-C10	mg/kg	<10	<10	<10	<10	<10	10	8572118
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	101	101	101	101	101		8572118
4-Bromofluorobenzene (sur.)	%	101	100	101	101	101		8572118
D10-ETHYLBENZENE (sur.)	%	102	105	107	106	100		8572118
D4-1,2-Dichloroethane (sur.)	%	103	103	102	105	102		8572118

RDL = Reportable Detection Limit

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TETRA TECH EBA INC.
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CSR BTEX/VPH IN SOIL - FIELD PRESERVED (SOIL)

Maxxam ID		QQ7744	QQ7745	QQ7746	QQ7749	QQ7751		
Sampling Date		2017/03/02	2017/03/02	2017/03/02	2017/03/02	2017/03/02		
COC Number		517561-02-01	517561-02-01	517561-02-01	517561-02-01	517561-02-01		
	UNITS	17TP02 @ 3.0M	17TP03 @ 0.15M	17TP03 @ 0.5M	17TP03 @ 3.0M	17TP04 @ 0.5M	RDL	QC Batch
Volatiles								
VPH (VHW6 to 10 - BTEX)	mg/kg	<10	<10	<10	<10	<10	10	8569511
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	8572118
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	8572118
Toluene	mg/kg	0.025	<0.020	<0.020	0.032	<0.020	0.020	8572118
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8572118
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	8572118
o-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	8572118
Styrene	mg/kg	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	8572118
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	8572118
VH C6-C10	mg/kg	<10	<10	<10	<10	<10	10	8572118
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	101	104	100	101	102		8572118
4-Bromofluorobenzene (sur.)	%	102	101	101	100	101		8572118
D10-ETHYLBENZENE (sur.)	%	102	103	101	103	102		8572118
D4-1,2-Dichloroethane (sur.)	%	105	104	102	102	107		8572118

RDL = Reportable Detection Limit

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TETRA TECH EBA INC.
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CSR BTEX/VPH IN SOIL - FIELD PRESERVED (SOIL)

Maxxam ID		QQ7761	QQ7763	QQ7765	QQ7766		
Sampling Date		2017/03/02	2017/03/02	2017/03/02	2017/03/02		
COC Number		517561-03-01	517561-03-01	517561-03-01	517561-03-01		
	UNITS	17TP04 @ 1.0M	17TP04 @ 3.0M	17TP05 @ 0.5M	17TP05 @ 1.0M	RDL	QC Batch
Volatiles							
VPH (VHW6 to 10 - BTEX)	mg/kg	<10	<10	<10	<10	10	8569511
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	8572118
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	8572118
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	8572118
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	8572118
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	8572118
o-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	8572118
Styrene	mg/kg	<0.030	<0.030	<0.030	<0.030	0.030	8572118
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	8572118
VH C6-C10	mg/kg	<10	<10	<10	<10	10	8572118
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	102	103	102	101		8572118
4-Bromofluorobenzene (sur.)	%	101	100	101	100		8572118
D10-ETHYLBENZENE (sur.)	%	103	105	105	99		8572118
D4-1,2-Dichloroethane (sur.)	%	104	105	105	104		8572118
RDL = Reportable Detection Limit							

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TETRA TECH EBA INC.
Client Project #: ENV.VENV03133-01

CSR BTEX/VPH IN SOIL - FIELD PRESERVED (SOIL)

Maxxam ID		QQ7768	QQ7769	QQ7773		QQ7775		
Sampling Date		2017/03/02	2017/03/02	2017/03/02		2017/03/02		
COC Number		517561-03-01	517561-03-01	517561-04-01		517561-04-01		
	UNITS	17TP05 @ 3.0M	17TP06 @ 0.1M	17TP06 @ 3.0M	RDL	00TP04 @ 0.5M	RDL	QC Batch
Volatiles								
VPH (VHW6 to 10 - BTEX)	mg/kg	<10	<10	<10	10	<10	10	8569511
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	<0.10	0.10	<0.20 (1)	0.20	8572509
Benzene	mg/kg	0.016	<0.0050	0.0053	0.0050	<0.010 (1)	0.010	8572509
Toluene	mg/kg	<0.020	<0.020	<0.020	0.020	<0.040 (1)	0.040	8572509
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	0.010	<0.020 (1)	0.020	8572509
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	0.040	<0.080 (1)	0.080	8572509
o-Xylene	mg/kg	<0.040	<0.040	<0.040	0.040	<0.080 (1)	0.080	8572509
Styrene	mg/kg	<0.030	<0.030	<0.030	0.030	<0.060 (1)	0.060	8572509
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	0.040	<0.080	0.080	8572509
VH C6-C10	mg/kg	<10	<10	<10	10	<10	10	8572509
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	97	96	96		95		8572509
4-Bromofluorobenzene (sur.)	%	126	125	126		133		8572509
D10-ETHYLBENZENE (sur.)	%	73	75	75		76		8572509
D4-1,2-Dichloroethane (sur.)	%	94	93	93		93		8572509

RDL = Reportable Detection Limit
(1) Detection limits raised based on sample volume used for analysis.

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TETRA TECH EBA INC.
Client Project #: ENV.VENV03133-01

CSR BTEX/VPH IN SOIL - FIELD PRESERVED (SOIL)

Maxxam ID		QQ7776		
Sampling Date		2017/03/02		
COC Number		517561-04-01		
	UNITS	00TP06 @ 0.1M	RDL	QC Batch
Volatiles				
VPH (VHW6 to 10 - BTEX)	mg/kg	<10	10	8569511
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	0.10	8572509
Benzene	mg/kg	<0.0050	0.0050	8572509
Toluene	mg/kg	0.079	0.020	8572509
Ethylbenzene	mg/kg	0.010	0.010	8572509
m & p-Xylene	mg/kg	<0.040	0.040	8572509
o-Xylene	mg/kg	<0.040	0.040	8572509
Styrene	mg/kg	<0.030	0.030	8572509
Xylenes (Total)	mg/kg	<0.040	0.040	8572509
VH C6-C10	mg/kg	<10	10	8572509
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	94		8572509
4-Bromofluorobenzene (sur.)	%	133		8572509
D10-ETHYLBENZENE (sur.)	%	88		8572509
D4-1,2-Dichloroethane (sur.)	%	92		8572509
RDL = Reportable Detection Limit				

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TETRA TECH EBA INC.
Client Project #: ENV.VENV03133-01

CSR DISSOLVED METALS IN WATER WITH CV HG (WATER)

Maxxam ID		QQ7732	QQ7733	QQ7734	QQ7777		
Sampling Date		2017/03/01	2017/03/01	2017/03/01	2017/03/01		
COC Number		517561-01-01	517561-01-01	517561-01-01	517561-04-01		
	UNITS	16MW1	16MW2	16MW3	00MW2	RDL	QC Batch
Misc. Inorganics							
Dissolved Hardness (CaCO3)	mg/L	105	120	143	120	0.50	8568669
Elements							
Dissolved Mercury (Hg)	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	8570583
Dissolved Metals by ICPMS							
Dissolved Aluminum (Al)	ug/L	3.4	5.8	3.2	6.0	3.0	8569900
Dissolved Antimony (Sb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	8569900
Dissolved Arsenic (As)	ug/L	1.74	<0.10	<0.10	<0.10	0.10	8569900
Dissolved Barium (Ba)	ug/L	35.3	38.9	29.3	39.2	1.0	8569900
Dissolved Beryllium (Be)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	8569900
Dissolved Bismuth (Bi)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	8569900
Dissolved Boron (B)	ug/L	150	<50	<50	<50	50	8569900
Dissolved Cadmium (Cd)	ug/L	<0.010	<0.010	0.031	<0.010	0.010	8569900
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	8569900
Dissolved Cobalt (Co)	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8569900
Dissolved Copper (Cu)	ug/L	1.15	0.81	0.75	1.14	0.20	8569900
Dissolved Iron (Fe)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	8569900
Dissolved Lead (Pb)	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8569900
Dissolved Lithium (Li)	ug/L	3.3	<2.0	<2.0	<2.0	2.0	8569900
Dissolved Manganese (Mn)	ug/L	12.5	<1.0	18.2	<1.0	1.0	8569900
Dissolved Molybdenum (Mo)	ug/L	10.0	1.9	<1.0	1.8	1.0	8569900
Dissolved Nickel (Ni)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	8569900
Dissolved Selenium (Se)	ug/L	0.60	0.12	<0.10	0.12	0.10	8569900
Dissolved Silicon (Si)	ug/L	4450	2030	5140	2040	100	8569900
Dissolved Silver (Ag)	ug/L	<0.020	<0.020	<0.020	<0.020	0.020	8569900
Dissolved Strontium (Sr)	ug/L	229	671	259	672	1.0	8569900
Dissolved Thallium (Tl)	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	8569900
Dissolved Tin (Sn)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	8569900
Dissolved Titanium (Ti)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	8569900
Dissolved Uranium (U)	ug/L	3.91	0.53	<0.10	0.53	0.10	8569900
Dissolved Vanadium (V)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	8569900
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	8569900
Dissolved Zirconium (Zr)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	8569900
Dissolved Calcium (Ca)	mg/L	29.1	40.4	47.0	40.4	0.050	8568670
Dissolved Magnesium (Mg)	mg/L	7.83	4.58	6.19	4.54	0.050	8568670
RDL = Reportable Detection Limit							

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TETRA TECH EBA INC.
Client Project #: ENV.VENV03133-01

CSR DISSOLVED METALS IN WATER WITH CV HG (WATER)

Maxxam ID		QQ7732	QQ7733	QQ7734	QQ7777		
Sampling Date		2017/03/01	2017/03/01	2017/03/01	2017/03/01		
COC Number		517561-01-01	517561-01-01	517561-01-01	517561-04-01		
	UNITS	**16MW1**	**16MW2**	**16MW3**	**00MW2**	**RDL**	**QC Batch**
Dissolved Potassium (K)	mg/L	5.46	1.05	1.22	1.07	0.050	8568670
Dissolved Sodium (Na)	mg/L	53.3	2.46	4.57	2.58	0.050	8568670
Dissolved Sulphur (S)	mg/L	18.2	15.0	14.4	15.7	3.0	8568670
RDL = Reportable Detection Limit							

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TETRA TECH EBA INC.
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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.7°C
Package 2	2.7°C

BTEX/VPH could not be completed on sample 17TP06 @ 0.5m as the methanol had leaked from both vials prior to analysis.

Results relate only to the items tested.

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Maxxam Job #: B716010
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QUALITY ASSURANCE REPORT

TETRA TECH EBA INC.
Client Project #: ENV.VENV03133-01

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8572118	1,4-Difluorobenzene (sur.)	2017/03/08	97	60 - 140	96	60 - 140	103	%		
8572118	4-Bromofluorobenzene (sur.)	2017/03/08	98	60 - 140	98	60 - 140	101	%		
8572118	D10-ETHYLBENZENE (sur.)	2017/03/08	97	60 - 130	90	60 - 130	103	%		
8572118	D4-1,2-Dichloroethane (sur.)	2017/03/08	96	60 - 140	95	60 - 140	103	%		
8572509	1,4-Difluorobenzene (sur.)	2017/03/08	95	60 - 140	104	60 - 140	97	%		
8572509	4-Bromofluorobenzene (sur.)	2017/03/08	132	60 - 140	135	60 - 140	125	%		
8572509	D10-ETHYLBENZENE (sur.)	2017/03/08	72	60 - 130	77	60 - 130	78	%		
8572509	D4-1,2-Dichloroethane (sur.)	2017/03/08	89	60 - 140	97	60 - 140	93	%		
8569900	Dissolved Aluminum (Al)	2017/03/08	108	80 - 120	113	80 - 120	<3.0	ug/L		
8569900	Dissolved Antimony (Sb)	2017/03/08	100	80 - 120	101	80 - 120	<0.50	ug/L		
8569900	Dissolved Arsenic (As)	2017/03/08	106	80 - 120	108	80 - 120	<0.10	ug/L	NC	20
8569900	Dissolved Barium (Ba)	2017/03/08	97	80 - 120	104	80 - 120	<1.0	ug/L	NC	20
8569900	Dissolved Beryllium (Be)	2017/03/08	104	80 - 120	101	80 - 120	<0.10	ug/L		
8569900	Dissolved Bismuth (Bi)	2017/03/08	100	80 - 120	100	80 - 120	<1.0	ug/L		
8569900	Dissolved Boron (B)	2017/03/08	105	80 - 120	95	80 - 120	<50	ug/L		
8569900	Dissolved Cadmium (Cd)	2017/03/08	103	80 - 120	98	80 - 120	<0.010	ug/L	NC	20
8569900	Dissolved Chromium (Cr)	2017/03/08	100	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
8569900	Dissolved Cobalt (Co)	2017/03/08	100	80 - 120	102	80 - 120	<0.20	ug/L		
8569900	Dissolved Copper (Cu)	2017/03/08	102	80 - 120	103	80 - 120	<0.20	ug/L	NC	20
8569900	Dissolved Iron (Fe)	2017/03/08	116	80 - 120	110	80 - 120	<5.0	ug/L		
8569900	Dissolved Lead (Pb)	2017/03/08	99	80 - 120	98	80 - 120	<0.20	ug/L	NC	20
8569900	Dissolved Lithium (Li)	2017/03/08	101	80 - 120	100	80 - 120	<2.0	ug/L		
8569900	Dissolved Manganese (Mn)	2017/03/08	102	80 - 120	103	80 - 120	<1.0	ug/L		
8569900	Dissolved Molybdenum (Mo)	2017/03/08	102	80 - 120	103	80 - 120	<1.0	ug/L		
8569900	Dissolved Nickel (Ni)	2017/03/08	102	80 - 120	102	80 - 120	<1.0	ug/L		
8569900	Dissolved Selenium (Se)	2017/03/08	109	80 - 120	102	80 - 120	<0.10	ug/L		
8569900	Dissolved Silicon (Si)	2017/03/08					<100	ug/L		
8569900	Dissolved Silver (Ag)	2017/03/08	108	80 - 120	103	80 - 120	<0.020	ug/L		
8569900	Dissolved Strontium (Sr)	2017/03/08	98	80 - 120	98	80 - 120	<1.0	ug/L		
8569900	Dissolved Thallium (Tl)	2017/03/08	98	80 - 120	100	80 - 120	<0.010	ug/L		
8569900	Dissolved Tin (Sn)	2017/03/08	98	80 - 120	102	80 - 120	<5.0	ug/L		
8569900	Dissolved Titanium (Ti)	2017/03/08	91	80 - 120	94	80 - 120	<5.0	ug/L		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8569900	Dissolved Uranium (U)	2017/03/08	97	80 - 120	93	80 - 120	<0.10	ug/L		
8569900	Dissolved Vanadium (V)	2017/03/08	101	80 - 120	104	80 - 120	<5.0	ug/L		
8569900	Dissolved Zinc (Zn)	2017/03/08	109	80 - 120	103	80 - 120	<5.0	ug/L	NC	20
8569900	Dissolved Zirconium (Zr)	2017/03/08					<0.50	ug/L		
8570302	Moisture	2017/03/08					<0.30	%	15	20
8570583	Dissolved Mercury (Hg)	2017/03/07	102	80 - 120	96	80 - 120	<0.010	ug/L	NC	20
8572118	Benzene	2017/03/08	97	60 - 140	96	70 - 130	<0.0050	mg/kg	NC	40
8572118	Ethylbenzene	2017/03/08	103	60 - 140	103	70 - 130	<0.010	mg/kg	NC	40
8572118	m & p-Xylene	2017/03/08	103	60 - 140	103	70 - 130	<0.040	mg/kg	NC	40
8572118	Methyl-tert-butylether (MTBE)	2017/03/08					<0.10	mg/kg	NC	40
8572118	o-Xylene	2017/03/08	98	60 - 140	97	70 - 130	<0.040	mg/kg	NC	40
8572118	Styrene	2017/03/08					<0.030	mg/kg	NC	40
8572118	Toluene	2017/03/08	97	60 - 140	97	70 - 130	<0.020	mg/kg	NC	40
8572118	VH C6-C10	2017/03/08			91	70 - 130	<10	mg/kg		
8572118	Xylenes (Total)	2017/03/08					<0.040	mg/kg	NC	40
8572509	Benzene	2017/03/08	76	60 - 140	79	70 - 130	<0.0050	mg/kg	28	40
8572509	Ethylbenzene	2017/03/08	87	60 - 140	90	70 - 130	<0.010	mg/kg	NC	40
8572509	m & p-Xylene	2017/03/08	82	60 - 140	86	70 - 130	<0.040	mg/kg	NC	40
8572509	Methyl-tert-butylether (MTBE)	2017/03/08					<0.10	mg/kg	NC	40
8572509	o-Xylene	2017/03/08	71	60 - 140	74	70 - 130	<0.040	mg/kg	NC	40
8572509	Styrene	2017/03/08					<0.030	mg/kg	NC	40
8572509	Toluene	2017/03/08	79	60 - 140	82	70 - 130	<0.020	mg/kg	NC	40
8572509	VH C6-C10	2017/03/08			88	70 - 130	<10	mg/kg	NC	40
8572509	Xylenes (Total)	2017/03/08					<0.040	mg/kg	NC	40

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

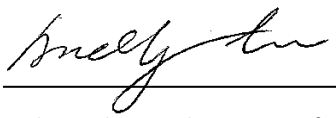
Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B716010
Report Date: 2017/03/09

TETRA TECH EBA INC.
Client Project #: ENV.VENV03133-01

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Ph.D., P.Chem., Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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4606 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel:(604) 734 7276 Toll-free:800-563-6266 Fax:(604) 731 2386 www.maxxam.ca

Chain Of Custody Record

INVOICE TO:
Company Name: #1433 TETRA TECH EBA INC.
Contact Name: Darren Thomas
Address: #1 - 4376 BOBAN DRIVE, NANAIMO BC V9T 6A7
Phone: (250) 756-2256 x Fax: (250) 756-2686 x
Email: Darren.Thomas@tetratech.com; EBA.Labdata@tetratec

Report Information
Company Name:
Contact Name: Darren Thomas, Lora Paul
Address: Lora.Paul@tetratech.com
Phone: Fax:
Email: Darren.Thomas@tetratech.com; EBA.Labdata@tetratec

Project Information
Quotation #: B60578
P.O. #:
Project #: ENV.VENV03133-01
Project Name:
Site #:
Sampled By:

Laboratory Use Only
Maxxam Job #: B716010
Bottle Order #: 517561
Chain Of Custody Record: C#517561-01-01
Project Manager: Letitia Prefontaine

Regulatory Criteria:
- [X] CSR
- [ ] CCME
- [ ] BC Water Quality
- [ ] Other

Special Instructions:

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [X]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
1 DAY [ ] 2 Day [ ] 3 Day [ ] Date Required: [ ]
Rush Confirmation Number: (call lab for #)

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	pH - Water	Conductivity - water	Dissolved Metals in Water with CV Hg & Hardness	CSR BTEX/VPH in Soil - Field Preserved						Hold	# of Bottles	Comments
1		16MW1	17/03/01		water	Y			X								3	
2		16MW2			↓	Y			X								3	
3		16MW3			↓	Y			X								3	
4		17TP01 @ 0.3m			Soil											X	4	
5		0.5m														X	4	
6		1.0m														X	4	
7		2.0m														X	2	
8		3.0m														X	4	
9		17TP02 @ 0.2m	17/03/02													X	4	
10		" 0.5m	"		↓											X	4	

B716010_COC

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Darren Thomas	17/03/02	17:00	NATHEE BLANSHET	2017/03/14	09:43	

Lab Use Only: Time Sensitive [ ] | Temperature (°C) on Receipt 2/1.2 3/2.3 | Custody Seal Intact on Cooler? [ ] Yes [✓] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

lbs: yes

White: Maxxam Yellow: Client

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Chain Of Custody Record

INVOICE TO:		Report Information		Project Information		Laboratory Use Only	
Company Name	#1433 TETRA TECH EBA INC.	Company Name		Quotation #	B60578	Maxxam Job #	Bottle Order #:
Contact Name	Darren Thomas	Contact Name	Darren Thomas / Lora Paul	P.O. #		B716010	517561
Address	#1 - 4376 BOBAN DRIVE NANAIMO BC V9T 6A7	Address		Project #	ENV.VENV03133-01	Chain Of Custody Record	Project Manager
Phone	(250) 756-2256 x Fax: (250) 756-2686 x	Phone	Fax:	Project Name		C#517561-02-01	Letitia Prefontaine
Email	Darren.Thomas@tetratech.com; EBA.Labdata@tetratec	Email	Darren.Thomas@tetratech.com; EBA.Labdata@tetratec	Site #			
				Sampled By			

Regulatory Criteria:
- [X] CSR
- [ ] CCME
- [ ] BC Water Quality
- [ ] Other

Special Instructions

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [X]
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Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
1 DAY [ ] 2 Day [ ] 3 Day [ ] Date Required: [ ]
Rush Confirmation Number: (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	pH - Water	Conductivity - water	Dissolved Metals in Water with CV Hg & Hardness	CSR BTEX/VPH in Soil - Field Preserved						# of Bottles	Comments
1		17TP02@ 1.0m	17/03/02		SO.1											4	
2		2.0m														4	
3		3.0m														4	
4		17TP03@ 0.15m														4	
5		0.5m														4	
6		1.0m														4	
7		2.0m														2	
8		3.0m														4	
9		17TP04@ 0.1m														4	
10		" 0.5m														4	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Darren Thomas	17/03/02	17:00	Appropriate Rgd NATHEE BLANDUCET	2017/03/04	09:43	

Lab Use Only
Time Sensitive [ ]
Temperature (°C) on Receipt: 2/1/2 3/2/3
Custody Seal Intact on Cooler? [ ] Yes [X] No

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IW: YES

White: Maxxam Yellow: Client

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Chain Of Custody Record

Page 3 of 4

INVOICE TO:		Report Information		Project Information		Laboratory Use Only	
Company Name	#1433 TETRA TECH EBA INC.	Company Name	Darren Thomas / Ilona Por I	Quotation #	B60578	Maxxam Job #	Bottle Order #:
Contact Name	Darren Thomas	Contact Name		P.O. #		B716010	517561
Address	#1 - 4376 BOBAN DRIVE NANAIMO BC V9T 6A7	Address		Project #	ENV.VENV03133-01	Chain Of Custody Record	Project Manager
Phone	(250) 756-2256 x Fax: (250) 756-2686 x	Phone	Fax:	Project Name		C#517561-03-01	Letitia Prefontaine
Email	Darren.Thomas@tetratech.com; EBA.Labdata@tetratec	Email	Darren.Thomas@tetratech.com; EBA.Labdata@tetratec	Site #			
				Sampled By			

Regulatory Criteria:
- [X] CSR
- [ ] CCME
- [ ] BC Water Quality
- [ ] Other

Special Instructions

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

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Regular (Standard) TAT:
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Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.
[X]

Job Specific Rush TAT (if applies to entire submission)
1 DAY [ ] 2 Day [ ] 3 Day [ ] Date Required: [ ]
Rush Confirmation Number: (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	pH - Water	Conductivity - water	Dissolved Metals in Water with CV Hg & Hardness	CSR BTEX/VPH in Soil - Field Preserved						Hold	# of Bottles	Comments
1		17TP04 @ 1.0m	17/03/02		Soil											X	4	
2		2.0m														X	2	
3		3.0m														X	4	
4		17TP05 @ 0.1m														X	4	
5		0.5m														X	4	
6		1.0m														X	4	
7		2.0m														X	4	
8		3.0m														X	4	
9		17TP06 @ 0.1m														X	4	
10		0.5m														X	4	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Darren Thomas	17/03/02	17:00	NATIBE BLANQUICET	2017/03/04	09:43		[ ]	2/1/2 3/2/3	[ ] Yes [✓] No

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White: Maxxam Yellow: Client

IW 405

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Chain Of Custody Record

INVOICE TO:		Report Information		Project Information		Laboratory Use Only	
Company Name	#1433 TETRA TECH EBA INC.	Company Name		Quotation #	B60578	Maxxam Job #	Bottle Order #:
Contact Name	Darren Thomas	Contact Name	Darren Thomas / Lora Paul	P.O. #		B716010	517561
Address	#1 - 4376 BOBAN DRIVE NANAIMO BC V9T 6A7	Address		Project #	ENV.VENV03133-01	Chain Of Custody Record	Project Manager
Phone	(250) 756-2256 x Fax: (250) 756-2686 x	Phone	Fax:	Project Name		C#517561-04-01	Letitia Prefontaine
Email	Darren.Thomas@tetratech.com; EBA.Labdata@tetratec	Email	Darren.Thomas@tetratech.com; EBA.Labdata@tetratec	Site #			
				Sampled By			

Regulatory Criteria:
- [X] CSR
- [ ] CCME
- [ ] BC Water Quality
- [ ] Other

Special Instructions

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

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(will be applied if Rush TAT is not specified)
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Job Specific Rush TAT (if applies to entire submission)
1 DAY [ ] 2 Day [ ] 3 Day [ ] Date Required: [ ]
Rush Confirmation Number: (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	pH - Water	Conductivity - water	Dissolved Metals in Water with CV Hg & Hardness	CSR BTEX/VPH in Soil - Field Preserved	PHC/F	# of Bottles	Comments
1		17TP06 @ 1.0m	17/03/12		Soil						X	4	
2		2.0m									X	4	
3		3.0m									X	4	
4		00TP02@0.2m									X	4	
5		00 TP04@0.5m									X	4	
6		00 TP06@0.1m									X	4	
7													
8													
9													
10													

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Darren Thomas	17/03/12	17:00	NAVIGE BLANQUICET	2012/03/12	09:43		[ ]	2/1/2 3/2/3	[ ] Yes [X] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

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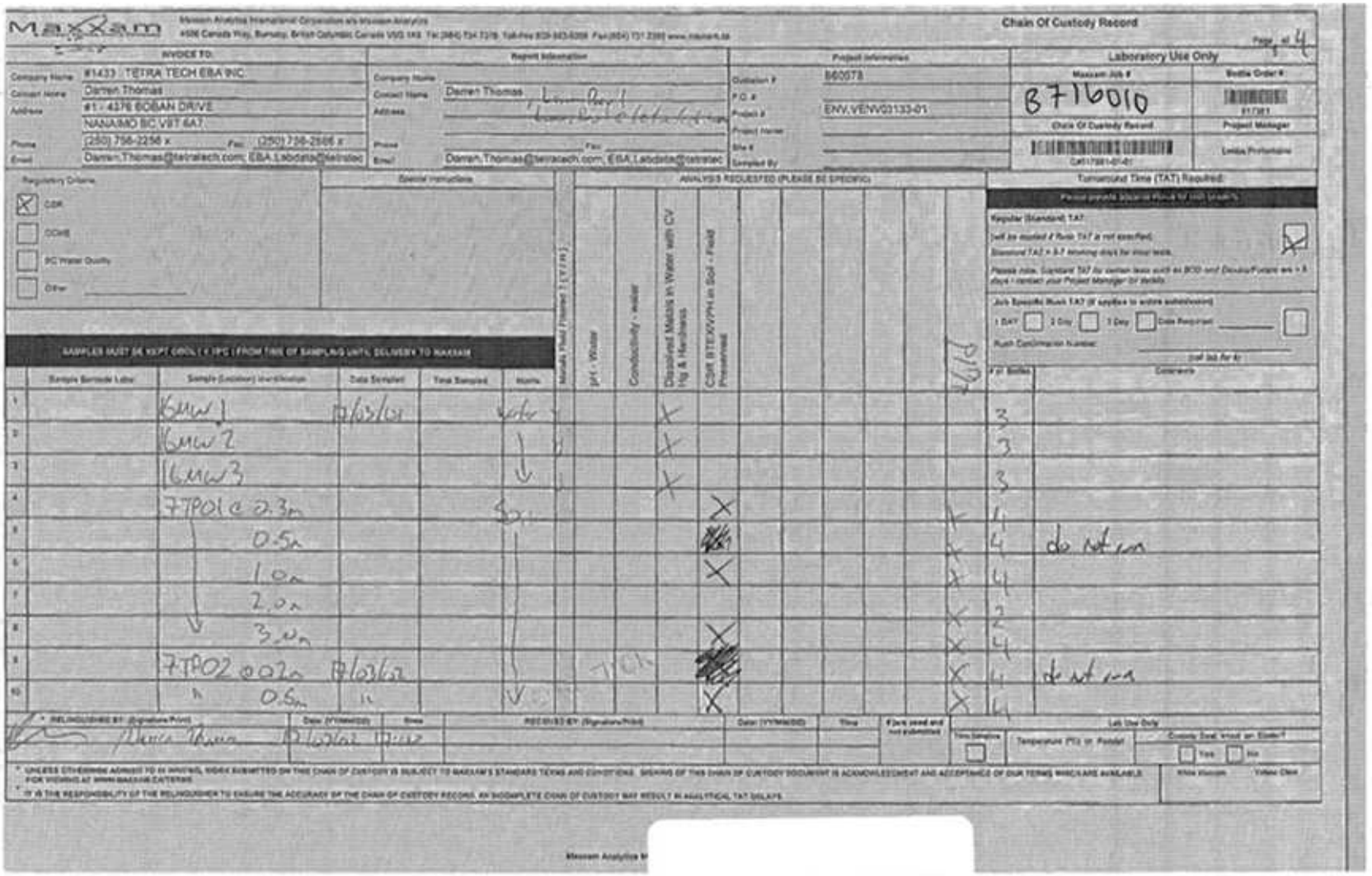
Ice: Yes

White: Maxxam Yellow: Client



Chain Of Custody Record

INVOICE TO: #1433 : TETRA TECH EBA INC.
Contact Name: Darren Thomas
Address: #1 - 4376 BOBAN DRIVE, NANAIMO BC V9T 6A7
Phone: (250) 756-2256 x Fax: (250) 756-2606 x
Email: Darren.Thomas@tetratech.com; EBA.Labdata@tetratec

Report Information: Darren Thomas
Email: Darren.Thomas@tetratech.com; EBA.Labdata@tetratec

Project Information: Quotation #: B60078; P.O. #:; Project #: ENV.VENV03133-01; Project Name:; Site #:; Sampled By:

Laboratory Use Only: Maxxam Job #: B716010; Bottle Order #:; Chain Of Custody Record:; Project Manager:

Regulatory Criteria: CSR; CCME; PC Water Quality; Other

Special Instructions

Turnaround Time (TAT) Required: Regular (Standard) TAT:

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered [Y/N]	pH - Water	Conductivity - water	Dissolved Metals in Water with CV Hg & Hardness	CSR BTEX/PHs in Soil - Field Preserved								# of Bottles	Comments
1		KMW1	12/03/01		water				X									3	
2		KMW2							X									3	
3		KMW3							X									3	
4		7TP01 @ 0.3m			Soil					X								1	
5		0.5m								X								4	do not run
6		1.0m								X								4	
7		2.0m																1	
8		3.0m								X								4	
9		7TP02 @ 0.2m	12/03/12				TCL			X								4	do not run
10		" 0.5m	"		V					X								4	

RELINQUISHED BY: Darren Thomas; Date: 12/03/12; Time: 17:12

RECEIVED BY:

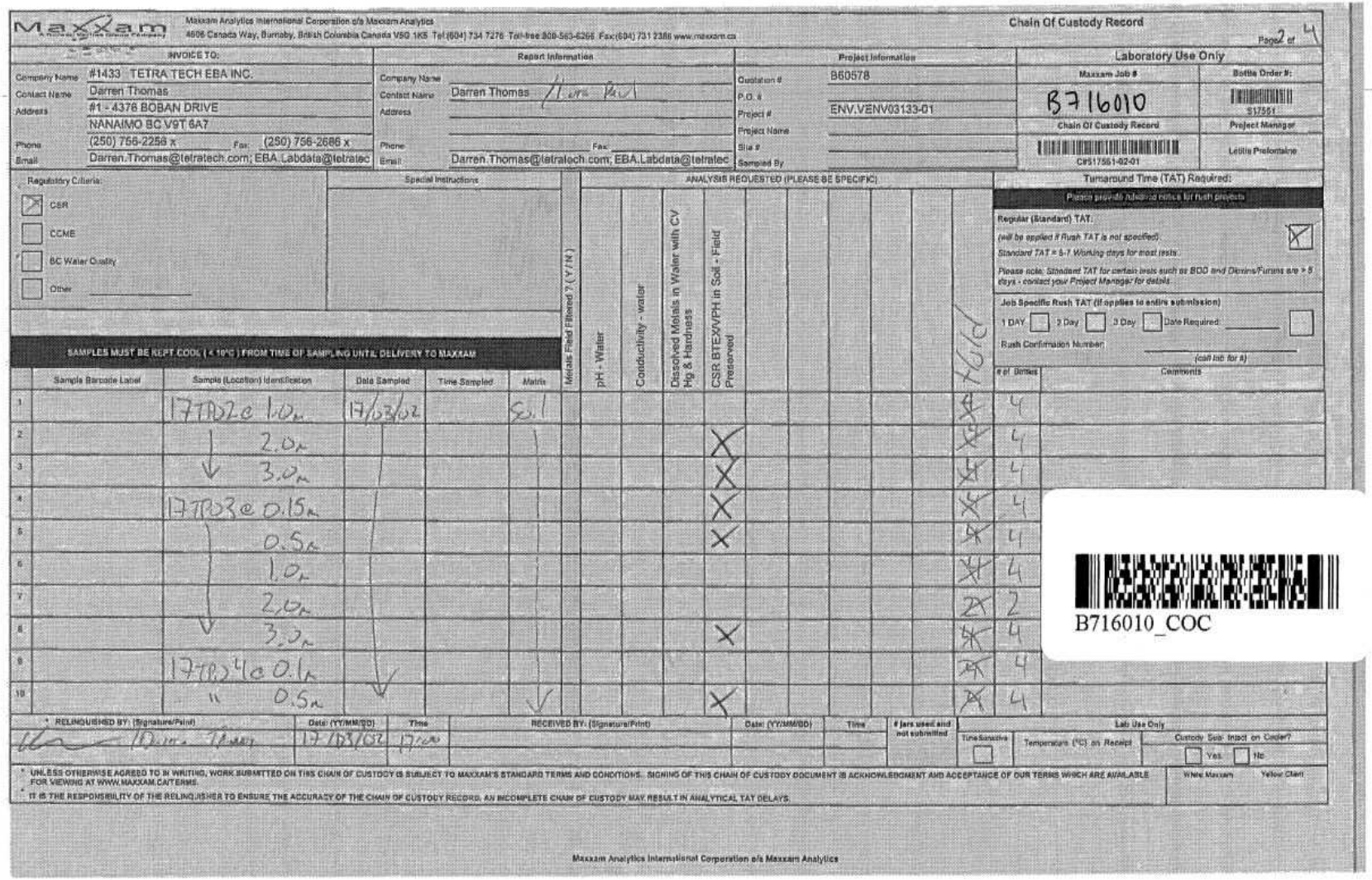
Lab Use Only: Temperature (°C) on Receipt:

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGEMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS

White: Maxxam Yellow: Client

B716010_COC



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Chain Of Custody Record Page 2 of 4

INVOICE TO:
Company Name: #1433 TETRA TECH EBA INC.
Contact Name: Darren Thomas
Address: #1 - 4376 BOBAN DRIVE, NANAIMO BC V9T 6A7
Phone: (250) 756-2258 x Fax: (250) 756-2686 x
Email: Darren.Thomas@tetratech.com; EBA.Labdata@tetratec

Report Information
Company Name:
Contact Name: Darren Thomas
Address:
Phone: Fax:
Email: Darren.Thomas@tetratech.com; EBA.Labdata@tetratec

Project Information
Quotation #: B60578
P.O. #:
Project #: ENV.VENV03133-01
Project Name:
Site #:
Sampled By:

Laboratory Use Only
Maxxam Job #: B716010
Bottle Order #: 317551
Chain Of Custody Record: CR317551-02-01
Project Manager: Letitia Prefontaine

Regulatory Criteria: CSR; CCME; BC Water Quality; Other
Special Instructions:

SAMPLES MUST BE KEPT COOL (4 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (PLEASE BE SPECIFIC): Metals Field Filtered ? (Y / N); pH - Water; Conductivity - water; Dissolved Metals in Water with CV Hg & Hardness; CSR BTEX/VPH in Soil - Field Preserved; HOLD

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects
Regular (Standard) TAT: (will be applied if Rush TAT is not specified) X
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.
Job Specific Rush TAT (If applies to entire submission): 1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required: ☐
Rush Confirmation Number: (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	# of Bottles	Comments
1		17TP2@ 1.0m	17/03/02		SOIL	4	
2		2.0m				4	
3		3.0m				4	
4		17TP3@ 0.15m				4	
5		0.5m				4	
6		1.0m				4	
7		2.0m				2	
8		3.0m				4	
9		17TP4@ 0.1m				4	
10		" 0.5m				4	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
	17/03/02	17:00					☐		☐ Yes ☐ No

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White: Maxxam Yellow: Client

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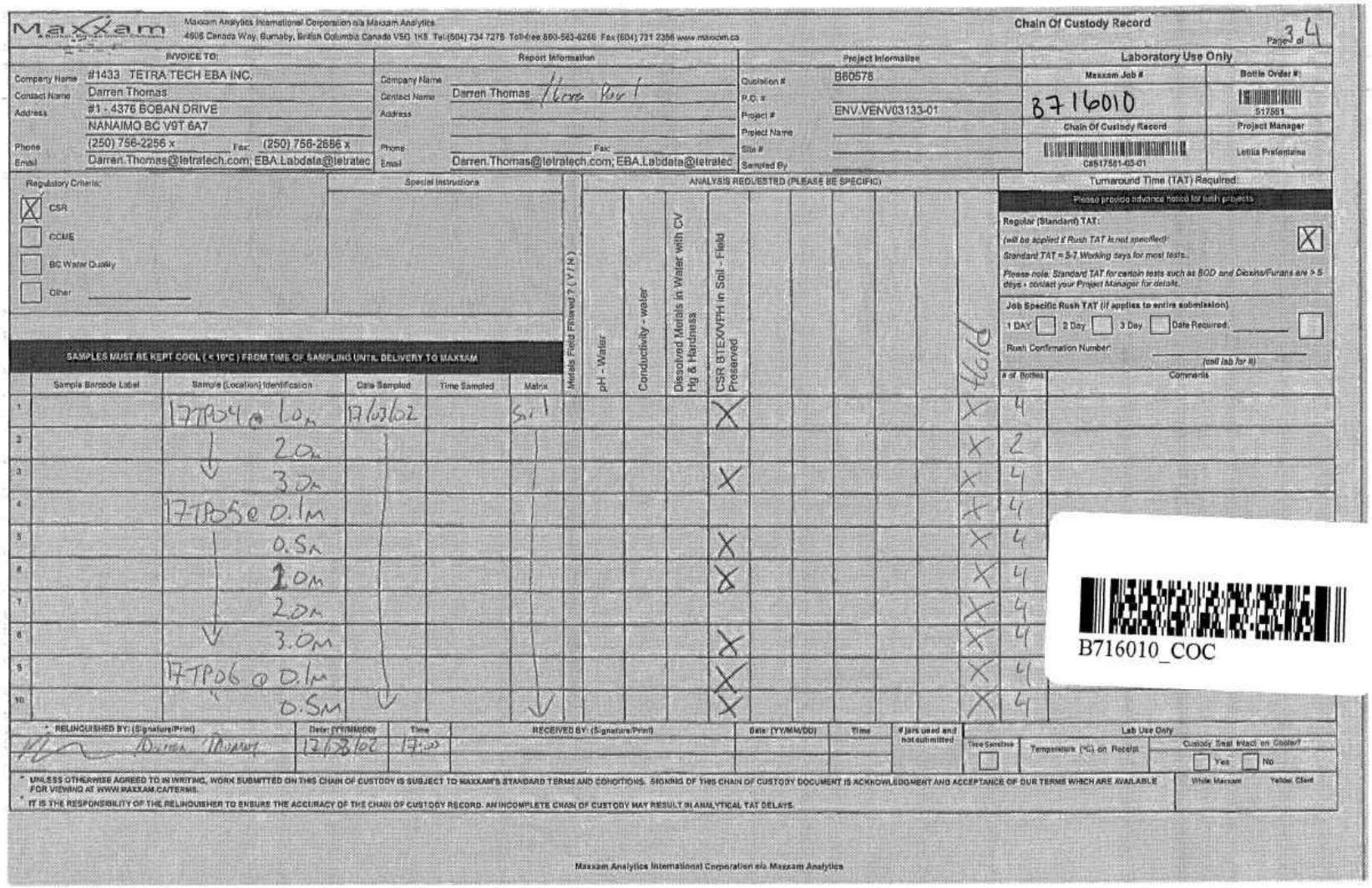
B716010_COC



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Chain Of Custody Record Page 3 of 4

INVOICE TO:
Company Name: #1433 TETRA TECH EBA INC.
Contact Name: Darren Thomas
Address: #1 - 4376 BOBAN DRIVE, NANAIMO BC V9T 6A7
Phone: (250) 756-2256 x Fax: (250) 756-2696 x
Email: Darren.Thomas@tetratech.com; EBA.Labdata@tetratec

Report Information
Company Name:
Contact Name: Darren Thomas (Hard Copy)
Address:
Phone: Fax:
Email: Darren.Thomas@tetratech.com; EBA.Labdata@tetratec

Project Information
Quotation #: B60578
P.O. #:
Project #: ENV.VENV03133-01
Project Name:
Site #:
Sampled By:

Laboratory Use Only
Maxxam Job #: B716010
Bottle Order #: 517561
Chain Of Custody Record: C8517561-03-01
Project Manager: Letitia Prefontaine

Regulatory Criteria: [X] CSR [ ] CCME [ ] BC Water Quality [ ] Other
Special Instructions

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects
Regular (Standard) TAT: [X]
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.
Job Specific Rush TAT (if applies to entire submission)
1 DAY [ ] 2 Day [ ] 3 Day [ ] Date Required: [ ]
Rush Confirmation Number: (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	pH - Water	Conductivity - water	Dissolved Metals in Water with CV Hg & Hardness	CSR BTEX/VPH in Soil - Field Preserved							Hold	# of Bottles	Comments
1		17TP04 @ 1.0M	12/03/02		Soil					X							X	4	
2		2.0M															X	2	
3		3.0M								X							X	4	
4		17TP05 @ 0.1M															X	4	
5		0.5M								X							X	4	
6		1.0M								X							X	4	
7		2.0M															X	4	
8		3.0M								X							X	4	
9		17TP06 @ 0.1M								X							X	4	
10		0.5M								X							X	4	

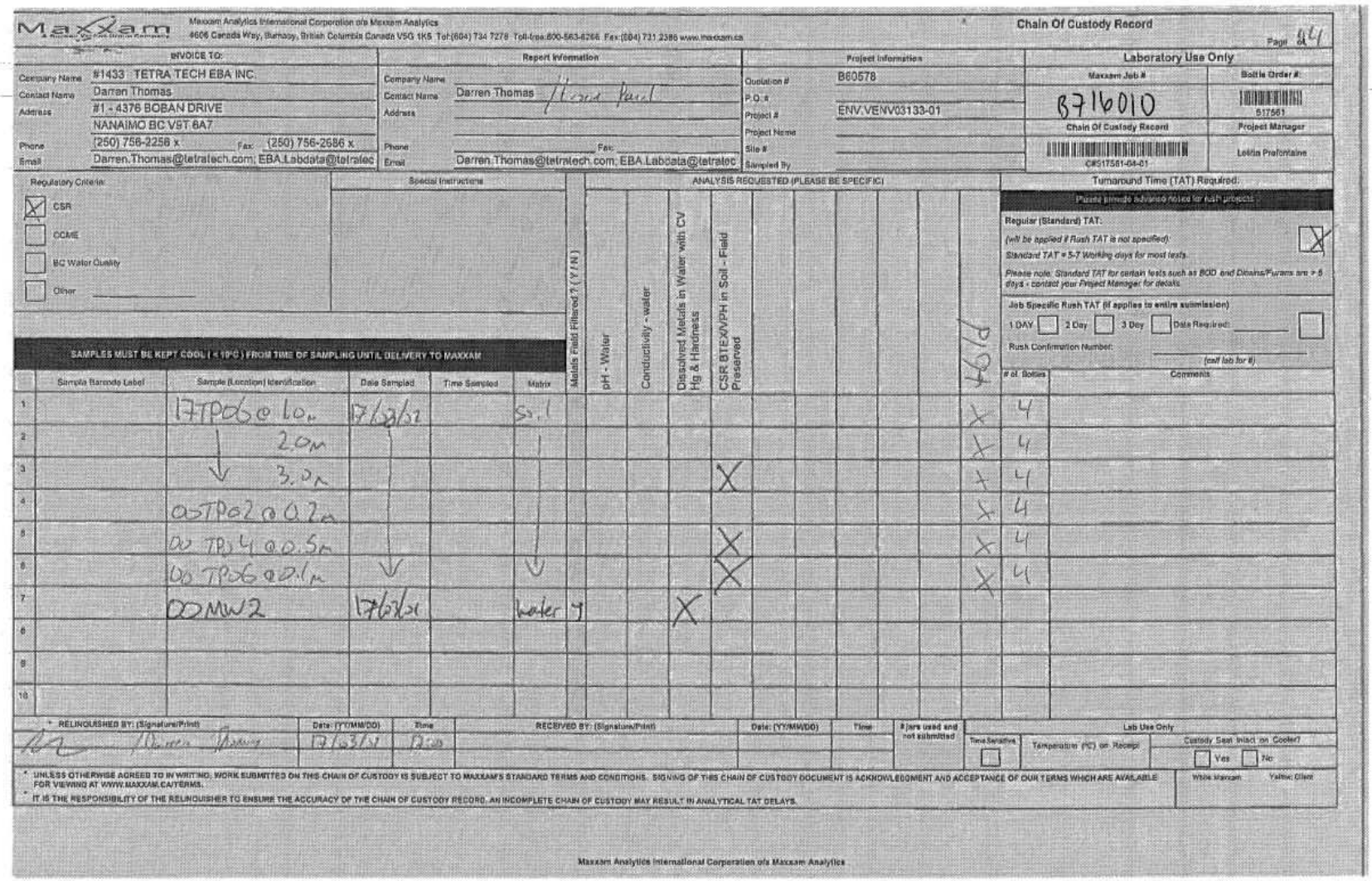
* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
[illegible]	12/03/02	17:00					[ ]		[ ] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

B716010_COC



Maxxam Analytics International Corporation o/a Maxxam Analytics
4606 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel:(604) 734 7276 Toll-free:800-563-6266 Fax:(604) 731 2386 www.maxxam.ca

Chain Of Custody Record Page 1 of 1

INVOICE TO:
Company Name: #1433 TETRA TECH EBA INC.
Contact Name: Darren Thomas
Address: #1 - 4376 BOBAN DRIVE, NANAIMO BC V9T 6A7
Phone: (250) 756-2258 x Fax: (250) 756-2686 x
Email: Darren.Thomas@tetratech.com; EBA.Labdata@tetratec

Report Information
Company Name:
Contact Name: Darren Thomas / Hazel Paul
Address:
Phone: Fax:
Email: Darren.Thomas@tetratech.com; EBA.Labdata@tetratec

Project Information
Quotation #: B60578
P.O. #:
Project #: ENV.VENV03133-01
Project Name:
Site #:
Sampled By:

Laboratory Use Only
Maxxam Job #: B716010
Bottle Order #: 517561
Chain Of Custody Record: C#517561-04-01
Project Manager: Leslie Prefontaine

Regulatory Criteria: [X] CSR [ ] CCME [ ] BC Water Quality [ ] Other
Special Instructions:

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects
Regular (Standard) TAT: [X]
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.
Job Specific Rush TAT (if applies to entire submission)
1 DAY [ ] 2 Day [ ] 3 Day [ ] Date Required: [ ]
Rush Confirmation Number: (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered? (Y / N)	pH - Water	Conductivity - water	Dissolved Metals in Water with CV Hg & Hardness	CSR BTEX/PH in Soil - Field Preserved						Hold	# of Bottles	Comments
1		17TP06@0.1m	17/03/01		Soil					X						X	4	
2		2.0m														X	4	
3		3.0m								X						X	4	
4		05TP02@0.2m														X	4	
5		06 TP04@0.5m								X						X	4	
6		07 TP06@0.1m								X						X	4	
7		08MW2	17/03/01		Water	Y			X									
8																		
9																		
10																		

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
[illegible]	17/03/01	12:00					[ ]		[ ] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGEMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.
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White: Maxxam Yellow: Client

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Maxxam
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Success Through Science®

Your Project #: 704-ENV.VENV03133-01
Site Location: KITSUMKALUM FIRST NATION IR#1

Attention:Lora Paul

TETRA TECH EBA INC.
#1 - 4376 BOBAN DRIVE
NANAIMO, BC
Canada V9T 6A7

Your C.O.C. #: 08429192, 08429193, 08429194, 08429195, 08429196, 08429197

Report Date: 2016/11/30
Report #: R2309653
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B697701
Received: 2016/11/02, 08:40

Sample Matrix: DRINKING WATER
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Hardness Total (calculated as CaCO3)	1	N/A	2016/11/04	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	6	N/A	2016/11/07	BBY WI-00033	Auto Calc
Mercury (Dissolved) by CVAF	6	N/A	2016/11/08	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total) by CVAF	1	2016/11/08	2016/11/08	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	6	N/A	2016/11/07	BBY7SOP-00002	EPA 6020A R1 m
Elements by CRC ICPMS (dissolved)	4	N/A	2016/11/04	BBY7SOP-00002	EPA 6020B R2 m
Elements by CRC ICPMS (dissolved)	2	N/A	2016/11/05	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	N/A	2016/11/04	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by CRC ICPMS (total)	1	N/A	2016/11/03	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Filter and HNO3 Preserve for Metals	2	N/A	2016/11/03	BBY7 WI-00004	BCMOE Reqs 08/14
Filter and HNO3 Preserve for Metals	2	N/A	2016/11/04	BBY7 WI-00004	BCMOE Reqs 08/14
Filter and HNO3 Preserve for Metals	2	N/A	2016/11/05	BBY7 WI-00004	BCMOE Reqs 08/14
Tannin & Lignin (Total)	3	N/A	2016/11/08	BBY6SOP-00023	SM-5550B m

Sample Matrix: Soil
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/MTBE LH VH F1 in Soil - Field Pres. (1)	2	N/A	2016/11/07	BBY8SOP-00010/11/12	EPA 8260c R3 m
BTEX/MTBE LH VH F1 in Soil - Field Pres. (1)	2	N/A	2016/11/08	BBY8SOP-00010/11/12	EPA 8260c R3 m
BTEX/MTBE LH VH F1 in Soil - Field Pres. (1)	3	N/A	2016/11/17	BBY8SOP-00010/11/12	EPA 8260c R3 m
Particulate Mesh 200	2	N/A	2016/11/29	BBY6SOP-00039	Carter 2nd ed 55.4
Moisture	4	2016/11/04	2016/11/04	BBY8SOP-00017	BCMOE BCLM Dec2000 m
Moisture	3	2016/11/11	2016/11/11	BBY8SOP-00017	BCMOE BCLM Dec2000 m
Volatile HC-BTEX for Soil	4	N/A	2016/11/08	BBY WI-00033	Auto Calc
Volatile HC-BTEX for Soil	3	N/A	2016/11/18	BBY WI-00033	Auto Calc

Remarks:

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Your Project #: 704-ENV.VENV03133-01
Site Location: KITSUMKALUM FIRST NATION IR#1

Attention:Lora Paul

TETRA TECH EBA INC.
#1 - 4376 BOBAN DRIVE
NANAIMO, BC
Canada V9T 6A7

Your C.O.C. #: 08429192, 08429193, 08429194, 08429195, 08429196, 08429197

Report Date: 2016/11/30
Report #: R2309653
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B697701
Received: 2016/11/02, 08:40

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods. Results relate to samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The extraction date for VOC, BTEX, VH, or F1 samples that are field preserved with methanol equals the date sampled, unless otherwise stated.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Letitia Prefontaine, B.Sc., Senior Project Manager
Email: LPrefontaine@maxxam.ca
Phone# (604)639-2616

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B697701
Report Date: 2016/11/30

TETRA TECH EBA INC.
Client Project #: 704-ENV.VENV03133-01
Site Location: KITSUMKALUM FIRST NATION IR#1
Sampler Initials: DT

RESULTS OF CHEMICAL ANALYSES OF DRINKING WATER

Maxxam ID		PX9381		PX9382	PX9383	PX9384	PX9385	PX9386	PX9387		
Sampling Date		2016/10/26 10:00		2016/10/30 10:00	2016/10/30 12:00	2016/10/30 11:00	2016/10/30 10:00	2016/10/27 11:00	2016/10/27 12:00		
COC Number		08429192		08429192	08429192	08429192	08429192	08429192	08429192		
	UNITS	**16SW101**	**RDL**	**16MW1**	**16MW2**	**16MW3**	**00MW1**	**MW15-102**	**MW15-105**	**RDL**	**QC Batch**
Calculated Parameters											
Filter and HNO3 Preservation	N/A			FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	N/A	ONSITE
MISCELLANEOUS											
Tannins and Lignins	mg/L	<0.10	0.10					9.58	8.36	0.10	8463461

RDL = Reportable Detection Limit
N/A = Not Applicable

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B697701
Report Date: 2016/11/30

TETRA TECH EBA INC.
Client Project #: 704-ENV.VENV03133-01
Site Location: KITSUMKALUM FIRST NATION IR#1
Sampler Initials: DT

PARTICLE SIZE DISTRIBUTION ANALYSIS (SOIL)

Maxxam ID		QC8705	QC8711		
Sampling Date		2016/10/28 13:45	2016/10/28 12:30		
COC Number		08429192	08429192		
	UNITS	**16TP1-0.5M & 16TP1-1.0M COMBINED**	**16TP2-0.5M, 16TP2-1.0M, 16TP2-1.5M COMBINED**	**RDL**	**QC Batch**
Physical Properties					
200 mesh (>.075 mm)	%	76.6	50.1	0.10	8487515
200 mesh (<.075 mm)	%	23.4	49.9	0.10	8487515
RDL = Reportable Detection Limit					

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Maxxam Job #: B697701
Report Date: 2016/11/30

TETRA TECH EBA INC.
Client Project #: 704-ENV.VENV03133-01
Site Location: KITSUMKALUM FIRST NATION IR#1
Sampler Initials: DT

PHYSICAL TESTING (SOIL)

Maxxam ID		PX9415		PX9425	PX9426		PX9429	PX9432		
Sampling Date		2016/10/28 13:45		2016/10/28 14:00	2016/10/28 14:00		2016/10/28 12:30	2016/10/28 13:00		
COC Number		08429193		08429194	08429194		08429194	08429194		
	UNITS	16TP1-0.5M	QC Batch	16TP1-1.3M	16TP1-2.4M	QC Batch	16TP2-0.5M	16TP2-2.5M	RDL	QC Batch
Physical Properties										
Moisture	%	65	8459624	25	21	8467902	50	8.6	0.30	8459624
RDL = Reportable Detection Limit										

Maxxam ID		PX9433		PX9447		
Sampling Date		2016/10/28 14:00		2016/10/28 14:00		
COC Number		08429194		08429195		
	UNITS	16TP3-0.5M	QC Batch	16TP3-1.5M	RDL	QC Batch
Physical Properties						
Moisture	%	13	8459624	14	0.30	8467902
RDL = Reportable Detection Limit						

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Maxxam Job #: B697701
Report Date: 2016/11/30

TETRA TECH EBA INC.
Client Project #: 704-ENV.VENV03133-01
Site Location: KITSUMKALUM FIRST NATION IR#1
Sampler Initials: DT

CSR BTEX/VPH IN SOIL - FIELD PRESERVED (SOIL)

Maxxam ID		PX9415			PX9425	PX9426		PX9429		
Sampling Date		2016/10/28 13:45			2016/10/28 14:00	2016/10/28 14:00		2016/10/28 12:30		
COC Number		08429193			08429194	08429194		08429194		
	UNITS	16TP1-0.5M	RDL	QC Batch	16TP1-1.3M	16TP1-2.4M	QC Batch	16TP2-0.5M	RDL	QC Batch
Volatiles										
VPH (VHW6 to 10 - BTEX)	mg/kg	<47	47	8456412	<10	<10	8466857	<10	10	8456412
Methyl-tert-butylether (MTBE)	mg/kg	<0.47 (1)	0.47	8462728	<0.10	<0.10	8474868	<0.10	0.10	8464032
Benzene	mg/kg	<0.024 (1)	0.024	8462728	<0.0050	<0.0050	8474868	<0.0050	0.0050	8464032
Toluene	mg/kg	0.80 (1)	0.094	8462728	<0.020	0.076	8474868	0.17	0.020	8464032
Ethylbenzene	mg/kg	<0.047 (1)	0.047	8462728	<0.010	0.012	8474868	0.011	0.010	8464032
m & p-Xylene	mg/kg	<0.19 (1)	0.19	8462728	<0.040	<0.040	8474868	<0.040	0.040	8464032
o-Xylene	mg/kg	<0.19 (1)	0.19	8462728	<0.040	<0.040	8474868	<0.040	0.040	8464032
Styrene	mg/kg	<0.14 (1)	0.14	8462728	<0.030	<0.030	8474868	<0.030	0.030	8464032
Xylenes (Total)	mg/kg	<0.19	0.19	8462728	<0.040	<0.040	8474868	<0.040	0.040	8464032
VH C6-C10	mg/kg	<47 (1)	47	8462728	<10	<10	8474868	<10	10	8464032
Surrogate Recovery (%)										
1,4-Difluorobenzene (sur.)	%	107		8462728	101	101	8474868	91		8464032
4-Bromofluorobenzene (sur.)	%	100		8462728	98	98	8474868	98		8464032
D10-ETHYLBENZENE (sur.)	%	94		8462728	99	109	8474868	99		8464032
D4-1,2-Dichloroethane (sur.)	%	98		8462728	99	101	8474868	105		8464032

RDL = Reportable Detection Limit
(1) Detection limits raised due to high moisture content, sample contains => 50% moisture.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B697701
Report Date: 2016/11/30

TETRA TECH EBA INC.
Client Project #: 704-ENV.VENV03133-01
Site Location: KITSUMKALUM FIRST NATION IR#1
Sampler Initials: DT

CSR BTEX/VPH IN SOIL - FIELD PRESERVED (SOIL)

Maxxam ID		PX9432		PX9433		PX9447		
Sampling Date		2016/10/28 13:00		2016/10/28 14:00		2016/10/28 14:00		
COC Number		08429194		08429194		08429195		
	UNITS	16TP2-2.5M	QC Batch	16TP3-0.5M	QC Batch	16TP3-1.5M	RDL	QC Batch
Volatiles								
VPH (VHW6 to 10 - BTEX)	mg/kg	<10	8456412	<10	8456412	<10	10	8466857
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	8464032	<0.10	8462728	<0.10	0.10	8474868
Benzene	mg/kg	0.018	8464032	<0.0050	8462728	<0.0050	0.0050	8474868
Toluene	mg/kg	0.080	8464032	0.036	8462728	0.028	0.020	8474868
Ethylbenzene	mg/kg	<0.010	8464032	<0.010	8462728	<0.010	0.010	8474868
m & p-Xylene	mg/kg	<0.040	8464032	<0.040	8462728	<0.040	0.040	8474868
o-Xylene	mg/kg	<0.040	8464032	<0.040	8462728	<0.040	0.040	8474868
Styrene	mg/kg	<0.030	8464032	<0.030	8462728	<0.030	0.030	8474868
Xylenes (Total)	mg/kg	<0.040	8464032	<0.040	8462728	<0.040	0.040	8474868
VH C6-C10	mg/kg	<10	8464032	<10	8462728	<10	10	8474868
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	91	8464032	105	8462728	101		8474868
4-Bromofluorobenzene (sur.)	%	101	8464032	102	8462728	98		8474868
D10-ETHYLBENZENE (sur.)	%	95	8464032	93	8462728	96		8474868
D4-1,2-Dichloroethane (sur.)	%	105	8464032	99	8462728	102		8474868

RDL = Reportable Detection Limit

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B697701
Report Date: 2016/11/30

TETRA TECH EBA INC.
Client Project #: 704-ENV.VENV03133-01
Site Location: KITSUMKALUM FIRST NATION IR#1
Sampler Initials: DT

CCME DISSOLVED METALS IN WATER (DRINKING WATER)

Maxxam ID					PX9382	PX9383	PX9384	PX9385	PX9386	PX9387		
Sampling Date					2016/10/30 10:00	2016/10/30 12:00	2016/10/30 11:00	2016/10/30 10:00	2016/10/27 11:00	2016/10/27 12:00		
COC Number					08429192	08429192	08429192	08429192	08429192	08429192		
	UNITS	**MAC**	**AO**	**OG**	**16MW1**	**16MW2**	**16MW3**	**00MW1**	**MW15-102**	**MW15-105**	**RDL**	**QC Batch**
Misc. Inorganics												
Dissolved Hardness (CaCO3)	mg/L	-	-	-	80.2	322	238	82.5	164	225	0.50	8456530
Elements												
Dissolved Mercury (Hg)	ug/L	1	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8463857
Dissolved Metals by ICPMS												
Dissolved Aluminum (Al)	ug/L	-	-	100	12.8	4.3	<3.0	23.2	**213**	36.9	3.0	8458450
Dissolved Antimony (Sb)	ug/L	6	-	-	0.74	<0.50	<0.50	0.76	<0.50	<0.50	0.50	8458450
Dissolved Arsenic (As)	ug/L	10	-	-	1.66	0.22	0.24	1.63	**13.2**	**16.6**	0.10	8458450
Dissolved Barium (Ba)	ug/L	1000	-	-	42.6	133	52.5	43.6	236	282	1.0	8458450
Dissolved Beryllium (Be)	ug/L	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	8458450
Dissolved Bismuth (Bi)	ug/L	-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	8458450
Dissolved Boron (B)	ug/L	5000	-	-	<50	<50	<50	<50	<50	<50	50	8458450
Dissolved Cadmium (Cd)	ug/L	5	-	-	0.011	0.045	0.072	0.011	0.041	0.265	0.010	8458450
Dissolved Chromium (Cr)	ug/L	50	-	-	<1.0	<1.0	<1.0	<1.0	3.0	<1.0	1.0	8458450
Dissolved Cobalt (Co)	ug/L	-	-	-	<0.50	0.74	1.53	<0.50	21.2	15.0	0.50	8458450
Dissolved Copper (Cu)	ug/L	-	1000	-	0.60	0.29	<0.20	0.72	0.30	0.45	0.20	8458450
Dissolved Iron (Fe)	ug/L	-	300	-	16.5	10.2	38.7	20.6	**68900**	**36300**	5.0	8458450
Dissolved Lead (Pb)	ug/L	10	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8458450
Dissolved Lithium (Li)	ug/L	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	8458450
Dissolved Manganese (Mn)	ug/L	-	50	-	**98.2**	**88.6**	**402**	**101**	**7930**	**11600**	1.0	8458450
Dissolved Molybdenum (Mo)	ug/L	-	-	-	8.7	1.4	<1.0	8.7	2.2	1.3	1.0	8458450
Dissolved Nickel (Ni)	ug/L	-	-	-	<1.0	<1.0	1.3	<1.0	2.4	1.7	1.0	8458450
Dissolved Selenium (Se)	ug/L	50	-	-	1.11	0.32	<0.10	1.06	<0.10	<0.10	0.10	8458450
Dissolved Silicon (Si)	ug/L	-	-	-	3940	3080	5700	3790	7960	7240	100	8458450
Dissolved Silver (Ag)	ug/L	-	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	8458450
Dissolved Strontium (Sr)	ug/L	-	-	-	199	1930	440	199	311	386	1.0	8458450
Dissolved Thallium (Tl)	ug/L	-	-	-	<0.050	<0.050	<0.050	<0.050	0.073	0.056	0.050	8458450
Dissolved Tin (Sn)	ug/L	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	8458450
Dissolved Titanium (Ti)	ug/L	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	8458450
Dissolved Uranium (U)	ug/L	20	-	-	3.30	1.76	0.23	3.26	1.36	0.64	0.10	8458450
Dissolved Vanadium (V)	ug/L	-	-	-	<5.0	<5.0	<5.0	<5.0	12.9	<5.0	5.0	8458450
Dissolved Zinc (Zn)	ug/L	-	5000	-	<5.0	<5.0	<5.0	<5.0	27.3	8.3	5.0	8458450

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B697701
Report Date: 2016/11/30

TETRA TECH EBA INC.
Client Project #: 704-ENV.VENV03133-01
Site Location: KITSUMKALUM FIRST NATION IR#1
Sampler Initials: DT

CCME DISSOLVED METALS IN WATER (DRINKING WATER)

Maxxam ID					PX9382	PX9383	PX9384	PX9385	PX9386	PX9387		
Sampling Date					2016/10/30 10:00	2016/10/30 12:00	2016/10/30 11:00	2016/10/30 10:00	2016/10/27 11:00	2016/10/27 12:00		
COC Number					08429192	08429192	08429192	08429192	08429192	08429192		
	UNITS	**MAC**	**AO**	**OG**	**16MW1**	**16MW2**	**16MW3**	**00MW1**	**MW15-102**	**MW15-105**	**RDL**	**QC Batch**
Dissolved Zirconium (Zr)	ug/L	-	-	-	<0.50	<0.50	<0.50	<0.50	1.29	<0.50	0.50	8458450
Dissolved Calcium (Ca)	mg/L	-	-	-	25.4	106	77.7	25.9	51.0	76.6	0.050	8456531
Dissolved Magnesium (Mg)	mg/L	-	-	-	4.06	13.7	10.6	4.35	8.86	8.23	0.050	8456531
Dissolved Potassium (K)	mg/L	-	-	-	3.24	2.56	2.04	3.12	5.39	4.15	0.050	8456531
Dissolved Sodium (Na)	mg/L	-	200	-	68.1	6.39	5.99	66.9	3.67	3.24	0.050	8456531
Dissolved Sulphur (S)	mg/L	-	-	-	7.4	55.0	24.1	7.7	8.8	26.8	3.0	8456531

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

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Maxxam Job #: B697701
Report Date: 2016/11/30

TETRA TECH EBA INC.
Client Project #: 704-ENV.VENV03133-01
Site Location: KITSUMKALUM FIRST NATION IR#1
Sampler Initials: DT

TOT. METALS W/ CV HG FOR DRINKING WATER (DRINKING WATER)

Maxxam ID					PX9381		
Sampling Date					2016/10/26 10:00		
COC Number					08429192		
	UNITS	MAC	AO	OG	16SW101	RDL	QC Batch
Calculated Parameters							
Total Hardness (CaCO3)	mg/L	-	-	-	50.6	0.50	8456529
Elements							
Total Mercury (Hg)	ug/L	1	-	-	<0.010	0.010	8463838
Total Metals by ICPMS							
Total Aluminum (Al)	ug/L	-	-	100	18.7	3.0	8458138
Total Antimony (Sb)	ug/L	6	-	-	<0.50	0.50	8458138
Total Arsenic (As)	ug/L	10	-	-	0.59	0.10	8458138
Total Barium (Ba)	ug/L	1000	-	-	25.3	1.0	8458138
Total Beryllium (Be)	ug/L	-	-	-	<0.10	0.10	8458138
Total Bismuth (Bi)	ug/L	-	-	-	<1.0	1.0	8458138
Total Boron (B)	ug/L	5000	-	-	<50	50	8458138
Total Cadmium (Cd)	ug/L	5	-	-	0.057	0.010	8458138
Total Chromium (Cr)	ug/L	50	-	-	<1.0	1.0	8458138
Total Cobalt (Co)	ug/L	-	-	-	<0.50	0.50	8458138
Total Copper (Cu)	ug/L	-	1000	-	0.24	0.20	8458138
Total Iron (Fe)	ug/L	-	300	-	**655**	5.0	8458138
Total Lead (Pb)	ug/L	10	-	-	<0.20	0.20	8458138
Total Manganese (Mn)	ug/L	-	50	-	**139**	1.0	8458138
Total Molybdenum (Mo)	ug/L	-	-	-	<1.0	1.0	8458138
Total Nickel (Ni)	ug/L	-	-	-	<1.0	1.0	8458138
Total Selenium (Se)	ug/L	50	-	-	<0.10	0.10	8458138
Total Silicon (Si)	ug/L	-	-	-	3780	100	8458138
Total Silver (Ag)	ug/L	-	-	-	<0.020	0.020	8458138
Total Strontium (Sr)	ug/L	-	-	-	94.6	1.0	8458138
Total Thallium (Tl)	ug/L	-	-	-	<0.050	0.050	8458138
Total Tin (Sn)	ug/L	-	-	-	<5.0	5.0	8458138
Total Titanium (Ti)	ug/L	-	-	-	<5.0	5.0	8458138
Total Uranium (U)	ug/L	20	-	-	<0.10	0.10	8458138
Total Vanadium (V)	ug/L	-	-	-	<5.0	5.0	8458138
Total Zinc (Zn)	ug/L	-	5000	-	<5.0	5.0	8458138
Total Zirconium (Zr)	ug/L	-	-	-	<0.50	0.50	8458138

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

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Maxxam Job #: B697701
Report Date: 2016/11/30

TETRA TECH EBA INC.
Client Project #: 704-ENV.VENV03133-01
Site Location: KITSUMKALUM FIRST NATION IR#1
Sampler Initials: DT

TOT. METALS W/ CV HG FOR DRINKING WATER (DRINKING WATER)

Maxxam ID					PX9381		
Sampling Date					2016/10/26 10:00		
COC Number					08429192		
	UNITS	MAC	AO	OG	16SW101	RDL	QC Batch
Total Calcium (Ca)	mg/L	-	-	-	17.2	0.050	8457099
Total Magnesium (Mg)	mg/L	-	-	-	1.85	0.050	8457099
Total Potassium (K)	mg/L	-	-	-	0.939	0.050	8457099
Total Sodium (Na)	mg/L	-	200	-	4.91	0.050	8457099
Total Sulphur (S)	mg/L	-	-	-	<3.0	3.0	8457099

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

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Maxxam Job #: B697701
Report Date: 2016/11/30

TETRA TECH EBA INC.
Client Project #: 704-ENV.VENV03133-01
Site Location: KITSUMKALUM FIRST NATION IR#1
Sampler Initials: DT

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.3°C
Package 2	3.3°C
Package 3	3.7°C

Version 3: Report reissued to include results for grainsize on samples 16TP1-0.5m & 16TP1-1.0m (combined) and 16TP2-0.5m, 16TP2-1.0m, 16TP2-1.5m (combined) as per Drew Taylor on 2016/11/22.

Version 2: Report reissued to include results for BTEX on samples 16TP1-1.3m, 16TP1-2.4m, 16TP3-1.5m as per Drew Taylor on 2016/11/10.

16TP1-1.0M, 00TP1-2.4M, 16TP3-0.5M, 00MW1 received with missing/incorrect labels. Analysis performed as per client's instructions.
IDs logged per clarification received.

Sample PX9425 [16TP1-1.3M] : Samples extracted for Moisture past method-specified hold time

Sample PX9426 [16TP1-2.4M] : Samples extracted for Moisture past method-specified hold time

Sample PX9447 [16TP3-1.5M] : Samples extracted for Moisture past method-specified hold time
MAC,AO,OG: The guidelines that have been included in this report have been taken from the Canadian Drinking Water Quality Summary Table, October 2014.

Criteria A = Maximum Acceptable Concentration (MAC) / Criteria B = Aesthetic Objectives (AO) / Criteria C = Operational Guidance Values (OG)
It is recommended to consult these guidelines when interpreting your data since there are non-numerical guidelines that are not included on this report.

Turbidity Guidelines:
1. Chemically assisted filtration: less than or equal to 0.3 NTU in 95% of the measurements or 95% of the time each month. Shall not exceed 1.0 NTU at any time.
2. Slow sand / diatomaceous earth filtration: less than or equal to 1.0 NTU in 95% of the measurements or 95% of the time each month. Shall not exceed 3.0 NTU at any time.
3. Membrane filtration: less than or equal to 0.1 NTU in 99% of the measurements made or at least 99% of the time each calendar month. Shall not exceed 0.3 NTU at any time.

Results relate only to the items tested.

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Maxxam Job #: B697701
Report Date: 2016/11/30

QUALITY ASSURANCE REPORT

TETRA TECH EBA INC.
Client Project #: 704-ENV.VENV03133-01
Site Location: KITSUMKALUM FIRST NATION IR#1
Sampler Initials: DT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8462728	1,4-Difluorobenzene (sur.)	2016/11/07	101	60 - 140	98	60 - 140	101	%		
8462728	4-Bromofluorobenzene (sur.)	2016/11/07	100	60 - 140	101	60 - 140	102	%		
8462728	D10-ETHYLBENZENE (sur.)	2016/11/07	99	60 - 130	87	60 - 130	95	%		
8462728	D4-1,2-Dichloroethane (sur.)	2016/11/07	98	60 - 140	97	60 - 140	103	%		
8464032	1,4-Difluorobenzene (sur.)	2016/11/08	92	60 - 140	93	60 - 140	92	%		
8464032	4-Bromofluorobenzene (sur.)	2016/11/08	101	60 - 140	101	60 - 140	100	%		
8464032	D10-ETHYLBENZENE (sur.)	2016/11/08	99	60 - 130	91	60 - 130	101	%		
8464032	D4-1,2-Dichloroethane (sur.)	2016/11/08	98	60 - 140	99	60 - 140	107	%		
8474868	1,4-Difluorobenzene (sur.)	2016/11/17	101	60 - 140	102	60 - 140	101	%		
8474868	4-Bromofluorobenzene (sur.)	2016/11/17	101	60 - 140	100	60 - 140	97	%		
8474868	D10-ETHYLBENZENE (sur.)	2016/11/17	93	60 - 130	86	60 - 130	99	%		
8474868	D4-1,2-Dichloroethane (sur.)	2016/11/17	98	60 - 140	97	60 - 140	102	%		
8458138	Total Aluminum (Al)	2016/11/03	NC	80 - 120	107	80 - 120	<3.0	ug/L	4.7	20
8458138	Total Antimony (Sb)	2016/11/03	106	80 - 120	102	80 - 120	<0.50	ug/L	NC	20
8458138	Total Arsenic (As)	2016/11/03	99	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
8458138	Total Barium (Ba)	2016/11/03	103	80 - 120	103	80 - 120	<1.0	ug/L	NC	20
8458138	Total Beryllium (Be)	2016/11/03	102	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
8458138	Total Bismuth (Bi)	2016/11/03	95	80 - 120	97	80 - 120	<1.0	ug/L	NC	20
8458138	Total Boron (B)	2016/11/03	99	80 - 120	100	80 - 120	<50	ug/L	NC	20
8458138	Total Cadmium (Cd)	2016/11/03	100	80 - 120	99	80 - 120	<0.010	ug/L	NC	20
8458138	Total Chromium (Cr)	2016/11/03	99	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
8458138	Total Cobalt (Co)	2016/11/03	95	80 - 120	98	80 - 120	<0.50	ug/L	NC	20
8458138	Total Copper (Cu)	2016/11/03	NC	80 - 120	101	80 - 120	<0.20	ug/L	0.17	20
8458138	Total Iron (Fe)	2016/11/03	105	80 - 120	108	80 - 120	<5.0	ug/L	NC	20
8458138	Total Lead (Pb)	2016/11/03	NC	80 - 120	99	80 - 120	<0.20	ug/L	0.99	20
8458138	Total Manganese (Mn)	2016/11/03	99	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
8458138	Total Molybdenum (Mo)	2016/11/03	105	80 - 120	104	80 - 120	<1.0	ug/L	NC	20
8458138	Total Nickel (Ni)	2016/11/03	98	80 - 120	103	80 - 120	<1.0	ug/L	NC	20
8458138	Total Selenium (Se)	2016/11/03	103	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
8458138	Total Silicon (Si)	2016/11/03					<100	ug/L	1.5	20
8458138	Total Silver (Ag)	2016/11/03	92	80 - 120	89	80 - 120	<0.020	ug/L	NC	20

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Maxxam Job #: B697701
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QUALITY ASSURANCE REPORT(CONT'D)

TETRA TECH EBA INC.
Client Project #: 704-ENV.VENV03133-01
Site Location: KITSUMKALUM FIRST NATION IR#1
Sampler Initials: DT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8458138	Total Strontium (Sr)	2016/11/03	NC	80 - 120	94	80 - 120	<1.0	ug/L	1.8	20
8458138	Total Thallium (Tl)	2016/11/03	87	80 - 120	94	80 - 120	<0.050	ug/L	NC	20
8458138	Total Tin (Sn)	2016/11/03	102	80 - 120	104	80 - 120	<5.0	ug/L	NC	20
8458138	Total Titanium (Ti)	2016/11/03	98	80 - 120	95	80 - 120	<5.0	ug/L	NC	20
8458138	Total Uranium (U)	2016/11/03	103	80 - 120	103	80 - 120	<0.10	ug/L	NC	20
8458138	Total Vanadium (V)	2016/11/03	102	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
8458138	Total Zinc (Zn)	2016/11/03	NC	80 - 120	103	80 - 120	<5.0	ug/L	0.024	20
8458138	Total Zirconium (Zr)	2016/11/03					<0.50	ug/L	NC	20
8458450	Dissolved Aluminum (Al)	2016/11/04	90	80 - 120	103	80 - 120	<3.0	ug/L	5.5	20
8458450	Dissolved Antimony (Sb)	2016/11/04	99	80 - 120	96	80 - 120	<0.50	ug/L	NC	20
8458450	Dissolved Arsenic (As)	2016/11/04	NC	80 - 120	103	80 - 120	<0.10	ug/L	0.12	20
8458450	Dissolved Barium (Ba)	2016/11/04	NC	80 - 120	100	80 - 120	<1.0	ug/L	5.0	20
8458450	Dissolved Beryllium (Be)	2016/11/04	100	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
8458450	Dissolved Bismuth (Bi)	2016/11/04	95	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
8458450	Dissolved Boron (B)	2016/11/04	87	80 - 120	104	80 - 120	<50	ug/L	NC	20
8458450	Dissolved Cadmium (Cd)	2016/11/04	97	80 - 120	98	80 - 120	<0.010	ug/L	0.38	20
8458450	Dissolved Chromium (Cr)	2016/11/04	100	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
8458450	Dissolved Cobalt (Co)	2016/11/04	NC	80 - 120	101	80 - 120	<0.50	ug/L	0.50	20
8458450	Dissolved Copper (Cu)	2016/11/04	96	80 - 120	99	80 - 120	<0.20	ug/L	NC	20
8458450	Dissolved Iron (Fe)	2016/11/04	NC	80 - 120	107	80 - 120	<5.0	ug/L	2.2	20
8458450	Dissolved Lead (Pb)	2016/11/04	96	80 - 120	100	80 - 120	<0.20	ug/L	NC	20
8458450	Dissolved Lithium (Li)	2016/11/04	99	80 - 120	104	80 - 120	<5.0	ug/L	NC	20
8458450	Dissolved Manganese (Mn)	2016/11/04	NC	80 - 120	102	80 - 120	<1.0	ug/L	1.2	20
8458450	Dissolved Molybdenum (Mo)	2016/11/04	NC	80 - 120	97	80 - 120	<1.0	ug/L	NC	20
8458450	Dissolved Nickel (Ni)	2016/11/04	98	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
8458450	Dissolved Selenium (Se)	2016/11/04	100	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
8458450	Dissolved Silicon (Si)	2016/11/04					<100	ug/L	2.3	20
8458450	Dissolved Silver (Ag)	2016/11/04	100	80 - 120	101	80 - 120	<0.020	ug/L	NC	20
8458450	Dissolved Strontium (Sr)	2016/11/04	NC	80 - 120	98	80 - 120	<1.0	ug/L	0.49	20
8458450	Dissolved Thallium (Tl)	2016/11/04	101	80 - 120	100	80 - 120	<0.050	ug/L	NC	20
8458450	Dissolved Tin (Sn)	2016/11/04	105	80 - 120	105	80 - 120	<5.0	ug/L	NC	20

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QUALITY ASSURANCE REPORT(CONT'D)

TETRA TECH EBA INC.
Client Project #: 704-ENV.VENV03133-01
Site Location: KITSUMKALUM FIRST NATION IR#1
Sampler Initials: DT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8458450	Dissolved Titanium (Ti)	2016/11/04	97	80 - 120	104	80 - 120	<5.0	ug/L	NC	20
8458450	Dissolved Uranium (U)	2016/11/04	96	80 - 120	94	80 - 120	<0.10	ug/L	0.31	20
8458450	Dissolved Vanadium (V)	2016/11/04	107	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
8458450	Dissolved Zinc (Zn)	2016/11/04	NC	80 - 120	103	80 - 120	<5.0	ug/L	NC	20
8458450	Dissolved Zirconium (Zr)	2016/11/04					<0.50	ug/L	NC	20
8459624	Moisture	2016/11/05					<0.30	%	18	20
8462728	Benzene	2016/11/07	94	60 - 140	92	60 - 140	<0.0050	mg/kg	NC	40
8462728	Ethylbenzene	2016/11/07	96	60 - 140	97	60 - 140	<0.010	mg/kg	NC	40
8462728	m & p-Xylene	2016/11/07	94	60 - 140	94	60 - 140	<0.040	mg/kg	NC	40
8462728	Methyl-tert-butylether (MTBE)	2016/11/07					<0.10	mg/kg	NC	40
8462728	o-Xylene	2016/11/07	95	60 - 140	94	60 - 140	<0.040	mg/kg	NC	40
8462728	Styrene	2016/11/07					<0.030	mg/kg	NC	40
8462728	Toluene	2016/11/07	92	60 - 140	92	60 - 140	<0.020	mg/kg	NC	40
8462728	VH C6-C10	2016/11/07			95	60 - 140	<10	mg/kg	NC	40
8462728	Xylenes (Total)	2016/11/07					<0.040	mg/kg	NC	40
8463461	Tannins and Lignins	2016/11/08	NC	80 - 120	98	80 - 120	<0.10	mg/L	6.0	20
8463838	Total Mercury (Hg)	2016/11/08	97	80 - 120	96	80 - 120	<0.010	ug/L	NC	20
8463857	Dissolved Mercury (Hg)	2016/11/08	94	80 - 120	98	80 - 120	<0.010	ug/L	NC	20
8464032	Benzene	2016/11/08	96	60 - 140	97	60 - 140	<0.0050	mg/kg	NC	40
8464032	Ethylbenzene	2016/11/08	98	60 - 140	97	60 - 140	<0.010	mg/kg	NC	40
8464032	m & p-Xylene	2016/11/08	95	60 - 140	94	60 - 140	<0.040	mg/kg	NC	40
8464032	Methyl-tert-butylether (MTBE)	2016/11/08					<0.10	mg/kg	NC	40
8464032	o-Xylene	2016/11/08	96	60 - 140	95	60 - 140	<0.040	mg/kg	NC	40
8464032	Styrene	2016/11/08					<0.030	mg/kg	NC	40
8464032	Toluene	2016/11/08	94	60 - 140	93	60 - 140	<0.020	mg/kg	NC	40
8464032	VH C6-C10	2016/11/08			83	60 - 140	<10	mg/kg	NC	40
8464032	Xylenes (Total)	2016/11/08					<0.040	mg/kg	NC	40
8467902	Moisture	2016/11/14					<0.30	%	4.5	20
8474868	Benzene	2016/11/17	94	60 - 140	90	60 - 140	<0.0050	mg/kg	NC	40
8474868	Ethylbenzene	2016/11/17	106	60 - 140	100	60 - 140	<0.010	mg/kg	5.4	40
8474868	m & p-Xylene	2016/11/17	103	60 - 140	97	60 - 140	<0.040	mg/kg	NC	40

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Maxxam Job #: B697701
Report Date: 2016/11/30

QUALITY ASSURANCE REPORT(CONT'D)

TETRA TECH EBA INC.
Client Project #: 704-ENV.VENV03133-01
Site Location: KITSUMKALUM FIRST NATION IR#1
Sampler Initials: DT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8474868	Methyl-tert-butylether (MTBE)	2016/11/17					<0.10	mg/kg		
8474868	o-Xylene	2016/11/17	100	60 - 140	94	60 - 140	<0.040	mg/kg	NC	40
8474868	Styrene	2016/11/17					<0.030	mg/kg	NC	40
8474868	Toluene	2016/11/17	96	60 - 140	92	60 - 140	<0.020	mg/kg	NC	40
8474868	VH C6-C10	2016/11/17			79	60 - 140	<10	mg/kg	NC	40
8474868	Xylenes (Total)	2016/11/17					<0.040	mg/kg	NC	40
8487515	200 mesh (<.075 mm)	2016/11/29							2.3	35
8487515	200 mesh (>.075 mm)	2016/11/29							2.2	35

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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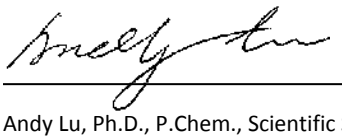
Maxxam Job #: B697701
Report Date: 2016/11/30

TETRA TECH EBA INC.
Client Project #: 704-ENV.VENV03133-01
Site Location: KITSUMKALUM FIRST NATION IR#1
Sampler Initials: DT

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Ph.D., P.Chem., Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566 C

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: Tetra Tech EBA Inc.	Company Name: Tetra Tech	Quotation #:	☑ Regular TAT 5 days (Most analyses)
Contact Name: Drew Taylor	Contact Name: Lora Paul Don Williams	P.O. #/ AFE#: 704-ENV.VENV03133-01	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 885 Dunsmuir Street Vancouver BC	Address:	Project #: 704-ENV.VENV03133-01	Rush TAT (Surcharges will be applied)
PC:	PC	Site Location: Stsumkalum First Nation IR#1	☐ Same Day ☐ 2 Days
Phone: 236.988.1535	Phone:	Site #:	☐ 1 Day ☐ 3 Days
Email: drew.taylor@tetratech.com	Email: Lora.Paul@tetratech.com d.williams@tetratech.com	Sampled By: Drew Taylor	Date Required:

Regulatory Criteria	Special Instructions
☐ BC CSR Soil ☐ BC CSR Water	☐ Return Coolers
☑ CCME (Specify) ☐ Other (Specify)	☐ Ship Sample Bottles (Please Specify)
Commercial/Residential/Industrial	
☑ Drinking Water ☐ BC Water Quality	

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Rush Confirmation #:

LABORATORY USE ONLY

CUSTODY SEAL Y / N

COOLER TEMPERATURES

COOLING MEDIA PRESENT Y / N

	Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	BTEX/VPH	EPH	PAH	CCME PHC	Dissolved Metals	Dissolved Mercury	Total Metals	Total Mercury	Chloride	TSS	pH	Nitrate	Lignins + Tannins	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	16SW101		2016/Oct/26 + 30	10:00/12:30	Water							X						X	4		Resampled Lignans + Tannins
2	16MW1		2016/Oct/30	10:00	Water					X									4		
3	16MW2		2016/Oct/30	12:00	Water					X									4		
4	16MW3		2016/Oct/30	11:00	Water					X									4		
5	00MW1		2016/Oct/30	10:00	Water					X									4		
6	MW15-102		2016/Oct/27	11:00	Water					X								X	4		Lignans + Tannins Holding Time Near
7	MW15-105		2016/Oct/27	12:00	Water					X								X	4		Lignans + Tannins Holding Time Near
8	16MW1-0.8m		2016/Oct/27	12:30	Soil														1	X	
9	16MW1-1.5m		2016/Oct/27	12:30	Soil														1	X	
10	16MW1-2.9m		2016/Oct/27	12:30	Soil														1	X	

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
Drew Taylor	2016/Oct/31	11:00	[illegible]	2016/11/02	08:40

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Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

Invoice Information	Report Information (if differs from invoice)	Project Information	Turnaround Time (TAT) Required
Company Name: Tetra Tech EBA Inc.	Company Name: Tetra Tech	Quotation #:	☑ Regular TAT 5 days (Most analyses)
Contact Name: Drew Taylor	Contact Name: Lora Paul Don Williams	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 885 Dunsmuir Street Vancouver BC PC:	Address: PC:	Project #:	Rush TAT (Surcharges will be applied)
Phone: 236.988.1535	Phone:	Site Location:	☐ Same Day ☐ 2 Days
Email: drew.taylor@tetratech.com	Email: Lora.Paul@tetratech.com d.williams@tetratech.com	Site #:	☐ 1 Day ☐ 3 Days
		Sampled By:	Date Required:
			Rush Confirmation #:

Regulatory Criteria	Special Instructions
BC CSR Soil BC CSR Water	Return Cooler
CCME (Specify) Other (Specify)	Ship Sample Bottles (Please Specify)
Commercial/Residential/Industrial	
Drinking Water BC Water Quality	

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Analysis Requested

	Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	BTEX/VPH	EPH	PAH	CCME-F1-F4	BTEX/F1	Dissolved Metals Filtered?	Dissolved Mercury Filtered?	Total Metals Field Preserved?	Total Mercury Field Preserved?	Chloride	TSS	pH	Nitrite	Organics + Cations	Metals	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	16MW1-4.5		2016/Oct/27	13:00	Soil																1	X	
2	16MW3-0.5m		2016/Oct/27	14:20	Soil																1	X	
3	16MW3-2.1m		2016/Oct/27	14:30:00 PM	Soil																1	X	
4	16MW3-4.5m		2016/Oct/27	14:45:00 PM	Soil																1	X	
5	16MW3-5.9m		2016/Oct/27	15:00 PM	Soil																1	X	
6	16MW2-0.8m		2016/Oct/28	9:00	Soil																1	X	
7	16MW2-2.0m		2016/Oct/28	9:10	Soil																1	X	
8	16MW2-3.0m		2016/Oct/28	9:30	Soil																1	X	
9	16MW2-4.5m		2016/Oct/28	9:40	Soil																1	X	
10	16TP1-0.5m		2016/Oct/28	13:45	Soil	X															2		

LABORATORY USE ONLY

CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	2016/11/02
NA		3.3 3.3 3.4
NA		2.3 5
NA		4.3 4

COOLING MEDIA PRESENT Y / N

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
Drew Taylor	2016/Oct/31	11:00	Laurel Berthier	2016/11/02	08:40

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Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: Tetra Tech EBA Inc.	Company Name: Tetra Tech	Quotation #:	☑ Regular TAT 5 days (Most analyses)
Contact Name: Drew Taylor	Contact Name: Lora Paul Don Williams	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 885 Dunsmuir Street Vancouver BC	Address:	Project #:	Rush TAT (Surcharges will be applied)
PC:	PC:	Site Location:	☐ Same Day ☐ 2 Days
Phone: 236.988.1535	Phone:	Site #:	☐ 1 Day ☐ 3 Days
Email: drew.taylor@tetratech.com	Email: Lora.Paul@tetratech.com d.williams@tetratech.com	Sampled By:	Date Required:

Regulatory Criteria	Special Instructions	Rush Confirmation #:
BC CSR Soil BC CSR Water CCME (Specify) Other (Specify) Commercial/Residential/Industrial Drinking Water BC Water Quality	Return Cooler Ship Sample Bottles (Please Specify)	

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	BTEX/VPH	MTBE	VOC/VPH	TEH	LEPH/HEPH	F2 - F4	BTEX/ F1	CCME PHC	Dissolved Metals	Filtered?	Preserved?	Dissolved Mercury	Filtered?	Field Preserved?	Total Metals	Total Mercury	Field Preserved?	Chloride	Fluoride	TSS	COD	BOD	pH	Alkalinity	Conductivity	Nitrate	Ammonia	Nitrite	Lignins + Tannins	Metals	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1	16TP1-1.0m		2016/Oct/28	14:00:00 PM	Soil																														2	X
2	16TP1-1.3m		2016/Oct/28	14:00:00 PM	Soil																														2	X
3	16TP1-2.4m		2016/Oct/28	14:00:00 PM	Soil																														2	X
4	00TP1-0.5m		2016/Oct/28	14:00:00 PM	Soil																														2	X
5	00TP1-2.4m		2016/Oct/28	14:00:00 PM	Soil																														2	X
6	16TP2-0.5m		2016/Oct/28	12:30	Soil	X																													2	
7	16TP2-1.0m		2016/Oct/28	12:30	Soil																														2	X
8	16TP2-1.5m		2016/Oct/28	12:30	Soil																														2	X
9	16TP2-2.5m		2016/Oct/28	13:00:00 PM	Soil	X																													2	
10	16TP3-0.5m		2016/Oct/28	14:00 PM	Soil	X																													2	

LABORATORY USE ONLY

CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	
NA		3,3,4
NA		2,3,5
NA		4,3,4

COOLING MEDIA PRESENT Y / N

COMMENTS

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
Drew Taylor	2016/Oct/31	11:00	[signature]	2016/11/02	08:40

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Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

Invoice Information	Report Information (if differs from invoice)	Project Information (w... applicable)	Turnaround Time (TAT) Required
Company Name: Tetra Tech EBA Inc.	Company Name: Tetra Tech	Quotation #:	☑ Regular TAT 5 days (Most analyses)
Contact Name: Drew Taylor	Contact Name: Lora Paul Don Williams	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 885 Dunsmuir Street Vancouver BC	Address:	Project #:	Rush TAT (Surcharges will be applied)
PC:	PC:	Site Location:	☐ Same Day ☐ 2 Days
Phone: 236.988.1535	Phone:	Site #:	☐ 1 Day ☐ 3 Days
Email: drew.taylor@tetratech.com	Email: Lora.Paul@tetratech.com d.williams@tetratech.com	Sampled By:	Date Required:

Regulatory Criteria	Special Instructions
BC CSR Soil / BC CSR Water	Return Cooler
CCME (Specify) / Other (Specify)	Ship Sample Bottles (Please Specify)
Commercial/Residential/Industrial	
Drinking Water / BC Water Quality	

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Analysis Requested

Rush Confirmation #:

LABORATORY USE ONLY

CUSTODY SEAL Y / N — Present / Intact

COOLER TEMPERATURES

COOLING MEDIA PRESENT Y / N

COMMENTS

	Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	Present	Intact	Cooler Temperatures
1	16TP3-1.0m		2016/Oct/28	14:00:00 PM	Soil	2	X	NA		3.34
2	16TP3-1.5m		2016/Oct/28	14:00:00 PM	Soil	2	X	NA		2.35
3	16TP3-2.4m		2016/Oct/28	14:00:00 PM	Soil	2	X	NA		4.34
4	16TP7-0.8m		2016/Oct/29	8:45	Soil	1	X			
5	16TP7-2.8m		2016/Oct/29	8:45	Soil	1	X			
6	16TP7-3.5m		2016/Oct/29	8:45	Soil	1	X			
7	16TP4-1.0m		2016/Oct/29	9:30	Soil	1	X			
8	16TP4-2.7m		2016/Oct/29	9:30	Soil	1	X			
9	16TP4-3.5m		2016/Oct/29	9:30	Soil	1	X			
10	16TP5-0.5m		2016/Oct/29	10:30	Soil	2	X			

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
Drew Taylor	2016/Oct/31	11:00	[signature] Laurel Berthier	2016/11/02	08:40

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Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

Invoice Information	Report Information (if differs from invoice)	Project Information	Turnaround Time (TAT) Required
Company Name: Tetra Tech EBA Inc.	Company Name: Tetra Tech	Quotation #:	☑ Regular TAT 5 days (Most analyses)
Contact Name: Drew Taylor	Contact Name: Lora Paul Don Williams	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 885 Dunsmuir Street Vancouver BC	Address:	Project #:	Rush TAT (Surcharges will be applied)
PC:	PC:	Site Location:	☐ Same Day 2 Days
Phone: 236.988.1535	Phone:	Site #:	☐ 1 Day 3 Days
Email: drew.taylor@tetratech.com	Email: Lora.Paul@tetratech.com d.williams@tetratech.com	Sampled By:	Date Required:

Regulatory Criteria	Special Instructions
BC CSR Soil BC CSR Water	Return Cooler
CCME (Specify) Other (Specify)	Ship Sample Bottles (Please Specify)
Commercial/Residential/Industrial	
Drinking Water BC Water Quality	

Rush Confirmation #:

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Analysis Requested

	Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	BTEX/VPH	EPH	PAH	CCME FHC	Dissolved Metals	Dissolved Mercury	Total Metals	Total Mercury	Chloride	TSS	pH	Nitrite	Lignins + Tannins	Metals	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	16TP5-1.2m		2016/Oct/28	10:30	Soil															1	X	
2	16TP5-1.8m		2016/Oct/28	10:30	Soil															1	X	
3	16TP6-0.8m		2016/Oct/28	11:30	Soil															1	X	
4	16TP6-2.4m		2016/Oct/29	11:30	Soil															1	X	
5	16TP6-3.4m		2016/Oct/29	11:30	Soil															1	X	
6	00TP5-0.5m		2016/Oct/29	10:30	Soil															2	X	
7	16TP8-0.8m		2016/Oct/29	15:30	Soil															1	X	
8	16TP8-1.5m		2016/Oct/29	15:30	Soil															1	X	
9	16TP8-3.0m		2016/Oct/29	15:30	Soil															1	X	
10	16TP9-0.5m		2016/Oct/29	13:00	Soil															1		

LABORATORY USE ONLY

CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	
NA		3,3,4
NA		2,3,5
NA		4,5,4

COOLING MEDIA PRESENT: Y / N

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
Drew Taylor	2016/Oct/31	11:00	Laurel Bethier	2016/11/02	08:40

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Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required
Company Name:	Tetra Tech EBA Inc.	Company Name:	Tetra Tech	Quotation #:		☑ Regular TAT 5 days (Most analyses)
Contact Name:	Drew Taylor	Contact Name:	Lora Paul Don Williams	P.O. #/ AFE#:	704-ENV.VENV03133-01	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	885 Dunsmuir Street Vancouver BC	Address:		Project #:	704-ENV.VENV03133-01	Rush TAT (Surcharges will be applied)
	PC:		PC:	Site Location:	Kitsumkalum First Nation IR#1	☐ Same Day ☐ 2 Days
Phone:	236.988.1535	Phone:		Site #:		☐ 1 Day ☐ 3 Days
Email:	drew.taylor@tetratech.com	Email:	Lora.Paul@tetratech.com d.williams@tetratech.com	Sampled By:	Drew Taylor	Date Required:

Regulatory Criteria	Special Instructions
BC CSR Soil / BC CSR Water	Return Cooler
CCME (Specify) / Other (Specify)	Ship Sample Bottles (Please Specify)
Commercial/Residential/Industrial	
Drinking Water / BC Water Quality	

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	BTEX/VPH	EPH	BAH	CCME-PHC	Dissolved Metals	Dissolved Mercury	Total Metals	Total Mercury	Chloride	TSS	pH	Nitrite	Lignins + Tannins	Metals	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1	16TP9-1.2m		2016/Oct/28	13:00	Soil															1	X
2	16TP9-2.0m		2016/Oct/28	13:00	Soil															1	X
3	16TP10-0.8m		2016/Oct/28	11:30	Soil															1	X
4	00TP10-0.8m		2016/Oct/29	11:30	Soil															1	X
5	16TP10-2.5m		2016/Oct/29	11:30	Soil															1	X
6	16TP10-3.9m		2016/Oct/29	11:30	Soil															1	X
7	16TP11-0.8m		2016/Oct/29	13:45	Soil															1	X
8	16TP11-2.5m		2016/Oct/29	13:45	Soil															1	X
9	16TP11-3.0m		2016/Oct/29	13:45	Soil															1	X
10	16TP11-0.8m		2016/Oct/29	13:45	Soil															1	X

Analysis Requested: VOC/VPH, TEH, LEPH/HEPH, F2 - F4, BTEX/ F1, Filtered?, Preserved?, Filtered?, Preserved?, Field Preserved?, Field Preserved?, Sulphate, COD, Alkalinity, Ammonia, BOD, Conductivity, Nitrate, TDS

LABORATORY USE ONLY

CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	
NA		3.4
NA		2.5
NA		3.4

COOLING MEDIA PRESENT Y / N

COMMENTS

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
Drew Taylor	2016/Oct/31	11:00	Laurel Berthier	2016/11/02	08:40

B697701_COC

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Page 1 of 5

B697701_COC

C#508768-01-01

INVOICE TO:		Report Information		Project Information	
Company Name	#1433 TETRA TECH EBA INC.	Company Name		Quotation #	B60578
Contact Name	Lora Paul	Contact Name	Lora Paul	P.O. #	
Address	#1 - 4376 BOBAN DRIVE NANAIMO BC V9T 6A7	Address		Project #	704-ENV.VENV03133-01
Phone	(250) 756-2256 Fax: (250) 756-2686	Phone	Fax:	Project Name	
Email	lora.paul@tetratech.com	Email	lora.paul@tetratech.com	Site #	
				Sampled By	

Lab Use Only
Bottle Order #: 508768
Project Manager: Letitia Prefontaine

Regulatory Criteria:
- [X] CSR
- [ ] CCME
- [ ] BC Water Quality
- [ ] Other

Special Instructions

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [X]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
1 DAY [ ] 2 Day [ ] 3 Day [ ] Date Required: [ ]
Rush Confirmation Number: (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	CSR Dissolved Metals in Water with CV Hg	Tannin & Lignin (Total)	pH	Total Metals	Metals	# of Bottles	Comments
1		16SW101	26/10/16	12:00/12:30	Water			X	X	X		#5	received lignans+Tannins on Oct 31 2016
2		16MW1	30/10/16	10:00	"		X	X	X			4	
3		16MW2	30/10/16	12:00	"		X	X	X			4	
4		16MW3	30/10/16	11:00	"		X	X	X			4	
5		00MW1	30/10/16	10:00	"		X	X	X			4	
6		MW15-102	27/10/16	11:00	"		X	X	X			4	Lignans+Tannins nearing holding
7		MW15-105	27/10/16	12:00	"		X	X	X			4	" nearing hold time
8		16MW1-0.8m	27/10/16	12:30	Soil							1	
9		16MW1-1.5m	"	"	"							1	
10		16MW1-2.9m	"	"	"							1	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Drew Turner	16/10/31	11:00					[ ]		[ ] Yes [ ] No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

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B697701_COC

Bottle Order #: 508768

C#508768-02-01

Project Manager: Letitia Prefontaine

INVOICE TO:		Report Information		Project Information	
Company Name	#1433 TETRA TECH EBA INC.	Company Name		Quotation #	B60578
Contact Name	Lora Paul	Contact Name	Lora Paul	P.O. #	
Address	#1 - 4376 BOBAN DRIVE NANAIMO BC V9T 6A7	Address		Project #	704-ENV.VENV03133-01
Phone	(250) 756-2256 Fax: (250) 756-2686	Phone	Fax:	Project Name	
Email	lora.paul@tetratech.com	Email	lora.paul@tetratech.com	Site #	
				Sampled By	

Regulatory Criteria:
- [X] CSR
- [ ] CCME
- [ ] BC Water Quality
- [ ] Other

Special Instructions

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT:

(will be applied if Rush TAT is not specified):

Standard TAT = 5-7 Working days for most tests..

Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)

1 DAY [ ] 2 Day [ ] 3 Day [ ] Date Required: _____ [ ]

Rush Confirmation Number: _____ (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	CSR Dissolved Metals in Water with CV Hg	Tannin & Lignin (Total)	pH	BTEX	# of Bottles	Comments
1		16MW1-1.5m	27-Jul-16	1:00 pm	Soil						1	
2		16MW3-0.5m	"	2:20	"						1	
3		16MW3-2.1m	"	2:30	"						1	
4		16MW3-4.5m	"	2:45	"						1	
5		16MW3-5.9m	"	3:00	"						1	
6		16MW2-0.2m	28-Jul-16	9:00 am	"						1	
7		16MW2-2.0m	"	9:10	"						1	
8		16MW2-3.0m	"	9:30	"						1	
9		16MW2-4.5m	"	9:40	"						1	
10		16TP1-0.5m	"	1:45 pm	"						2	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
							[ ]		[ ] Yes [ ] No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

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INVOICE TO:		Report Information		Project Information		Bottle Order #:
Company Name	#1433 TETRA TECH EBA INC.	Company Name		Quotation #	B60578	508768
Contact Name	Lora Paul	Contact Name	Lora Paul	P.O. #		Project Manager
Address	#1 - 4376 BOBAN DRIVE NANAIMO BC V9T 6A7	Address		Project #	704-ENV.VENV03133-01	Letitia Prefontaine
Phone	(250) 756-2256 Fax: (250) 756-2686	Phone	Fax:	Project Name		
Email	lora.paul@tetratech.com	Email	lora.paul@tetratech.com	Site #		
				Sampled By		C#508768-03-01

Regulatory Criteria:
- [X] CSR
- [ ] CCME
- [ ] BC Water Quality
- [ ] Other

Special Instructions

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	CSR Dissolved Metals in Water with CV Hg	Tannin & Lignin (Total)	pH	# of Bottles	Comments
1		16TP1-1.0m	24/3/14	2:00	Soil					2	
2		16TP1-1.5m	"	"	"					2	
3		16TP1-2.4m	"	"	"					2	
4		20TP1-0.5m	"	"	"					2	
5		20TP1-2.4m	"	"	"					2	
6		16TP2-0.5m	"	12:30	"					2	
7		16TP2-1.0m	"	12:30	"					2	
8		16TP2-1.5m	"	12:30	"					2	
9		16TP2-2.5m	"	1:00pm	"					2	
10		16TP3-0.5m	"	2:00pm	"						

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT:

(will be applied if Rush TAT is not specified): [X]

Standard TAT = 5-7 Working days for most tests.

Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)

1 DAY [ ] 2 Day [ ] 3 Day [ ] Date Required: _____ [ ]

Rush Confirmation Number: _____ *(call lab for #)*

* * RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
DAVID T	14/3/20	17:00				

Lab Use Only

Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
[ ]		[ ] Yes [ ] No

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B697701_COC

Bottle Order #: 508768

C#508768-04-01

INVOICE TO:		Report Information		Project Information	
Company Name	#1433 TETRA TECH EBA INC.	Company Name		Quotation #	B60578
Contact Name	Lora Paul	Contact Name	Lora Paul	P.O. #	
Address	#1 - 4376 BOBAN DRIVE NANAIMO BC V9T 6A7	Address		Project #	704-ENV.VENV03133-01
Phone	(250) 756-2256 Fax: (250) 756-2686	Phone	Fax:	Project Name	
Email	lora.paul@tetratech.com	Email	lora.paul@tetratech.com	Site #	
				Sampled By	

Project Manager: Letitia Prefontaine

Regulatory Criteria:
- [X] CSR
- [ ] CCME
- [ ] BC Water Quality
- [ ] Other

Special Instructions

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
1 DAY [ ] 2 Day [ ] 3 Day [ ] Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	CSR Dissolved Metals in Water with CV Hg	Tannin & Lignin (Total)	pH	# of Bottles	Comments
1		16TP3-1.0m	28/Oct/16	2:30pm	Soil					2	
2		16TP3-1.5m	"	2:00pm	"					2	
3		16TP3-2.4m	"	2:15pm	"					2	
4		OOTP3-1.5m	"	2:00pm	"					2	
5		OOTP3-2.4m	"	2:20pm	"					2	
6		16TP7-(0.2m, 2.8m, 3.9m)	27/Oct/16	9:35am	"					1 each	(will update COC w/ all Samples)
7		16TP4-(1.0m, 2.7m, 3.5m)	"	10:15am	"					"	
8		16TP5-(0.5m, 1.8m)	"	10:45am	"					2 each	
9		16TP5-1.2m	"	10:45am	"					1	
10		OOTP5-0.5m	"	10:45am	"					2	

* * RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Drew Taylor	31/Oct/16	11:00					[ ]		[ ] Yes [ ] No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

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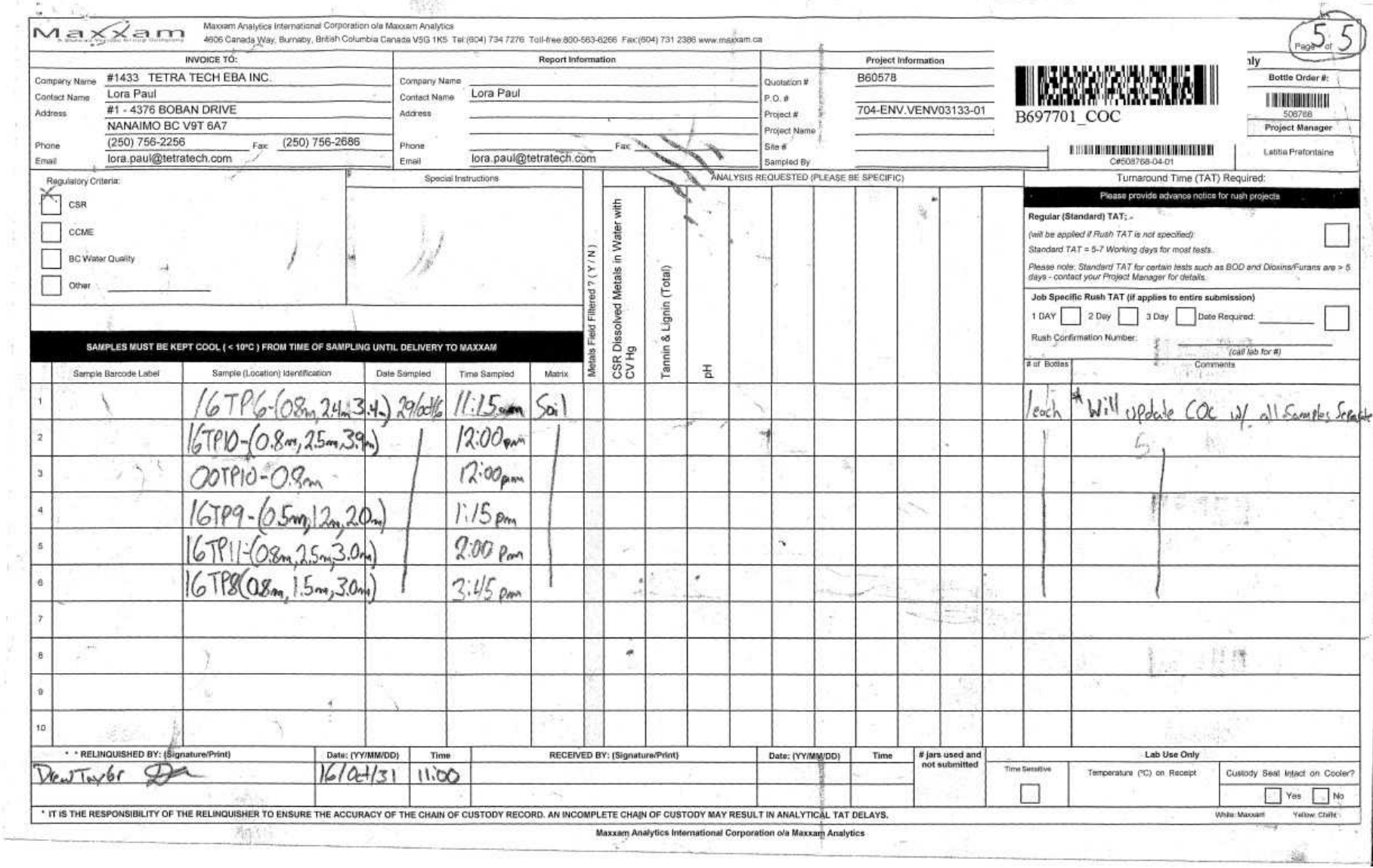

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B697701_COC

INVOICE TO:
Company Name: #1433 TETRA TECH EBA INC.
Contact Name: Lora Paul
Address: #1 - 4376 BOBAN DRIVE, NANAIMO BC V9T 6A7
Phone: (250) 756-2256 Fax: (250) 756-2686
Email: lora.paul@tetratech.com

Report Information
Company Name:
Contact Name: Lora Paul
Address:
Phone: Fax:
Email: lora.paul@tetratech.com

Project Information
Quotation #: B60578
P.O. #:
Project #: 704-ENV.VENV03133-01
Project Name:
Site #:
Sampled By:

C#508768-04-01

Bottle Order #: 508768
Project Manager: Latitia Prefontaine

Regulatory Criteria:
- [X] CSR
- [ ] CCME
- [ ] BC Water Quality
- [ ] Other

Special Instructions

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ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

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Job Specific Rush TAT (if applies to entire submission)
1 DAY [ ] 2 Day [ ] 3 Day [ ] Date Required: [ ]
Rush Confirmation Number: (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	CSR Dissolved Metals in Water with CV Hg	Tannin & Lignin (Total)	pH	# of Bottles	Comments
1		16TP6-(0.8m, 2.4m, 3.4m)	29/Oct/16	11:15 am	Soil					1 each	* Will update COC w/ all Samples Separate
2		16TP10-(0.8m, 2.5m, 3.9m)		12:00 pm							
3		OOTP10-0.9m		12:00 pm							
4		16TP9-(0.5m, 1.2m, 2.0m)		1:15 pm							
5		16TP11-(0.8m, 2.5m, 3.0m)		2:00 pm							
6		16TP8(0.8m, 1.5m, 3.0m)		3:45 pm							
7											
8											
9											
10											

* * RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Drew Taylor	16/Oct/31	11:00				

Lab Use Only
Time Sensitive: [ ]
Temperature (°C) on Receipt:
Custody Seal Intact on Cooler? [ ] Yes [ ] No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

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APPENDIX D

NATIONAL CLASSIFICATION SYSTEM FOR CONTAMINATED SITES SCORES

CCME National Classification System for Contaminated Sites (2008, 2010 v 1.2)
Pre-Screening Checklist

Question	Response (yes / no)	Comment
1. Are **Radioactive material**, **Bacterial contamination** or **Biological hazards** likely to be present at the site?	No	If yes, do not proceed through the NCSCS. Contact applicable regulatory agency immediately.
2. Are there **no contamination exceedances** (known or suspected)? Determination of exceedances may be based on: 1) CCME environmental quality guidelines; 2) equivalent provincial guidelines/standards if no CCME guideline exists for a specific chemical in a relevant medium; or 3) toxicity benchmarks derived from the literature for chemicals not covered by CCME or provincial guidelines/standards.	No	If yes (i.e., there are no exceedances), do not proceed through the NCSCS.
3. Have **partial/incompleted or no environmental site investigations** been conducted for the Site?	No	If yes, do not proceed through the NCSCS.
4. Is there direct and signficant evidence of **impacts to humans** at the site, or off-site due to migration of contaminants from the site?	No	If yes, automatically rate the site as Class 1, a priority for remediation or risk management, regardless of the total score obtained should one be calculated (e.g., for comparison with other Class 1 sites).
5. Is there direct and significant evidence of **impacts to ecological receptors** at the site, or off-site due to migration of contaminants from the site?	No	Some low levels of impact to ecological receptors are considered acceptable, particularly on commercial and industrial land uses. However, if ecological effects are considered to be severe, the site may be categorized as Class 1, regardless of the numerical total NCSCS score. For the purpose of application of the NCSCS, effects that would be considered severe include observed effects on survival, growth or reproduction which could threaten the viability of a population of ecological receptors at the site. Other evidence that qualifies as severe adverse effects may be determined based on professional judgement and in consultation with the relevant jurisdiction.
6. Are there indicators of significant **adverse effects in the exposure zone** (i.e., the zone in which receptors may come into contact with contaminants)? Some examples are as follows: -Hydrocarbon sheen or NAPL in the exposure zone -Severely stressed biota or devoid of biota; -Presence of material at ground surface or sediment with suspected high concentration of contaminants such as ore tailings, sandblasting grit, slag, and coal tar.	No	If yes, automatically rate the site as Class 1, a priority for remediation or risk management, regardless of the total score obtained should one be calculated (e.g., for comparison with other Class 1 sites).
7. Do measured concentrations of volatiles or unexploded ordnances represent an **explosion hazard**?	No	If yes, automatically rate the site as Class 1, a priority for remediation or risk management, and do not continue until the safety risks have been addressed. Consult your jurisdiction's occupational health and safety guidance or legislation on exposive hazards and measurement of lower explosive limits.

If none of the above applies, proceed with the NCSCS scoring.

CCME National Classification System for Contaminated Sites (2008, 2010 v 1.2)
Summary of Site Conditions

Subject Site:	**Test Site**	
Civic Address: *(or other description of location)*	Kitsumkalum IR No. 1	
Site Common Name : *(if applicable)*	Kalum Forest Products Mill Site (APEC 7)	
Site Owner or Custodian: *(Organization and Contact Person)*	Kitsumkalum First Nations M r. Tim Powers of AANDC	
Legal description *or* metes and bounds:	Kitsumkalum IR No. 1 - Regional District of Kitimat - Stikine	
Approximate Site area:	57600 square meters (offsite area)	
PID(s) : *(or Parcel Identification Numbers [PIN] if untitled Crown land)*	15232110	
Centre of site: *(provide latitude/longitude or UTM coordinates)*	Latitude: Longitude:	__54____ degrees ___32___ min __15.96____ secs ___128___ degrees ___39___ min ___30.44___ secs
	UTM Coordinate:	Northing _____ Easting _____
Site Land Use:	Current:	Industrial
	Proposed:	Industrial
Site Plan	**To delineate the bounds of the Site a site plan MUST be attached. The plan must be drawn to scale indicating the boundaries in relation to well-defined reference points and/or legal descriptions. Delineation of the contamination should also be indicated on the site plan.**	
Provide a brief description of the Site:	Offsite migration to reserve land from Kalum Forest Products Mill Site, APEC 8 on Tetra Tech EBA's Phase II ESA Report (January 2016)	

CCME National Classification System for Contaminated Sites (2008, 2010 v 1.2)
Summary of Site Conditions

Affected media and Contaminants of Potential Concern (COPC):	Soil - □ Toluene marginally exceeds CCME industrial land use standards. □ The MDL for 2-methylnaphthalene is greater than the CCME ISQG guideline. Further testing would be required to confirm that 2-methylnaphthalene meets the CCME guidelines. Groundwater - □ Aluminum and iron concentrations exceed CCME AW standards at MW15-801 □ pH is below the FIGQG range (acidic), possibly an indication of decaying buried wood debris. □ Aluminum, cadmium, copper, iron and lead exceed FIGQG. Cadmium levels are elevated in groundwater at all APECs and is likely within local background levels. □ Aluminum, iron and manganese exceed CDWQG. Parameters exceeded are for operational, taste, or aesthetic concerns and do not indicate impacted groundwater.

Please fill in the "letter" that best describes the level of information available for the site being assessed:

Site Letter Grade **D**

If letter grade is F, do not continue, you must have a minimum of a Phase I Environmental Site Assessment or equivalent.

Scoring Completed By:	Darren Thomas
Date Scoring Completed:	3/17/2017

CCME National Classification System for Contaminated Sites (2008, 2010 v 1.2)
User's Guide - Instructions

1) Please review the following overview of contents. The revised CCME National Classification System for Contaminated Sites (NCSCS) consists of a pre-screening checklist, summary of site conditions, summary score sheet, and three instruction/worksheet pages for the user to fill out: Contaminant Characteristics, Migration Potential and Exposure. For ease of printing, the method of evaluation for scoring each section of the worksheet is provided in a separate Instructions tab. Reference material is also provided to assist with the evaluation. A brief description of each sheet is as follows:

Pre-Screening Checklist - Used to determine if the Site can either be considered a Class 1 site (to be remediated immediately) or more information must be collected before the Site can be ranked, or other hazards exist at the Site that must be addressed first before the Site can be ranked using the revised NCSCS.

Site Description Sheet - Summarizes Site information. It also indicates the level of information available (Site Letter Grade) for the site to conduct the NCSCS scoring evaluation. The known/potential contaminants of concern and affected media will also be summarized here.

Contaminant Characteristics Instructions & Worksheet - Prompts the user for information related to the contaminants of potential concern (COPC) found at the site.

Migration Potential Instructions & Worksheet - Prompts the user for information related to physical transport processes which may move contamination to neighboring sites or re-distribute contamination within a site. Migration potential includes many of the exposure pathways, but is not limited to exposure pathways. Migration potential does not require clearly defined receptors.

Exposure Instructions & Worksheet - Prompts the user for information related to exposure pathways and receptors which may be located on the site.

Summary Score Sheet - Generates a total site score by adding up the scores generated on each of the three worksheets and provides the corresponding Site Classification. It also provides an estimate of certainty in the score provided (Certainty Percentage).

Reference Material - Additional information which may be useful to refer to when conducting the evaluation.
- Contaminant Hazard Ranking
- Examples of Persistent Substances
- Examples of Substances in the Various Chemical Classes
- Chemical-specific Properties
- Range of Values of Hydraulic Conductivity and Permeability

The worksheet titles and sub headings are as follows.

I. Contaminant Characteristics

1. Residency Media
2. Chemical Hazard
3. Contaminant Exceedance Factor
4. Contaminant Quantity
5. Modifying Factors

II. Migration Potential

1. Groundwater Movement
2. Surface water Movement
3. Soil
4. Vapour
5. Sediment Movement
6. Modifying Factors

III. Exposure

1. Human Receptors
   - A. Known Impact
   - B Potential
     - a. Land Use
     - b. Accessibility
     - c. Exposure Route
2. Human Modifying Factors
3. Ecological Receptors
   - A. Known Impact
   - B. Potential
     - a. Terrestrial
     - b. Aquatic
4. Ecological Modifying Factors
   - a. Species at Risk
   - b. Aesthetics
5. Other Receptors
   - a. Permafrost

CCME National Classification System for Contaminated Sites (2008, 2010 v 1.2)
User's Guide - Instructions

2) This is an electronic form which will prompt the user for information. Based on the answers provided, a score is calculated for the contaminated site in question. In most cases, the user will be asked to select amongst two or more choices in a drop down checklist. To access the drop down checklist, move the mouse towards the right side of the "action box". If a drop down is available, an arrow will appear, which must be selected to access the drop down choices. An "action box" requires input from the user. All action boxes have an amber background. action box

3) When assigning scores for each factor, it is highly recommended to give a rationale (a column has been provided for this purpose in Worksheets I, II and III). Information that would be useful in justifying the scores assigned may include: a statement of any assumptions, a description of site-specific information, and references for any data sources (e.g., site visit, personal interview, site assessment reports, or other documents consulted).

4) The Site Letter Grade is related to the level of information available for the Site (as defined by the User) and provides an indication of completeness of information based on the level of investigation and remediation work that has been carried out at the site. More detailed descriptions of the various categories are provided below.

Site Letter Grade:	*Detailed Descriptions:*
F	***Pre Phase I ESA –*** No environmental investigations have been conducted or there are only partial or incomplete Phase I ESA for the Site. It is not recommended to continue through the NCSCS when insufficient data are available. In these cases, it will generally be necessary to conduct a Phase I ESA or other site investigation tasks in order to complete the NCSCS scoring.
E	***Phase I ESA –*** A preliminary desk-top type study has been conducted, involving non-intrusive data collection to determine whether there is a potential for the Site to be contaminated and to provide information to direct any intrusive investigations. Data collected may include a review of available information on current site conditions and history of the property, a site inspection and interviews with personnel familiar with the Site. [Note: This stage is similar to "Phase I: Site Information Assessment" as described in Guidance Document on the Management of Contaminated Sites in Canada (CCME 1997).]
D	***Limited Phase II ESA –*** An initial intrusive investigation and assessment of the property has been conducted, generally focusing on potential sources of contamination, to determine whether there is contamination present above the relevant screening guidelines or criteria, and to broadly define soil and groundwater conditions; samples have been collected and analyzed to identify, characterize and quantify contamination that may be present in air, soil, groundwater, surface water or building materials. [Note: This stage is similar to "Phase II: Reconnaissance Testing Program" as described in Guidance Document on the Management of Contaminated Sites in Canada (CCME 1997).]
C	***Detailed Phase II ESA –*** Further intrusive investigations have been conducted to characterize and delineate the contamination, to obtain detailed information on the soil and groundwater conditions, to identify the contaminant pathways, and to provide other information required to develop a remediation plan. [Note: This stage is similar to "Phase III: Detailed Testing Program" as described in Guidance Document on the Management of Contaminated Sites in Canada (CCME 1997).]
B	***Risk Assessment with or without Remedial Plan or Risk Management Strategy –*** A risk assessment has been completed, and if the risk was found to be unacceptable, a site-specific remedial action plan has been designed to mitigate environmental and health concerns associated with the Site, or a risk management strategy has been developed.
A	***Confirmation Sampling –*** Remedial work, monitoring, and/or compliance testing have been conducted and confirmatory sampling demonstrates whether contamination has been removed or stabilized effectively and whether cleanup or risk management objectives have been attained.

5) A few terms are used throughout which require definition, they are as follows:

Known - refers to scores that are assigned based on documented scientific and/or technical observations

Potential - refers to scores that are assigned when something is not known, though it may be suspected

Allowed Potential - If, in a given category, known and potential scores are provided by the user, the checklist will typically default to the "known" score. If a "known" score is provided, the "allowed potential" score will equal zero. Exceptions can be found within the Modifying Factors categories in each worksheet where there are often several independent questions. Therefore, "known" and "potential" scores are allowed to contribute to the total modifying factor score.

Raw - refers to score totals which have not been adjusted down to the total maximum score for the given category. In most cases the possible total raw score is greater than the maximum allowed

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Note: For some questions in the worksheets, the option selected will determine whether a "known" or "potential" score is assigned. In these cases, if "Do Not Know" is selected, a score will automatically be listed as "potential", whereas all of the other options in the list will provide a "known" score.

6) Certainty Percentage: The ratio of “Known” to “Potential” responses reflects the relative certainty, or confidence, of the resulting final score and the classification. The NCSCS system defines this ratio as the “Certainty Percentage”. The Certainty Percentage is generated from the number of sections assigned scores based on “known” information divided by the total number of sections. A high percentage indicates that more is known about the Site, and therefore there is more confidence in the ranking, whereas a low percentage suggests that the ranking should be treated with caution.

7) Site Classification Categories: Sites should not be ranked relative to one another. Sites must be classifed on their individual characteristics in order to determine the appropriate classification (Class 1, 2, 3, or N) according to their priority for action, or Class INS (Insufficient Information) for sites that require further information before they can be classifed. The classification groupings are as follows:

Class 1 - High Priority for Action (Total NCSCS Score greater than 70)

The available information indicates that action (e.g., futher site characterization, risk management, remediation, etc.) is required to address existing concerns. Typically, Class 1 sites indicate high concern for several factors, and measured or observed impacts have been documented.

Class 2 - Medium Priority for Action (Total NCSCS Score between 50 and 69.9)

The available information indicates that there is high potential for adverse impacts, although the threat to human health and the environment is generally not imminent. There will tend not to be indication of off-site contamination, however, the potential for this was rated high and therefore some action is likely required.

Class 3 - Low Priority for Action (Total NCSCS Score between 37 and 49.9)

The available information indicates that this site is currently not a high concern. However, additional investigation may be carried out to confirm the site classification, and some degree of action may be required.

Class N - Not a Priority for Action (Total NCSCS Score less than 37)

The available information indicates there is probably no significant environmental impact or human health threats. There is likely no need for action unless new information becomes available indicating greater concerns, in which case the site should be re-examined.

Class INS - Insufficient Information (>15% of Responses are "Do Not Know")

There is insufficient information to classify the site. In this event, additional information is required to address data gaps.

8) Additional Complementary Tools to the NCSCS

The CCME Soil Quality Index (SoQI) is a complementary tool that focuses more on evaluating the relative hazard, by comparing contaminant concentrations with their respective soil quality guidelines. The SoQI uses three factors for its calculations, namely: 1) scope (% of contaminants that do not meet their respective guidelines), 2) frequency (% of individual tests of contaminants that do not meet their respective guidelines), and 3) amplitude (the amount by which the contaminants do not meet their respective guidelines). The soil quality index can be used to compare different contaminated sites with similar types of contamination as well as to see if the jurisdictional requirements have been met after remediation of a particular site.

The NCSCS was not developed for and is not readily applicable for the assessment of sites with a significant marine or aquatic component. Environmental conditions at marine and aquatic sites are best measured in the bed sediments as they act as long-term reservoirs of chemicals to the aquatic environment and to organisms living in or having direct contact with sediments. The CCME Sediment Quality Index (SeQI) provides a convenient means of summarizing sediment quality data and can complement the NCSCS. The SeQI provides a mathematical framework for assessing sediment quality conditions by comparing contaminant concentrations with their respective sediment quality guidelines.

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(I) Contaminant Characteristics

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method of Evaluation	Notes
1. Residency Media (replaces physical state)				
Which of the following residency media are known (or strongly suspected) to have one or more exceedances of the applicable CCME guidelines? **yes** = has an exceedance or strongly suspected to have an exceedance **no** = does not have an exceedance or strongly suspected not to have an exceedance		Soil - □ Toluene exceeds CCME industrial land use standards. □ Benzene exceeds CCME industrial land use standards. □ The MDL for 2-methylnaphthalene is greater than the CCME ISQG guideline. Further testing would be required to confirm that 2-methylnaphthalene meets the CCME guidelines. Groundwater - □ Aluminum and iron concentrations exceed CCME AW standards at MW15-801 □ pH is below the FIGQG range (acidic), possibly an indication of decaying buried wood debris. □ Aluminum, cadmium, copper, iron and lead exceed FIGQG. Cadmium levels are elevated in groundwater at all APECs and is likely within local background levels. □ Aluminum, iron and manganese exceed CDWQG. Parameters exceeded are for operational, taste, or aesthetic concerns and do not indicate impacted groundwater.	The overall score is calculated by adding the individual scores from each residency media (having one or more exceedance of the most conservative media specific and land-use appropriate CCME guideline). Summary tables of the Canadian Environmental Quality Guidelines for soil, water (aquatic life, non-potable groundwater environments, and agricultural water uses) and sediment are available on the CCME website at http://www.ccme.ca/publications/cegg_rcqe.html?category_id=124. For potable groundwater environments, guidelines for Canadian Drinking Water Quality (for comparison with groundwater monitoring data) are available on the Health Canada website at http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/sum_guide-res_recom/index_e.html.	An increasing number of residency media containing chemical exceedances often equates to a greater potential risk due to an increase in the number of potential exposure pathways.
A. Soil	Yes			
Yes / No / Do Not Know				
B. Groundwater	Yes			
Yes / No / Do Not Know				
C. Surface water	No			
Yes / No / Do Not Know				
D. Sediment	No			
Yes / No / Do Not Know				
"Known" -score	4			
"Potential" - score	---			
2. Chemical Hazard				
What is the relative degree of chemical hazard of the contaminant in the list of hazard rankings proposed by the Federal Contaminated Sites Action Plan (FCSAP)?	High	Benzene, cadmium and lead are a high ranked contaminants Toluene is a medium ranked contaminant	The relative degree of chemical hazard should be selected based on the most hazardous contaminant known or suspected to be present at the site. The degree of hazard has been defined by the Federal Contaminated Sites Action Plan (FCSAP) and a list of substances with their associated hazard (Low, Medium and High) has been provided as a separate sheet in this file. *See Attached Reference Material for Contaminant Hazard Rankings.*	Hazard as defined in the revised NCS pertains to the physical properties of a chemical which can cause harm. Properties can include toxic potency, propensity to biomagnify, persistence in the environment, etc. Although there is some overlap between hazard and contaminant exceedance factor below, it will not be possible to derive contaminant exceedance factors for many substances which have a designated chemical hazard designation, but don't have a CCME guideline. The purpose of this category is to avoid missing a measure of toxic potential.
High / Medium / Low / Do Not Know				
"Known" -score	8			
"Potential" - score	---			
3. Contaminant Exceedence Factor				
What is the ratio between the measured contaminant concentration and the applicable CCME guidelines (or other "standards")?	High (>100x)	Cadmium in groundwater at MW15-802 is 0.180 ug/L vs a FIGQG of 0.017 ug/L (10.6x) Lead in groundwater at MW15-802 is 5.41 ug/L vs a FIGQG of 2.1 ug/L (2.6x) Aluminum in groundwater at MW15-802 is 540 ug/L vs a FIGQG of 5 ug/L (pH depenant) (108x) Iron in groundwater at MW15-803 is 9780 ug/L vs a FIGQG of 300 ug/L (32.6x) Tolunene in soil at 16TP1 @ 0.5 m is 0.80 ug/g vs a CCME guideline of 0.08 ug/g (10x)	Ranking of contaminant "exceedance" is determined by comparing contaminant concentrations with the *most conservative media-specific and land-use appropriate CCME* environmental quality guidelines. **Ranking should be based on contaminant with greatest exceedance of CCME guidelines.** Ranking of contaminant hazard as high, medium and low is as follows: High = One or more measured contaminant concentration is greater than 100 X appropriate CCME guidelines Medium = One or more measured contaminant concentration is 10 - 99.99 X appropriate CCME guidelines Low = One or more measured contaminant concentration is 1 - 9.99 X appropriate CCME guidelines Mobile NAPL = Contaminant is a non-aqueous phase liquid (i.e., due to its low solubility, it does not dissolve in water, but remains as a separate liquid) and is present at a sufficiently high saturation (i.e., greater than residual NAPL saturation) such that there is significant potential for mobility either downwards or laterally. Other standards may include local background concentration or published toxicity benchmarks. Results of toxicity testing with site samples can be used as an alternative. This approach is only relevant for contaminants that do not biomagnify in the food web, since toxicity tests would not indicate potential effects at higher trophic levels. High = lethality observed. Medium = no lethality, but sub lethal effects observed. Low = neither lethal nor sub lethal effects observed.	In the event that elevated levels of a material with no associated CCME guidelines are present, check provincial and USEPA environmental criteria. Hazard Quotients (sometimes referred to as a screening quotient in risk assessments) refer to the ratio of measured concentration to the concentration believed to be the threshold for toxicity. A similar calculation is used here to determine the contaminant exceedance factor (CEF). Concentrations greater than one times the applicable CCME guideline (i.e., CEF=>1) indicate that risks are possible. Mobile NAPL has the highest associated score (8) because of its highly concentrated nature and potential for increase in the size of the impacted zone.
Mobile NAPL / High (>100x) / Medium (10x to 100x) / Low (1x to 10x) / Do Not Know				
"Known" -score	6			
"Potential" - score	---			

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(I) Contaminant Characteristics

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method of Evaluation	Notes
4. Contaminant Quantity (known or strongly suspected)				
What is the known or strongly suspected quantity of all contaminants? >10 hectare (ha) or 5000 m^3 2 to 10 ha or 1000 to 5000 m^3 <2 ha or 1000 m^3 Do Not Know	>10 hectare (ha) or 5000 m3	Based on an assumed fill depth of 0.3 mbgs (from borehole logs) for all of Kalum Forest Products Mill Yard of 57600 square meters = 17280 cubic meters	Measure or estimate the area or quantity of total contamination (i.e, all contaminants known or strongly suspected to be present on the site). The "Area of Contamination" is defined as the area or volume of contaminated media (soil, sediment, groundwater, surface water) exceeding appropriate environmental criteria.	A larger quantity of a potentially toxic substance can result in a larger frequency of exposure as well as a greater probability of migration, therefore, larger quantities of these substances earn a higher score.
"Known" -score	9			
"Potential" - score	---			
5. Modifying Factors				
Does the chemical fall in the class of persistent chemicals based on its behavior in the environment? Yes No Do Not Know	No	Metalloids and Toluene, as per note to right	Persistent chemicals, e.g., PCBs, chlorinated pesticides etc. either do not degrade or take longer to degrade, and therefore may be available to cause effects for a longer period of time. Canadian Environmental Protection Act (CEPA) classifies a chemical as persistent when it has at least one of the following characteristics: (a) in air, (i) its half-life is equal to or greater than 2 days, or (ii) it is subject to atmospheric transport from its source to a remote area; (b) in water, its half-life is equal to or greater than 182 days; (c) in sediments, its half-life is equal to or greater than 365 days; or (d) in soil, its half-life is equal to or greater than 182 days. This list does not include metals or metalloids, which in their elemental form do not degrade. However metals and metalloids form chemical species in the environment, many of which are not readily bioavailable.	*Examples of Persistent Substances are provided in attached Reference Materials*
Are there contaminants present that could cause damage to utilities and infrastructure, either now or in the future, given their location? Yes No Do Not Know	No	No evidence of such		Some contaminants may react or absorb into underground utilities and infrastructure. For example, organic solvents may degrade some plastics, and salts could cause corrosion of metal.
How many different contaminant classes have representative CCME guideline exceedances? one two to four five or more Do Not Know	two to four	Metals and hydrocarbons (benzene, toluene)	For the purposes of the revised NCS ranking system, the following chemicals represent distinct chemical "classes": inorganic substances (including metals), volatile petroleum hydrocarbons, light extractable petroleum hydrocarbons, heavy extractable petroleum hydrocarbons, PAHs, phenolic substances, chlorinated hydrocarbons, halogenated methanes, phthalate esters, pesticides.	*Refer to the Reference Material sheet for a list of example substances that fall under the various chemical classes.*
"Known" - Score	2			
"Potential" - Score	---			

Contaminant Characteristic Total

Raw Total Scores- "Known"	29
Raw Total Scores- "Potential"	0
Raw Combined Total Scores	29
Total Score (Raw Combined / 40 * 33)	**23.9**

(II) Migration Potential (Evaluation of contaminant migration pathways)

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
1. Groundwater Movement				
A. Known COPC exceedances and an operable groundwater pathway within and/or beyond the property boundary.				
i) For **potable groundwater environments**, 1) groundwater concentrations exceed background concentrations and 1X the Guideline for Canadian Drinking Water Quality (GCDWQ) or 2) there is known contact of contaminants with groundwater, based on physical evidence of groundwater contamination. For **non-potable environments** (typically urban environments with municipal services), 1) groundwater concentrations exceed 1X the applicable non potable guidelines or modified generic guidelines (which exclude ingestion of drinking water pathway) or 2) there is known contact of contaminants with groundwater, based on physical evidence of groundwater impacts.	12	BC CSR guideance is to assess all groundwater as potable unless proven otherwise; however no contaminants on site exceed CDWQ guidelines except those for operation, taste or aethetics (aluminum, iron and manganese). As such a more appropriate comparison was deemed to be to the FIGQG applicable to non-potable environments.	Review chemical data and evaluate groundwater quality. The evaluation method concentrates on 1) a potable or non-potable groundwater environment; 2) the groundwater flow system and its potential to be an exposure pathway to known or potential receptors An aquifer is defined as a geologic unit that yields groundwater in usable quantities and drinking water quality. The aquifer can currently be used as a potable water supply or could have the potential for use in the future. Non-potable groundwater environments are defined as areas that are serviced with a reliable alternative water supply (most commonly provided in urban areas). The evaluation of a non-potable environment will be based on a site specific basis. Physical evidence includes significant sheens, liquid phase contamination, or contaminant saturated soils. Seeps and springs are considered part of the groundwater pathway. In Arctic environments, the potability and evaluation of the seasonal active layer (above the permafrost) as a groundwater exposure pathway will be considered on a site-specific basis.	The 1992 NCS rationale evaluated the off-site migration as a regulatory issue. The exposure assessment and classification of hazards should be evaluated regardless of the property boundaries. Someone experienced must provide a thorough description of the sources researched to determine the presence/absence of a groundwater supply source in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resources such as internet links. Note that for potable groundwater that also daylights into a nearby surface water body, the more stringent guidelines for both drinking water and protection of aquatic life should be considered. **Selected References** Potable Environments Guidelines for Canadian Drinking Water Quality: www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/sum_guide-res_recom/index_e.html Non-Potable Environments Canadian Water Quality Guidelines for Protection of Aquatic Life. CCME. 1999 www.ccme.ca Compilation and Review of Canadian Remediation Guidelines, Standards and Regulations. Science Applications International Corporation (SAIC Canada), report to Environment Canada, January 4, 2002.
ii) Same as (i) except the information is not known but strongly suspected based on indirect observations.	9			
iii) Meets GCDWQ for **potable environments**; meets non-potable criteria or modified generic criteria (excludes ingestion of drinking water pathway) for **non-potable environments** **or** Absence of groundwater exposure pathway (i.e., there is no aquifer (see definition at right) at the site or there is an adequate isolating layer between the aquifer and the contamination, and within 5 km of the site there are no aquatic receiving environments and the groundwater does not daylight).	0			
	9			
Score	9			
NOTE: If a score is assigned here for Known COPC Exceedances, then you can skip Part B (Potential for groundwater pathway) and go to Section 2 (Surface Water Pathway)				
B. Potential for groundwater pathway.				
a. Relative Mobility High Moderate Low Insignificant Do Not Know			Organics Koc (L/kg) Koc < 500 (i.e., log Koc < 2.7) Koc = 500 to 5000 (i.e., log Koc = 2.7 to 3.7) Koc = 5,000 to 100,000 (i.e., log Koc = 3.7 to 5) Koc > 100,000 (i.e., log Koc > 5) Metals with higher mobility at acidic conditions pH < 5 pH = 5 to 6 pH > 6 Metals with higher mobility at alkaline conditions pH > 8.5 pH = 7.5 to 8.5 pH < 7.5	Reference: US EPA Soil Screening Guidance (Part 5 - Table 39) If a score of zero is assigned for relative mobility, it is still recommended that the following sections on potential for groundwater pathway be evaluated and scored. Although the Koc of an individual contaminant may suggest that it will be relatively immobile, it is possible that, with complex mixures, there could be enhanced mobility due to co-solvent effects. Therefore, the Koc cannot be relied on solely as a measure of mobility. An evaluation of other factors such as containment, thickness of confining layer, hydraulic conductivities and precipitation infiltration rate are still useful in predicting potential for groundwater migration, even if a contaminant is expected to have insignificant mobility based on its chemistry alone.
	Do Not Know			
Score	2			
b. Presence of engineered sub-surface containment? No containment Partial containment Full containment Do Not Know			Review the existing engineered systems or natural attenuation processes for the site and determine if full or partial containment is achieved. Full containment is defined as an engineered system or natural attenuation processes, monitored as being effective, which provide for full capture and/or treatment of contaminants. All chemicals of concern must be contained for "Full Containment" scoring. Natural attenuation must have sufficient data, and reports cited with monitoring data to support steady state conditions and the attenuation processes. If there is no containment or insufficient natural attenuation process, this category is evaluated as high. If there is less than full containment or if uncertain, then evaluate as medium. In Arctic environments, permafrost will be evaluated, as appropriate, based on detailed evaluations, effectiveness and reliability to contain/control contaminant migration.	Someone experienced must provide a thorough description of the sources researched to determine the containment of the source at the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps, geotechnical reports or natural attenuation studies and other resources such as internet links. **Selected Resources:** United States Environmental Protection Agency (USEPA) 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater. EPA/600/R-98/128. Environment Canada – Ontario Region – Natural Attenuation Technical Assistance Bulletins (TABS) Number 19 –21.
	Do Not Know			
Score	1.5			
c. Thickness of confining layer over aquifer of concern or groundwater exposure pathway 3 m or less including no confining layer or discontinuous confining layer 3 to 10 m > 10 m Do Not Know			The term "confining layer" refers to geologic material with little or no permeability or hydraulic conductivity (such as unfractured clay); water does not pass through this layer or the rate of movement is extremely slow. Measure the thickness and extent of materials that will impede the migration of contaminants to the groundwater exposure pathway. The evaluation of this category is based on: 1) The presence and thickness of saturated subsurface materials that impede the vertical migration of contaminants to lower aquifer units which can or are used as drinking water sources or 2) The presence and thickness of unsaturated subsurface materials that impede the vertical migration of contaminants from the source location to the saturated zone (e.g., water table aquifer, first hydrostratigraphic unit or other groundwater pathway).	
	Do Not Know			
Score	0.5			
d. Hydraulic conductivity of confining layer >10^{-4} cm/s or no confining layer 10^{-4} to 10^{-6} cm/s <10^{-6} cm/s Do Not Know			Determine the nature of geologic materials and estimate hydraulic conductivity from published material (or use "Range of Values of Hydraulic Conductivity and Permeability" figure in the Reference Material sheet). Unfractured clays should be scored low. Silts should be scored medium. Sand, gravel should be scored high. The evaluation of this category is based on: 1) The presence and hydraulic conductivity ("K") of saturated subsurface materials that impede the vertical migration of contaminants to lower aquifer units which can or are used as a drinking water source, groundwater exposure pathway or 2) The presence and permeability ("k") of unsaturated subsurface materials that impede the vertical migration of contaminants from the source location to the saturated water table aquifer, first hydrostratigraphic unit or other groundwater pathway.	
	Do Not Know			
Score	0.5			
B. Potential for groundwater pathway.				
e. Precipitation infiltration rate (Annual precipitation factor x surface soil relative permeability factor) High Moderate Low Very Low None Do Not Know			Precipitation Refer to Environment Canada precipitation records for relevant areas. Divide annual precipitation by 1000 and round to nearest tenth (e.g., 667 mm = 0.7 score). Permeability For surface soil relative permeability (i.e., infiltration) assume: gravel (1), sand (0.6), loam (0.3) and pavement or clay (0). Multiply the surface soil relative permeability factor with precipitation factor to obtain the score for precipitation infiltration rate.	
	Do Not Know			
Score	0.4			
f. Hydraulic conductivity of aquifer >10^{-2} cm/s 10^{-2} to 10^{-4} cm/s <10^{-4} cm/s Do Not Know			Determine the nature of geologic materials and estimate hydraulic conductivity of all aquifers of concern from published material (refer to "Range of Values of Hydraulic Conductivity and Permeability" in the Reference Material sheet).	
	Do Not Know			
Score	1			
Potential groundwater pathway total	5.9			
Allowed Potential score	---	Note: If a "known" score is provided, the "potential" score is disallowed.		
Groundwater pathway total	**9**			

(II) Migration Potential (Evaluation of contaminant migration pathways)

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
2. Surface Water Movement				
A. Demonstrated migration of COPC in surface water above background conditions				
Known concentrations of surface water: i) Concentrations exceed background concentrations and exceed CCME CWQG for protection of aquatic life, irrigation, livestock water, and/or recreation (whichever uses are applicable at the site) by >1 X; or There is known contact of contaminants with surface water based on site observations. or In the absence of CWQG, chemicals have been proven to be toxic based on site specific testing (e.g. toxicity testing; or other indicator testing of exposure).	12	No testing of kitsumkalum river downgradient of site at the request of the Band (reports that previous water testing has been satisfactory).	Collect all available information on quality of surface water near to site. Evaluate available data against Canadian Water Quality Guidelines (select appropriate guidelines based on local water use, e.g., recreation, irrigation, aquatic life, livestock watering, etc.). The evaluation method concentrates on the surface water flow system and its potential to be an exposure pathway. Contamination is present on the surface (above ground) and has the potential to impact surface water bodies. Surface water is defined as a water body that supports one of the following uses: recreation, irrigation, livestock watering, aquatic life.	General Notes: Someone experienced must provide a thorough description of the sources researched to classify the surface water body in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links. Selected References: CCME. 1999. Canadian Water Quality Guidelines for the Protection of Aquatic Life www.ccme.ca CCME. 1999. Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses (Irrigation and Livestock Water) www.ccme.ca Health and Welfare Canada. 1992. Guidelines for Canadian Recreational Water Quality.
ii) Same as (i) except the information is not known but strongly suspected based on indirect observations.	8			
iii) Meets CWQG or absence of surface water exposure pathway (i.e., Distance to nearest surface water is > 5 km.)	0			
Score	Go to Potential ---			
NOTE: If a score is assigned here for Demonstrated Migration in Surface Water, then you can skip Part B (Potential for migration of COPCs in surface water) and go to Section 3 (Surface Soils)				

(II) Migration Potential (Evaluation of contaminant migration pathways)

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
B. Potential for migration of COPCs in surface water				
a. Presence of containment No containment Partial containment Full containment Do Not Know	Partial containmer	Berms along perimeter of site	Review the existing engineered systems and relate these structures to site conditions and proximity to surface water and determine if full containment is achieved: score low if there is full containment such as capping, berms, dikes; score medium if there is partial containment such as natural barriers, trees, ditches, sedimentation ponds; score high if there are no intervening barriers between the site and nearby surface water. Full containment must include containment of all chemicals.	
Score	3			
b. Distance to Surface Water 0 to <100 m 100 - 300 m >300 m Do Not Know	100 - 300 m	250 m to Kitsumkalum River	Review available mapping and survey data to determine distance to nearest surface water bodies.	
Score	2			
c. Topography Contaminants above ground level and slope is steep Contaminants at or below ground level and slope is steep Contaminants above ground level and slope is intermediate Contaminants at or below ground level and slope is intermediate Contaminants above ground level and slope is flat Contaminants at or below ground level and slope is flat Do Not Know	At/below and flat		Review engineering documents on the topography of the site and the slope of surrounding terrain. Steep slope = >50% Intermediate slope = between 5 and 50% Flat slope = < 5% Note: Type of fill placement (e.g., trench, above ground, etc.).	
Score	0			
d. Run-off potential High (rainfall run-off score > 0.6) Moderate (0.4 < rainfall run-off score <0.6) Low (0.2 < rainfall run-off score <0.4) Very Low (0 < rainfall run-off score < 0.2) None (rainfall run-off score = 0) Do Not Know	High	Rainfall of 1025.3mm annually.	Rainfall Refer to Environment Canada precipitation records for relevant areas. Divide rainfall by 1000 and round to nearest tenth (e.g., 667 mm = 0.7 score). The former definition of "annual rainfall" did not include the precipitation as snow. This minor adjustment has been made. The second modification was the inclusion of permeability of surface materials as an evaluation factor. Permeability For infiltration assume: gravel (0), sand (0.3), loam (0.6) and pavement or clay (1). Multiply the infiltration factor with precipitation factor to obtain rainfall run off score.	Selected Sources: Environment Canada web page link: www.msc.ec.gc.ca Snow to rainfall conversion apply ratio of 15 (snow):1(water)
Score	1			
e. Flood potential 1 in 2 years 1 in 10 years 1 in 50 years Not in floodplain Do Not Know	1 in 50 years	within 200 year floodplain (only data available on Kitsumkalum district mapping system)	Review published data such as flood plain mapping or flood potential (e.g., spring or mountain run-off) and Conservation Authority records to evaluate flood potential of nearby water courses both up and down gradient. Rate zero if site not in flood plain.	
Score	0.2			
Potential surface water pathway total	6.2			
Allowed Potential score	6.2	Note: If a "known" score is provided, the "potential" score is disallowed.		
Surface water pathway total	**6.2**			
3. Surface Soils (potential for dust, dermal and ingestion exposure)				
A. Demonstrated concentrations of COPC in surface soils (top 1.5 m)				
COPCs measured in surface soils exceed the CCME soil quality guideline. Strongly suspected that soils exceed guidelines COPCs in surface soils does not exceed the CCME soil quality guideline or is not present (i.e., bedrock).	12 9 0	Toluene at 0.5 m in MW15-802 soil	Collect all available information on quality of surface soils (i.e., top 1.5 metres) at the site. Evaluate available data against Canadian Soil Quality Guidelines. Select appropriate guidelines based on current (or proposed future) land use (i.e, agricultural, residential/parkland, commercial, or industrial), and soil texture if applicable (i.e., coarse or fine).	Selected References: CCME. 1999. Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health www.ccme.ca
	12			
Score	12			
NOTE: If a score is assigned here for Demonstrated Concentrations in Surface Soils, then you can skip Part B (Potential for a surface soils migration pathway) and go to Section 4 (Vapour)				
B. Potential for a surface soils (top 1.5 m) migration pathway				
a. Are the soils in question covered? Exposed Vegetated Landscaped Paved Do Not Know	Do Not Know		Consult engineering or risk assessment reports for the site. Alternatively, review photographs or perform a site visit. Landscaped surface soils must include a minimum of 0.5 m of topsoil.	The possibility of contaminants in blowing snow have not been included in the revised NCS as it is difficult to assess what constitutes an unacceptable concentration and secondly, spills to snow or ice are most efficiently mitigated while freezing conditions remain.
Score	4			
b. For what proportion of the year does the site remain covered by snow? 0 to 10% of the year 10 to 30% of the year More than 30% of the year Do Not Know	Do Not Know		Consult climatic information for the site. The increments represent the full span from soils which are always wet or covered with snow (and therefore less likely to generate dust) to those soils which are predominantly dry and not covered by snow (and therefore are more likely to generate dust).	
Score	3			
Potential surface soil pathway total	7			
Allowed Potential score	---	**Note: If a "known" score is provided, the "potential" score is disallowed.**		
Soil pathway total	**12**			

(II) Migration Potential (Evaluation of contaminant migration pathways)

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
4. Vapour				
A. Demonstrated COPCs in vapour.				
Vapour has been measured (indoor or outdoor) in concentrations exceeding risk based concentrations. Strongly suspected (based on observations and/or modelling) Vapour has not been measured and volatile hydrocarbons have not been found in site soils or groundwater.	12 9 0		Consult previous investigations, including human health risk assessments, for reports of vapours detected.	
Score	Go to Potential ---			
NOTE: If a score is assigned here for Demonstrated COPCs in Vapour, then you can skip Part B (Potential for COPCs in vapour) and go to Section 5 (Sediment)				
B. Potential for COPCs in vapour				
a. Relative Volatility based on Henry's Law Constant, H' (dimensionless) High (H' > 1.0E-1) Moderate (H' = 1.0E-1 to 1.0E-3) Low (H' < 1.0E-3) Not Volatile Do Not Know		2.72E-1 for Toluene 2.28E-1 for benzene	Reference: US EPA Soil Screening Guidance (Part 5 - Table 36) *Provided in Attached Reference Materials*	If the Henry's Law Constant for a substance indicates that it is not volatile, and a score of zero is assigned here for relative volatility, then the other three questions in this section on Potential for COPCs will be automatically assigned scores of zero and you can skip to section 5.
Score	High 4			
b. What is the soil grain size? Fine Coarse Do Not Know		Sand and Gravel	Review soil permeability data in engineering reports. The greater the permeability of soils, the greater the possible movement of vapours. Fine-grained soils are defined as those which contain greater than 50% by mass particles less than 75 µm mean diameter (D50 < 75 µm). Coarse-grained soils are defined as those which contain greater than 50% by mass particles greater than 75 µm mean diameter (D50 > 75 µm).	
Score	Coarse 4			
c. Is the depth to the source less than 10m? Yes No Do Not Know		Found at 0.5 mbg in soil	Review groundwater depths below grade for the site.	
Score	Yes 2			
d. Are there any preferential pathways? Yes No Do Not Know			Visit the site during dry summer conditions and/or review available photographs. Where bedrock is present, fractures would likely act as preferential pathyways.	Preferential pathways refer to areas where vapour migration is more likely to occur because there is lower resistance to flow than in the surrounding materials. For example, underground conduits such as sewer and utility lines, drains, or septic systems may serve as preferential pathways. Features of the building itself that may also be preferential pathways include earthen floors, expansion joints, wall cracks, or foundation perforations for subsurface features such as utility pipes, sumps, and drains.
Score	No 0			
Potential vapour pathway total	10			
Allowed Potential score	10	Note: If a "known" score is provided, the "potential" score is disallowed.		
Vapour pathway total	**10**			
5. Sediment Movement				
A. Demonstrated migration of sediments containing COPCs				
There is evidence to suggest that sediments originally deposited to the site (exceeding the CCME sediment quality guidelines) have migrated. Strongly suspected (based on observations and/or modelling) Sediments have been contained and there is no indication that sediments will migrate in future. **or** Absence of sediment exposure pathway (i.e., within 5 km of the site there are no aquatic receiving environments, and therefore no sediments).	12 9 0	Sediment sampling at APEC 8 found no COPC	Review sediment assessment reports. Evidence of migration of contaminants in sediments must be reported by someone experienced in this area.	Usually not considered a significant concern in lakes/marine environments, but could be very important in rivers where transport downstream could be significant.
Score	0 0			
NOTE: If a score is assigned here for Demonstrated Migration of Sediments, then you can skip Part B (Potential for Sediment Migration) and go to Section 6 (Modifying Factors)				

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(II) Migration Potential (Evaluation of contaminant migration pathways)

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
B. Potential for sediment migration				
a. Are the sediments having COPC exceedances capped with sediments having no exceedances ("clean sediments")?	Do Not Know		Review existing sediment assessments. If sediment coring has been completed, it may indicate that historically contaminated sediments have been covered over by newer "clean" sediments. This assessment will require that cores collected demonstrate a low concentration near the top and higher concentration with sediment depth.	
Yes				
No				
Do Not Know	2			
b. For lakes and marine habitats, are the contaminated sediments in shallow water and therefore likely to be affected by tidal action, wave action or propeller wash?	Do Not Know		Review existing sediment assessments. If the sediments present at the site are in a river, select "no" for this question.	
Yes				
No				
Do Not Know	2			
c. For rivers, are the contaminated sediments in an area prone to sediment scouring?	Do Not Know		Review existing sediment assessments. It is important that the assessment is made under worst case flows (high yearly flows). Under high yearly flows, areas which are commonly depositional may	
Yes				
No				
Do Not Know	2			
Potential sediment pathway total	6			
Allowed Potential score	---	Note: If a "known" score is provided, the "potential" score is disallowed.		
Sediment pathway total	**0**			
6. Modifying Factors				
Are there subsurface utility conduits in the area affected by contamination?	No		Consult existing engineering reports. Subsurface utilities can act as conduits for contaminant migration.	
Yes				
No				
Do Not Know				
Known	0			
Potential	0			

Migration Potential Total		
Raw "known" total	21	
Raw "potential" total	16.2	
Raw combined total	37.2	Note: If "Known" and "Potential" scores are provided, the checklist defaults to known. Therefore, the total "Potential" Score may not reflect the sum of the individual "Potential" scores.
Total (max 33)	**19.2**	

(III) Exposure (Demonstrates the presence of an exposure pathway and receptors)

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
1. Human				
A. Known exposure				
Documented adverse impact or high quantified exposure which has or will result in an adverse effect, injury or harm or impairment of the safety to humans as a result of the contaminated site. (Class 1 Site*) Same as above, but "Strongly Suspected" based on observations or indirect evidence. No quantified or suspected exposures/impacts in humans. Score	22 10 0 Go to Potential ---		*Where adverse effects on humans are documented, the site should be automatically designated as a Class 1 site (i.e., action required). There is no need to proceed through the NCS in this case. However, a scoring guideline (22) is provided in case a numerical score for the site is still desired (e.g., for comparison with other Class 1 sites). This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients >1 for noncarcinogenic chemicals and incremental cancer risks that exceed acceptable levels defined by the jurisdiction for carcinogenic chemicals (for most jurisdictions this is typically either $>10^{-5}$ or $>10^{-6}$). Known impacts can also be evaluated based on blood testing (e.g. blood lead >10 ug/dL) or other health based testing. This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients of less than 0.2 for non-carcinogenic chemicals and incremental lifetime cancer risks for carcinogenic chemicals that are within acceptable levels as defined by the jurisdiction (for most jurisdictions this is less than either 10^{-6} or 10^{-5}).	Known adverse impact includes domestic and traditional food sources. Adverse effects based on food chain transfer to humans and/or animals can be scored in this category. However, the weight of evidence must show a direct link of a contaminated food source/supply and subsequent ingestion/transfer to humans. Any associated adverse effects to the environment are scored separately later in this worksheet. Someone experienced must provide a thorough description of the sources researched to evaluate and determine the quantified exposure/impact (adverse effect) in the vicinity of the contaminated site. **Selected References:** Health Canada – Federal Contaminated Site Risk Assessment in Canada Parts 1 and 2 Guidance on Human Heath Screening Level Risk Assessments (www.hc-sc.gc.ca/ewh-semt/pubs/contamsite/index_e.html) United States Environmental Protection Agency, Integrated Risk Information System (IRIS) – http://toxnet.nml.nih.gov
NOTE: If a score is assigned here for Known Exposure, then you can skip Part B (Potential for Human Exposure) and go to Section 2 (Human Exposure Modifying Factors)				
B. Potential for human exposure				
a) Land use (provides an indication of potential human exposure scenarios) Agricultural Residential / Parkland Commercial Industrial Do Not Know Score	 Industrial 0.5		Review zoning and land use maps over the distances indicated. If the proposed future land use is more "sensitive" than the current land use, evaluate this factor assuming the proposed future use is in place. Agricultural land use is defined as uses of land where the activities are related to the productive capability of the land or facility (e.g., greenhouse) and are agricultural in nature, or activities related to the feeding and housing of animals as livestock. Residential/Parkland land uses are defined as uses of land on which dwelling on a permanent, temporary, or seasonal basis is the activity (residential), as well as uses on which the activities are recreational in nature and require the natural or human designed capability of the land to sustain that activity (parkland). Commercial/Industrial land uses are defined as land on which the activities are related to the buying, selling, or trading of merchandise or services (commercial), as well as land uses which are related to the production, manufacture, or storage of materials (industrial).	This is the main "receptor" factor used in site scoring. A higher score implies a greater exposure and/or exposure of more sensitive human receptors (e.g., children).
b. Indicate the level of accessibility to the contaminated portion of the site (e.g., the potential for coming in contact with contamination) Limited barriers to prevent site access; contamination not covered Moderate access or no intervening barriers, contaminants are covered. Remote locations in which contaminants not covered. Controlled access or remote location and contaminants are covered Do Not Know Score	 Mod. access, covered 1	all access to contaminated soil and water is controlled by locked gates, although these gates are relatively easy to circumvent. Youth are known to have parties in the old mill building (offsite).	Review location and structures and contaminants at the site and determine if there are intervening barriers between the site and humans. A low rating should be assigned to a (covered) site surrounded by a fence or in a remote location, whereas a high score should be assigned to a site that has no cover, fence, natural barriers or buffer.	
B. Potential for human exposure				
c) Potential for intake of contaminated soil, water, sediment or foods for operable or potentially operable pathways, as identified in Worksheet II (Migration Potential). i) direct contact Is dermal contact with contaminated surface water, groundwater, sediments or soils anticipated? Yes No Do Not Know Score	 Yes 3	Potential for groundwater to migrate to potable water source or to daylight in Kitsumkalum River. Contamination within surface soils.	If soils or potable groundwater are present exceeding their respective CCME guidelines, dermal contact is assumed. Exposure to surface water, non-potable groundwater or sediments exceeding their respective CCME guidelines will depend on the site. Select "Yes" if dermal exposure to surface water, non-potable groundwater or sediments is expected. For instance, dermal contact with sediments would not be expected in an active port. Only soils in the top 1.5 m are defined by CCME (2003) as surface soils. If contaminated soils are only located deeper than 1.5 m, direct contact with soils is not anticipated to be an operable contaminant exposure pathway.	Exposure via the skin is generally believed to be a minor exposure route. However for some organic contaminants, skin exposure can play a very important component of overall exposure. Dermal exposure can occur while swimming in contaminated waters, bathing with contaminated surface water/groundwater and digging in contaminated dirt, etc.
ii) inhalation (i.e., inhalation of dust, vapour) Vapour - Are there inhabitable buildings on the site within 30 m of soils or groundwater with volatile contamination as determined in Worksheet II (Migration Potential)? Yes No Do Not Know Score Dust - If there is contaminated surface soil (e.g. top 1.5 m) , indicate whether the soil is fine or coarse textured. If it is known that surface soil is not contaminated, enter a score of zero. Fine Coarse Surface soil is not contaminated or absent (bedrock) Do Not Know Texture Score inhalation total	 No 0 Coarse 1 1		If inhabitable buildings are on the site within 30 m of soils or groundwater exceeding their respective guidelines for volatile chemicals, there is a potential of risk to human health (Health Canada, 2004). Review site investigations for location of soil samples (having exceedances of volatile substances) relative to buildings. Refer to (II) Migration Potential worksheet, 4B.a), *Potential for COPCs in Vapour* for a definition of volatility. Consult grain size data for the site. If soils (containing exceedances of the CCME soil quality guidelines) predominantly consist of fine material (having a median grain size of 75 microns; as defined by CCME (2006)) then these soils are more likely to generate dusts.	Exposure via the lungs (inhalation) can be a very important exposure pathway. Inhalation can be via both particulates (dust) and gas (vapours). Vapours can be a problem where buildings have been built on former industrial sites or where volatile contaminants have migrated below buildings resulting in the potential for vapour intrusion. Assesses the potential for humans to be exposed to vapours originating from site soils. The closer the receptor is to a source of volatile chemicals in soil, the greater the potential of exposure. Also, coarser-grained soil will convey vapour much more efficiently in the soil than finer grained material such as clays and silts. General Notes; Someone experienced must provide a thorough description of the sources researched to determine the presence/absence of a vapour migration and/or dust generation in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links. Selected References; Canadian Council of Ministers of the Environment (CCME). 2006. Protocol for the Derivation of Environmental and Human Health Soil Quality Guidelines. PN 1332. www.ccme.ca Golder, 2004. Soil Vapour Intrusion Guidance for Health Canada Screening Level Risk Assessment (SLRA) Submitted to Health Canada, Burnaby, BC

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(III) Exposure (Demonstrates the presence of an exposure pathway and receptors)

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
B. Potential for human exposure				
iii) Ingestion (i.e., ingestion of food items, water and soils [for children]), including traditional foods.		Domestic water well on West Kalum Road near band offices.	Review available site data to determine if drinking water (groundwater, surface water, private, commercial or municipal supply) is known or suspected to be contaminated above Guidelines for Canadian Drinking Water Quality. If drinking water supply is known to be contaminated, some immediate action (e.g., provision of alternate drinking water supply) should be initiated to reduce or eliminate exposure. The evaluation of significant potential for exceedances of the water supply in the future may be based on the capture zones of the drinking water wells; contaminant travel times; computer modelling of flow and contaminant transport.	**Selected References:** Guidelines for Canadian Drinking Water Quality: www.hc-sc.gc.ca/hecs-sesc/water/publications/drinking_water_quality_guidelines/toc.htm Drinking water can be an extremely important exposure pathway to humans. If site groundwater or surface water is not used for drinking, then this pathway is considered to be inoperable. Consider both wild foods such as salmon, venison, caribou, as well as agricultural sources of food items if the contaminated site is on or adjacent to agricultural land uses.
Drinking Water: Choose a score based on the proximity to a drinking water supply, to indicate the potential for contamination (present or future). 0 to 100 m 100 to 300 m 300 m to 1 km 1 to 5 km No drinking water present Do Not Know	1 to 5 km			
Score	1.5			
Is an alternative water supply readily available? Yes No Do Not Know	Do Not Know			
Score	0.5			
Is human ingestion of contaminated soils possible? Yes No Do Not Know	Yes		If contaminated soils are located within the top 1.5 m, it is assumed that ingestion of soils is an operable exposure pathway. Exposure to soils deeper than 1.5 m is possible, but less likely, and the duration is shorter. Refer to human health risk assessment reports for the site in question.	
Score	3			
Are food items consumed by people, such as plants, domestic animals or wildlife harvested from the contaminated land and its surroundings? Yes No Do Not Know	Yes	Fishing in the Kitsumkalum River.	Use human health risk assessment reports (or others) to determine if there is significant reliance on traditional food sources associated with the site. Is the food item in question going to spend a large proportion of its time at the site (e.g., large mammals may spend a very small amount of time at a small contaminated site)? Human health risk assessment reports for the site in question will also provide information on potential bioaccumulation of the COPC in question.	
Score	1			
Ingestion total	6			
Human Health Total "Potential" Score	11.5	Note if a "Known" Human Health score is provided, the "Potential" score is disallowed.		
Allowed "Potential" Score	11.5			
2. Human Exposure Modifying Factors				
a) Strong reliance of local people on natural resources for survival (i.e., food, water, shelter, etc.) Yes No Do Not Know	No	No evidence of reliance on natural resources in proximity to APEC 8.		
Known	0			
Potential	---			
Raw Human "known" total	0			
Raw Human "potential" total	11.5			
Raw Human Exposure Total Score	11.5			
Human Health Total (max 22)	**11.5**			
3. Ecological				
A. Known exposure				
Documented adverse impact or high quantified exposure which has or will result in an adverse effect, injury or harm or impairment of the safety to terrestrial or aquatic organisms as a result of the contaminated site.	18		Some low levels of impact to ecological receptors are considered acceptable, particularly on commercial and industrial land uses. However, if ecological effects are deemed to be severe, the site may be categorized as class one (i.e., a priority for remediation or risk management), regardless of the numerical total NCS score. For the purpose of application of the NCS, effects that would be considered severe include observed effects on survival, growth or reproduction which could threaten the viability of a population of ecological receptors at the site. Other evidence that qualifies as severe adverse effects may be determined based on professional judgement and in consultation with the relevant jurisdiction. If ecological effects are determined to be severe and an automatic Class 1 is assigned, there is no need to proceed through the NCS. However, a scoring guideline (18) is provided in case a numerical score for the site is still desired (e.g., for comparison with other Class 1 sites).	CCME, 1999: Canadian Water Quality Guidelines for the Protection of Aquatic Life. www.ccme.ca CCME, 1999: Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses. www.ccme.ca Sensitive receptors- review: Canadian Council on Ecological Areas; www.ccea.org. Ecological effects should be evaluated at a population or community level, as opposed to at the level of individuals. For example, population-level effects could include reduced reproduction, growth or survival in a species. Community-level effects could include reduced species diversity or relative abundances. Further discussion of ecological assessment endpoints is provided in *A Framework for Ecological Risk Assessment: General Guidance* (CCME 1996). Notes: Someone experienced must provide a thorough description of the sources researched to classify the environmental receptors in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links.
Same as above, but "Strongly Suspected" based on observations or indirect evidence.	12		This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients >1. Alternatively, known impacts can also be evaluated based on a weight of evidence assessment involving a combination of site observations, tissue testing, toxicity testing and quantitative community assessments. Scoring of adverse effects on individual rare or endangered species will be completed on a case-by-case basis with full scientific justification.	
No quantified or suspected exposures/impacts in terrestrial or aquatic organisms	0		This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients of less than 1 and no other observable or measurable sign of impacts. Alternatively, it can be based on a combination of other lines of evidence showing no adverse effects, such as site observations, tissue testing, toxicity testing and quantitative community assessments.	
	Go to Potential			
Score	---			
NOTE: If a score is assigned here for Known Exposure, then you can skip Part B (Potential for Ecological Exposure) and go to Section 4 (Ecological Exposure Modifying Factors)				

(III) Exposure (Demonstrates the presence of an exposure pathway and receptors)

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
B. Potential for ecological exposure (for the contaminated portion of the site)				
a) Terrestrial			Review zoning and land use maps. If the proposed future land use is more "sensitive" than the current land use, evaluate this factor assuming the proposed future use is in place (indicate in the worksheet that future land use is the consideration).	
i) Land use				
Agricultural (or Wild lands)			Agricultural land use is defined as uses of land where the activities are related to the productive capability of the land or facility (e.g., greenhouse) and are agricultural in nature, or activities related to the feeding and housing of animals as livestock. Wild lands are grouped with agricultural land due to the similarities in receptors that would be expected to occur there (e.g., herbivorous mammals and birds) and the similar need for a high level of protection to ensure ecological functioning. Residential/Parkland land uses are defined as uses of land on which dwelling on a permanent, temporary, or seasonal basis is the activity (residential), as well as uses on which the activities are recreational in nature and require the natural or human designed capability of the land to sustain that activity (parkland). Commercial/Industrial land uses are defined as land on which the activities are related to the buying, selling, or trading of merchandise or services (commercial), as well as land uses which are related to the production, manufacture, or storage of materials (industrial).	
Residential/Parkland				
Commercial				
Industrial				
Do Not Know				
	Industrial			
Score	0.5			
ii) Uptake potential		Impacted soil at depths less than 1.5 m.	If contaminated soils are located within the top 1.5 m, it is assumed that direct contact of soils with plants and soil invertebrates is an operable exposure pathway. Exposure to soils deeper than 1.5 m is possible, but less likely.	
Direct Contact - Are plants and/or soil invertebrates likely exposed to contaminated soils at the site?	Yes			
Yes				
No				
Do Not Know				
Score	1			
iii) Ingestion (i.e., wildlife or domestic animals ingesting contaminated food items, soils or water)		Possible migration of groundwater to Kitsumkalum River or other tributaries near APEC 8.		
Are terrestrial animals likely to be ingesting contaminated water at the site?			Refer to an Ecological Risk Assessment for the site. If there is contaminated surface water at the site, assume that terrestrial organisms will ingest it.	
Yes				
No				
Do Not Know	Yes			
Score	1			
Are terrestrial animals likely to be ingesting contaminated soils at the site?			Refer to an Ecological Risk Assessment report. Most animals will co-ingest some soil while eating plant matter or soil invertebrates.	
Yes				
No				
Do Not Know	Yes			
Score	1			
Can the contamination identified bioaccumulate?		Log(Kow) of tolunene is 2.75 and benzene is 2.13 (less than guideline of 4)	Bioaccumulation of contaminants within food items is considered possible if: 1) The Log(Kow) of the contaminant is greater than 4 (as per the chemical characteristics work sheet) and concentrations in soils exceed the most conservative CCME soil quality guideline for the intended land use, or 2) The contaminant in collected tissue samples exceeds the Canadian Tissue Residue Guidelines.	
Yes				
No				
Do Not Know	No			
Score	0			
Distance to sensitive terrestrial ecological area			It is considered that within 300 m of a site, there is a concern for contamination. Therefore an environmental receptor located within this area of the site will be subject to further evaluations. It is also considered that any environmental receptor located greater than 5 km will not be a concern for evaluation. Review Conservation Authority mapping and literature including Canadian Council on Ecological Areas link: www.ccea.org.	Environmental receptors include: local, regional or provincial species of interest or significance; arctic environments (on a site specific basis); nature preserves, habitats for species at risk, sensitive forests, natural parks or forests.
0 to 300 m				
300 m to 1 km				
1 to 5 km				
> 5 km				
Do Not Know				
	Do Not Know			
Score	1.5			
Raw Terrestrial Total Potential	5	Note if a "Known" Ecological Effects score is provided, the "Potential" score is disallowed.		
Allowed Terrestrial Total Potential	5			
B. Potential for ecological exposure (for the contaminated portion of the site)				
b) Aquatic		Kitsumkalum River - fish spawning habitat? Fish food resource?	"Sensitive aquatic environments" include those in or adjacent to shellfish or fish harvesting areas, marine parks, ecological reserves and fish migration paths. Also includes those areas deemed to have ecological significance such as for fish food resources, spawning areas or having rare or endangered species.	
i) Classification of aquatic environment				
Sensitive			"Typical aquatic environments" include those in areas other than those listed above.	
Typical				
Not Applicable (no aquatic environment present)				
Do Not Know				
	Do Not Know			
Score	2			
ii) Uptake potential		No wells within 10 m of a surface water body		
Does groundwater daylighting to an aquatic environment exceed the CCME water quality guidelines for the protection of aquatic life at the point of contact?			Groundwater concentrations of contaminants at the point of contact with an aquatic receiving environment can be estimated in three ways: 1) by comparing collected nearshore groundwater concentrations to the CCME water quality guidelines (this will be a conservative comparison, as contaminant concentrations in groundwater often decrease between nearshore wells and the point of discharge). 2) by conducting groundwater modeling to estimate the concentration of groundwater immediately before discharge. 3) by installing water samplers, "peepers", in the sediments in the area of daylighting groundwater.	
Yes				
No (or Not Applicable)				
Do Not Know	Do Not Know			
Score	0.5			
Distance from the contaminated site to an important surface water resource		250 m to Kitsumkalum River		Environmental receptors include: local, regional or provincial species of interest or significance, sensitive wetlands and fens and other aquatic environments.
0 to 300 m			It is considered that within 300 m of a site, there is a concern for contamination. Therefore an environmental receptor or important water resource located within this area of the site will be subject to further evaluation. It is also considered that any environmental receptor located greater than 5 km away will not be a concern for evaluation. Review Conservation Authority mapping and literature including Canadian Council on Ecological Areas link: www.ccea.org.	
300 m to 1 km				
1 to 5 km				
> 5 km				
Do Not Know				
	0 to 300 m			
Score	3			
Are aquatic species (i.e., forage fish, invertebrates or plants) that are consumed by predatory fish or wildlife consumers, such as mammals and birds, likely to accumulate contaminants in their tissues?		COPC not listed in chemical characteristics work sheet	Bioaccumulation of food items is possible if: 1) The Log(Kow) of the contaminant is greater than 4 (as per the chemical characteristics work sheet) and concentrations in sediments exceed the CCME ISQGs. 2) The contaminant in collected tissue samples exceeds the CCME tissue quality guidelines.	
Yes				
No				
Do Not Know	No			
Score	0			
Raw Aquatic Total Potential	5.5	Note if a "Known" Ecological Effects score is provided, the "Potential" score is disallowed.		
Allowed Aquatic Total Potential	5.5			

(III) Exposure (Demonstrates the presence of an exposure pathway and receptors)

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
4. Ecological Exposure Modifying Factors				
a) Known occurrence of a species at risk. Is there a potential for a species at risk to be present at the site? Yes No Do Not Know	 Do Not Know		Consult any ecological risk assessment reports. If information is not present, utilize on-line databases such as Eco Explorer. Regional, Provincial (Environment Ministries), or Federal staff (Fisheries and Oceans or Environment Canada) should be able to provide some guidance.	Species at risk include those that are extirpated, endangered, threatened, or of special concern. For a list of species at risk, consult Schedule 1 of the federal Species at Risk Act (http://www.sararegistry.gc.ca/species/schedules_e.cfm?id=1). Many provincial governments may also provide regionally applicable lists of species at risk. For example, in British Columbia, consult: BCMWLAP. 2005. Endangered Species and Ecosystems in British Columbia. Provincial red and blue lists. Ministry of Sustainable Resource Management and Water, Land and Air Protection. http://srmwww.gov.bc.ca/atrisk/red-blue.htm
Score	--- 1			
b) Potential impact of aesthetics (e.g., enrichment of a lake or tainting of food flavor). Is there evidence of aesthetic impact to receiving water bodies? Yes No Do Not Know	 No 0 ---		Documentation may consist of environmental investigation reports, press articles, petitions or other records.	This Item will require some level of documentation by user, including contact names, addresses, phone numbers, e-mail addresses. Evidence of changes must be documented, please attach copy of report containing relevant information.
Is there evidence of olfactory impact (i.e., unpleasant smell)? Yes No Do Not Know	No 0 ---		Examples of olfactory change can include the smell of a COPC or an increase in the rate of decay in an aquatic habitat.	
Is there evidence of increase in plant growth in the lake or water body? Yes No Do Not Know	No 0 ---		A distinct increase of plant growth in an aquatic environment may suggest enrichment. Nutrients e.g., nitrogen or phosphorous releases to an aquatic body can act as a fertilizer.	
Is there evidence that fish or meat taken from or adjacent to the site smells or tastes different? Yes No Do Not Know	No 0 ---		Some contaminants can result in a distinctive change in the way food gathered from the site tastes or smells.	
Ecological Modifying Factors Total - Known	**0**			
Ecological Modifying Factors Total - Potential	**1**			
Raw Ecological Total - Known	0			
Raw Ecological Total - Potential	11.5			
Raw Ecological Total	11.5			
Ecological Total (Max 18)	**11.5**			
5. Other Potential Contaminant Receptors				
a) Exposure of permafrost (leading to erosion and structural concerns) Are there improvements (roads, buildings) at the site dependant upon the permafrost for structural integrity? Yes No Do Not Know	 No 0 ---		Consult engineering reports, site plans or air photos of the site. When permafrost melts, the stability of the soil decreases, leading to erosion. Human structures, such as roads and/or buildings are often dependent on the stability that the permafrost provides.	Plants and lichens provide a natural insulating layer which will help prevent thawing of the permafrost during the summer. Plants and lichens may also absorb less solar radiation. Solar radiation is turned into heat which can also cause underlying permafrost to melt.
Is there a physical pathway which can transport soils released by damaged permafrost to a nearby aquatic environment? Yes No Do Not Know	No 0 ---		Melting permafrost leads to a decreased stability of underlying soils. Wind or surface run-off erosion can carry soils into nearby aquatic habitats. The increased soil loadings into a river can cause an increase in total dissolved solids and a resulting decrease in aquatic habitat quality. In addition, the erosion can bring contaminants from soils to aquatic environments.	
Other Potential Receptors Total - Known	**0**			
Other Potential Receptors Total - Potential	**0**			

Exposure Total	
Raw Human Health + Ecological Total - Known	0
Raw Human Health + Ecological Total - Potential	23
Raw Total	23
Exposure Total (max 34)	**17.0**

Only includes "Allowed potential" - if a "Known" score was supplied under a given category then the "Potential" score was not included.

CCME National Classification System (2008, 2010 v 1.2)
Score Summary

Scores from individual worksheets are tallied in this worksheet.
Refer to this sheet after filling out the revised NCS completely.

I. Contaminant Characteristics	Known	Potential
1. Residency Media	4	---
2. Chemical Hazard	8	---
3. Contaminant Exceedance Factor	6	---
4. Contaminant Quantity	9	---
5. Modifying Factors	2	---
Raw Total Score	29	0
Raw Total Score (Known + Potential)	29	
Adjusted Total Score (Raw Total / 40 *33)	**23.9**	(max 33)

II. Migration Potential	Known	Potential
1. Groundwater Movement	9	---
2. Surface Water Movement	---	6.2
3. Soil	12	---
4. Vapour	---	10
5. Sediment Movement	0	---
6. Modifying Factors	0	0
Raw Total Score	21	16.2
Raw Total Score (Known + Potential)	37.2	
Adjusted Total Score (Raw Total / 64 * 33)	**19.2**	(max 33)

III. Exposure	Known	Potential
1. Human Receptors		
A. Known Impact	---	
B Potential		
a. Land Use		0.5
b. Accessibility		1
c. Exposure Route		
i. Direct Contact		3
ii. Inhalation		1
iii. Ingestion		6
2. Human Receptors Modifying Factors	0	---
Raw Total Human Score	0	11.5
Raw Total Human Score (Known + Potential)	11.5	
Adjusted Total Human Score	11.5	(maximum 22)
3. Ecological Receptors		
A. Known Impact	---	
B. Potential		
a. Terrestrial		5
b. Aquatic		5.5
4. Ecological Receptors Modifying Factors	0	1
Raw Total Ecological Score	0	11.5
Raw Total Ecological Score (Known + Potential)	11.5	
Adjusted Total Ecological Score	11.5	(maximum 18)
5. Other Receptors	0	0
Total Other Receptors Score (Known + Potential)	0	
Total Exposure Score (Human + Ecological + Other)	**23.0**	
Adjusted Total Exposure Score (Total Exposure / 46 * 34)	**17.0**	(max 34)

Site Score

Test Site

Site Letter Grade	**D**
Certainty Percentage	**75%**
% Responses that are "Do Not Know"	**9%**
Total NCSCS Score for site	**60.1**
Site Classification Category	**2**

Site Classification Categories*:

Class 1 - High Priority for Action (Total NCS Score >70)
Class 2 - Medium Priority for Action (Total NCS Score 50 - 69.9)
Class 3 - Low Priority for Action (Total NCS Score 37 - 49.9)
Class N - Not a Priority for Action (Total NCS Score <37)
Class INS - Insufficient Information (>15% of responses are "Do Not Know")

* NOTE: The term "action" in the above categories does not necessarily refer to remediation, but could also include risk assessment, risk management or further site characterization and data collection.

CCME National Classification System (2008, 2010 v 1.2)

Contaminant Hazard Ranking

(Based on the Proposed Hazard Ranking developed for the FCSAP Contaminated Sites Classification System)

This information is used in Sheet I (Contaminant Characteristics), section 2 (Chemical Hazard).

Chemical/Parameter	Hazard	CEPA	Carcinogenicity	Notes
Acetaldehyde	H	*	PHC	
Acetone	L			
Acrolein	H	*		
Acrylonitrile	H	*	PHC	
Alachlor	M			
Aldicarb	H			
Aldrin	H			
Allyl Alcohol	H			
Aluminum	L			
Ammonia	L	*		
Antimony	H			
Arsenic	H	*		
Atrazine	M			
Azinphos-Methyl	H			
Barium	L			
Bendiocarb	H			
Benzene	H	*	CHC	BTEX
Benzidine	H	*	CHC	
Beryllium	H		CHC	
Biphenyl, 1,1-	M			
2,3,4,5-Bis(2-Butylene)tetrahydro-2-furfural	H			
Bis(Chloromethyl)Ether	H	*	CHC	
Bis(2-Chloroethyl)Ether	H		CHC	
Bis(2-Chloroisopropyl)Ether	H			
Bis(2-Ethylhexyl)Phthalate	H	*		PH
Boron	L			
Bromacil	M			
Bromate	M			
Bromochlorodifluoromethane	M	*		HM
Bromochloromethane	H	*		HM
Bromodichloromethane	H			HM
Bromoform (Tribromomethane)	H		PHC	HM
Bromomethane	M			HM
Bromotrifluoromethane	M	*		HM
Bromoxynil	H			
Butadiene, 1,3-	H	*	CHC	
Cadmium	H	*	CHC	
Carbofuran	M			
Carbon Tetrachloride (Tetrachloromethane)	H		PHC	HM
Captafol	M			
Chloramines	M	*		
Chloride	L			
Chloroaniline, P-	H			
Chlorobenzene (mono)	M			
Chlorobenzilate	M			
Chlorodimeform	M			
Chloroform	H		PHC	HM
Chloromethane	M			
Chloromethyl Methyl Ether	M	*		
(4-Chlorophenyl)Cyclopropylmethanone, O-((4-Nitrophenyl)Methyl)Oxime	H			
Chlorinated Benzenes				
Monochlorobenzene	M			
Dichlorobenzene, 1,2- (O-DCB)	M			
Dichlorobenzene, 1,3- (M-DCB)	M			
Dichlorobenzene, 1,4- (P-DCB)	H			
Trichlorobenzene, 1,2,3-	M			
Trichlorobenzene, 1,2,4-	M			
Trichlorobenzene, 1,3,5-	M			
Tetrachlorobenzene, 1,2,3,4-	M			
Tetrachlorobenzene, 1,2,3,5-	M			
Tetrachlorobenzene, 1,2,4,5-	M			
Pentachlorobenzene	M			
Hexachlorobenzene	H			
Chlorinated Ethanes				
Dichloroethane, 1,1-	M			
Dichloroethane, 1,2- (Ethylene Dichloride (EDC))	H		PHC	
Trichloroethane, 1,1,1-	H	*		
Trichloroethane, 1,1,2-	M			
Tetrachloroethane, 1,1,1,2-	M			
Tetrachloroethane, 1,1,2,2-	M			
Chlorinated Ethenes				
Monochloroethene (Vinyl Chloride)	H	*	CHC	
Dichloroeth(yl)ene, 1,1-	H			
Dichloroeth(yl)ene, 1,2- (cis or trans)	M			
Trichloroeth(yl)ene (TCE)	H	*		
Tetrachloroeth(yl)ene (PCE)	H	*		
Chlorinated Phenols		*		
Monochlorophenols	M			
Chlorophenol, 2-	M			
Dichlorophenols				
Dichlorophenol, 2,4-	M			
Trichlorophenols				
Trichlorophenol, 2,4,5-	H			
Trichlorophenol, 2,4,6-	H		PHC	
Tetrachlorophenols				
Tetrachlorophenol, 2,3,4,6-	H			
Pentachlorophenol (PCP)	H			
Chloromethane	M			HM
Chlorophenol, 2-	M			CP
Chlorothalonil	H			
Chlorpyrifos	H			
Chromium (Total)	M	*		
Chromium (III)	L	*		
Chromium (VI)	H	*	CHC	
Coal Tar	H		CHC	Refer to PAHs
Cobalt	L			
Copper	L			
Creosote	M	*		Refer to PAHs
Crocidolite	L			
Cyanide (Free)	H			
Cyanazine	M			

Chemical/Parameter	Hazard	CEPA	Carcinogenicity	Notes
Dibenzofuran	H	*		DF
Dibromoethane, 1,2- (Ethylene Dibromide (EDB))	H		PHC	
1,2-Dibromo-3-Chloropropane	H		PHC	
Dibromochloromethane	M	*		HM
Dibromotetrafluoroethane	M			
Dichlorobenzene, 1,2- (O-DCB)	M			CB
Dichlorobenzene, 1,3- (M-DCB)	M			CB
Dichlorobenzene, 1,4- (P-DCB)	H			CB
Dichlorobenzidine, 3,3'-	H		PHC	
DDD	H			
DDE	H			
DDT	H		PHC	
Deltamethrin	M			
Diazinon	M			
Dicamba	H			
Dichloroethane, 1,1-	H			CEA
Dichloroethane, 1,2- (EDC)	H		PHC	CEA
Dichloroeth(yl)ene, 1,1-	H			CEE
Dichloroeth(yl)ene, Cis-1,2-	M			CEE
Dichloroeth(yl)ene, Trans-1,2-	M			CEE
Dichloromethane (Methylene Chloride)	H		PHC	HM
Dichlorophenol, 2,4-	M			CP
Dichloropropane, 1,2-	H			
Dichloropropene, 1,3-	H		PHC	
Diclofop-Methyl	H			
Didecyl Dimethyl Ammonium Chloride	H			
Dieldrin	H			
Dimethoate	H			
Diethyl Phthalate	M			PH
Diethylene Glycol	L			GL
Dimethyl Phthalate	M			PH
Dimethylphenol, 2,4-	L			
Dinitrophenol, 2,4-	M			
Dinitrotoluene, 2,4-	H			
Dinoseb	H			
Di-n-octyl Phthalate	H			
Dioxane, 1,4-	H		PHC	
Dioxins/Furans	H			
Diquat	M			
Diuron	M			
Endosulfan	H			
Endrin	H			
Ethylbenzene	M			BTEX
Ethylene Dibromide (EDB)	H		PHC	
Ethylene Glycol	L			GL
Ethylene Oxide	H		CHC	
Fluoroacetamide	M			
Fluorides	L	*		
Glycols				
Ethylene Glycol	L			
Diethylene Glycol	L			
Propylene Glycol	L			
Glyphosate	M			
Halogenated Methanes				
Bromochlorodifluoromethane	M	*		
Bromochloromethane	M	*		
Bromodichloromethane	H		PHC	
Bromomethane	M			
Bromotrifluoromethane	M	*		
Chloroform	M		PHC	HM
Chloromethane	M			
Dibromochloromethane	M			
Dichloromethane (Methylene Chloride)	H		PHC	
Methyl Bromide	M	*		
Tetrachloromethane (Carbon Tetrachloride)	H			
Tribromomethane (Bromoform)	H			
Trihalomethanes (THM)	M			
Heptachlor	H			
Heptachlor Epoxide	H			
Hexachlorobenzene	H		PHC	
Hexachlorobutadiene	H			
Hexachlorocyclohexane, Gamma	H		PHC	
Hexachloroethane	H		PHC	
Hydrobromofluorocarbons (HBFCS)	M	*		
Hydrochlorofluorocarbons (HCFCS)	M	*		
3-Iodo-2-propynyl Butyl Carbamate	H			
Iron	L			
Lead	H	*		neurotoxins / teratogens
Lead Arsenate	H			
Leptophos	H			
Lindane	H			
Linuron	H			
Lithium	L			
Malathion	M			
Manganese	L			
Mercury	H	*		
Methamidophos	H			
Methoxylchlor	H			
Methyl Bromide (Bromomethane)	M	*		
2-Methyl-4-chloro-phenoxy Acetic Acid	M			
Methyl Ethyl Ketone	L			
Methyl Isobutyl Ketone	L			
Methyl Mercury	H			
Methyl-Parathion	H			
Methyl Tert Butyl Ether (MTBE)	M			
Metolachlor	M			
Metribuzin	H			
Molybdenum	L			
Monochloramine	M			
Monocrotophos	H			
Nickel	H	*		CEPA - inhalation
Nitrilotriacetic Acid	H		PHC	
Nitrate	L			
Nitrite	M			
Nonylphenol + Ethoxylates	H	*		
Organotins				
Tributyltin	H			
Tricyclohexyltin	H			
Triphenyltin	H			

Chemical/Parameter	Hazard	CEPA	Carcinogenicity	Notes
Parathion	H			
Paraquat (as Dichloride)	H			
Pentachlorobenzene	M			CB
Pentachlorophenol (PCP)	H			CP
Petroleum Hydrocarbons				Ranking based upon fraction of toxic and mobile components in product. Lighter compounds such as benzene are more toxic and mobile.
Petroleum Hydrocarbons (Gasoline)	H			
Petroleum Hydrocarbons (Kerosene incl. Jet Fuels)	H			
Petroleum Hydrocarbons (Diesel incl Heating Oil)	M			
Petroleum Hydrocarbons (Heavy Oils)	L			
Petroleum Hydrocarbons (CCME F1)	H			
Petroleum Hydrocarbons (CCME F2)	M			
Petroleum Hydrocarbons (CCME F3)	L			
Petroleum Hydrocarbons (CCME F4)	L			
Phenol	L			
Phenoxy Herbicides	M			
Phorate	H			
Phosphamidon	H			
Phthalate Esters				
Bis(2-Ethylhexyl)Phthalate	H	*		
Diethyl Phthalate	H			
Dimethyl Phthalate	H			
Di-n-octyl Phthalate	H			
Polybrominated Biphenyls (PBB)	H	*		
Polychlorinated Biphenyls (PCB)	H			
Polychlorinated Terphenyls	H	*		
Polycyclic Aromatic Hydrocarbons	H	*	PHC	
Acenaphthene	M			
Acenaphthylene	M			
Acridine	H			
Anthracene	M			
Benzo(a)anthracene	H		PHC	
Benzo(a)pyrene	H		PHC	
Benzo(b)fluoranthene	H		PHC	
Benzo(g,h,i)perylene	H			
Benzo(k)fluoranthene	H		PHC	
Chrysene	M			
Dibenzo(a,h)anthracene	H		PHC	
Fluoranthene	M			
Fluorene	M			
Indeno(1,2,3-c,d)pyrene	H		PHC	
Methylnaphthalenes	M			
Naphthalene	M			
Phenanthrene	M			
Pyrene	M			
Quinoline	H			
Propylene Glycol	L			GL
Radium	H			
Radon	H			
Selenium	M			
Silver	L			
Simazine	M			
Sodium	L			
Strontium-90	H			
Strychnine	H			
Styrene	H			
Sulphate	L			
Sulphide	L			
2,3,7,8-Tetrachlorodibenzo-p-dioxins (TCDD)	H	*		DF
Tebuthiuron	H			
Tetrachloroeth(yl)ene (PCE)	H	*		CEE
Tetraethyl Lead	H			
Tetrachlorobenzene, 1,2,3,4-	H			CB
Tetrachlorobenzene, 1,2,3,5-	H			CB
Tetrachlorobenzene, 1,2,4,5-	H			CB
Tetrachloroethane, 1,1,1,2-	M			CEA
Tetrachloroethane, 1,1,2,2-	M			CEA
Tetrachlorophenol, 2,3,4,6-	H			CP
Tetramethyl Lead	H	*		
Thallium	M			
Thiophene	M			
Tin	L			
Toluene	M			BTEX
Toxaphene	H			
Triallate	M			
Tribromomethane (Bromoform)	H			HM
Tributyltetradecylphosphonium Chloride	H	*		
Trichlorobenzene, 1,2,3-	H			CB
Trichlorobenzene, 1,2,4-	H			CB
Trichlorobenzene, 1,3,5-	H			CB
Trichloroethane, 1,1,1-	H	*		CEA
Trichloroethane, 1,1,2-	M			CEA
Trichloroeth(yl)ene (TCE)	H	*		CEE
Tricyclohexyltin Hydroxide	H			
Trichlorophenol, 2,4,5-	H			CP
Trichlorophenol, 2,4,6-	H		PHC	CP
Trifluralin	H			
Trihalomethanes (THM)	M			
Tris(2,3-Dibromopropyl)phosphate	H			
Tritium	L			
Uranium (Non-radioactive) / (Radioactive)	M/H			
Vanadium	M			
Vinyl Chloride	H	*	CHC	CEE
Xylenes	M			BTEX
Zinc	L			

H = High Hazard
M = Medium Hazard
L = Low Hazard
Hazard ratings based on a number of factors including potential human and ecological health effects.

PHC = Potential Human Carcinogen
CHC = Confirmed Human Carcinogen

BTEX = benzene, toluene, ethylbenzene, and xylenes
CB = chlorobenzenes
CEA = chlorinated ethanes
CEE = chlorinated ethenes
CP = chlorophenols
DF = dioxins and furans
GL = glycols
HM = halomethanes
PAH = polycyclic aromatic hydrocarbons
PH = phthalate esters

CCME National Classification System (2008, 2010 v 1.2)

Reference Material (Information to assist in scoring)

Examples of Persistent Substances

This information is used in Sheet I (Chemical Characteristics), section 5 (Modifying Factors).

aldrin	dieldrin	PCBs
benzo(a)pyrene	hexachlorobenzene	PCDDs/PCDFs (dioxins and furans)
chlordane	methylmercury	toxaphene
DDT	mirex	alkylated lead
DDE	octachlorostyrene	

Examples of Substances in the Various Chemical Classes

This information is used in Sheet I (Chemical Characteristics), section 5 (Modifying Factors).

Chemical Class	Examples *
inorganic substances (including metals)	arsenic, barium, cadmium, hexavalent chromium, copper, cyanide, fluoride, lead, mercury, nickel, selenium, sulphur, zinc; brines or salts
volatile petroleum hydrocarbons	benzene, toluene, ethylbenzene, xylenes, PHC F1
light extractable petroleum hydrocarbons	PHC F2
heavy extractable petroleum hydrocarbons	PHC F3
PAHs	Benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, dibenz(a,h0anthracene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, pyrene
phenolic substances	phenol, pentachlorophenol, chlorophenols, nonchlorinated phenols (e.g., 2,4-dinitrophenol, cresol, etc.)
chlorinated hydrocarbons	PCBs, tetrachloroethylene, trichloroethylene, dioxins and furans, trichlorobenzene, tetrachlorobenzene, pentachlorobenzene, hexachlorobenzene
halogenated methanes	carbon tetrachloride, chloroform, dichloromethane
phthalate esters	di-isononyl phthalate (DINP), di-isodecyl phthalate (DIDP), di-2-ethylhexyl phthalate (DEHP)
pesticides	DDT, hexachlorocyclohexane

* Note: Specific chemicals that belong to the various classes are not limited to those listed in this table. These lists are not exhaustive and are meant just to provide examples of substances that are typically encountered.

Chemical-specific Properties
(Adapted from USEPA Soil Screening Criteria)

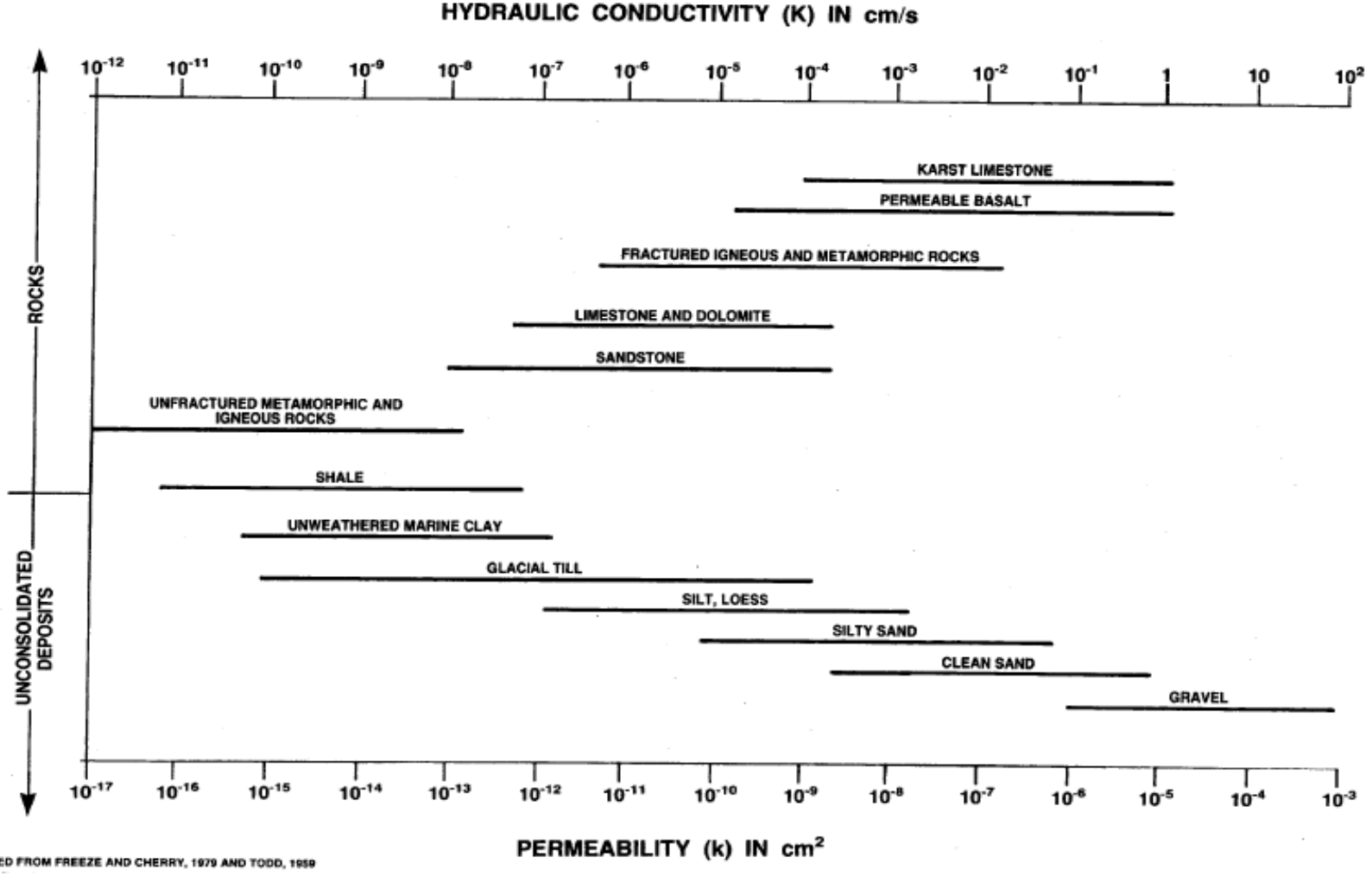
The information on Koc is used in Sheet II (Migration Potential), section 1,B,a (Relative Mobility).
The information on the dimensionless Henry's law constant is used in Sheet II (Migration Potential), section 4,B,a (Relative Volatility).
The information on log Kow is used in Sheet III (Exposure), section 3,B,a,iii (Potential for Ecological Exposure - terrestrial ingestion), and section 3,B,b,ii (Potential for Ecological Exposure - aquatic uptake potential).

CAS No.	Compound	Solubility in Water @ 20-25°C (mg/L)	Henry's Law Constant (atm-m3/mol)	Dimensionless Henry's law constant (HLC [atm-m3/mol] * 41) (25 °C).	log Kow	Log Koc (L/kg)
83-32-9	Acenaphthene	4.24E+00	1.55E-04	6.36E-03	3.92	3.85
67-64-1	Acetone	1.00E+06	3.88E-05	1.59E-03	-0.24	-0.24
309-00-2	Aldrin	1.80E-01	1.70E-04	6.97E-03	6.5	6.39
120-12-7	Anthracene	4.34E-02	6.50E-05	2.67E-03	4.55	4.47
56-55-3	Benz(a)anthracene	9.40E-03	3.35E-06	1.37E-04	5.7	5.6
71-43-2	Benzene	1.75E+03	5.55E-03	2.28E-01	2.13	1.77
205-99-2	Benzo(b)fluoranthene	1.50E-03	1.11E-04	4.55E-03	6.2	6.09
207-08-9	Benzo(k)fluoranthene	8.00E-04	8.29E-07	3.40E-05	6.2	6.09
65-85-0	Benzoic acid	3.50E+03	1.54E-06	6.31E-05	1.86	—
50-32-8	Benzo(a)pyrene	1.62E-03	1.13E-06	4.63E-05	6.11	6.01
111-44-4	Bis(2-chloroethyl)ether	1.72E+04	1.80E-05	7.38E-04	1.21	1.19
117-81-7	Bis(2-ethylhexyl)phthalate	3.40E-01	1.02E-07	4.18E-06	7.3	7.18
75-27-4	Bromodichloromethane	6.74E+03	1.60E-03	6.56E-02	2.1	1.74
75-25-2	Bromoform	3.10E+03	5.35E-04	2.19E-02	2.35	1.94
71-36-3	Butanol	7.40E+04	8.81E-06	3.61E-04	0.85	0.84
85-68-7	Butyl benzyl phthalate	2.69E+00	1.26E-06	5.17E-05	4.84	4.76
86-74-8	Carbazole	7.48E+00	1.53E-08	6.26E-07	3.59	3.53
75-15-0	Carbon disulfide	1.19E+03	3.03E-02	1.24E+00	2	1.66
56-23-5	Carbon tetrachloride	7.93E+02	3.04E-02	1.25E+00	2.73	2.24
57-74-9	Chlordane	5.60E-02	4.86E-05	1.99E-03	6.32	5.08
106-47-8	*p-Chloroaniline*	5.30E+03	3.31E-07	1.36E-05	1.85	1.82
108-90-7	Chlorobenzene	4.72E+02	3.70E-03	1.52E-01	2.86	2.34
124-48-1	Chlorodibromomethane	2.60E+03	7.83E-04	3.21E-02	2.17	1.8
67-66-3	Chloroform	7.92E+03	3.67E-03	1.50E-01	1.92	1.6
95-57-8	2-Chlorophenol	2.20E+04	3.91E-04	1.60E-02	2.15	—
218-01-9	Chrysene	1.60E-03	9.46E-05	3.88E-03	5.7	5.6
72-54-8	DDD	9.00E-02	4.00E-06	1.64E-04	6.1	6
72-55-9	DDE	1.20E-01	2.10E-05	8.61E-04	6.76	6.65
50-29-3	DDT	2.50E-02	8.10E-06	3.32E-04	6.53	6.42
53-70-3	Dibenz(a,h)anthracene	2.49E-03	1.47E-08	6.03E-07	6.69	6.58
84-74-2	Di-n-butyl phthalate	1.12E+01	9.38E-10	3.85E-08	4.61	4.53
95-50-1	1,2-Dichlorobenzene	1.56E+02	1.90E-03	7.79E-02	3.43	2.79
106-46-7	1,4-Dichlorobenzene	7.38E+01	2.43E-03	9.96E-02	3.42	2.79
91-94-1	3,3-Dichlorobenzidine	3.11E+00	4.00E-09	1.64E-07	3.51	2.86
75-34-3	1,1-Dichloroethane	5.06E+03	5.62E-03	2.30E-01	1.79	1.5
107-06-2	1,2-Dichloroethane	8.52E+03	9.79E-04	4.01E-02	1.47	1.24
75-35-4	1,1-Dichloroethylene	2.25E+03	2.61E-02	1.07E+00	2.13	1.77
156-59-2	cis-1,2-Dichloroethylene	3.50E+03	4.08E-03	1.67E-01	1.86	1.55
156-60-5	trans-1,2-Dichloroethylene	6.30E+03	9.38E-03	3.85E-01	2.07	1.72
120-83-2	2,4-Dichlorophenol	4.50E+03	3.16E-06	1.30E-04	3.08	—
78-87-5	1,2-Dichloropropane	2.80E+03	2.80E-03	1.15E-01	1.97	1.64
542-75-6	1,3-Dichloropropene	2.80E+03	1.77E-02	7.26E-01	2	1.66
60-57-1	Dieldrin	1.95E-01	1.51E-05	6.19E-04	5.37	4.33
84-66-2	Diethylphthalate	1.08E+03	4.50E-07	1.85E-05	2.5	2.46
105-67-9	2,4-Dimethylphenol	7.87E+03	2.00E-06	8.20E-05	2.36	2.32
51-28-5	2,4-Dinitrophenol	2.79E+03	4.43E-07	1.82E-05	1.55	—
121-14-2	2,4-Dinitrotoluene	2.70E+02	9.26E-08	3.80E-06	2.01	1.98
606-20-2	2,6-Dinitrotoluene	1.82E+02	7.47E-07	3.06E-05	1.87	1.84
117-84-0	Di-n-octyl phthalate	2.00E-02	6.68E-05	2.74E-03	8.06	7.92
115-29-7	Endosulfan	5.10E-01	1.12E-05	4.59E-04	4.1	3.33
72-20-8	Endrin	2.50E-01	7.52E-06	3.08E-04	5.06	4.09
100-41-4	Ethylbenzene	1.69E+02	7.88E-03	3.23E-01	3.14	2.56
206-44-0	Fluoranthene	2.06E-01	1.61E-05	6.60E-04	5.12	5.03
86-73-7	Fluorene	1.98E+00	6.36E-05	2.61E-03	4.21	4.14
76-44-8	Heptachlor	1.80E-01	1.09E-03	4.47E-02	6.26	6.15
1024-57-3	Heptachlor epoxide	2.00E-01	9.50E-06	3.90E-04	5	4.92
118-74-1	Hexachlorobenzene	6.20E+00	1.32E-03	5.41E-02	5.89	4.74
87-68-3	Hexachloro-1,3-butadiene	3.23E+00	8.15E-03	3.34E-01	4.81	4.73
319-84-6	a-HCH (a-BHC)	2.00E+00	1.06E-05	4.35E-04	3.8	3.09
319-85-7	b-HCH (b-BHC)	2.40E-01	7.43E-07	3.05E-05	3.81	3.1
58-89-9	g -HCH (Lindane)	6.80E+00	1.40E-05	5.74E-04	3.73	3.03
77-47-4	Hexachlorocyclopentadiene	1.80E+00	2.70E-02	1.11E+00	5.39	5.3
67-72-1	Hexachloroethane	5.00E+01	3.89E-03	1.59E-01	4	3.25
193-39-5	Indeno(1,2,3-cd)pyrene	2.20E-05	1.60E-06	6.56E-05	6.65	6.54
78-59-1	Isophorone	1.20E+04	6.64E-06	2.72E-04	1.7	1.67
7439-97-6	Mercury	—	1.14E-02	4.67E-01	—	—
72-43-5	Methoxychlor	4.50E-02	1.58E-05	6.48E-04	5.08	4.99
74-83-9	Methyl bromide	1.52E+04	6.24E-03	2.56E-01	1.19	1.02
75-09-2	Methylene chloride	1.30E+04	2.19E-03	8.98E-02	1.25	1.07
95-48-7	2-Methylphenol	2.60E+04	1.20E-06	4.92E-05	1.99	1.96
91-20-3	Naphthalene	3.10E+01	4.83E-04	1.98E-02	3.36	3.3
98-95-3	Nitrobenzene	2.09E+03	2.40E-05	9.84E-04	1.84	1.81
86-30-6	N-Nitrosodiphenylamine	3.51E+01	5.00E-06	2.05E-04	3.16	3.11
621-64-7	N-Nitrosodi-n-propylamine	9.89E+03	2.25E-06	9.23E-05	1.4	1.38
1336-36-3	PCBs	—	—	—	5.58	5.49
87-86-5	Pentachlorophenol	1.95E+03	2.44E-08	1.00E-06	5.09	—
108-95-2	Phenol	8.28E+04	3.97E-07	1.63E-05	1.48	1.46
129-00-0	Pyrene	1.35E-01	1.10E-05	4.51E-04	5.11	5.02
100-42-5	Styrene	3.10E+02	2.75E-03	1.13E-01	2.94	2.89
79-34-5	1,1,2,2-Tetrachloroethane	2.97E+03	3.45E-04	1.41E-02	2.39	1.97
127-18-4	Tetrachloroethylene	2.00E+02	1.84E-02	7.54E-01	2.67	2.19
108-88-3	Toluene	5.26E+02	6.64E-03	2.72E-01	2.75	2.26
8001-35-2	Toxaphene	7.40E-01	6.00E-06	2.46E-04	5.5	5.41
120-82-1	1,2,4-Trichlorobenzene	3.00E+02	1.42E-03	5.82E-02	4.01	3.25
71-55-6	1,1,1-Trichloroethane	1.33E+03	1.72E-02	7.05E-01	2.48	2.04
79-00-5	1,1,2-Trichloroethane	4.42E+03	9.13E-04	3.74E-02	2.05	1.7
79-01-6	Trichloroethylene	1.10E+03	1.03E-02	4.22E-01	2.71	2.22
95-95-4	2,4,5-Trichlorophenol	1.20E+03	4.33E-06	1.78E-04	3.9	—
88-06-2	2,4,6-Trichlorophenol	8.00E+02	7.79E-06	3.19E-04	3.7	—
108-05-4	Vinyl acetate	2.00E+04	5.11E-04	2.10E-02	0.73	0.72
75-01-4	Vinyl chloride	2.76E+03	2.70E-02	1.11E+00	1.5	1.27
108-38-3	m-Xylene	1.61E+02	7.34E-03	3.01E-01	3.2	2.61
95-47-6	o-Xylene	1.78E+02	5.19E-03	2.13E-01	3.13	2.56
106-42-3	p-Xylene	1.85E+02	7.66E-03	3.14E-01	3.17	2.59

Source: United States Environmental Protection Agency. 1996. Soil Screening Guidance: Technical Background Document. EPA/540/R-95/128 (http://www.epa.gov/superfund/resources/soil/toc.htm#p5)
CAS = Chemical Abstracts Service
Kow = Octanol/water partition coefficient

RANGE OF VALUES OF HYDRAULIC CONDUCTIVITY AND PERMEABILITY

The information on Koc is used in Sheet II (Migration Potential), section 1,B,f (Hydraulic Conductivity)



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