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Data Entry Procedures for Soil Laboratory Forms

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DATA ENTRY PROCEDURES FOR LABORATORY FORMS

(BCSIS Volume 3)

by
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OVERVIEW OF THE BRITISH COLUMBIA SOIL INFORMATION SYSTEM (BCSIS)

BCSIS is a computer based soil information system incorporating site, morphological, and laboratory data. The main objectives of the system are: to increase accessibility and reliability of soils information; to increase accuracy, volume, speed of response, and sophistication of interpretations; to increase speed of legend development; to increase ability to integrate soils data with other resource data. The system includes a number of easy to use functions related to data control, data management, and report generation. For data analysis, BCSIS is designed to be used in conjunction with the commercially available Statistical Analysis System (SAS). BCSIS resides on the Victoria mainframe computer but is accessible as well in other cities through the DATAPAC and SNA communications networks.

An extension of BCSIS is the Soil Laboratory System (SLS). SLS is an interactive, PDP 11/24 based minicomputer system designed to capture physical and chemical soils data determined in the soils laboratory in Kelowna. The main objectives of the system are: to increase the volume of samples which the lab can process, by eliminating or reducing the need to maintain lab notebooks and paper administrative records; to allow quick and accurate entry of the data into BCSIS files, by providing for the transference of final results to the mainframe in Victoria over the DATAPAC network. Raw data are entered into a number of video terminals located in the lab. Virtually all calculated results are performed automatically by the computer, provided that the raw data required by the calculations have already been entered. Reports on the laboratory analyses are printed and sent to the soil scientist requesting the analyses. The data may also be accessed and manipulated through BCSIS and SAS.

This document is one of a series describing BCSIS. These documents are written primarily for the professional soil scientist or ecologist, as opposed to the computer specialist. The titles within the series are as follows:

User Manual for the British Columbia Soil Information System (BCSIS Volume 1).
Data Entry Procedures for Ecosystem Description Forms (BCSIS Volume 2).
Data Entry Procedures for Soil Laboratory Forms (BCSIS Volume 3).
British Columbia Soil Information System Validation Procedures (BCSIS Volume 4).
Manipulation of Soils Data Using the British Columbia Soil Information System (BCSIS Volume 5).

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Mark Sondheim

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Purpose

The purpose of this document is to give concise, detailed information as to how the Laboratory Requisition Form and the Manual Laboratory Data Entry Form are to be completed. This degree of standardization is required in order to ensure correct laboratory analysis and to simplify data entry and edit procedures for the British Columbia Soil Information System (BCSIS). Accurate matching of laboratory forms with site and soil forms is necessary to ensure that laboratory data is matched to the correct profile. Data from the manual laboratory data entry forms will be entered into BCSIS directly by professional key entry personnel who will not have any particular knowledge of this type of data.

How To Use The Procedure

First read the glossary and the general comments in this volume. Next examine the specific instructions for the KELOWNA SOIL LABORATORY REQUISITION FORM and the MANUAL SOIL LABORATORY DATA ENTRY FORM. All laboratory and data entry instructions are referenced by the headings as they appear on the forms. The field length, the field description, and comments about special characters or formats are provided where applicable. The possible entries are generally listed. The appendices provide a list of laboratory method codes and lists of standard analyses referred to on the laboratory requisition form. Completed forms are included in this document. These forms include examples described in the text of this document plus additional examples for clarification. The surveyor should refer to the appropriate completed form while following the instructions in the text.

GLOSSARY

Field

The space allocated for a given item on a data form on a computer transaction or in a computer file.

Field Length

The maximum number of characters which may be entered for a given item. There are two general modes which may be used as shown by example here:

4	a field length of 4, with no reference as to the type of characters which it may contain.
5,2	a field length of 5, with the implication that the first three characters precede the decimal point and that the last two characters follow the decimal point. All five characters are assumed to be numeric. Thus, the number **123.12** has a field length of 5,2.

Type

A reference to one of the following three categories of data:

N	numeric characters. These are the ten digits 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9. Decimal points are not included. Blanks may be included if they are leading, as indicated by the following example.**10** and **010** are equivalent. (The entry 1 is not allowed.) Zeroes instead of blanks should follow a decimal. (A depth of 10 cm should be entered as **10.0**) Items 4 and 6 of the site form provide the only apparent exception to these rules.
A	alphabetic characters. These are the twenty-six letters of the alphabet plus the blank character.
AN	alphanumeric characters. These include all numeric and all alphabetic characters only.
C	all possible characters. These include characters, alphabetic characters, and special characters. Special characters which may be used are: * # % @ : ; , . ? ! ‘ “ ( ) + - = < >. A slash (/) must not be used in items 1, 2, 8, 14, 15, and 47 on the Site Description Form; it may be used anywhere else where character data are allowed.

Format

A reference to one of the following two categories of data storage:

X fixed - the position of each character of the data element is directly connotative. All numeric entries for example are fixed. Fixed format data can be readily used in sorting or analytic procedures. Specific edit procedures can usually be established for fixed format data.

E free - the position of each character of the data element is **not** connotative. All 'comments' or 'notes' entries are free. Free format data may appear in a report or description of a site but often cannot be easily used in sorting or analytic procedures. Specific edit procedures usually can**not** be established for free format data.

Exception - a certain number of the leading characters of a free format entry may be considered as fixed if special arrangements are made with the systems analyst in the Terrestrial Studies Branch. Thus, with certain modifications, agricultural capability ratings for example may be entered as fixed format data In what normally would be a 'comments' or 'notes' item.

Justification

A reference to one of the following two forms of data entry.

L left justified. The data is entered in the left-hand most part of the field. If for example the field length is 6 and the letters to be entered are ACK, then left justification would appear as follows: **ACK**. Normally, alphabetic characters are left justified.

R right justified. The data is entered in the right-hand most part of the field. Right justification would appear as follows: **115**. Normally, numeric characters are right justified. fields which assume a decimal are always right justified for the integer part of the number. The fractional part of the number should always be complete; thus, a slope of five percent would be entered as **5.0** under item 10 on the site form.

Field Description

Specification of type format and justification as shown by the following example. A-X-L indicates alphabetic character data of a fixed format and left justified. Numeric fixed entries with decimals are right justified and filled with zeros on the right as discussed above; thus, a justification code is not given for them in the tables which follow.

GENERAL COMMENTS

Series Form Number and Level

Each KELOWNA SOIL LABORATORY REQUISITION FORM and MANUAL SOIL LABORATORY DATA ENTRY FORM **must** have the form series, form number, and level(s) corresponding to the appropriate soil form. Pages stapled together may be separated by key entry personnel. The form number **must** be right justified. The KELOWNA SOIL LABORATORY REQUISITION FORM is sent directly to the Kelowna Laboratory. Therefore, **do not** staple this form to the site, soil, or manual data entry forms. The MANUAL SOIL LABORATORY DATA ENTRY FORM in addition to the site and soil forms are sent to the Data Entry Officer, Terrestrial Studies Branch in Victoria.

Note that for composite samples the level designation on the laboratory forms must be the same as the level designation on the soil form. Composite sample designations for level(s) are dealt with in greater detail in “Data Entry Procedures For Ecosystem Description Forms”.

Style

Printing is mandatory for all entries. Fewer key entry errors will result if capital letters are used exclusively. The letter O should have a slash through it. The letter I should have bars on the top and bottom.

BCSIS Soil Laboratory Test Parameters and Test Method Dictionary

Appendix D contains the parameter codes and descriptions used by BCSIS for assigning and accessing the laboratory results obtained for the individual levels of each soil profile. The parameters are listed in numerical and alphabetical order in Parts A and B, respectively of the appendix. A brief explanation of the headings in the appendix is as follows. The PARAMETER CODE is a three digit code used in BCSIS for data storage. The PARAMETER NAME is a brief English description of the parameter. The PARAMETER ABBR. is the name used in reports produced by BCSIS or the Soil Laboratory System. The SAS NAME is a name assigned by the SAS macro statement when the parameter is extracted to an external file (see BCSIS Volume 1). The LOWER LIMIT and UPPER LIMIT give the range in values expected for the parameter. A warning message will be given by the BCSIS edit procedure if a value occurs outside of this range. The warning can be ignored if the surveyor feels that the result is valid. MEASUREMENT UNITS are the units for the parameters. A “C” is noted under CALCULATED VALUE for parameters calculated from other parameter(s).

Appendix E contains a complete list of the laboratory preparations and methods that can be performed for the parameters of Appendix D. The PARAMETER CODE is the same three digit code used in Appendix D. The PREPARATION CODE and METHOD CODE are two digit codes used by BCSIS to assign the appropriate preparation and method, respectively, to each analytical result. The PREPARATION and METHOD are brief English descriptions of the preparation and method respectively. The use of Appendices D and E are explained in later sections of this document.

Laboratory Analysis Requests

For each soil profile description, a separate KELOWNA SOIL LABORATORY REQUISITION FORM **must** be filled out. Each field sample must include a tag which clearly states the Form Number and Level. In addition, tags on bulk density samples for each profile must include sample numbers (i.e. Sample 1, 2, or 3). Requests for analysis from two or more soil profiles are not permitted on the same form. When large numbers of grab samples are to be collected for a survey, the Kelowna Laboratory Supervisor should be contacted for special instructions regarding laboratory requests. Note that both sides of the form can be used for requesting laboratory analyses. Thus using one form, analyses could be requested for up to 13 horizons or levels per profile.

If the forms have been sent to Kelowna and it is subsequently desirable to request additional analyses, or to repeat earlier analyses there are two methods for obtaining the additional analyses. The first method would be to phone the Kelowna Laboratory, reference the appropriate FORM and LEVEL, and request that the requisition form be updated to include the additional analyses or that a previous analysis should be repeated. The second method would be to fill out an additional laboratory requisition form with the appropriate information and to write at the top of the form “ADDITIONAL TESTS FOR THIS PROFILE”. This notation will notify the laboratory staff that this is an update form. Note that if the procedures do not appear to adequately describe the desired analyses, you should contact the Kelowna laboratory for further instructions.

BCSIS is designed to handle only one entry per laboratory parameter. Thus, if a parameter was remeasured the new measurement will replace the previously entered value when the new information is entered into BCSIS. In cases where a different preparation and method are used the new preparation and method codes will replace the old codes. To alleviate this problem for laboratory parameters commonly measured by more than one method, a limited number of extra parameters have been included. For example, cation exchange capacity is parameter 017 and CEC: second method is parameter 018. Use of these two parameters will allow the storage of cation exchange capacity data obtained by two different methods.

Laboratory Data Entry

Laboratory Results

The results of the requested laboratory analysis will be mailed to the surveyor. The results will also be electronically transferred from the Soil Laboratory System to BCSIS. They will then be accessible for further review and data analysis through BCSIS. To ensure that BCSIS properly stores the laboratory results it is necessary that the site and soil data forms are entered into the system **before** the analytical results are entered. Therefore, it is the responsibility of the survey supervisor to ensure that the site and soil forms are entered into BCSIS as soon as possible.

The MANUAL SOIL LABORATORY DATA ENTRY FORM is used to enter laboratory results into BCSIS where either i) the results are obtained from a laboratory other than Kelowna or ii) the results were obtained prior to implementation of the computer-based, laboratory data entry system. The form is a coding sheet divided into four blocks two blocks per side. Each block is designed to input laboratory data from a single profile. Thus laboratory data for four separate profiles could be entered by using a single form. However, it may be less confusing for the surveyor to use a separate form for each profile. When more than 25 data entries are to be inputted to BCSIS for a given profile or when data has been entered into BCSIS at an earlier time for a profile, it is necessary to use more than one block. In this case the letters “ADDLOO” (upper left hand corner of each block) are crossed out for each additional block used to enter the complete set of data. This tells the computer system that this block of code is a continuation of data entry from a previous block. The form number and lab ID are entered for each additional block. Otherwise the forms are filled out according to the appropriate instructions. It is assumed that the site and soil forms have been previously entered into BCSIS.

KELOWNA SOIL LABORATORY REQUISITION FORM

Form Number: 82-0001

Project ID: SOMASS

Agency MEIS

Surveyor: H. QUESNEL

NEW Address: TERRESTRIAL STUDIES, MINISTRY OF ENVIRONMENT, PARLIAMENT BLDGS, VICTORIA, B.C. V8V 1X5

Phone: 387-1941 387-1851

Level	Disc.	Hor.	Suffixes	Sub.	Depths	Grab	STNICHEM	FEALO1	FEALO2	FEALO3	EC	FIBRE	TEXSUM	SIEVE-1	ATBERG	SIEVE-2	GEOSTPET	PIPET	F-CLAY	AMSC	TOT-P	TOT-S	CALCARB	H/F	BD	MISC	INHA-M	HITPATF	Miscellaneous A	B	C	D	E	F	G	H	I
A		L,F,H			10 0		X		X																											
							Other: 0,5,1 0,5,2																																
							Comments:																															
B		B	H,F	1	0 1,0		X		X				X		X																					
							Other: 0,1,8																															
							Comments: 0,2,5,8																															
C		B	H,F	2	1,0 5,0		X		X																											
							Other:																															
							Comments:																															
F	I,I	C	G		6,0 1,0,0	X																															
							Other: 0,0,5 0,0,8																															
							Comments:																															
H		D,1			0 5,0	X						X																								
							Other: 0,1,7																															
							Comments: 0,2,5,8, PREPMETH CODE																															
							Other:																															
							Comments:																															

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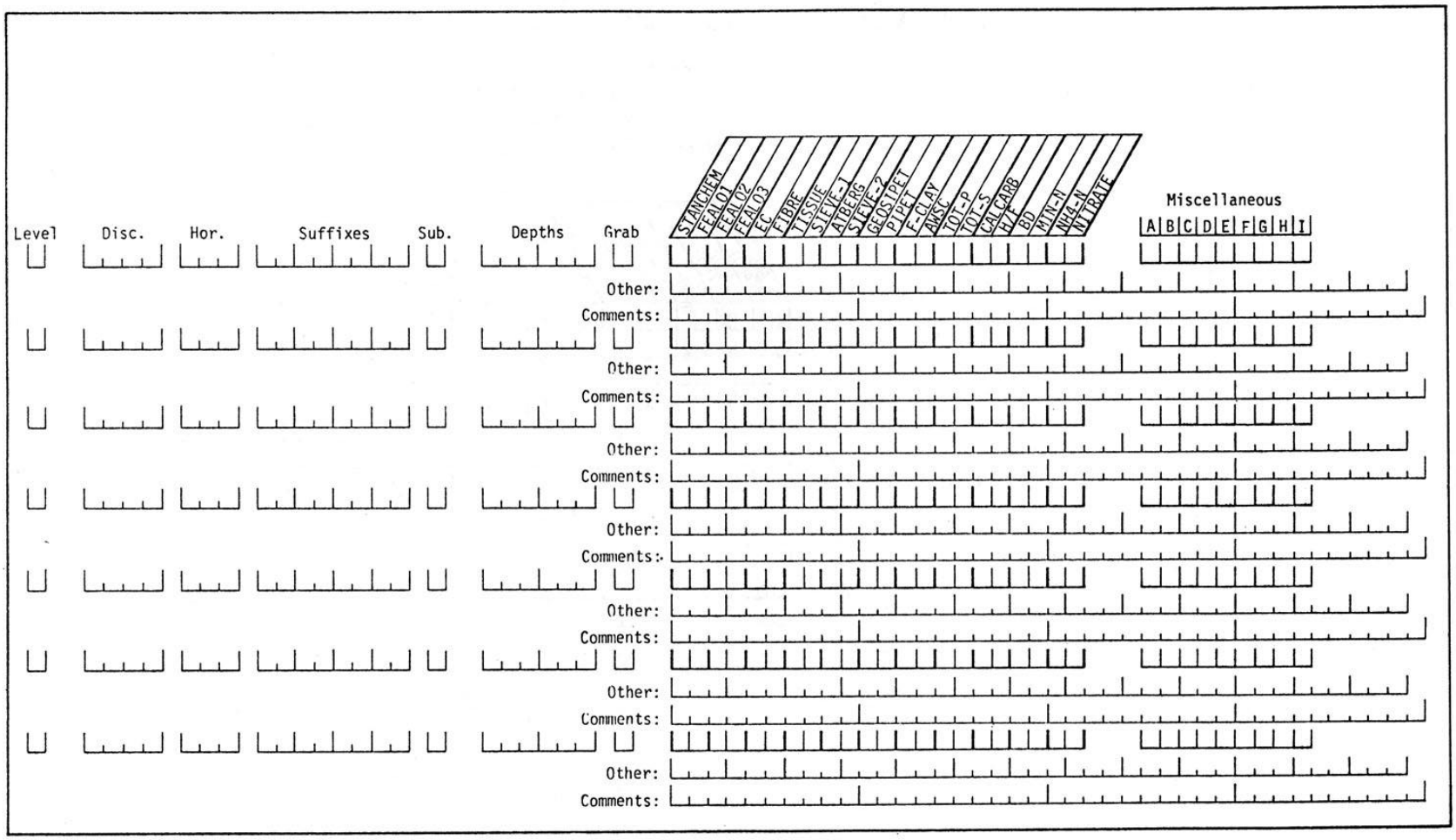
ENV 1922


Level
Disc.
Hor.
Suffixes
Sub.
Depths
Grab
STANCHEM
FEAL01
FEAL02
FEAL03
FC
FIBRE
TISSUE
SIEVE-1
ATBERG
SIEVE-2
GEOSTPET
PIPET
F-CLAY
AMSC
TOT-P
TOT-S
CALCARB
H2F
BD
MIN-N
NH4-N
NITRATE
Miscellaneous
A B C D E F G H I
Other:
Comments:
M28-61

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KELOWNA SOIL LABORATORY REQUISITION FORM - PROCEDURES

Description	Comments	Field Length	Field Description
Form Number	Enter the appropriate numeric code from the Site and Soil Forms. Up to five numeric characters are entered to the right of the dash. Note that the form number is right justified. It is imperative that the site, soil, and laboratory form numbers match. The form number must also be included on a tag or label attached to or enclosed with the field sample.	5	N-X-R
Project ID	Enter the same project code as is entered on the site form. Consistent project code for the site and laboratory requisition forms is desirable for future data access.	25	C-E-L
Agency	One agency is entered. Codes are given in Appendix A. Where two agencies are entered on the site form enter the first agency on the laboratory requisition form. At the beginning of a project, the survey chief should contact the Kelowna Laboratory to inform the laboratory supervisor of the project code(s) and the names of the surveyors who will be requesting analyses. The laboratory may assign reference codes for agency and surveyor. These codes could then be used under agency and surveyor to ensure correct entry of laboratory data into BCSIS. The code is entered left justified.	4	A-X-L
Surveyor	Enter the name of the individual who will receive the review report for laboratory results. Where more than one surveyor is involved, enter the name of the surveyor who will be the main contact for the laboratory. Only one name should be entered.	20	C-E-L
Address	Enter the complete address of the individual who will receive the review report for laboratory results. Note that it is necessary to only fill out **one** address per set of laboratory requisition forms submitted to the laboratory. If your address has changed since you last submitted laboratory requisition forms please ensure that your current address is listed and write “NEW” in front of “Address” on the form. This will enable the laboratory to update your address. Use the three lines to enter your address as it would appear on mail sent to your office or place of work. Do not include your name in this section.	32 32 32	C-E-L C-E-L C-E-L
Phone	Enter the telephone number(s) where the laboratory may contact the surveyor if further information or clarification is needed with respect to the laboratory requests. Where two numbers are entered, leave at least one blank space between the two numbers.	20	C-E-L

KELOWNA SOIL LABORATORY REQUISITION FORM - PROCEDURES (Continued)

Description	Comments	Field Length	Field Description
Level	Enter the alpha characters "A" to "M" which correspond to the level designation on the soil form for those levels requiring laboratory analysis. A maximum of 13 levels or horizons may be requested per requisition form. Note that it is essential that the level destination on the soil and laboratory forms are identical and that the level designation is clearly indicated on the sample tag or label. Also note that a level designation may only be used once on the same form; therefore ensure that all laboratory requests for a certain level are listed under a single level designation. Note that if analyses have been requested for more than 13 levels enter the remaining requests on a second requisition form, with the Form Number and Levels duly indicated.	1	A-X
Disc.	Discontinuity. Leave blank or enter the appropriate Roman numerals (e.g. II, III, IV) used for the corresponding level on the soil form.	4	A-X-L
Hor.	Horizon. Enter the master horizon designation used for the corresponding level on the soil form. Acceptable horizon designations include: O, L, F, H, LF, LH, FL, FH, HL, HF, LFH, LHF, FLH, FHL, HFL, HLF, A, B, C, AB, BA, AC, CA, BC, CH, A%B, B%A, A%C, C%A, B%C, C%B, W, R, ASH, D1 through D99. Dl D2 etc. are non-descriptive layer designations by depth.		
Suffixes	Enter the suffix(es) used for the corresponding level on the soil form. Suffix entries may be one or more of the following, subject to certain restrictions: CA, CC, CO, SA, EJ, TJ, FJ, NJ, GJ, GF, HF, B, C, E, T, F, G, H, K, M, N, P, S, US, X, Y, Z. A maximum of 4 suffix codes can be used. Note that for a Brgj horizon, for example, suffix 1 is **T** and suffix 2 is **GJ**. Also note that J by itself is not considered to be a suffix.		
	Suffix 1	2	A-X-L
	Suffix 2	2	A-X-L
	Suffix 3	2	A-X-L
	Suffix 4	2	A-X-L
Sub.	Subdivision. Enter the subdivision which was used for the corresponding level on the soil form. Leave blank or enter one numeric character (e.g. "1", "2"), where appropriate.	1	N-X

KELOWNA SOIL LABORATORY REQUISITION FORM - PROCEDURES (Continued)

Description	Comments	Field Length	Field Description
Depths	Enter the upper and lower horizon depths as listed on the soil form. Note that the depths are to be given to the closest centimeter. the first three spaces are used to list the upper horizon depth and the last three spaces are used to list the lower horizon depth.		
	Upper Horizon Depth	3	N-X-R
	Lower Horizon Depth	3	N-X-R
	Lower Horizon Depth	3	N-X-R
Grab	Place an "X" in the box if the sample is a grab sample. Otherwise, leave blank.	1	A-X
	For the following 22 tick boxes, place an "X" in the box if the particular set of analyses are required. Otherwise, leave blank. The following comments give a brief summary of the analyses performed for each tick box heading.		
STANCHEM	The sample receives the standard chemical analysis. A complete list of the analyses performed is included in Appendix C.	1	A-X
FEAL 01	The sample is analyzed for citrate bicarbonate dithionite extractable iron and aluminum.	1	A-X
FEAL 02	The sample is analyzed for oxalate extractable iron and aluminum.	1	A-X
FEAL 03	The sample is analyzed for pyrophosphate extractable iron and aluminum.	1	A-X
EC	The sample is analyzed for electrical conductivity and soluble cations. A complete list of the analyses performed is included in Appendix C.	1	A-X
FIBRE	The sample is analyzed for rubbed and unrubbed fibre content plus the pyrophosphate index. A complete list of the analyses performed is included in Appendix C.	1	A-X
TISSUE	The sample is analyzed for a complete tissue analysis. A complete list of the analyses performed is included in Appendix C.	1	A-X
SIEVE-1	The sample receives a complete sieve analysis. A complete list of the analyses performed is included in Appendix C.	1	A-X
ATBERG	The liquid and plastic limits are determined for the sample	1	A-X

KELOWNA SOIL LABORATORY REQUISITION FORM - PROCEDURES (Continued)

Description	Comments	Field Length	Field Description
SIEVE-2	The sample is sieved in order to obtain a more detailed analysis of the sand-sized fraction. A complete list of the analyses performed is included in Appendix C.	1	A-X
GEOSIPET	Detailed pipette analysis is performed on the silt and clay fraction. A detailed list of particle-size breaks analyzed for is included in Appendix C.	1	A-X
PIPET	Pipet analysis is used to determine total sand, silt, and clay.	1	A-X
F-CLAY	The sample is to be analyzed for sand, silt, clay, and fine clay.	1	A-X
AWSC	A water retention curve is determined for the sample. A complete list of the tensions used is given in Appendix C.	1	A-X
TOT-P	The sample is to be analyzed for total phosphorus.	1	A-X
TOT-S	The sample is to be analyzed for total sulphur.	1	A-X
CALCARB	The calcium carbonate equivalent is measured for the sample.	1	A-X
H/F	The humic acid ratio is determined for the sample.	1	A-X
BD	The bulk density is measured on the sample.	1	A-X
MIN-N	Mineralizable nitrogen is measured on the sample.	1	A-X
NH_4-N	Ammonium nitrogen is measured on the sample.	1	A-X
NITRATE	Nitrate-nitrogen is measured on the sample.	1	A-X
Miscellaneous	This set of tick boxes, with headings A through I, has been provided for two uses. The first use would be for specific projects where an unusual combination of laboratory analyses are to be requested many times during the project life. The second use would be for future requirements of new common laboratory requests in addition to those listed in the previous 22 tick boxes. The first use would be implemented by contacting the Kelowna Laboratory Supervisor and discussing the proposed set of analyses. The second use will be implemented in the future at the discretion of the Kelowna Laboratory Supervisor.	1/box	A-X

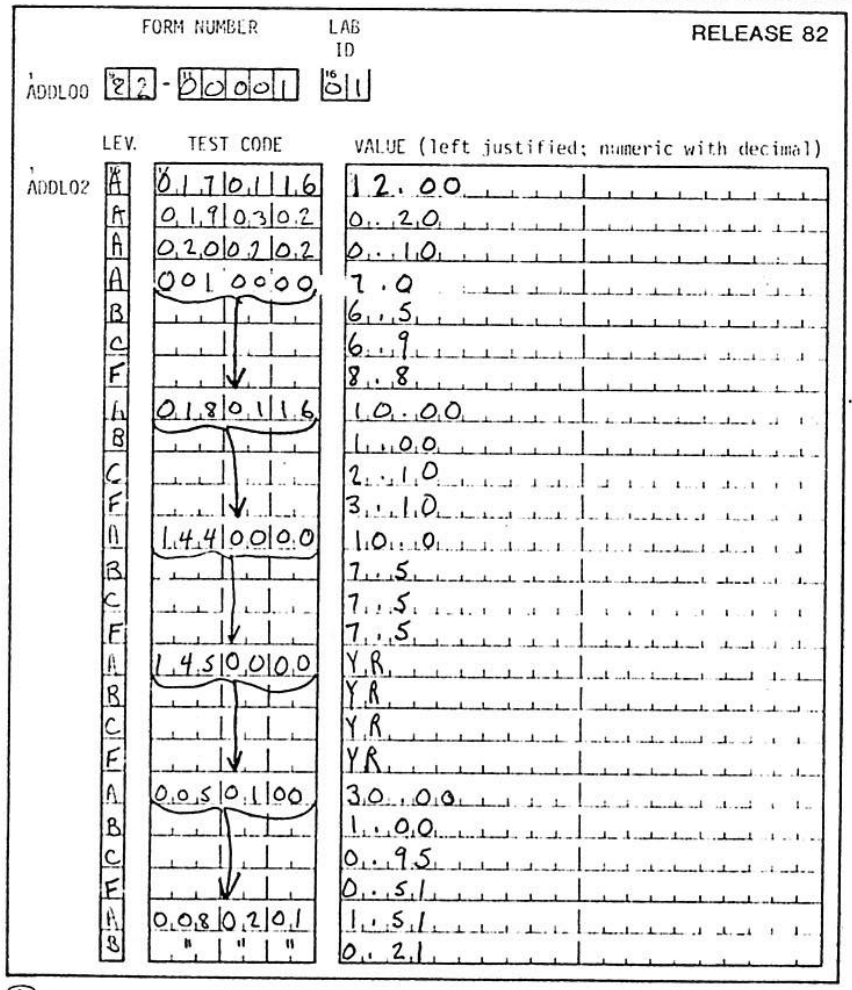
KELOWNA SOIL LABORATORY REQUISITION FORM - PROCEDURES (Continues)

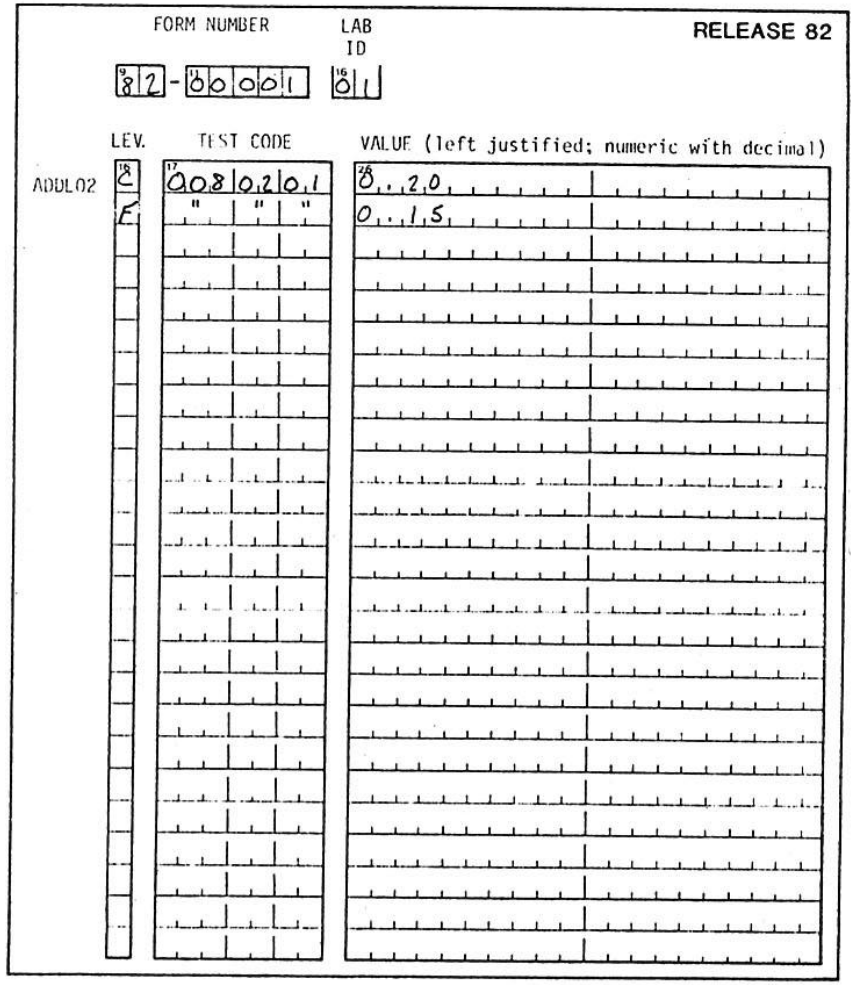
Description	Comments	Field Length	Field Description
Other	The space is provided for requesting individual analyses. Possible situations where this space could be utilized include: i) only two analyses such as total C and N are required without the need for all the other analyses requested by STANCHEM; ii) an additional analysis or analyses such as total aluminum is required in addition to the STANCHEM or other standard requests. The desired request is noted by listing the appropriate three digit parameter code found in the BCSIS Soil Laboratory Test Parameters. These parameters are listed in Appendix D. For example, if values for total aluminum and manganese were required the surveyor would write 051 in the first three spaces and 052 in the second three spaces. A maximum of 13 individual laboratory analyses can be requested by use of the parameter codes. Note that certain parameters have a C listed under calculated values. This indicates that the value is not measured directly but is calculated from the results of other direct measurements. For example, carbon:nitrogen ratio, parameter 007, is not measured but calculated as the ratio of measured carbon to measured nitrogen. Therefore, for calculated values it is **necessary** to request the component analyses needed to do the calculation. Thus, for carbon:nitrogen ratio, the surveyor would request 005 for total carbon and 008 for total nitrogen. The laboratory system will automatically calculate the carbon:nitrogen ratio in addition to providing the values for carbon and nitrogen. If one or more of the needed component parameters is missing, the laboratory will assume they are individual requests and provide results for the individual results. In addition, if sufficient individual parameters are requested to enable a calculation to be performed, it will be performed automatically. Thus, if carbon and nitrogen were requested, the laboratory system would automatically calculate the carbon:nitrogen ratio. The necessary component parameters are listed under the heading Component Parameters in Appendix F. Please ensure that all required parameter codes are listed on the Laboratory Requisition Form.	3 (repeats 13 times)	N-X-R
Comments	A free format entry space used for two purposes: i) listing relevant information concerning the status of the sample, or ii) requesting nonstandard preparations and methods. An example of the first use would be to write “KEEP” in the first few spaces when a grab sample is to be retained for future use. Otherwise, the sample would be discarded. An example of the second method would be to request cation exchange capacity by displacement with 2N NaCl rather than the usual displacement with 1N NH_4OAc at	40	AN-E-L

KELOWNA SOIL LABORATORY REQUISITION FORM - PROCEDURES (Continues)

Description	Comments	Field Length	Field Description
Comments (continued)	pH 7. The appropriate preparation and method codes are obtained by reference to BCSIS SOIL LABORATORY TEST METHOD DICTIONARY (Appendix E). For example, cation exchange capacity is listed as parameter 017 under the Soil Laboratory Test Parameters (Appendix D). In Appendix E parameter 017 lists displacement with 2N NaCl as preparation code 02 and method code 58. Therefore, record 017 in the first three spaces of Other and 0258 in the first four spaces of Comments. The surveyor may wish to follow the four digit code with an explanatory comment such as PREPMETH CODE. Note that if the STANCHEM tick box has been checked, then CEC will also be measured by the usual method. To store both CEC values in BCSIS, parameter 013 for CEC:second method should be used instead of 017 to obtain a CEC value by the second method. It is the responsibility of the surveyor to contact the Kelowna Laboratory Supervisor to ensure that the laboratory can perform the requested method. Many of the preparation and method codes listed in the Test Method Dictionary have been included to allow entry to BCSIS of laboratory data collected from other laboratories or by researchers working on special projects. If samples are provided for bulk density determination, the following information must be included in the Comments section: one value for Percent Cobbles plus Stones (% C+S =) and the associated volumes (cm^3) for each BD sample (Vol. 1 = , Vol. 2 = , Vol. 3 =). The volume numbers must correspond to the sample numbers given on each soil sample tag. (See page 5.) The method used 54, 55, 56, or 57, should be specified in the Comments as well (Meth =). Note that Parameter 106, bulk density for the whole soil, is calculated using % C+S and the average BD sample value based on the one two or three BD measures (Parameters 107, Parameters 107 and 108, or Parameters 107, 108, and 222). It is assumed that the field sampling related to 107, 108, and 222 includes all material less than 7.5 cm that is, that it includes gravels, sand, silt, and clay and excludes cobbles and stones.		

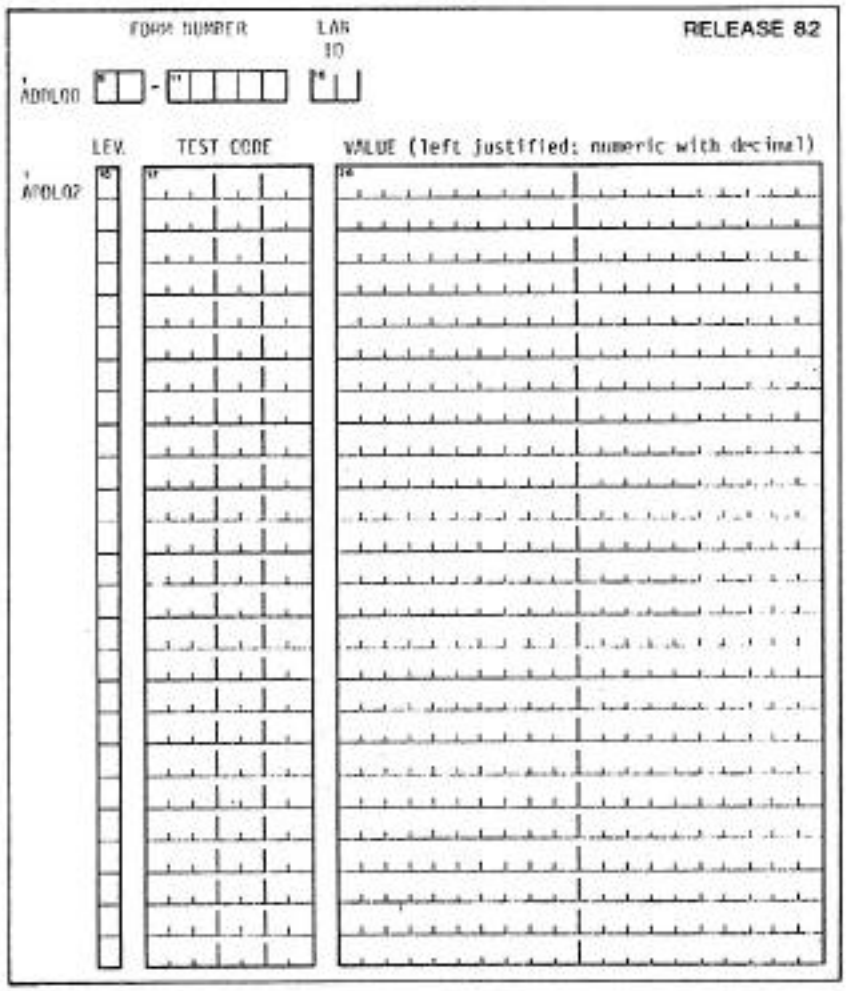
MANUAL SOIL LABORATORY DATA ENTRY FORM

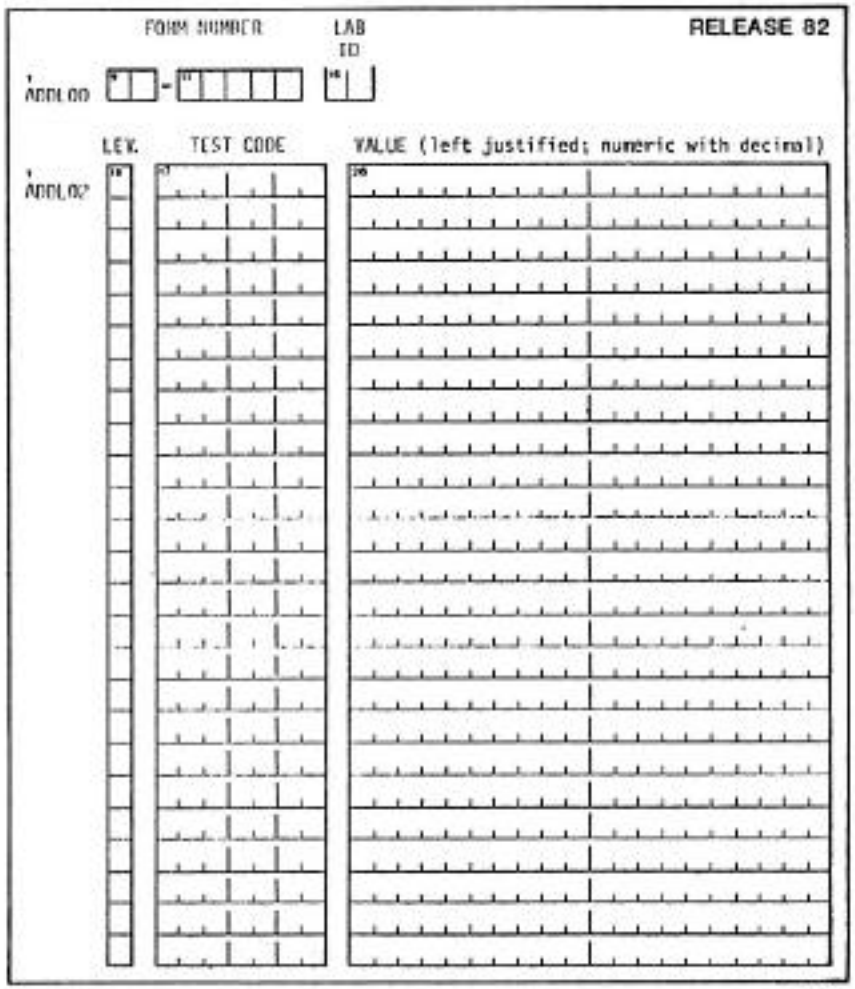




Province of British Columbia

ENV 1909


FORM NUMBER
LAB ID
RELEASE 82
ADDL00
LEV.
TEST CODE
VALUE (left justified; numeric with decimal)
ADDL02


FORM NUMBER
LAB ID
RELEASE 82
ADDL00
LEV.
TEST CODE
VALUE (left justified; numeric with decimal)
ADDL02

MANUAL SOIL LABORATORY DATA ENTRY FORM - PROCEDURES

Description	Comments	Field Length	Field Description
FORM NUMBER	Must enter the appropriate numeric code from the site and soil forms. The series number (e.g. 82) is entered in the first two spaces preceding the dash. Up to five numeric characters are entered to the right of the dash. Note that the form number is right justified. It is imperative that the site soil and laboratory form numbers match.		
	Series	2	N-X
	Form	5	N-X-R
LAB ID	Place 01 in the two spaces if the analysis was performed by Ministry of Environment's Kelowna Laboratory. See Appendix B for the correct code for other laboratories.	2	N-X-R
LEV.	Level. For each data entry enter the alpha character for the appropriate level on the soil form. It is essential that the level designation on the soil and Laboratory Data Entry Forms are the same. Also note that a level designation may be used more than once on the same form but only once with each unique TEST CODE combination.	1	A-X
TEST CODE	Enter the appropriate PARAMETER CODE (Appendix D), PREPARATION CODE and METHOD CODE (Appendix E), which describes the soil property measured and the methods used to obtain the value. For example, the cation exchange capacity was measured using 1N NH_4OAc (pH 7) as the displacing agency and distillation and titration as the measurement technique. The parameter code (017) is entered in the first three spaces, the preparation code (01) is entered in spaces four and five, and the method code (16) is entered in spaces six and seven. When the same test code is repeated for a number of levels, the surveyor may use the following procedure to indicate that the TEST CODE is repeated. Enter the appropriate test code for the first level where the repeated test code occurs. For the following entries where the test code is identical, use ditto marks or an arrow to indicate the repeated test code. This process is continued until a new test code is required. The new code is entered in the normal manner. This procedure should facilitate the processes of coding and data entry.		

MANUAL SOIL LABORATORY DATA ENTRY FORM - PROCEDURES (Continued)

Description	Comments	Field Length	Field Description
TEST CODE (continued)	Many of the codes for the standard analyses are included In Appendix C although these may be subject to revision. If the surveyor is uncertain of the laboratory methods used, the Kelowna Laboratory or the Laboratory which performed the analysis, should be contacted for the appropriate information. Note that if cation exchange capacity was measured by a second method, it would be entered under parameter 018.		
	Parameter Code	3	N-X-R
	Preparation Code	2	N-X-R
	Method Code	2	N-X-R
VALUE	Enter the analytical value. The value is always entered left justified. A zero must always precede the decimal. For example, cation exchange capacity values of 0.20 and 2.00 meq/100 g would be entered as **0.20** and **2.00** respectively. Note that decimal points occupy spaces; they are **not** assumed. An example of alpha data entry such as a YR value for pyrophosphate color-hue would be entered in spaces one and two as follows **YR**.		

APPENDIX A

Provincial agencies:

- Ministry of Environment (ME)
  - Terrestrial Studies Branch - METS
  - Fish and Wildlife Branch - MEFW
- Ministry of Forests (MF)
  - Research Branch or Section - MFRS
  - Range Branch or Section - MFRG
  - Inventory Branch or Section - MFI
- Ministry of Agriculture and Food (MA)
  - Soils Branch - MAS
  - Land Commission - MALC

- Agriculture Canada (CA)
  - Vancouver - CAVA
  - Agassiz - CAAG
  - Kamloops - CAKA
- Environment Canada (CE)
  - Lands Directorate - CELD
  - Canadian Forestry Service - CEFS

e.g.
- MacMillan Bloedel - IMB
- Pacific Logging - IPL
- B.C. Forest Products - IFP

Consultants:

Denote with “X” then initial of company

e.g. “Arctic Soils Ltd.” would be “XAS”.

APPENDIX B

Laboratory Codes:

01 Ministry of Environment - Kelowna Soils Laboratory
02 Ministry of Environment - Environmental Laboratory, Vancouver
03 Ministry of Agriculture - Kelowna Soils Laboratory
04 Ministry of Forests - Smithers
05 Ministry of Forests - Prince George
06 Ministry of Forests - Vancouver
07 Ministry of Forests - Williams Lake
08 Ministry of Forests - Kamloops
09 Ministry of Forests - Nelson
10 Ministry of Forests -Victoria
11 Agriculture Canada - Vancouver
12 Agriculture Canada -Agassiz
13 Agriculture Canada - Summerland
14 Agriculture Canada - Prince George
15 Agriculture Canada -Kamloops
16 Agriculture Canada - Beaver Lodge, Alberta
17 Environment Canada - Burnside, Victoria
18 Environment Canada - E.P.S., West Vancouver
19 University of B.C - Soils Department
20 University of B.C - Faculty of Forestry
21 University of B.C - Bioresource Engineering
22 University of B.C - Geological Sciences
23 Pacific Soil Analysis Inc., Vancouver
24 B.C. Research Council, Vancouver
25 R.M. Hardy, Calgary
26 MacMillian Bloedel, Nanaimo
27 B.C. Forest Products, Crofton
28 Soilcon Ltd., Vancouver
29 Can Test Ltd., Vancouver
30 Other (specify at top of form)

APPENDIX C

Character Name	Parameter Code	Preparation Code	Method Code	Analysis
STANCHEM	001	00	00	pH, 1:2, 0.01M $CaCl_2$
	002	00	00	pH, 1:1, water
	004	00	00	% moisture content
	005	01	00	carbon - Leco (%)
		02	00	carbon - Walkley Black (%)
	008	02	01	total nitrogen (%)
	007	00	00	carbon:nitrogen ratio
	017	01	16	cation exchange capacity (meq/100g)
	019	03	02	exchangeable base - calcium (meq/100g)
	020	02	02	exchangeable base - magnesium (meq/100g)
	021	02	02	exchangeable base - potassium (meq/100g)
	022	02	02	exchangeable base - sodium (meq/100g)
	024	00	00	% base saturation
	014	01	18	available P - Bray P_1 (mg/kg)
	016	01	20	soluble sulfate sulphur (mg/kg)
FEAL 01	025	01	02	extractable iron - citrate bicarbonate dithionite (%)
	026	01	02	extractable aluminum - citrate bicarbonate dithionite (%)
FEAL 02	167	01	02	extractable iron - oxalate (%)
	168	01	02	extractable aluminum - oxalate (%)
FEAL 03	169	01	01	extractable iron - pyrophosphate (%)
	170	01	01	extractable aluminum - pyrophosphate (%)
	005	01	00	carbon - Leco (%)
		02	00	carbon - Walkley Black (%)
	001	00	00	pH, 1:2, 0.01M $CaCl_2$
	002	00	00	pH, 1:1, water
EC	029	01	23	electrical conductivity (mS/cm)
	030	03	02	soluble cations - calcium (meq/L)
	031	03	02	soluble cations - magnesium (meq/L)
	032	03	02	soluble cations - potassium (meq/L)
	033	03	02	soluble cations - sodium (meq/L)
	034	00	00	moisture at saturation (%)
	035	00	00	sodium absorption ratio
	036	00	00	exchangeable sodium percentage
FIBRE	143	00	00	rubbed fibre content (%)
	185	00	00	unrubbed fibre content (%)
	144	00	00	pyrophosphate colour - hue number
	145	00	00	pyrophosphate colour - hue alpha
	146	00	00	pyrophosphate colour - value
	147	00	00	pyrophosphate colour - chroma
	148	00	00	pyrophosphate colour - index

APPENDIX C (Continued)

Character Name	Parameter Code	Preparation Code	Method Code	Analysis
TISSUE	198	05	02	total calcium - tissue (%)
			03	
	199	05	02	total magnesium - tissue (%)
			03	
	200	05	02	total potassium - tissue (%)
			03	
	201	05	02	total manganese - tissue (%)
			03	
	202	05	02	total iron - tissue (%)
			03	
	203	05	02	total copper - tissue (mg/kg)
			03	
	204	05	02	total zinc - tissue (mg/kg)
			03	
	205	01	01	total nitrogen - tissue (%)
			03	
	206	05	01	total phosphorus - tissue (%)
			03	
	207	05	01	total boron - tissue (mg/kg)
			03	
	208	05	13	selenium - tissue (mg/kg)
	209	05	01	sulphur - tissue (%)
			03	
SIEVE-1	070	00	07	% passing 63.5 mm - dry sieve 1 1/2”
	071	00	07	% passing 31.7 mm - dry sieve 1 1/4”
	072	00	07	% passing 15.9 mm - dry sieve 5/8”
	073	00	07	% passing 7.93 mm - dry sieve 5/16”
	074	00	06	% passing 4.76 mm - wet sieve 4 mesh
	075	00	06	% passing 2.88 mm - wet sieve 7 mesh
	076	00	06	% passing 2.00 mm - wet sieve 10 mesh
	077	00	06	% passing 1.00 mm - wet sieve 18 mesh
	078	00	06	% passing 500 m - wet sieve 35 mesh
	079	00	06	% passing 250 m - wet sieve 60 mesh
	080	00	06	% passing 125 m - wet sieve 120 mesh
	081	00	06	% passing 105 m - wet sieve 140 mesh
	082	00	06	% passing 74.0 m - wet sieve 200 mesh
	083	00	06	% passing 62.5 m - wet sieve 230 mesh
	084	00	06	% passing 50 m - wet sieve 300 mesh
ATBERG	110	00	00	liquid limit (%)
	111	00	00	plastic limit (%)
SIEVE-2	096	00	00	CSSC very coarse sand (%)
	097	00	00	CSSC coarse sand (%)
	098	00	00	CSSC medium sand (%)
	099	00	00	CSSC fine sand (%)
	100	00	00	CSSC very fine sand (%)

APPENDIX C (Continued)

Character Name	Parameter Code	Preparation Code	Method Code	Analysis
GEOSIPET	085	01	08	% passing 31.0 µm
	086	01	08	% passing 15.6 µm
	087	01	08	% passing 7.8 µm
	088	01	08	% passing 3.9 µm
	089	01	08	% passing 2.0 µm
	090	01	08	% passing 0.98 µm
	091	01	08	% passing 0.49 µm
PIPET	095	00	00	CSSC total sand (%)
	102	00	00	CSSC silt 50-2 µm (%)
	103	00	00	CSSC total clay (%)
F-CLAY	095	00	00	CSSC total sand (%)
	102	00	00	CSSC silt 50-2 µm (%)
	103	00	00	CSSC total clay (%)
	104	00	00	CSSC fine clay (%)
AWSC	123	00	36	soil moisture retained at 1500 KPa (g/g)
	124	00	36	soil moisture retained at 500 KPa (g/g)
	125	00	36	soil moisture retained at 100 KPa (g/g)
	126	00	36	soil moisture retained at 50 KPa (g/g)
	127	00	36	soil moisture retained at 33.3 KPa (g/g)
	128	00	36	soil moisture retained at 10.0 KPa (g/g)
TOT-P	013	01	18	total phosphorus (mg/kg)
TOT-S	015	01	01	total sulphur (mg/kg)
CALCARB	045	00	28	calcium carbonate equivalent (%)
H/F	067	00	00	humic acid (%)
	068	00	00	fulvic acid (%)
	069	00	00	HA:FA ratio
BD	106	01	54	bulk density - volumeter (g/cm^3)
	107	01	55	bulk density - saran (g/cm^3)
	108	01	56	bulk density - excavation (g/cm^3)
	222	01	57	bulk density - core (g/cm^3)
MIN-N	164	00	00	mineralizable N- incubated (mg/kg)
	165	00	00	mineralizable N- non-incubated (mg/kg)
NH_4-N	010	01	02	ammonium-N (mg/kg)
NITRATE	009	01	02	nitrate-N (mg/kg)

All methods apply to 107, 108, and 222.

APPENDIX D

B.C. SOIL INFORMATION SYSTEM
SOIL LABORATORY
TEST PARAMETERS

Part A. Numerical Ordering of Parameters

BC SOIL INFORMATION SYSTEM
SOIL LABORATORY
TEST PARAMETERS

PARAMETER CODE	PARAMETER NAME	PARAMETER ABBREV.	SAS NAME	LOWER LIMIT	UPPER LIMIT	MEASUREMENT UNITS	CALCULATED VALUE
001	pH, 1:2, .01M $CACL_2$	PH-CACL2	PH_CACL2	2.	10.00		
002	pH, 1:1, WATER	PH-H2O	PH_H2O	2.	10.00		
003	pH - X	PH-X	PH_X	2.	10.00		
004	PERCENT MOISTURE CONTENT	PC-H2O	PC_H2O	0.	30.00	%	
005	CARBON (LECO/WALKLEY)	C-L,WB	C_L_WB	0.	60.00	%	
006	CARBON - X	CARBON-X	CARBON_X	0.	60.00	%	
007	CARBON:NITROGEN RATIO	C/N	C_N_RAT	5.	050.00		C
008	TOTAL NITROGEN	TOTAL-N	TOTAL_N	0.	03.000	%	
009	NITRATE - NITROGEN	NITRATE	NITRATE	0.	0200.00	MG/KG	
010	AMMONIUM NITROGEN	AMMONIUM	AMMONIUM	0.	0200.00	MG/KG	
011	MINERALIZABLE NITROGEN	MINRLZ-N	MINRLZ_N	0.	0100.00	MG/KG	C
012	FRACTION A	FRAC-A	FRAC_A	0.	090.00	%	
013	TOTAL PHOSPHOROUS	TOTAL-P	TOTAL_P	0.	0.300	%	
014	AVAILABLE PHOSPHOROUS	AVAIL-P	AVAIL_P	0.	200.00	MG/KG	
015	TOTAL SULPHUR	TOTAL-S	TOTAL_S	0.	3.000	%	
016	SOLUBLE SULFATE SULPHUR	SOL-SO4S	SOL_SO4S	0.000	0200.000	MG/KG	
017	CATION EXCHANGE CAPACITY	CEC	CEC	1.	200.00	MEQ/100G	
018	CEC: SECOND METHOD	CEC-2	CEC_2	1.	200.00	MEQ/100G	
019	EXCHANGEABLE BASE - CALCIUM	EXCHA-CA	EXCHA_CA	0.	090.00	MEQ/100G	
020	EXCHANGEABLE BASE - MAGNESIUM	EXCHA-MG	EXCHA_MG	0.	090.00	MEQ/100G	
021	EXCHANGEABLE BASE - POTASSIUM	EXCHA-K	EXCHA-_K	0.	009.00	MEQ/100G	
022	EXCHANGEABLE BASE - SODIUM	EXCHA-NA	EXCHA_NA	0.	009.00	MEQ/100G	
023	EXCHANGEABLE ALUMINUM	EXCHA-AL	EXCHA_AL	0.	005.00	MEQ/100G	
024	BASE SATURATION	BASE-SAT	BASE_SAT	0.	100.0	%	C
025	EXTRACTABLE IRON - CBD	FE-CBD	FE_CBD	0.	05.00	%	
026	EXTRACTABLE ALUMINUM - CBD	AL-CBD	AL_CBD	0.	05.00	%	
027	ALKALI - EX. AL	ALKAL-AL	ALKAL_AL	0.	05.00	%	
028	ALKALI - EX. SI	ALKAL-SI	ALKAL_SI	0.	05.00	%	
029	ELECTRICAL CONDUCTIVITY	EC	EC	0.	10.0	MS/CM	
030	SOLUBLE CATIONS - CALCIUM	SOLU-CA	SOLU_CA	0.	009.00	MEQ/L	
031	SOLUBLE CATIONS - MAGNESIUM	SOLU-MG	SOLU_MG	0.	009.00	MEQ/L	
032	SOLUBLE CATIONS - POTASSIUM	SOLU-K	SOLU_K	0.	090.00	MEQ/L	
033	SOLUBLE CATIONS - SODIUM	SOLU-NA	SOLU_NA	0.	090.00	MEQ/L	
034	H_20% AT SATURATION	SAT.%H2O	SAT_H2O	0.	150.0	%	
035	SODIUM ADSORPTION RATIO	SAR	SAR	0.	150.0		C
036	EXCHANGEABLE SODIUM %	ESP	ESP	0.	70.0	%	C
037	SOL. SODIUM% - FOUND	SSP-FND	SSP_FND	0.	70.00	%	C
038	SOLUBLE SALTS IN SOIL	SOLSALTS	SOLSALTS	0.	9000.0	MG/KG	C
039	SOLUBLE ANIONS - CO_3	SOLU-CO3	SOLU_CO3	0.	100.00	MEQ/L	
040	SOLUBLE ANIONS - HCO_3	SOL-HCO3	SOL_HCO3	0.	100.00	MEQ/L	
041	SOLUBLE ANIONS - CHLORIDE	SOLU-CL	SOLU_CL	0.	5000.00	MG/KG	
042	SOLUBLE ANIONS - NO_3	SOLU-NO3	SOLU_NO3	0.	0200.00	MG/KG	

PARAMETER CODE	PARAMETER NAME	PARAMETER ABBREV.	SAS NAME	LOWER LIMIT	UPPER LIMIT	MEASUREMENT UNITS	CALCULATED VALUE
043	SOLUBLE ANIONS - NO_2	SOLU-NO2	SOLU-NO2	0.	0200.00	MG/KG	
044	SOLUBLE ANIONS - SO_4	SOLU-SO4	SOLU_SO4	0.	0700.00	MG/KG	
045	$CACO_3$ EQUIVALENT	CACO3-EQ	CACO3_EQ	0.	100.00	%	
046	CALCIUM	CALCIUM	CALCIUM	0.	10.000	%	
047	MAGNESIUM	MAGNSIUM	MAGNSIUM	0.	05.000	%	
048	POTASSIUM	POTASIUM	POTASIUM	0.	05.000	%	
049	SODIUM	SODIUM	SODIUM	0.	05.000	%	
050	SILICON	SILICON	SILICON	0.	20.000	%	
051	ALUMINUM	ALUMINUM	ALUMINUM	0.	20.000	%	
052	MANGANESE	MANGNESE	MANGNESE	0.	10.000	%	
053	TITANIUM	TITANIUM	TITANIUM	0.	01.000	%	
054	IRON	IRON	IRON	0.	10.000	%	
055	MOLYBDENUM	MOLYENUM	MOLYDNUM	0.	500.00	MG/KG	
056	BORON	BORON	BORON	0.	500.00	MG/KG	
057	COBALT	COBALT	COBALT	0.	500.00	MG/KG	
058	COPPER	COPPER	COPPER	0.	500.00	MG/KG	
059	ZINC	ZINC	ZINC	0.	500.00	MG/KG	
060	SELENIUM	SELENIUM	SELENIUM	0.	500.00	MG/KG	
061	MERCURY	MERCURY	MERCURY	0.	500.00	MG/KG	
062	LEAD	LEAD	LEAD	0.	500.00	MG/KG	
063	NICKLE	NICKLE	NICKLE	0.	500.00	MG/KG	
064	ARSENIC	ARSENIC	ARSENIC	0.	500.00	MG/KG	
065	LOSS ON IGNI. - 420C	LOSS420C	LOSS420C	0.	90.00	%	
066	LOSS ON IGNI. - 850C	LOSS850C	LOSS850C	0.	90.00	%	
067	HUMIC ACID	HUMIC	HUMIC	0.	090.00	%	
068	FULVIC ACID	FULVIC	FULVIC	0.	090.00	%	
069	HUMIC:FULVIC RATIO	HUM/FUL	HUM_FUL	0.	5.00		C
070	% PASSING 63.5 MM	PS63.5MM	PS63D5MM	10.	100.00	%	
071	% PASSING 31.7 MM	PS31.7MM	PS31D7MM	10.	100.00	%	
072	% PASSING 15.9 MM	PS15.9MM	PS15D9MM	10.	100.00	%	
073	% PASSING 7.93 MM	PS7.93MM	PS7D93MM	0.	100.00	%	
074	% PASSING 4.76 MM	PS4.76MM	PS4D76MM	0.	100.00	%	
075	% PASSING 2.88 MM	PS2.88MM	PS2D88MM	0.	100.00	%	
076	% PASSING 2.00 MM	PS2.00MM	PS2D00MM	0.	100.00	%	
077	% PASSING 1.00 MM	PS1.00MM	PS1D00MM	0.	100.00	%	
078	% PASSING 500.0 UM	PS500.UM	PS500DUM	0.	100.00	%	
079	% PASSING 250.0 UM	PS250.UM	PS250DUM	0.	100.00	%	
080	% PASSING 125.0 UM	PS125.UM	PS125DUM	0.	100.00	%	
081	% PASSING105.0 UM	PS105.UM	PS105DUM	0.	100.00	%	
082	% PASSING 74.0 UM	PS74.0UM	PS74DUM	0.	100.00	%	
083	% PASSING 62.5 UM	PS62.5UM	PS62D5UM	0.	100.00	%	
084	% PASSING 50.0 UM	PS50.0UM	PS50D0UM	0.	100.00	%	
085	% PASSING 31.0 UM	PS31.0UM	PS31D0UM	0.	100.00	%	
086	% PASSING 15.6 UM	PS15.6UM	PS15D6UM	0.	100.00	%	
087	% PASSING 7.8 UM	PS7.8UM	PS7D8UM	0.	100.00	%	
088	% PASSING 3.9 UM	PS3.9UM	PS3D9UM	0.	100.00	%	
089	% PASSING 2.0 UM	PS20.UM	PS20DUM	0.	100.00	%	
090	% PASSING 0.98 UM	PS0.98UM	PS0D98UM	0.	100.00	%	
091	% PASSING 0.49 UM	PS0.49UM	PS0D49UM	0.	100.00	%	
092	% PASSING 0.20 UM	PS0.02UM	PS0D02UM	0.	100.00	%	
093	CSSC TEXTURE	CSSC_TEX	CSSC_TEX	1 TO 4	SISTSTXT		C
094	GRAVEL (>2MM)	GRAVEL	GRAVEL	0.	095.00	%	C
095	CSSC TOTAL SAND	C_T_SAND	C_T_SAND	0.	098.00	%	C
096	CSSC VERY COARSE SAND	C_VC_SAN	C_VC_SAN	0.	090.00	%	C
097	CSSC COARSE SAND	C_C_SAND	C_C_SAND	0.	090.00	%	C
098	CSSC MEDIUM SAND	C_M_SAND	C_M_SAND	0.	090.00	%	C

PARAMETER CODE	PARAMETER NAME	PARAMETER ABBREV.	SAS NAME	LOWER LIMIT	UPPER LIMIT	MEASUREMENT UNITS	CALCULATED VALUE
099	CSSC FINE SAND	C_F_SAND	C_F_SAND	0.	090.00	%	C
100	CSSC VERY FIND SAND	C_VF_SAN	C_VF_SAN	0.	090.00	%	C
101	CSSC GEOSILT 62.5 - 2 UM	C_GEOSIL	C_GEOSIL	0.	095.00	%	C
102	CSSC SILT 50 - 2 UM	C_SILT	C_SILT	0.	095.00	%	C
103	CSSC TOTAL CLAY	C_T_CLAY	C_T_CLAY	0.	098.00	%	C
104	CSSC FINE CLAY	C_F_CLAY	C_F_CLAY	0.	090.0	%	C
105	UNIFIED TEXTURE	UNIFIED	UNIFIED	1 TO 8	SISTUTXT		C
106	BULK DENSITY WHOLE SOIL	BULK-D-W	BULK_D_W	0.	2.000	G/CM3C	
107	BULK DENSITY 2	BULK_D-2	BULK_D_2	0.	2.000	G/CM3	
108	BULK DENSITY 3	BULK_D-3	BULK_D_3	0.	2.000	G/CM3	
109	PARTICLE DENSITY	PD	PD	0.5	3.00	G/CM3	
110	LIQUID LIMIT	LL	LL	25.	060.00	%	
111	PLASTIC LIMIT	PL	PL	10.	050.00	%	
112	PLASTICITY INDEX	PI	PI	0.	025.00	%	C
113	SHRINKAGE LIMIT	SL	SL	0.	030.00	%	
114	MAXIMUM DRY DENSITY	MDD	MDD	0.	2.50	G/CM3	
115	SHRINKAGE	S	S	0.	50.00	%	
116	OPTIMUM MOISTURE CONTENT	OMC	OMC	5.	20.00	%	
117	TOTAL PORE SPACE	TPS	TPS	20.	50.0	%	C
118	AGG: > = 4.6 MM	A:>=4.76	A_GE4D76	0.	50.0	G/G	
119	AGG: < 4.76, > = 2.00 MM	A4.76-2.	A4D76_2D	0.	50.0	G/G	
120	AGG: < 2.00, > = 1.00 MM	A2.0-1.0	A2D0_1D0	0.	50.0	G/G	
121	AGG: < 1.00, > = 0.21 MM	A1.0-.21	A1D0_D21	0.	50.0	G/G	
122	AGG: < 0.21 MM	A:<0.21	A_LT0D21	0.	50.0	G/G	
123	SOIL H_2O RET. 1500 KPA	W1500KPA	W1500KPA	0.	30.00	%	
124	SOIL H_2O RET. 500 KPA	W500KPA	W500KPA	0.	30.00	%	
125	SOIL H_2O RET. 100 KPA	W100KPA	W100KPA	0.	30.00	%	
126	SOIL H_2O RET. 50 KPA	W50KPA	W50KPA	0.	30.00	%	
127	SOIL H_2O RET. 33.3 KPA	W33.3KPA	W33.3KPA	0.	30.00	%	
128	SOIL H_2O RET. 10 KPA	W10KPA	W10KPA	0.	30.00	%	
129	FIELD WATER CONTENT	FWC	FWC	0.	050.00	%	
130	INF. RATE - 5 MINUTES	IR:5MIN	IR_5MIN	0.	100.00E-0	CM/HR	
131	INF. RATE - 10 MINUTES	IR:10MIN	IR_10MIN	0.	100.00E-0	CM/HR	
132	INF. RATE - 15 MINUTES	IR:15MIN	IR_15MIN	0.	100.00E-0	CM/HR	
133	INF. RATE - 60 MINUTES	IR:60MIN	IR_60MIN	0.	100.00E-0	CM/HR	
134	INF. RATE - STEADY STATE	IR:STEAD	IR_STEAD	0.	100.00E-0	CM/HR	
135	SATURATED HYDRAULIC CONDU	K-SAT	K_SAT	0.	100.00E-0	CM/DAY	
136	UNSAT. HYD. COND.: 1	K-UNSAT1	K_UNSAT1	0.	100.00E-0	CM/DAY	
137	TENSION FOR K - UNSAT1	TENSION1	TENSION1	0.	100.0	CM	
138	UNSAT. HYD. COND.: 2	K-UNSAT2	K_UNSAT2	0.	100.00E-0	CM/DAY	
139	TENSION FOR K - UNSAT2	TENSION2	TENSION2	0.	100.0	CM	
140	UNSAT. HYD. COND.: 3	K-UNSAT3	K_UNSAT3	0.	100.00E-0	CM/DAY	
141	TENSION FOR K - UNSAT3	TENSION3	TENSION3	0.	100.0	CM	
142	SPECIFIC SURFACE AREA	SSA	SSA	10.0	100.0	M2/G	
143	RUBBED FIBRE CONTENT	RUB_FIBR	RUB_FIBR	0.	100.0	%	
144	PYRO - COLOR - HUE - NUMBER	PY-HUE-N	PY_HUE_N	2.5	10.0		
145	PYRO - COLOR - HUE - ALPHA	PY-HUE-A	PY_HUE_A	0 TO 2	SISTHUEA		
146	PYRO - COLOR - VALUE	PY-VALUE	PY_VALUE	1.	8.0		
147	PYRO - COLOR - CHROMA	PY-CHROM	PY_CHROM	0.	8.0		
148	PYROPHOSPHATE INDEX	PY-INDEX	PY_INDEX	0.	7.0		C
149	MINERAL 1	MINER.1	MINER_1	0 TO 20			
150	PRESENCE 1	PRES.1	PRES_1	0	5		
151	MINERAL 2	MINER.2	MINER_2	0 TO 20			
152	PRESENCE 2	PRES.2	PRES_2	0	5		
153	MINERAL 3	MINER.3	MINER_3	0 TO 20			
154	PRESENCE 3	PRES.3	PRES_3	0	5		

PARAMETER CODE	PARAMETER NAME	PARAMETER ABBREV.	SAS NAME	LOWER LIMIT	UPPER LIMIT	MEASUREMENT UNITS	CALCULATED VALUE
155	MINERAL 4	MINER.4	MINER_4	0 TO 20			
156	PRESENCE 4	PRES.4	PRES_4	0	5		
157	MINERAL 5	MINER.5	MINER_5	0 TO 20			
158	PRESENCE 5	PRES.5	PRES_5	0	5		
159	MINERAL 6	MINER.6	MINER_6	0 TO 20			
160	PRESENCE 6	PRES.6	PRES_6	0	5		
161	MINERAL 7	MINER.7	MINER_7	0 TO 20			
162	PRESENCE 7	PRES.7	PRES_7	0	5		
163	DET. ACID DIGEST. FIBRE	A-D_FIBR	A_D_FIBR	2.00	095.00	%	
164	MIN. N - INCUBATED	M-N:INCU	M_N_INCU	2.00	0100.00	MG/KG	
165	MIN. N - NON-INCUBATED	M-N:NO_I	M_N:_NO_I	2.00	0100.00	MG/KG	
166	SOL. SODIUM % - POSSIBLE	SSP-POSS	SSP_POSS	0.00	70.00	%	C
167	EXTRACTABLE IRON - OXALATE	FE-OXALA	FE_OXALA	0.00	05.00	%	
168	EXTRACT. ALUMINUM - OXALATE	AL-OXALA	AL_OXALA	0.00	05.00	%	
169	EXTRACT. IRON - PYROPHOSPHATE	FE-PYRO	FE_PYRO	0.00	05.00	%	
170	EXTRACT. ALUMINUM - PYROPHOSPH	AL-PYRO	AL_PYRO	0.00	05.00	%	
171	% PASSING 76.2 MM	PS76.2MM	PS76D2MM	0.00	100.00	%	
172	% PASSING 38.1 MM	PS38.1MM	PS38D1MM	0.00	100.00	%	
173	% PASSING 50.8 MM	PS50.8MM	PS50D8MM	0.00	100.00	%	
174	% PASSING 25.4 MM	PS25.4MM	PS25D4MM	0.00	100.00	%	
175	% PASSING 19.1 MM	PS19.1MM	PS19D1MM	0.00	100.00	%	
176	% PASSING 9.5 MM	PS9.5MM	PS9D5MM	0.00	100.00	%	
177	% PASSING 4.0 MM	PS4.0MM	PS4D0MM	0.00	100.00	%	
178	% PASSING 1.4 MM	PS1.4MM	PS1D4MM	0.00	100.00	%	
179	% PASSING 840 UM	PS840UM	PS840UM	0.00	100.00	%	
180	% PASSING 710 UM	PS710UM	PS710UM	0.00	100.00	%	
181	% PASSING 425 UM	PS425UM	PS425UM	0.00	100.00	%	
182	% PASSING 355 UM	PS355UM	PS355UM	0.00	100.00	%	
183	% PASSING 177 UM	PS177UM	PS177UM	0.00	100.00	%	
184	% PASSING 90 UM	PS90UM	PS90UM	0.00	100.00	%	
185	UNRUBBED FIBRE CONTENT	UNR_FIBR	UNR_FIBR	0.	100.0	%	
186	WHOLE SOIL TOTAL SAND	W_T_SAND	W_T_SAND	0.	098.00	%	C
187	WHOLE SOIL V.C. SAND	W_VC_SAN	W_VC_SAN	0.	090.00	%	C
188	WHOLE SOIL COARSE SAND	W_C_SAND	W_C_SAND	0.	090.00	%	C
189	WHOLE SOIL MEDIUM SAND	W_M_SAND	W_M_SAND	0.	090.00	%	C
190	WHOLE SOIL FINE SAND	W_F_SAND	W_F_SAND	0.	090.00	%	C
191	WHOLE SOIL V.F. SAND	W_VF_SAN	W_VF_SAN	0.	090.00	%	C
192	WHOLE SOIL SILT 62.5 - 2	W_GEOSIL	W_GEOSIL	0.	095.00	%	C
193	WHOLE SOIL SILT 50.0 - 2	W_SILT	W_SILT	0.	095.00	%	C
194	WHOLE SOIL TOTAL CLAY	W_T_CLAY	W_T_CLAY	0.	098.00	%	C
195	WHOLE SOIL FINE CLAY	W_F_CLAY	W_F_CLAY	0.	090.00	%	C
196	AVAIL. WATER STOR. CAP.	AWSC	AWSC	0.	085.00	CM/M	C
197	SOLUBLE BORON	SOLU-B	SOLU_B	0.	500.00	MG/KG	
198	TOTAL CALCIUM - TISSUE	CA-TISS	CA_TISS	0.	10.000	%	
199	TOTAL MAGNESIUM - TISSUE	MG-TISS	MG_TISS	0.	10.000	%	
200	TOTAL POTASSIUM - TISSUE	K-TISS	K_TISS	0.	10.000	%	
201	TOTAL MANGANESE - TISSUE	MN-TISS	MN_TISS	0.	2000.0	MG/KG	
202	TOTAL IRON - TISSUE	FE-TISS	FE_TISS	0.	2000.0	MG/KG	
203	TOTAL COPPER - TISSUE	CU-TISS	CU_TISS	0.	1000.0	MG/KG	
204	TOTAL ZINC - TISSUE	ZN-TISS	ZN_TISS	0.	1000.0	MG/KG	
205	TOTAL NITROGEN - TISSUE	N-TISS	N_TISS	0.	5.000	%	
206	TOTAL PHOSPHORUS - TISSUE	P-TISS	P_TISS	0.	10.000	%	
207	TOTAL BORON - TISSUE	B-TISS	B_TISS	0.	1000.0	MG/KG	
208	TOTAL SELENIUM - TISSUE	SE-TISS	SE_TISS	0.	5000.0	UG/KG	
209	TOTAL SULPHUR - TISSUE	S-TISS	S_TISS	0.	10.00	%	
210	LIQUID LIMIT OVEN DRIED	LLOD	LLOD	25.0	60.00	%	

PARAMETER CODE	PARAMETER NAME	PARAMETER ABBREV.	SAS NAME	LOWER LIMIT	UPPER LIMIT	MEASUREMENT UNITS	CALCULATED VALUE
211	AVAILABLE PHOSPHOROUS2	AVAIL-P2	AVAIL_P2	0.00	200.00	MG/KG	
212	BICARBONATE PHOSPHOROUS	BICAR-P	BICAR_P	0.00	200.00	MG/KG	
213	PERCENT FIELD MOISTURE	PC-F_H2O	PC_F_H2O	0.00	99.00	%	
214	EXTRACTABLE ALUMINUM	EXTRC-AL	EXTRC_AL	0.0	100.0	MG/KG	
215	EXTRACTABLE MANGANESE	EXTRC-MN	EXTRC_MN	0.0	500.00	MG/KG	
216	EXTRACTABLE IRON	EXTRC-FE	EXTRC_FE	0.0	500.00	MG/KG	
217	EXTRACTABLE COPPER	EXTRC-CU	EXTRC_CU	0.00	100.00	MG/KG	
218	EXTRACTABLE ZINC	EXTRC-ZN	EXTRC_ZN	0.00	100.00	MG/KG	
219	FULVIC ACID - PVP FRACTION	FA-P-V-P	FA_P_V_P	0.000	10.000	%	
220	SOLUBLE MANGANESE	SOLU-MN	SOLU_MN	0.0	5000.0	MG/KG	
221	EXCHANGEABLE MANGANESE	EXCHA-MN	EXCHA_MN	0.0	5000.0	MG/KG	
222	BULK DENSITY	BULK-D-1	BULK_D_1	0.000	2.000	G/CM3	

Part B. Alphabetical Ordering of Parameters

BC SOIL INFORMATION SYSTEM
SOIL LABORATORY
TEST PARAMETERS

PARAMETER CODE	PARAMETER NAME	PARAMETER ABBREV.	SAS NAME	LOWER LIMIT	UPPER LIMIT	MEASUREMENT UNITS	CALCULATED VALUE
184	% PASSING 90 UM	PS90UM	PS90UM	0.00	100.00	%	
178	% PASSING 1.4 MM	PS1.4MM	PS1D4MM	0.00	100.00	%	
183	% PASSING 177 UM	PS177UM	PS177UM	0.00	100.00	%	
182	% PASSING 355 UM	PS355UM	PS355UM	0.00	100.00	%	
177	% PASSING 4.0 MM	PS4.0MM	PS4D0MM	0.00	100.00	%	
181	% PASSING 425 UM	PS425UM	PS425UM	0.00	100.00	%	
180	% PASSING 710 UM	PS710UM	PS710UM	0.00	100.00	%	
179	% PASSING 840 UM	PS840UM	PS840UM	0.00	100.00	%	
176	% PASSING 9.5 MM	PS9.5MM	PS9D5MM	0.00	100.00	%	
092	% PASSING 0.20 UM	PS0.02UM	PS0D02UM	0.	100.00	%	
091	% PASSING 0.49 UM	PS0.49UM	PS0D49UM	0.	100.00	%	
090	% PASSING 0.98 UM	PS0.98UM	PS0D98UM	0.	100.00	%	
077	% PASSING 1.00 MM	PS1.00MM	PS1D00MM	0.	100.00	%	
081	% PASSING 105.0 UM	PS105.UM	PS105DUM	0.	100.00	%	
080	% PASSING 125.0 UM	PS125.UM	PS125DUM	0.	100.00	%	
086	% PASSING 15.6 UM	PS15.6UM	PS15D6UM	0.	100.00	%	
072	% PASSING 15.9 MM	PS15.9MM	PS15D9MM	10.	100.00	%	
175	% PASSING 19.1 MM	PS19.1MM	PS19D1MM	0.00	100.00	%	
089	% PASSING 2.0 UM	PS20.UM	PS20DUM	0.	100.00	%	
076	% PASSING 2.00 MM	PS2.00MM	PS2D00MM	0.	100.00	%	
075	% PASSING 2.88 MM	PS2.88MM	PS4D76MM	0.	100.00	%	
174	% PASSING 25.4 MM	PS25.4MM	PS25D4MM	0.00	100.00	%	
079	% PASSING 250.0 UM	PS250.UM	PS250DUM	0.	100.00	%	
088	% PASSING 3.9 UM	PS3.9UM	PS3D9UM	0.	100.00	%	
085	% PASSING 31.0 UM	PS31.0UM	PS31D0UM	0.	100.00	%	
071	% PASSING 31.7 MM	PS31.7MM	PS31D7MM	10.	100.00	%	
172	% PASSING 38.1 MM	PS38.1MM	PS38D1MM	0.00	100.00	%	
074	% PASSING 4.76 MM	PS4.76MM	PS4D76MM	0.	100.00	%	
084	% PASSING 50.0 UM	PS50.0UM	PS50D0UM	0.	100.00	%	
173	% PASSING 50.8 MM	PS50.8MM	PS50D8MM	0.00	100.00	%	
078	% PASSING 500.0 UM	PS500.UM	PS500DUM	0.	100.00	%	
083	% PASSING 62.5 UM	PS62.5UM	PS62D5UM	0.	100.00	%	
070	% PASSING 63.5 MM	PS63.5MM	PS63D5MM	10.	100.00	%	
087	% PASSING 7.8 UM	PS7.8UM	PS7D8UM	0.	100.00	%	
073	% PASSING 7.93 MM	PS7.93MM	PS7D93MM	0.	100.00	%	
082	% PASSING 74.0 UM	PS74.0UM	PS105DUM	0.	100.00	%	
171	% PASSING 76.2 MM	PS76.2MM	PS76D2MM	0.00	100.00	%	
122	AGG: < 0.21 MM	A:<0.21	A_LT0D21	0.	50.0	G/G	
121	AGG: < 1.00, > = 0.21 MM	A1.0-.21	A1D0_D21	0.	50.0	G/G	
120	AGG: < 2.00, > = 1.00 MM	A2.0-1.0	A2D0_1D0	0.	50.0	G/G	
119	AGG: < 4.76, > = 2.00 MM	A4.76-2.	A4D76_2D	0.	50.0	G/G	
118	AGG: > = 4.6 MM	A:>=4.76	A_GE4D76	0.	50.0	G/G	

PARAMETER CODE	PARAMETER NAME	PARAMETER ABBREV.	SAS NAME	LOWER LIMIT	UPPER LIMIT	MEASUREMENT UNITS	CALCULATED VALUE
027	ALKALI - EX. AL	ALKAL-AL	ALKAL_AL	0.	05.00	%	
028	ALKALI - EX. SI	ALKAL-SI	ALKAL_SI	0.	05.00	%	
051	ALUMINUM	ALUMINUM	ALUMINUM	0.	20.000	%	
010	AMMONIUM NITROGEN	AMMONIUM	AMMONIUM	0.	0200.00	MG/KG	
064	ARSENIC	ARSENIC	ARSENIC	0.	500.00	MG/KG	
196	AVAIL. WATER STOR. CAP.	AWSC	AWSC	0.	085.00	CM/M	C
014	AVAILABLE PHOSPHOROUS	AVAIL-P	AVAIL_P	0.	200.00	MG/KG	
211	AVAILABLE PHOSPHOROUS2	AVAIL-P2	AVAIL_P2	0.00	200.00	MG/KG	
024	BASE SATURATION	BASE-SAT	BASE_SAT	0.	100.0	%	C
212	BICARBONATE PHOSPHOROUS	BICAR-P	BICAR_P	0.00	200.00	MG/KG	
056	BORON	BORON	BORON	0.	500.00	MG/KG	
222	BULK DENSITY	BULK-D-1	BULK_D_1	0.000	2.000	G/CM3	
106	BULK DENSITY WHOLE SOIL	BULK-D-W	BULK_D_W	0.	2.000	G/CM3C	
107	BULK DENSITY 2	BULK_D-2	BULK_D_2	0.	2.000	G/CM3	
108	BULK DENSITY 3	BULK_D-3	BULK_D_3	0.	2.000	G/CM3	
045	$CACO_3$ EQUIVALENT	CACO3-EQ	CACO3_EQ	0.	100.00	%	
046	CALCIUM	CALCIUM	CALCIUM	0.	10.000	%	
005	CARBON (LECO/WALKLEY)	C-L,WB	C_L_WB	0.	60.00	%	
006	CARBON - X	CARBON-X	CARBON_X	0.	60.00	%	
007	CARBON:NITROGEN RATIO	C/N	C_N_RAT	5.	050.00		C
017	CATION EXCHANGE CAPACITY	CEC	CEC	1.	200.00	MEQ/100G	
018	CEC: SECOND METHOD	CEC-2	CEC_2	1.	200.00	MEQ/100G	
057	COBALT	COBALT	COBALT	0.	500.00	MG/KG	
058	COPPER	COPPER	COPPER	0.	500.00	MG/KG	
097	CSSC COARSE SAND	C_C_SAND	C_C_SAND	0.	090.00	%	C
104	CSSC FINE CLAY	C_F_CLAY	C_F_CLAY	0.	090.0	%	C
099	CSSC FINE SAND	C_F_SAND	C_F_SAND	0.	090.00	%	C
101	CSSC GEOSILT 62.5 - 2 UM	C_GEOSIL	C_GEOSIL	0.	095.00	%	C
098	CSSC MEDIUM SAND	C_M_SAND	C_M_SAND	0.	090.00	%	C
102	CSSC SILT 50 - 2 UM	C_SILT	C_SILT	0.	095.00	%	C
093	CSSC TEXTURE	CSSC_TEX	CSSC_TEX	1 TO 4	SISTSTXT		C
103	CSSC TOTAL CLAY	C_T_CLAY	C_T_CLAY	0.	098.00	%	C
095	CSSC TOTAL SAND	C_T_SAND	C_T_SAND	0.	098.00	%	C
096	CSSC VERY COARSE SAND	C_VC_SAN	C_VC_SAN	0.	090.00	%	C
100	CSSC VERY FIND SAND	C_VF_SAN	C_VF_SAN	0.	090.00	%	C
163	DET. ACID DIGEST. FIBRE	A-D_FIBR	A_D_FIBR	2.00	095.00	%	
029	ELECTRICAL CONDUCTIVITY	EC	EC	0.	10.0	MS/CM	
221	EXCHANGEABLE MANGANESE	EXCHA-MN	EXCHA_MN	0.0	500.0	MG/KG	
023	EXCHANGEABLE ALUMINUM	EXCHA-AL	EXCHA_AL	0.	005.00	MEQ/100G	
019	EXCHANGEABLE BASE - CALCIUM	EXCHA-CA	EXCHA_CA	0.	090.00	MEQ/100G	
022	EXCHANGEABLE BASE - SODIUM	EXCHA-NA	EXCHA_NA	0.	009.00	MEQ/100G	
036	EXCHANGEABLE SODIUM %	ESP	ESP	0.	70.0	%	C
020	EXCHANGEABLE BASE - MAGNESIUM	EXCHA-MG	EXCHA_MG	0.	090.00	MEQ/100G	
021	EXCHANGEABLE BASE - POTASSIUM	EXCHA-K	EXCHA-_K	0.	009.00	MEQ/100G	
170	EXTRACT. ALUMINUM - PYROPHOSPH	AL-PYRO	AL_PYRO	0.00	05.00	%	
168	EXTRACT. ALUMINUM - OXALATE	AL-OXALA	AL_OXALA	0.00	05.00	%	
169	EXTRACT. IRON - PYROPHOSPHATE	FE-PYRO	FE_PYRO	0.00	05.00	%	
214	EXTRACTABLE ALUMINUM	EXTRC-AL	EXTRC_AL	0.0	100.0	MG/KG	
026	EXTRACTABLE ALUMINUM - CBD	AL-CBD	AL_CBD	0.	05.00	%	
217	EXTRACTABLE COPPER	EXTRC-CU	EXTRC_CU	0.00	100.00	MG/KG	
216	EXTRACTABLE IRON	EXTRC-FE	EXTRC_FE	0.0	500.00	MG/KG	
025	EXTRACTABLE IRON - CBD	FE-CBD	FE_CBD	0.	05.00	%	
167	EXTRACTABLE IRON - OXALATE	FE-OXALA	FE_OXALA	0.00	05.00	%	
215	EXTRACTABLE MANGANESE	EXTRC-MN	EXTRC_MN	0.0	500.00	MG/KG	
218	EXTRACTABLE ZINC	EXTRC-ZN	EXTRC_ZN	0.00	100.00	MG/KG	
129	FIELD WATER CONTENT	FWC	FWC	0.	050.00	%	
012	FRACTION A	FRAC-A	FRAC_A	0.	090.00	%	
068	FULVIC ACID	FULVIC	FULVIC	0.	090.00	%	

PARAMETER CODE	PARAMETER NAME	PARAMETER ABBREV.	SAS NAME	LOWER LIMIT	UPPER LIMIT	MEASUREMENT UNITS	CALCULATED VALUE
219	FULVIC ACID - PVP FRACTION	FA-P-V-P	FA_P_V_P	0.000	10.000	%	
094	GRAVEL (>2MM)	GRAVEL	GRAVEL	0.	095.00	%	C
067	HUMIC ACID	HUMIC	LOSS420C	0.	090.00	%	
069	HUMIC:FULVIC RATIO	HUM/FUL	HUM_FUL	0.00	5.00		C
034	H_20% AT SATURATION	SAT.%H2O	SAT_H2O	0.	150.0	%	
134	INF. RATE - STEADY STATE	IR:STEAD	IR_STEAD	0.	100.00E-0	CM/HR	
131	INF. RATE - 10 MINUTES	IR:10MIN	IR_10MIN	0.	100.00E-0	CM/HR	
132	INF. RATE - 15 MINUTES	IR:15MIN	IR_15MIN	0.	100.00E-0	CM/HR	
130	INF. RATE - 5 MINUTES	IR:5MIN	IR_5MIN	0.	100.00E-0	CM/HR	
133	INF. RATE - 60 MINUTES	IR:60MIN	IR_60MIN	0.	100.00E-0	CM/HR	
054	IRON	IRON	IRON	0.	10.000	%	
062	LEAD	LEAD	LEAD	0.	500.00	MG/KG	
110	LIQUID LIMIT	LL	LL	25.	060.00	%	
210	LIQUID LIMIT OVEN DRIED	LLOD	LLOD	25.	60.00	%	
065	LOSS ON IGNI. - 420C	LOSS420C	LOSS420C	0.	90.00	%	
066	LOSS ON IGNI. - 850C	LOSS850C	LOSS850C	0.	90.00	%	
047	MAGNESIUM	MAGNSIUM	MAGNSIUM	0.	05.000	%	
052	MANGANESE	MANGNESE	MANGNESE	0.	10.000	%	
114	MAXIMUM DRY DENSITY	MDD	MDD	0.	2.50	G/CM3	
061	MERCURY	MERCURY	MERCURY	0.	500.00	MG/KG	
164	MIN. N - INCUBATED	M-N:INCU	M_N_INCU	2.00	0100.00	MG/KG	
165	MIN. N - NON-INCUBATED	M-N:NO_I	M_N:_NO_I	2.00	0100.00	MG/KG	
149	MINERAL 1	MINER.1	MINER_1	0 TO 20			
151	MINERAL 2	MINER.2	MINER_2	0 TO 20			
153	MINERAL 3	MINER.3	MINER_3	0 TO 20			
155	MINERAL 4	MINER.4	MINER_4	0 TO 20			
157	MINERAL 5	MINER.5	MINER_5	0 TO 20			
159	MINERAL 6	MINER.6	MINER_6	0 TO 20			
161	MINERAL 7	MINER.7	MINER_7	0 TO 20			
011	MINERALIZABLE NITROGEN	MINRLZ-N	MINRLZ_N	0.	0100.00	MG/KG	C
055	MOLYBDENUM	MOLYDNUM	MOLYDNUM	0.	500.00	MG/KG	
063	NICKLE	NICKLE	NICKLE	0.	500.00	MG/KG	
009	NITRATE - NITROGEN	NITRATE	NITRATE	0.	0200.00	MG/KG	
116	OPTIMUM MOISTURE CONTENT	OMC	OMC	5.	20.00	%	
109	PARTICLE DENSITY	PD	PD	0.5	3.00	G/CM3	
213	PERCENT FIELD MOISTURE	PC-F_H2O	PC_F_H2O	0.00	99.00	%	
004	PERCENT MOISTURE CONTENT	PC-H2O	PC_H2O	0.	30.00	%	
003	pH - X	PH-X	PH_X	2.	10.00		
002	pH, 1:1, WATER	PH-H2O	PH_H2O	2.	10.00		
001	pH, 1:2, .01M $CACL_2$	PH-CACL2	PH_CACL2	2.	10.00		
111	PLASTIC LIMIT	PL	PL	10.	050.00	%	
112	PLASTICITY INDEX	PI	PI	0.	025.00	%	C
048	POTASSIUM	POTASIUM	POTASIUM	0.	05.000	%	
150	PRESENCE 1	PRES.1	PRES_1	0.	5		
152	PRESENCE 2	PRES.2	PRES_2	0.	5		
154	PRESENCE 3	PRES.3	PRES_3	0.	5		
156	PRESENCE 4	PRES.4	PRES_4	0.	5		
158	PRESENCE 5	PRES.5	PRES_5	0.	5		
160	PRESENCE 6	PRES.6	PRES_6	0.	5		
162	PRESENCE 7	PRES.7	PRES_7	0.	5		
147	PYRO - COLOR - CHROMA	PY-CHROM	PY_CHROM	0.	8.0		
145	PYRO - COLOR - HUE - ALPHA	PY-HUE-A	PY_HUE_A	0 TO 2	SISTHUEA		
144	PYRO - COLOR - HUE - NUMBER	PY-HUE-N	PY_HUE_N	2.5	10.0		
146	PYRO - COLOR - VALUE	PY-VALUE	PY_VALUE	1.	8.0		
148	PYROPHOSPHATE INDEX	PY-INDEX	PY_INDEX	0.	7.0		C
143	RUBBED FIBRE CONTENT	RUB_FIBR	RUB_FIBR	0.	100.0	%	
135	SATURATED HYDRAULIC CONDU	K-SAT	K_SAT	0.	100.00E-0	CM/DAY	
060	SELENIUM	SELENIUM	SELENIUM	0.	500.00	MG/KG	

PARAMETER CODE	PARAMETER NAME	PARAMETER ABBREV.	SAS NAME	LOWER LIMIT	UPPER LIMIT	MEASUREMENT UNITS	CALCULATED VALUE
115	SHRINKAGE	S	S	0.	50.00	%	
113	SHRINKAGE LIMIT	SL	SL	0.	030.00	%	
050	SILICON	SILICON	SILICON	0.	20.000	%	
049	SODIUM	SODIUM	SODIUM	0.	05.000	%	
035	SODIUM ADSORPTION RATIO	SAR	SAR	0.	150.0		C
128	SOIL H_2O RET. 10 KPA	W10KPA	W10KPA	0.	30.00	%	
125	SOIL H_2O RET. 100 KPA	W100KPA	W100KPA	0.	30.00	%	
123	SOIL H_2O RET. 1500 KPA	W1500KPA	W1500KPA	0.	30.00	%	
127	SOIL H_2O RET. 33.3 KPA	W33.3KPA	W33.3KPA	0.	30.00	%	
126	SOIL H_2O RET. 50 KPA	W50KPA	W50KPA	0.	30.00	%	
124	SOIL H_2O RET. 500 KPA	W500KPA	W500KPA	0.	30.00	%	
037	SOL. SODIUM% - FOUND	SSP-FND	SSP_FND	0.	70.00	%	C
166	SOL. SODIUM % - POSSIBLE	SSP-POSS	SSP_POSS	0.00	70.00	%	C
041	SOLUBLE ANIONS - CHLORIDE	SOLU-CL	SOLU_CL	0.	5000.00	MG/KG	
039	SOLUBLE ANIONS - CO_3	SOLU-CO3	SOLU_CO3	0.	100.00	MEQ/L	
040	SOLUBLE ANIONS - HCO_3	SOL-HCO3	SOL_HCO3	0.	100.00	MEQ/L	
043	SOLUBLE ANIONS - NO_2	SOLU-NO2	SOLU-NO2	0.	0200.00	MG/KG	
042	SOLUBLE ANIONS - NO_3	SOLU-NO3	SOLU_NO3	0.	0200.00	MG/KG	
044	SOLUBLE ANIONS - SO_4	SOLU-SO4	SOLU_SO4	0.	0700.00	MG/KG	
197	SOLUBLE BORON	SOLU-B	SOLU_B	0.	500.00	MG/KG	
030	SOLUBLE CATIONS - CALCIUM	SOLU-CA	SOLU_CA	0.	009.00	MEQ/L	
031	SOLUBLE CATIONS - MAGNESIUM	SOLU-MG	SOLU_MG	0.	009.00	MEQ/L	
032	SOLUBLE CATIONS - POTASSIUM	SOLU-K	SOLU_K	0.	090.00	MEQ/L	
033	SOLUBLE CATIONS - SODIUM	SOLU-NA	SOLU_NA	0.	090.00	MEQ/L	
220	SOLUBLE MANGANESE	SOLU-MN	SOLU_MN	0.0	500.0	MG/KG	
038	SOLUBLE SALTS IN SOIL	SOLSALTS	SOLSALTS	0.	9000.0	MG/KG	C
016	SOLUBLE SULFATE SULPHUR	SOL-SO4S	SOL_SO4S	0.000	0200.000	MG/KG	
142	SPECIFIC SURFACE AREA	SSA	SSA	10.0	100.0	M2/G	
137	TENSION FOR K - UNSAT1	TENSION1	TENSION1	0.	100.0	CM	
139	TENSION FOR K - UNSAT2	TENSION2	TENSION2	0.	100.0	CM	
141	TENSION FOR K - UNSAT3	TENSION3	TENSION3	0.	100.0	CM	
053	TITANIUM	TITANIUM	TITANIUM	0.	01.000	%	
207	TOTAL BORON - TISSUE	B-TISS	B_TISS	0.	1000.0	MG/KG	
198	TOTAL CALCIUM - TISSUE	CA-TISS	CA_TISS	0.	10.000	%	
203	TOTAL COPPER - TISSUE	CU-TISS	CU_TISS	0.	1000.0	MG/KG	
202	TOTAL IRON - TISSUE	FE-TISS	FE_TISS	0.	2000.0	MG/KG	
199	TOTAL MAGNESIUM - TISSUE	MG-TISS	MG_TISS	0.	10.000	%	
201	TOTAL MANGANESE - TISSUE	MN-TISS	MN_TISS	0.	2000.0	MG/KG	
008	TOTAL NITROGEN	TOTAL-N	TOTAL_N	0.	03.000	%	
205	TOTAL NITROGEN - TISSUE	N-TISS	N_TISS	0.	5.000	%	
013	TOTAL PHOSPHOROUS	TOTAL-P	TOTAL_P	0.	0.300	%	
206	TOTAL PHOSPHORUS - TISSUE	P-TISS	P_TISS	0.	10.000	%	
117	TOTAL PORE SPACE	TPS	TPS	20.	50.0	%	C
200	TOTAL POTASSIUM - TISSUE	K-TISS	K_TISS	0.	10.000	%	
208	TOTAL SELENIUM - TISSUE	SE-TISS	SE_TISS	0.	5000.0	UG/KG	
015	TOTAL SULPHUR	TOTAL-S	TOTAL_S	0.	3.000	%	
209	TOTAL SULPHUR - TISSUE	S-TISS	S_TISS	0.	10.00	%	
204	TOTAL ZINC - TISSUE	ZN-TISS	ZN_TISS	0.	1000.0	MG/KG	
105	UNIFIED TEXTURE	UNIFIED	UNIFIED	0 TO 8	SISTUTXT		C
185	UNRUBBED FIBRE CONTENT	UNR_FIBR	UNR_FIBR	0.	100.0	%	
136	UNSAT. HYD. COND.: 1	K-UNSAT1	K_UNSAT1	0.		CM/DAY	
138	UNSAT. HYD. COND.: 2	K-UNSAT2	K_UNSAT2	0.		CM/DAY	
140	UNSAT. HYD. COND.: 3	K-UNSAT3	K_UNSAT3	0.		CM/DAY	
188	WHOLE SOIL COARSE SAND	W_C_SAND	W_C_SAND	0.		%	C
195	WHOLE SOIL FINE CLAY	W_F_CLAY	W_F_CLAY	0.		%	C
190	WHOLE SOIL FINE SAND	W_F_SAND	W_F_SAND	0.		%	C
189	WHOLE SOIL MEDIUM SAND	W_M_SAND	W_M_SAND	0.		%	C
193	WHOLE SOIL SILT 50.0 - 2	W_SILT	W_SILT	0.0.		%	C

PARAMETER CODE	PARAMETER NAME	PARAMETER ABBREV.	SAS NAME	LOWER LIMIT	UPPER LIMIT	MEASUREMENT UNITS	CALCULATED VALUE
192	WHOLE SOIL SILT 62.5 - 2	W_GEOSIL	W_GEOSIL	0.		%	C
194	WHOLE SOIL TOTAL CLAY	W_T_CLAY	W_T_CLAY	0.		%	C
186	WHOLE SOIL TOTAL SAND	W_T_SAND	W_T_SAND	0.		%	C
187	WHOLE SOIL V.C. SAND	W_VC_SAN	W_VC_SAN	0.		%	C
191	WHOLE SOIL V.F. SAND	W_VF_SAN	W_VF_SAN	0.		%	C
059	ZINC	ZINC	ZINC	0.		MG/KG	

APPENDIX E

B.C. SOIL INFORMATION SYSTEM
SOIL LABORATORY
TEST METHOD DICTIONARY

Numerical Ordering of Parameters

SOIL LABORATORY
TEST METHOD DICTIONARY

PARAMETER CODE	PREPARATION CODE	PREPARATION	METHOD CODE	METHOD
001	00		00	
002	00		00	
003	00		10	SATURATED SOIL PASTE
			11	1^{M} NAF
			12	0.015 CACL2 (MOIST PEAT)
004	00		00	
005	01	LECO (pH LE 7.6)	00	
		WALKLEY-BLACK (pH GT 7.6)	00	
006	01	ALLISON-WET OXIDATION	00	
	02	DRY COMBUSTION-RESIT. FURN	00	
	03	PYROPHOSPHATE SOLUBLE	00	
007	00		00	
008	01	KJELDAHL (MICRO)	01	COLORIMETRY
			16	DIST + TITRATION
	02	KJELDAHL (SEMI-MICRO)	01	COLORIMETRY
			16	DIST + TITRATION
	03	KJELDAHL (MACRO)	01	COLORIMETRY
			16	DIST + TITRATION
009	01	KJEL W&W/O RED FOR NITR	01	COLORIMETRY
			16	DIST + TITRATION
	02	EXTRACT NITRATE ($CUSO_4$0	17	PHENOLDISULPHONIC ACID
			01	COLORIMETRY
010	01	KCL 2N EXTRACTION	01	COLORIMETRY
			16	DIST + TITRATION
011	00		00	
012	00		00	
013	01	HNO_3 / $HCLO_4$ DIGESTION	03	PLASMA SPECTROSCOPY
			18	ASCORBID ACID-COLORIMET
			60	VANADATE COLORIMET
	02	SODIUM CARBONATE FUSION	18	ASCORBID ACID-COLORIMET
	03	MAGNESIUM NITRATE FUSION	18	ASCORBID ACID-COLORIMET
014	01	0.03N NH_4F + 0.025N HCL	18	ASCORBID ACID-COLORIMET
015	01	HNO_3 / $HCLO_4$ DIGESTION	01	COLORIMETRY
			03	PLASMA SPECTROSCOPY
			19	TURBIDIMETRY
	02	$NANO_3$ - NA_2CO_3 FUSION	01	COLORIMETRY
			19	TURBIDIMETRY
	03	MAGNESIUM NITRATE FUSION	01	COLORIMETRY
			19	TURBIDIMETRY
016	01	0.01 $CACL_2$ EXTRACTION	20	HI REDUCTION-COLORIMETRY
			19	TURBIDIMETRY
	02	ACETATE SOLUBLE	19	TURBIDIMETRY
017	01	NH_4OAC 1N EXTRAC @ pH 7 + DISP	16	DIST + TITRATION
			02	SPECTROPHOTOMETRY
	02	NACL 2N EXTRAC OF CATIONS	58	SPECT + SUMM (CA, MG, K, AL)
	03	CA (OAC) 2-$CACL_2$ @ pH 7 + DISP	09	EDTA - TITRATION
			02	SPECTROPHOTOMETRY
	04	NAOAC 1N EXTRAC @ pH 4.8 + DISP	02	SPECTROPHOTOMETRY
	05	NAOAC 1N EXTRAC @ pH 8.2 + DISP	02	SPECTROPHOTOMETRY
	06	$BACL_2$ - TEA EXTRAC @ pH 8 + DISP	02	SPECTROPHOTOMETRY
			22	GRAVIMETRY
	07	NH_4CL 1N EXTRAC + DISP	59	SPECT + SUMM (CA, MG, K, NA)
			16	DIST + TITRATION
018	01	NH_4OAC 1N EXTRAC @ pH 7 + DISP	16	DIST + TITRATION
			02	SPECTROPHOTOMETRY
	02	NACL 2N EXTRAC OF CATIONS	58	SPECT + SUMM (CA, MG, K, AL)
	03	CA (OAC) 2-$CACL_2$ @ pH 7 + DISP	09	EDTA - TITRATION
			02	SPECTROPHOTOMETRY
	04	NAOAC 1N EXTRAC @ pH 4.8 + DISP	02	SPECTROPHOTOMETRY
	05	NAOAC 1N EXTRAC @ pH 8.2 + DISP	02	SPECTROPHOTOMETRY
	06	$BACL_2$ - TEA EXTRAC @ pH 8 + DISP	02	SPECTROPHOTOMETRY
			22	GRAVIMETRY
	07	NH_4CL 1N EXTRAC + DISP	59	SPECT + SUMM (CA, MG, K, NA)
			16	DIST + TITRATION
019	01	NACL 2N EXTRACTABLE	02	SPECTROPHOTOMETRY

PARAMETER CODE	PREPARATION CODE	PREPARATION	METHOD CODE	METHOD
			09	EDTA - TITRATION
	03	NH_4OAC 1N EXTRAC @ pH 7.0	02	SPECTROPHOTOMETRY
			09	EDTA - TITRATION
	04	NAOAC 1N EXTRAC @ pH 4.8	02	SPECTROPHOTOMETRY
			09	EDTA - TITRATION
	05	NAOAC 1N EXTRAC @ pH 8.2	02	SPECTROPHOTOMETRY
			09	EDTA - TITRATION
	06	NH_4CL 1N EXTRACTION	02	SPECTROPHOTOMETRY
			09	EDTA - TITRATION
020	01	NACL 2N EXTRACTABLE	02	SPECTROPHOTOMETRY
			09	EDTA - TITRATION
	02	NH_4OAC 1N EXTRAC @ pH 7.0	02	SPECTROPHOTOMETRY
			09	EDTA - TITRATION
	03	NAOAC 1N EXTRAC @ pH 4.8	02	SPECTROPHOTOMETRY
			09	EDTA - TITRATION
	04	NAOAC 1N EXTRAC @ pH 8.2	02	SPECTROPHOTOMETRY
			09	EDTA - TITRATION
	05	NH_4CL 1N EXTRACTION	02	SPECTROPHOTOMETRY
			09	EDTA - TITRATION
021	01	NACL 2N EXTRACTION	02	SPECTROPHOTOMETRY
	02	NH_4OAC 1N EXTRAC @ pH 7.0	02	SPECTROPHOTOMETRY
	03	NAOAC 1N EXTRAC @ pH 4.8	02	SPECTROPHOTOMETRY
	04	NAOAC 1N EXTRAC @ pH 4.8	02	SPECTROPHOTOMETRY
	05	NH_4CL 1N EXTRACTION	02	SPECTROPHOTOMETRY
022	02	NH_4OAC 1N EXTRAC @ pH 7.0	02	SPECTROPHOTOMETRY
	05	NH_4CL 1N EXTRACTION	02	SPECTROPHOTOMETRY
023	01	NACL 2N EXTRACTION	02	SPECTROPHOTOMETRY
			01	COLORIMETRY
	02	$BACL_2$ - TEA EXTRAC @ pH 8.0	04	TITRATION
024	00		00	
025	01	CITRATE $NAHCO_3$ DITH EXTRAC	02	SPECTROPHOTOMETRY
			01	COLORIMETRY
026	01	CITRATE $NAHCO_3$ DITH EXTRAC	02	SPECTROPHOTOMETRY
			01	COLORIMETRY
027	00		02	SPECTROPHOTOMETRY
			01	COLORIMETRY
028	00		01	COLORIMETRY
029	01	SAT SOIL PASTE EXTRACT	23	POTENTIOMETRY
	02	TWICE SATURATED EXTRACT	23	POTENTIOMETRY
030	01	1:1 SOIL:WATER MIXTURE	02	SPECTROPHOTOMETRY
	02	1:5 SOIL:WATER MIXTURE	02	SPECTROPHOTOMETRY
	03	SATURATION EXTRACT	02	SPECTROPHOTOMETRY
031	01	1:1 SOIL:WATER MIXTURE	02	SPECTROPHOTOMETRY
	02	1:5 SOIL:WATER MIXTURE	02	SPECTROPHOTOMETRY
	03	SATURATION EXTRACT	02	SPECTROPHOTOMETRY
032	01	1:1 SOIL:WATER MIXTURE	02	SPECTROPHOTOMETRY
	02	1:5 SOIL:WATER MIXTURE	02	SPECTROPHOTOMETRY
	03	SATURATION EXTRACT	02	SPECTROPHOTOMETRY
033	01	1:1 SOIL:WATER MIXTURE	02	SPECTROPHOTOMETRY
	02	1:5 SOIL:WATER MIXTURE	02	SPECTROPHOTOMETRY
	03	SATURATION EXTRACT	02	SPECTROPHOTOMETRY
034	00		00	
035	00		00	
036	00		00	
037	00		00	
038	00		00	
039	01	1:1 SOIL:WATER MIXTURE	04	TITRATION
	02	1:5 SOIL:WATER MIXTURE	04	TITRATION
	03	SATURATION EXTRACT	04	TITRATION
040	01	1:1 SOIL:WATER MIXTURE	04	TITRATION
	02	1:5 SOIL:WATER MIXTURE	04	TITRATION
	03	SATURATION EXTRACT	04	TITRATION
041	01	1:1 SOIL:WATER MIXTURE	04	TITRATION
	02	1:5 SOIL:WATER MIXTURE	04	TITRATION
	03	SATURATION EXTRACT	04	TITRATION
042	01	1:1 SOIL:WATER MIXTURE	01	COLORIMETRY
	02	1:5 SOIL:WATER MIXTURE	01	COLORIMETRY
	03	SATURATION EXTRACT	01	COLORIMETRY
043	01	1:1 SOIL:WATER MIXTURE	01	COLORIMETRY
	02	1:5 SOIL:WATER MIXTURE	01	COLORIMETRY
	03	SATURATION EXTRACT	01	COLORIMETRY
044	01	1:1 SOIL:WATER MIXTURE	20	HI REDUCTION - COLORIMETRY
			19	TURBIDIMETRY
	02	1:5 SOIL:WATER MIXTURE	20	HI REDUCTION - COLORIMETRY
			19	TURBIDIMETRY

PARAMETER CODE	PREPARATION CODE	PREPARATION	METHOD CODE	METHOD
	03	SATURATION EXTRACT	20	HI REDUCTION - COLORIMETRY
			19	TURBIDIMETRY
045	00		25	GAS VOLUMETRIC
			26	MANOMETRIC
			27	WEIGHT LOSS
			28	WEIGHT GAIN
			04	TITRATION
046	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
047	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
048	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
049	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
050	01	NAOH FUSION	01	COLORIMETRY
051	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
052	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
053	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY

PARAMETER CODE	PREPARATION CODE	PREPARATION	METHOD CODE	METHOD
			03	PLASMA SPECTROSCOPY
054	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
055	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
056	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
057	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
058	05	HNO_3 / H_2O_2 DIGESTION	03	PLASMA SPECTROSCOPY
	06	MAGNESIUM NITRATE FUSION	02	SPECTROPHOTOMETRY
059	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
060	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
061	01	$HN0_3$ / H_2SO_4 / V_2O_5 / H_2O_2 DIG	33	FLAMELESS SEPCTRO
062	01	HF, $HCLO_4$, NA_2CO_3 FUSION	02	SPECTROPHOTOMETRY
			34	GRAPHITE FURNACE
063	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
064	00		00	
065	00		00	

PARAMETER CODE	PREPARATION CODE	PREPARATION	METHOD CODE	METHOD
066	00		00	
067	00		00	
068	00		00	
069	00		00	
070	00		06	WET SIEVING
			07	DRY SIEVING
071	00		06	WET SIEVING
			07	DRY SIEVING
072	00		06	WET SIEVING
			07	DRY SIEVING
073	00		06	WET SIEVING
			07	DRY SIEVING
074	00		06	WET SIEVING
			07	DRY SIEVING
075	00		06	WET SIEVING
			07	DRY SIEVING
076	00		06	WET SIEVING
			07	DRY SIEVING
	02	H_2O, H_2O_2,	06	WET SIEVING
	03	H_2O, H_2O_2 , CBD	06	WET SIEVING
	04	H_2O, H_2O_2 , HCL	06	WET SIEVING
	05	H_2O, H_2O_2 , CALG, END - END	05	HYDROMETER
	06	H_2O, H_2O_2 , CALG, M - SHAKE	05	HYDROMETER
	07	H_2O, H_2O_2 , CALG, ULTRA - S	05	HYDROMETER
	08	H_2O, H_2O_2 , CBD; CALG, END - END	05	HYDROMETER
	09	H_2O, H_2O_2 , CBD; CALG, M - SHAKE	05	HYDROMETER
	10	H_2O, H_2O_2 , CBD; CALG, ULTRA - S	05	HYDROMETER
	11	H_2O, H_2O_2 , HCL; CALG, END - END	05	HYDROMETER
	12	H_2O, H_2O_2 , HCL; CALG, M - SHAKE	05	HYDROMETER
	13	H_2O, H_2O_2 , HCL; CALG, ULTRA - S	05	HYDROMETER
077	00		06	WET SIEVING
			07	DRY SIEVING
	02	H_2O, H_2O_2,	06	WET SIEVING
	03	H_2O, H_2O_2 , CBD	06	WET SIEVING
	04	H_2O, H_2O_2 , HCL	06	WET SIEVING
	05	H_2O, H_2O_2 , CALG, END - END	05	HYDROMETER
	06	H_2O, H_2O_2 , CALG, M - SHAKE	05	HYDROMETER
	07	H_2O, H_2O_2 , CALG, ULTRA - S	05	HYDROMETER
	08	H_2O, H_2O_2 , CBD; CALG, END - END	05	HYDROMETER
	09	H_2O, H_2O_2 , CBD; CALG, M - SHAKE	05	HYDROMETER
	10	H_2O, H_2O_2 , CBD; CALG, ULTRA - S	05	HYDROMETER
	11	H_2O, H_2O_2 , HCL; CALG, END - END	05	HYDROMETER
	12	H_2O, H_2O_2 , HCL; CALG, M - SHAKE	05	HYDROMETER
	13	H_2O, H_2O_2 , HCL; CALG, ULTRA - S	05	HYDROMETER
078	00		06	WET SIEVING
			07	DRY SIEVING
	02	H_2O, H_2O_2,	06	WET SIEVING
	03	H_2O, H_2O_2 , CBD	06	WET SIEVING
	04	H_2O, H_2O_2 , HCL	06	WET SIEVING
	05	H_2O, H_2O_2 , CALG, END - END	05	HYDROMETER
	06	H_2O, H_2O_2 , CALG, M - SHAKE	05	HYDROMETER
	07	H_2O, H_2O_2 , CALG, ULTRA - S	05	HYDROMETER
	08	H_2O, H_2O_2 , CBD; CALG, END - END	05	HYDROMETER
	09	H_2O, H_2O_2 , CBD; CALG, M - SHAKE	05	HYDROMETER
	10	H_2O, H_2O_2 , CBD; CALG, ULTRA - S	05	HYDROMETER
	11	H_2O, H_2O_2 , HCL; CALG, END - END	05	HYDROMETER
	12	H_2O, H_2O_2 , HCL; CALG, M - SHAKE	05	HYDROMETER
	13	H_2O, H_2O_2 , HCL; CALG, ULTRA - S	05	HYDROMETER
079	00		06	WET SIEVING
			07	DRY SIEVING
	02	H_2O, H_2O_2,	06	WET SIEVING
	03	H_2O, H_2O_2 , CBD	06	WET SIEVING
	04	H_2O, H_2O_2 , HCL	06	WET SIEVING
	05	H_2O, H_2O_2 , CALG, END - END	05	HYDROMETER
	06	H_2O, H_2O_2 , CALG, M - SHAKE	05	HYDROMETER
	07	H_2O, H_2O_2 , CALG, ULTRA - S	05	HYDROMETER
	08	H_2O, H_2O_2 , CBD; CALG, END - END	05	HYDROMETER
	09	H_2O, H_2O_2 , CBD; CALG, M - SHAKE	05	HYDROMETER
	10	H_2O, H_2O_2 , CBD; CALG, ULTRA - S	05	HYDROMETER
	11	H_2O, H_2O_2 , HCL; CALG, END - END	05	HYDROMETER
	12	H_2O, H_2O_2 , HCL; CALG, M - SHAKE	05	HYDROMETER
	13	H_2O, H_2O_2 , HCL; CALG, ULTRA - S	05	HYDROMETER
080	00		06	WET SIEVING
			07	DRY SIEVING
	02	H_2O, H_2O_2,	06	WET SIEVING
	03	H_2O, H_2O_2 , CBD	06	WET SIEVING
	04	H_2O, H_2O_2 , HCL	06	WET SIEVING
	05	H_2O, H_2O_2 , CALG, END - END	05	HYDROMETER

PARAMETER CODE	PREPARATION CODE	PREPARATION	METHOD CODE	METHOD
	06	H_2O, H_2O_2 , CALG, M - SHAKE	05	HYDROMETER
	07	H_2O, H_2O_2 , CALG, ULTRA - S	05	HYDROMETER
	08	H_2O, H_2O_2 , CBD; CALG, END - END	05	HYDROMETER
	09	H_2O, H_2O_2 , CBD; CALG, M - SHAKE	05	HYDROMETER
	10	H_2O, H_2O_2 , CBD; CALG, ULTRA - S	05	HYDROMETER
	11	H_2O, H_2O_2 , HCL; CALG, END - END	05	HYDROMETER
	12	H_2O, H_2O_2 , HCL; CALG, M - SHAKE	05	HYDROMETER
	13	H_2O, H_2O_2 , HCL; CALG, ULTRA - S	05	HYDROMETER
081	00		06	WET SIEVING
			07	DRY SIEVING
	02	H_2O, H_2O_2,	06	WET SIEVING
	03	H_2O, H_2O_2 , CBD	06	WET SIEVING
	04	H_2O, H_2O_2 , HCL	06	WET SIEVING
	05	H_2O, H_2O_2 , CALG, END - END	08	PIPETTE
			05	HYDROMETER
	06	H_2O, H_2O_2 , CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	07	H_2O, H_2O_2 , CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	08	H_2O, H_2O_2 , CBD; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	09	H_2O, H_2O_2 , CBD; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	10	H_2O, H_2O_2 , CBD; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	11	H_2O, H_2O_2 , HCL; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	12	H_2O, H_2O_2 , HCL; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	13	H_2O, H_2O_2 , HCL; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
082	00		06	WET SIEVING
			07	DRY SIEVING
	02	H_2O, H_2O_2,	06	WET SIEVING
	03	H_2O, H_2O_2 , CBD	06	WET SIEVING
	04	H_2O, H_2O_2 , HCL	06	WET SIEVING
	05	H_2O, H_2O_2 , CALG, END - END	08	PIPETTE
			05	HYDROMETER
	06	H_2O, H_2O_2 , CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	07	H_2O, H_2O_2 , CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	08	H_2O, H_2O_2 , CBD; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	09	H_2O, H_2O_2 , CBD; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	10	H_2O, H_2O_2 , CBD; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	11	H_2O, H_2O_2 , HCL; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	12	H_2O, H_2O_2 , HCL; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	13	H_2O, H_2O_2 , HCL; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
083	00		06	WET SIEVING
			07	DRY SIEVING
	02	H_2O, H_2O_2,	06	WET SIEVING
	03	H_2O, H_2O_2 , CBD	06	WET SIEVING
	04	H_2O, H_2O_2 , HCL	06	WET SIEVING
	05	H_2O, H_2O_2 , CALG, END - END	08	PIPETTE
			05	HYDROMETER
	06	H_2O, H_2O_2 , CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	07	H_2O, H_2O_2 , CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	08	H_2O, H_2O_2 , CBD; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	09	H_2O, H_2O_2 , CBD; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	10	H_2O, H_2O_2 , CBD; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	11	H_2O, H_2O_2 , HCL; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	12	H_2O, H_2O_2 , HCL; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	13	H_2O, H_2O_2 , HCL; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
084	00		06	WET SIEVING

PARAMETER CODE	PREPARATION CODE	PREPARATION	METHOD CODE	METHOD
			07	DRY SIEVING
	02	H_2O, H_2O_2,	06	WET SIEVING
	03	H_2O, H_2O_2 , CBD	06	WET SIEVING
	04	H_2O, H_2O_2 , HCL	06	WET SIEVING
	05	H_2O, H_2O_2 , CALG, END - END	08	PIPETTE
			05	HYDROMETER
	06	H_2O, H_2O_2 , CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	07	H_2O, H_2O_2 , CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	08	H_2O, H_2O_2 , CBD; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	09	H_2O, H_2O_2 , CBD; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	10	H_2O, H_2O_2 , CBD; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	11	H_2O, H_2O_2 , HCL; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	12	H_2O, H_2O_2 , HCL; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	13	H_2O, H_2O_2 , HCL; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
085	01	H_2O, H_2O_2 , CALG, END - END	08	PIPETTE
			05	HYDROMETER
	02	H_2O, H_2O_2 , CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	03	H_2O, H_2O_2 , CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	04	H_2O, H_2O_2 , CBD; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	05	H_2O, H_2O_2 , CBD; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	06	H_2O, H_2O_2 , CBD; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	07	H_2O, H_2O_2 , HCL; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	08	H_2O, H_2O_2 , HCL; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	09	H_2O, H_2O_2 , HCL; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
086	01	H_2O, H_2O_2 , CALG, END - END	08	PIPETTE
			05	HYDROMETER
	02	H_2O, H_2O_2 , CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	03	H_2O, H_2O_2 , CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	04	H_2O, H_2O_2 , CBD; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	05	H_2O, H_2O_2 , CBD; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	06	H_2O, H_2O_2 , CBD; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	07	H_2O, H_2O_2 , HCL; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	08	H_2O, H_2O_2 , HCL; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	09	H_2O, H_2O_2 , HCL; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
087	01	H_2O, H_2O_2 , CALG, END - END	08	PIPETTE
			05	HYDROMETER
	02	H_2O, H_2O_2 , CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	03	H_2O, H_2O_2 , CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	04	H_2O, H_2O_2 , CBD; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	05	H_2O, H_2O_2 , CBD; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	06	H_2O, H_2O_2 , CBD; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	07	H_2O, H_2O_2 , HCL; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	08	H_2O, H_2O_2 , HCL; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	09	H_2O, H_2O_2 , HCL; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
088	01	H_2O, H_2O_2 , CALG, END - END	08	PIPETTE
			05	HYDROMETER

PARAMETER CODE	PREPARATION CODE	PREPARATION	METHOD CODE	METHOD
	02	H_2O, H_2O_2 , CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	03	H_2O, H_2O_2 , CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	04	H_2O, H_2O_2 , CBD; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	05	H_2O, H_2O_2 , CBD; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	06	H_2O, H_2O_2 , CBD; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	07	H_2O, H_2O_2 , HCL; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	08	H_2O, H_2O_2 , HCL; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	09	H_2O, H_2O_2 , HCL; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
089	01	H_2O, H_2O_2 , CALG, END - END	08	PIPETTE
			05	HYDROMETER
	02	H_2O, H_2O_2 , CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	03	H_2O, H_2O_2 , CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	04	H_2O, H_2O_2 , CBD; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	05	H_2O, H_2O_2 , CBD; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	06	H_2O, H_2O_2 , CBD; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	07	H_2O, H_2O_2 , HCL; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	08	H_2O, H_2O_2 , HCL; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	09	H_2O, H_2O_2 , HCL; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
090	01	H_2O, H_2O_2 , CALG, END - END	08	PIPETTE
			05	HYDROMETER
	02	H_2O, H_2O_2 , CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	03	H_2O, H_2O_2 , CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	04	H_2O, H_2O_2 , CBD; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	05	H_2O, H_2O_2 , CBD; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	06	H_2O, H_2O_2 , CBD; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	07	H_2O, H_2O_2 , HCL; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	08	H_2O, H_2O_2 , HCL; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	09	H_2O, H_2O_2 , HCL; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
091	01	H_2O, H_2O_2 , CALG, END - END	08	PIPETTE
			05	HYDROMETER
	02	H_2O, H_2O_2 , CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	03	H_2O, H_2O_2 , CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	04	H_2O, H_2O_2 , CBD; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	05	H_2O, H_2O_2 , CBD; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	06	H_2O, H_2O_2 , CBD; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	07	H_2O, H_2O_2 , HCL; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	08	H_2O, H_2O_2 , HCL; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	09	H_2O, H_2O_2 , HCL; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
092	01	H_2O, H_2O_2 , CALG, END - END	08	PIPETTE
			05	HYDROMETER
	02	H_2O, H_2O_2 , CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	03	H_2O, H_2O_2 , CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	04	H_2O, H_2O_2 , CBD; CALG, END - END	08	PIPETTE
			05	HYDROMETER

PARAMETER CODE	PREPARATION CODE	PREPARATION	METHOD CODE	METHOD
	05	H_2O, H_2O_2 , CBD; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	06	H_2O, H_2O_2 , CBD; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
	07	H_2O, H_2O_2 , HCL; CALG, END - END	08	PIPETTE
			05	HYDROMETER
	08	H_2O, H_2O_2 , HCL; CALG, M - SHAKE	08	PIPETTE
			05	HYDROMETER
	09	H_2O, H_2O_2 , HCL; CALG, ULTRA - S	08	PIPETTE
			05	HYDROMETER
093	00		00	
094	00		00	
095	00		00	
096	00		00	
097	00		00	
098	00		00	
099	00		00	
100	00		00	
101	00		00	
102	00		00	
103	00		00	
104	00		00	
105	00		00	
106	00		00	
107	01	SOIL IN FIELD STATE	54	VOLUMETER
			55	SARAN
			56	EXCAVATION
			57	CORE
108	01	SOIL IN FIELD STATE	54	VOLUMETER
			55	SARAN
			56	EXCAVATION
			57	CORE
109	00		00	
110	00		00	
111	00		00	
112	00		00	
113	00		00	
114	00		00	
115	00		00	
116	00		00	
117	00		00	
118	00		06	WET SIEVING
			07	DRY SIEVING
119	00		06	WET SIEVING
			07	DRY SIEVING
120	00		06	WET SIEVING
			07	DRY SIEVING
121	00		06	WET SIEVING
			07	DRY SIEVING
122	00		06	WET SIEVING
			07	DRY SIEVING
123	00		35	PRESSURE MEMBRANE
			36	PRESSURE PLATE
124	00		35	PRESSURE MEMBRANE
			36	PRESSURE PLATE
125	00		35	PRESSURE MEMBRANE
			36	PRESSURE PLATE
126	00		35	PRESSURE MEMBRANE
			36	PRESSURE PLATE
			37	TENSION TABLE
127	00		35	PRESSURE MEMBRANE
			36	PRESSURE PLATE
			37	TENSION TABLE
128	00		36	PRESSURE PLATE
			38	HANGING COLUMN
129	00		39	BASED ON 105C
130	00		40	RAINFALL SIMULATION
			41	FLOODING
131	00		40	RAINFALL SIMULATION
			41	FLOODING
132	00		40	RAINFALL SIMULATION
			41	FLOODING
133	00		40	RAINFALL SIMULATION
			41	FLOODING
134	00		40	RAINFALL SIMULATION
			41	FLOODING
135	00		42	CONSTANT HEAD PERMEAMETER

PARAMETER CODE	PREPARATION CODE	PREPARATION	METHOD CODE	METHOD
			43	FALLING HEAD PERMEAMETER
			44	DOUBLE - TUBE METHOD (FIELD)
			45	SHALLOW WELL PUMP. (FIELD)
			46	PERMEAMETER (FIELD)
			47	AUGER HOLE (FIELD)
			48	PIEZOMETER (FIELD)
136	00		49	AIR ENTRY PERMEAMETER
			50	STEADY STATE
137	00		00	
138	00		49	AIR ENTRY PERMEAMETER
			50	STEADY STATE
139	00		00	
140	00		49	AIR ENTRY PERMEAMETER
			50	STEADY STATE
141	00		00	
142	00		51	LOW TEMP GAS ADSORPTION
			52	ETHYLENE GLYCOL RETENTION
			53	DYE ABSORPTION
143	00		00	
144	00		00	
145	00		00	
146	00		00	
147	00		00	
148	00		00	
149	00		00	
150	00		00	
151	00		00	
152	00		00	
153	00		00	
154	00		00	
155	00		00	
156	00		00	
157	00		00	
158	00		00	
159	00		00	
160	00		00	
161	00		00	
162	00		00	
163	00		00	
164	00		00	
165	00		00	
166	00		00	
167	01	ACID AMMONIUM OXALATE	02	SPECTROPHOTOMETRY
			01	COLORIMETRY
168	01	ACID AMMONIUM OXALATE	02	SPECTROPHOTOMETRY
			01	COLORIMETRY
169	01	SODIUM PYROPHOSPHATE	02	SPECTROPHOTOMETRY
			01	COLORIMETRY
170	01	SODIUM PYROPHOSPHATE	02	SPECTROPHOTOMETRY
			01	COLORIMETRY
171	00		07	DRY SIEVING
172	00		07	DRY SIEVING
173	00		07	DRY SIEVING
174	00		07	DRY SIEVING
175	00		07	DRY SIEVING
176	00		07	DRY SIEVING
177	00		06	WET SIEVING
178	00		06	WET SIEVING
179	00		06	WET SIEVING
180	00		06	WET SIEVING
181	00		06	WET SIEVING
182	00		06	WET SIEVING
183	00		06	WET SIEVING
184	00		06	WET SIEVING
185	00		00	
186	00		00	
187	00		00	
188	00		00	
189	00		00	
190	00		00	
191	00		00	
192	00		00	
193	00		00	

PARAMETER CODE	PREPARATION CODE	PREPARATION	METHOD CODE	METHOD
194	00		00	
195	00		00	
196	00		00	
197	01		01	COLORIMETRY
			03	PLASMA SPECTROSCOPY
198	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
199	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
200	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
201	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
202	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
203	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
204	01	$HCLO_4$ / HNO_3 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	02	SPECTROPHOTOMETRY
			03	PLASMA SPECTROSCOPY
205	01	KJELDAHL (MICRO)	01	COLORIMETRY
			16	DIST + TITRATION
	02	KJELDAHL (SEMI - MICRO)	01	COLORIMETRY

PARAMETER CODE	PREPARATION CODE	PREPARATION	METHOD CODE	METHOD
			16	DIST + TITRATION
	03	KJELDAHL (MACRO)	01	COLORIMETRY
			16	DIST + TITRATION
206	01	$HCLO_4$ / HNO_3 DIGESTION	01	COLORIMETRY
			03	PLASMA SPECTROSCOPY
	02	LITHIUM METABORATE FUSION	01	COLORIMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	01	COLORIMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	01	COLORIMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	01	COLORIMETRY
			03	PLASMA SPECTROSCOPY
	06	MAGNESIUM NITRATE DIGEST	01	COLORIMETRY
			03	PLASMA SPECTROSCOPY
207	01	$HCLO_4$ / HNO_3 DIGESTION	01	COLORIMETRY
	03	SODIUM CARBONATE FUSION	01	COLORIMETRY
			03	PLASMA SPECTROSCOPY
208	01	$HCLO_4$ / HNO_3 DIGESTION	13	FLOURESCENCE
	05	HNO_3 / H_2O_2 DIGESTION	13	FLOURESCENCE
209	01	$HCLO_4$ / HNO_3 DIGESTION	01	COLORIMETRY
			03	PLASMA SPECTROSCOPY
			19	TURBIDIMETRY
	02	LITHIUM METABORATE FUSION	01	COLORIMETRY
			03	PLASMA SPECTROSCOPY
	03	SODIUM CARBONATE FUSION	01	COLORIMETRY
			03	PLASMA SPECTROSCOPY
	04	H_2SO_4 / H_2O_2 / LI_2SO_4 DIGESTION	01	COLORIMETRY
			03	PLASMA SPECTROSCOPY
	05	HNO_3 / H_2O_2 DIGESTION	01	COLORIMETRY
			03	PLASMA SPECTROSCOPY
	06	MAGNESIUM NITRATE FUSION	01	COLORIMETRY
			03	PLASMA SPECTROSCOPY
			19	TURBIDIMETRY
210	00		00	
211	01	0.03N NH_4 + 0.1N HCL	18	ASCORBID ACID - COLORIMET
212	01	$NAHCO_3$ (OLSEN & DEAN)	18	ASCORBID ACID - COLORIMET
213	00		00	
214	01	0.01M $CACL_2$ EXTRACTION	01	COLORIMETRY
			02	SPECTROPHOTOMETRY
215	01	0.01M $CACL_2$ EXTRACTION	01	COLORIMETRY
			02	SPECTROPHOTOMETRY
216	01	0.01M $CACL_2$ EXTRACTION	01	COLORIMETRY
			02	SPECTROPHOTOMETRY
217	01	0.1N HCL EXTRACTION	01	COLORIMETRY
			02	SPECTROPHOTOMETRY
218	01	0.1N HCL EXTRACTION	01	COLORIMETRY
			02	SPECTROPHOTOMETRY
219	00		00	
220	01	SATURATION EXTRACT	02	SPECTROPHOTOMETRY
221	01	NH_4OAC 1N EXTRAC @ pH 7	02	SPECTROPHOTOMETRY
222	01	SOIL IN FIELD STATE	54	VOLUMETER
			55	SARAN
			56	EXCAVATION
			57	CORE

APPENDIX F

Kelowna Soils Laboratory Calculated Code Table

Calculated Parameter	Component Parameter(s)	Calculated Parameter	Component Parameter(s)
007	005, 008	103	076, 089
011	164, 165	104	076, 092
024	017, 019, 020, 021, 022	105	074, 082, 110, 111, 210
035	030, 031, 033	106	107, 108, 222 plus % cobbles + stone
036	030, 031, 033	112	110, 111
037	030, 031, 032, 033	117	106, 109
038	029	148	146, 147
069	067, 068	166	030, 031, 032, 033, 039, 040
093	076, 084, 089	186	076, 084
094	076	187	076, 077
095	076, 084	188	077, 078
096	076, 077	189	078, 079
097	076, 077, 078	190	079, 081
098	076, 078, 079	191	081, 084
099	076, 079, 081	192	083, 089
100	076, 081, 084	193	084, 089
101	076, 083, 089	194	089
102	076, 084, 089	195	092