

Database Code: CF002

Title: Stream chemistry concentrations and fluxes using proportional sampling in the Andrews Experimental Forest, 1968 to present

Abstract:

Stream chemistry sampling and analysis was initiated at the H.J. Andrews Experimental Forest in 1968 in two small watersheds (Watersheds 9,10). Sampling has expanded as additional paired watershed studies (Watersheds 1, 2, 6, 7, 8) and monitoring (Mack, Lookout Cr) were initiated over time. Water samples are collected proportionally to streamflow as a function of stage height and composited at each stream gauging site. Composite sample periods are generally three weeks and 3 one-week samples are commonly composited in the lab before analysis. Water samples are analyzed at the Cooperative Chemical Analytical Lab (CCAL) (<http://www.ccal.oregonstate.edu/>). Concentrations of analytes include dissolved and particulate nitrogen, phosphorus, carbon, as well pH, conductivity, suspended sediment, and full suite of cations and anions. Monthly and annual mean concentrations are calculated by weighting 3-week periods by streamflow. Fluxes are calculated using concentrations and flow. The original objective was to examine the nutrient budgets for small watersheds and to evaluate changes in average concentrations and fluxes following timber harvest in comparison with unharvested reference watersheds. This study is conducted in conjunction with Andrew's precipitation chemistry (CP002) and the U.S. National Atmospheric Deposition Program (NADP).

Keywords: Discharge; Dissolved load; Hydrology/Water; Logging; Long-Term Ecological Research (LTER); Nutrients; Solution transport; Streamflow; Timber harvesting; Water; Water chemistry; Inorganic nutrients; Inorganic nutrients; Organic matter; Long-Term Ecological Research (LTER); hydrology; water chemistry; suspended solids; discharge; streamflow; timber harvest; inorganic nutrients; nutrients; dissolved nutrients; water;

Date data commenced: 1968-10-02

Date data terminated: 2019-05-22

Principal Investigator: Sherri L. Johnson

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1. Proportional stream water sample nutrient concentrations

This is the raw proportional sample concentration data collected periodically (usually every three weeks). Please see mean monthly concentration data provided in entity 2.

Attribute List:

STCODE	N	N	char(5)	enum			
ENTITY	N	N	numeric(1,0)	range	1.0000	1.0000	number
SITECODE	Y	N	char(6)	place			
WATERYEAR	N	N	numeric(4,0)	range	1969.0000	2019.0000	number
DATE_TIME	Y	N	datetime	range	10/9/1968	5/22/2019 12:00:00 PM 2:55:00 PM	YYYY-MM-DD hh:mm:ss
LABNO	N	Y	char(4)	freetext			
TYPE	N	N	char(2)	enum			
INTERVAL	N	Y	numeric(6,2)	range	0.0000	114.0000	number
MEAN_LPS	N	Y	numeric(8,2)	range	0.0000	19578.0000	l/sec
Q_AREA_CM	N	Y	numeric(6,2)	range	0.0000	116.3100	cm

QCODE	N	Y	char(1)	enum			
PH	N	Y	numeric(5,1)	range	4.2000	8.4000	ph
PHCODE	N	Y	char(1)	enum			
COND	N	Y	numeric(6,1)	range	14.4000	98.0000	uS/cm
CONDCODE	N	Y	char(1)	enum			
ALK	N	Y	numeric(6,2)	range	0.0000	41.7500	mg/l
ALKCODE	N	Y	char(1)	enum			
SSED	N	Y	numeric(7,2)	range	0.0000	5411.0100	mg/l
SSEDCODE	N	Y	char(1)	enum			
SI	N	Y	numeric(6,2)	range	0.1500	15.0000	mg/l
SICODE	N	Y	char(1)	enum			
UTP	N	Y	numeric(6,3)	range	0.0050	0.4920	mg/l
UTPCODE	N	Y	char(1)	enum			
TDP	N	Y	numeric(6,3)	range	0.0000	0.4930	mg/l
TDPCODE	N	Y	char(1)	enum			
PARTP	N	Y	numeric(6,3)	range	0.0000	0.4780	mg/l
PARTPCODE	N	Y	char(2)	enum			
PO4P	N	Y	numeric(6,3)	range	0.0000	0.1090	mg/l
PO4PCODE	N	Y	char(1)	enum			
UTN	N	Y	numeric(6,2)	range	0.0000	2.7900	mg/l
UTNCODE	N	Y	char(2)	enum			
TDN	N	Y	numeric(6,2)	range	0.0000	1.0100	mg/l
TDNCODE	N	Y	char(2)	enum			
DON	N	Y	numeric(6,2)	range	0.0000	0.2500	mg/l
DONCODE	N	Y	char(2)	enum			
PARTN	N	Y	numeric(6,2)	range	0.0000	2.6900	mg/l
PARTNCODE	N	Y	char(2)	enum			
UTKN	N	Y	numeric(6,2)	range	0.0000	2.7600	mg/l
UTKNCODE	N	Y	char(1)	enum			
TKN	N	Y	numeric(6,2)	range	0.0000	0.2800	mg/l
TKNCODE	N	Y	char(1)	enum			
NH3N	N	Y	numeric(6,3)	range	0.0000	0.7490	mg/l
NH3NCODE	N	Y	char(1)	enum			
NO3N	N	Y	numeric(6,3)	range	0.0000	0.5340	mg/l

NO3NCODE	N	Y	char(1)	enum			
NA	N	Y	numeric(6,2)	range	0.0200	6.1900	mg/l
NACODE	N	Y	char(1)	enum			
K	N	Y	numeric(6,2)	range	0.0000	9.5000	mg/l
KCODE	N	Y	char(1)	enum			
CA	N	Y	numeric(6,2)	range	0.0800	10.8600	mg/l
CACODE	N	Y	char(1)	enum			
MG	N	Y	numeric(6,2)	range	0.3100	13.1100	mg/l
MGCODE	N	Y	char(1)	enum			
SO4S	N	Y	numeric(6,2)	range	0.0000	1.6700	mg/l
SO4SCODE	N	Y	char(1)	enum			
CL	N	Y	numeric(6,2)	range	0.0200	19.2800	mg/l
CLCODE	N	Y	char(1)	enum			
DOC	N	Y	numeric(6,2)	range	0.1900	4.2700	mg/l
DOCCODE	N	Y	char(1)	enum			
PVOL	N	Y	numeric(7,3)	range	0.5340	49.3430	kg
PVOLCODE	N	Y	char(1)	enum			
ANCA	N	Y	numeric(5,2)	range	0.3200	2.0600	number
ANCACODE	N	Y	char(2)	enum			

2. Stream water nutrient mean monthly concentrations

Attribute List:

STCODE	N	N	char(5)	enum			
ENTITY	N	N	numeric(1,0)	range	2.0000	2.0000	number
SITECODE	Y	N	char(6)	place			
WATERYEAR	N	N	numeric(4,0)	range	1969.0000	2018.0000	number
YEAR	Y	N	numeric(4,0)	range	1968.0000	2018.0000	number
MONTH	Y	N	numeric(2,0)	range	1.0000	12.0000	number
TYPE	N	N	char(2)	enum			
MEAN_LPS	N	Y	numeric(8,2)	range	0.0100	12606.0000	l/sec
Q_AREA_MO	N	Y	numeric(6,2)	range	0.0300	82.5500	cm
QCODE_MO	N	Y	char(1)	enum			
PH_MO	N	Y	numeric(5,2)	range	4.3100	8.0100	ph
PHCODE_MO	N	Y	char(2)	enum			
COND_MO	N	Y	numeric(6,2)	range	16.8600	92.0500	uS/cm

CONDCODE_MO	N	Y	char(2)	enum			
ALK_MO	N	Y	numeric(6,2)	range	3.1200	40.6000	mg/l
ALKCODE_MO	N	Y	char(2)	enum			
SSED_MO	N	Y	numeric(6,2)	range	0.0000	2658.4000	mg/l
SSEDCODE_MO	N	Y	char(2)	enum			
SI_MO	N	Y	numeric(6,2)	range	1.0400	12.5700	mg/l
SICODE_MO	N	Y	char(2)	enum			
UTP_MO	N	Y	numeric(6,3)	range	0.0060	0.4410	mg/l
UTPCODE_MO	N	Y	char(2)	enum			
TDP_MO	N	Y	numeric(6,3)	range	0.0040	0.3330	mg/l
TDPCODE_MO	N	Y	char(2)	enum			
PO4P_MO	N	Y	numeric(6,3)	range	0.0020	0.0910	mg/l
PO4PCODE_MO	N	Y	char(2)	enum			
PARTP_MO	N	Y	numeric(6,3)	range	0.0000	0.4280	mg/l
PARTPCODE_MO	N	Y	char(3)	enum			
UTN_MO	N	Y	numeric(6,2)	range	0.0000	2.6100	mg/l
UTNCODE_MO	N	Y	char(3)	enum			
TDN_MO	N	Y	numeric(6,2)	range	0.0000	0.4400	mg/l
TDNCODE_MO	N	Y	char(3)	enum			
DON_MO	N	Y	numeric(6,2)	range	0.0000	0.1300	mg/l
DONCODE_MO	N	Y	char(3)	enum			
PARTN_MO	N	Y	numeric(6,2)	range	0.0000	2.5100	mg/l
PARTNCODE_MO	N	Y	char(3)	enum			
UTKN_MO	N	Y	numeric(6,2)	range	0.0000	2.5800	mg/l
UTKNCODE_MO	N	Y	char(2)	enum			
TKN_MO	N	Y	numeric(6,2)	range	0.0000	0.2300	mg/l
TKNCODE_MO	N	Y	char(2)	enum			
NH3N_MO	N	Y	numeric(6,3)	range	0.0000	0.2030	mg/l
NH3NCODE_MO	N	Y	char(2)	enum			
NO3N_MO	N	Y	numeric(6,3)	range	0.0000	0.3860	mg/l
NO3NCODE_MO	N	Y	char(2)	enum			
NA_MO	N	Y	numeric(6,2)	range	0.5100	5.4300	mg/l
NACODE_MO	N	Y	char(2)	enum			
K_MO	N	Y	numeric(6,2)	range	0.0000	8.0800	mg/l

KCODE_MO	N	Y	char(2)	enum			
CA_MO	N	Y	numeric(6,2)	range	0.5700	10.3000	mg/l
CACODE_MO	N	Y	char(1)	enum			
MG_MO	N	Y	numeric(6,2)	range	0.3300	13.0300	mg/l
MGCODE_MO	N	Y	char(2)	enum			
SO4S_MO	N	Y	numeric(6,2)	range	0.0000	1.5000	mg/l
SO4SCODE_MO	N	Y	char(2)	enum			
CL_MO	N	Y	numeric(6,2)	range	0.2200	9.4800	mg/l
CLCODE_MO	N	Y	char(2)	enum			
DOC_MO	N	Y	numeric(6,2)	range	0.2500	4.2100	mg/l
DOCCODE_MO	N	Y	char(2)	enum			

3. Stream water nutrient mean annual concentrations

Attribute List:

STCODE	N	N	char(5)	enum			
ENTITY	N	N	numeric(1,0)	range	3.0000	3.0000	number
SITECODE	Y	N	char(6)	place			
WATERYEAR	Y	N	numeric(4,0)	range	1969.0000	2018.0000	number
Q_AREA_YR	N	Y	numeric(6,2)	range	35.5500	267.0100	cm
QCODE_YR	N	Y	char(1)	enum			
PH_YR	N	Y	numeric(5,1)	range	5.5000	7.7000	ph
PHCODE_YR	N	Y	char(2)	enum			
COND_YR	N	Y	numeric(6,1)	range	21.3700	72.1000	uS/cm
CONDCODE_YR	N	Y	char(2)	enum			
ALK_YR	N	Y	numeric(6,2)	range	10.6200	26.5000	mg/l
ALKCODE_YR	N	Y	char(2)	enum			
SSED_YR	N	Y	numeric(6,2)	range	0.4500	565.3200	mg/l
SSEDCODE_YR	N	Y	char(2)	enum			
SI_YR	N	Y	numeric(6,2)	range	3.1000	10.2000	mg/l
SICODE_YR	N	Y	char(2)	enum			
UTP_YR	N	Y	numeric(6,3)	range	0.0090	0.1150	mg/l
UTPCODE_YR	N	Y	char(2)	enum			
TDP_YR	N	Y	numeric(6,3)	range	0.0060	0.0800	mg/l
TDPCODE_YR	N	Y	char(2)	enum			
PARTP_YR	N	Y	numeric(6,3)	range	0.0020	0.0940	mg/l

PARTPCODE_YR	N	Y	char(3)	enum			
PO4P_YR	N	Y	numeric(6,3)	range	0.0040	0.0430	mg/l
PO4PCODE_YR	N	Y	char(2)	enum			
UTN_YR	N	Y	numeric(6,2)	range	0.0100	0.6000	mg/l
UTNCODE_YR	N	Y	char(3)	enum			
TDN_YR	N	Y	numeric(6,2)	range	0.0100	0.1800	mg/l
TDNCODE_YR	N	Y	char(3)	enum			
DON_YR	N	Y	numeric(6,2)	range	0.0000	0.0600	mg/l
DONCODE_YR	N	Y	char(3)	enum			
PARTN_YR	N	Y	numeric(6,2)	range	0.0000	0.5200	mg/l
PARTNCODE_YR	N	Y	char(3)	enum			
UTKN_YR	N	Y	numeric(6,2)	range	0.0200	0.5600	mg/l
UTKNCODE_YR	N	Y	char(2)	enum			
TKN_YR	N	Y	numeric(6,2)	range	0.0100	0.0700	mg/l
TKNCODE_YR	N	Y	char(2)	enum			
NH3N_YR	N	Y	numeric(6,3)	range	0.0000	0.0350	mg/l
NH3NCODE_YR	N	Y	char(2)	enum			
NO3N_YR	N	Y	numeric(6,3)	range	0.0000	0.1370	mg/l
NO3NCODE_YR	N	Y	char(2)	enum			
NA_YR	N	Y	numeric(6,2)	range	1.2800	3.2400	mg/l
NACODE_YR	N	Y	char(2)	enum			
K_YR	N	Y	numeric(6,2)	range	0.0300	1.7500	mg/l
KCODE_YR	N	Y	char(2)	enum			
CA_YR	N	Y	numeric(6,2)	range	1.9900	5.9500	mg/l
CACODE_YR	N	Y	char(2)	enum			
MG_YR	N	Y	numeric(6,2)	range	0.4300	3.2600	mg/l
MGCODE_YR	N	Y	char(2)	enum			
SO4S_YR	N	Y	numeric(6,2)	range	0.0500	0.7300	mg/l
SO4SCODE_YR	N	Y	char(2)	enum			
CL_YR	N	Y	numeric(6,2)	range	0.5400	4.2200	mg/l
CLCODE_YR	N	Y	char(2)	enum			
DOC_YR	N	Y	numeric(6,2)	range	0.3800	2.6000	mg/l
DOCCODE_YR	N	Y	char(2)	enum			

4. Stream water nutrient monthly outflow (kg/ha)

Attribute List:

STCODE	N	N	char(5)	enum			
ENTITY	N	N	numeric(1,0)	range	4.0000	4.0000	number
SITECODE	Y	N	char(6)	place			
WATERYEAR	N	N	numeric(4,0)	range	1969.0000	2018.0000	number
YEAR	Y	N	numeric(4,0)	range	1968.0000	2018.0000	number
MONTH	Y	N	numeric(2,0)	range	1.0000	12.0000	number
TYPE	N	N	char(2)	enum			
Q_AREA_MO	N	Y	numeric(6,2)	range	0.0300	82.5500	cm
QCODE_MO	N	Y	char(1)	enum			
ALK_OUT_MO	N	Y	numeric(6,2)	range	0.0700	124.3300	kg/ha
ALKCODE_MO	N	Y	char(2)	enum			
SSED_OUT_MO	N	Y	numeric(8,2)	range	0.0000	12536.3496	kg/ha
SSEDCODE_MO	N	Y	char(2)	enum			
SI_OUT_MO	N	Y	numeric(6,2)	range	0.0300	67.6500	kg/ha
SICODE_MO	N	Y	char(2)	enum			
UTP_OUT_MO	N	Y	numeric(5,3)	range	0.0000	2.5200	kg/ha
UTPCODE_MO	N	Y	char(2)	enum			
TDP_OUT_MO	N	Y	numeric(5,3)	range	0.0000	0.5200	kg/ha
TDPCODE_MO	N	Y	char(2)	enum			
PO4P_OUT_MO	N	Y	numeric(5,3)	range	0.0000	0.2600	kg/ha
PO4PCODE_MO	N	Y	char(2)	enum			
PARTP_OUT_MO	N	Y	numeric(5,3)	range	0.0000	2.4400	kg/ha
PARTPCODE_MO	N	Y	char(3)	enum			
UTN_OUT_MO	N	Y	numeric(5,2)	range	0.0000	14.8500	kg/ha
UTNCODE_MO	N	Y	char(3)	enum			
TDN_OUT_MO	N	Y	numeric(5,2)	range	0.0000	1.4800	kg/ha
TDNCODE_MO	N	Y	char(3)	enum			
DON_OUT_MO	N	Y	numeric(5,2)	range	0.0000	0.4400	kg/ha
DONCODE_MO	N	Y	char(3)	enum			
PARTN_OUT_MO	N	Y	numeric(5,2)	range	0.0000	14.2900	kg/ha
PARTNCODE_MO	N	Y	char(3)	enum			
UTKN_OUT_MO	N	Y	numeric(5,2)	range	0.0000	14.6700	kg/ha
UTKNCODE_MO	N	Y	char(2)	enum			

TKN_OUT_MO	N	Y	numeric(5,2)	range	0.0000	0.4700	kg/ha
TKNCODE_MO	N	Y	char(2)	enum			
NH3N_OUT_MO	N	Y	numeric(5,3)	range	0.0000	0.3700	kg/ha
NH3NCODE_MO	N	Y	char(2)	enum			
NO3N_OUT_MO	N	Y	numeric(5,3)	range	0.0000	1.3000	kg/ha
NO3NCODE_MO	N	Y	char(2)	enum			
NA_OUT_MO	N	Y	numeric(5,2)	range	0.0100	15.0000	kg/ha
NACODE_MO	N	Y	char(2)	enum			
K_OUT_MO	N	Y	numeric(5,2)	range	0.0000	33.2100	kg/ha
KCODE_MO	N	Y	char(2)	enum			
CA_OUT_MO	N	Y	numeric(5,2)	range	0.0100	25.0800	kg/ha
CACODE_MO	N	Y	char(1)	enum			
MG_OUT_MO	N	Y	numeric(5,2)	range	0.0000	16.9400	kg/ha
MGCODE_MO	N	Y	char(2)	enum			
SO4S_OUT_MO	N	Y	numeric(6,2)	range	0.0000	2.6100	kg/ha
SO4SCODE_MO	N	Y	char(2)	enum			
CL_OUT_MO	N	Y	numeric(6,2)	range	0.0000	9.2600	kg/ha
CLCODE_MO	N	Y	char(2)	enum			
DOC_OUT_MO	N	Y	numeric(5,2)	range	0.0000	11.0500	kg/ha
DOCCODE_MO	N	Y	char(2)	enum			

5. Stream water nutrient outflow (kg/ha) for each proportional sampling interval

Data are calculated outflow fluxes for each proportional sample period. Alternatively, please consider use of monthly outflow fluxes provided in entity 4.

Attribute List:

STCODE	N	N	char(5)	enum			
ENTITY	N	N	numeric(1,0)	range	5.0000	5.0000	number
SITECODE	Y	N	char(6)	place			
WATERYEAR	N	N	numeric(4,0)	range	1969.0000	2018.0000	number
DATE_TIME	Y	N	datetime	range	10/9/1968	10/1/2018	YYYY-MM-DD hh:mm:ss
LABNO	N	Y	char(4)	freetext	12:00:00 PM	12:00:00 AM	
TYPE	N	N	char(2)	enum			
Q_AREA_CM	N	Y	numeric(6,2)	range	0.0000	116.3100	cm
QCODE	N	Y	char(1)	enum			
ALK_OUTPUT	N	Y	numeric(6,2)	range	0.0000	115.7000	kg/ha
ALKCODE	N	Y	char(1)	enum			

SSED_OUTPUT	N	Y	numeric(7,2)	range	0.0000	9467.0000	kg/ha
SSEDCODE	N	Y	char(1)	enum			
SI_OUTPUT	N	Y	numeric(6,2)	range	0.0000	56.1200	kg/ha
SICODE	N	Y	char(1)	enum			
UTP_OUTPUT	N	Y	numeric(5,3)	range	0.0000	1.8920	kg/ha
UTPCODE	N	Y	char(1)	enum			
TDP_OUTPUT	N	Y	numeric(5,3)	range	0.0000	0.4070	kg/ha
TDPCODE	N	Y	char(1)	enum			
PARTP_OUTPUT	N	Y	numeric(5,3)	range	0.0000	1.8360	kg/ha
PARTPCODE	N	Y	char(2)	enum			
PO4P_OUTPUT	N	Y	numeric(5,3)	range	0.0000	0.2130	kg/ha
PO4PCODE	N	Y	char(1)	enum			
UTN_OUTPUT	N	Y	numeric(5,2)	range	0.0000	11.1800	kg/ha
UTNCODE	N	Y	char(2)	enum			
TDN_OUTPUT	N	Y	numeric(5,2)	range	0.0000	1.2700	kg/ha
TDNCODE	N	Y	char(2)	enum			
DON_OUTPUT	N	Y	numeric(5,2)	range	0.0000	0.3100	kg/ha
DONCODE	N	Y	char(2)	enum			
PARTN_OUTPUT	N	Y	numeric(5,2)	range	0.0000	10.7800	kg/ha
PARTNCODE	N	Y	char(2)	enum			
UTKN_OUTPUT	N	Y	numeric(5,2)	range	0.0000	11.0600	kg/ha
UTKNCODE	N	Y	char(1)	enum			
TKN_OUTPUT	N	Y	numeric(5,2)	range	0.0000	0.3200	kg/ha
TKNCODE	N	Y	char(1)	enum			
NH3N_OUTPUT	N	Y	numeric(5,3)	range	0.0000	0.2750	kg/ha
NH3NCODE	N	Y	char(1)	enum			
NO3N_OUTPUT	N	Y	numeric(5,3)	range	0.0000	1.1480	kg/ha
NO3NCODE	N	Y	char(1)	enum			
NA_OUTPUT	N	Y	numeric(5,2)	range	0.0000	13.2400	kg/ha
NACODE	N	Y	char(1)	enum			
K_OUTPUT	N	Y	numeric(5,2)	range	0.0000	33.0100	kg/ha
KCODE	N	Y	char(1)	enum			
CA_OUTPUT	N	Y	numeric(5,2)	range	0.0000	21.8200	kg/ha
CACODE	N	Y	char(1)	enum			

MG_OUTPUT	N	Y	numeric(5,2)	range	0.0000	15.0600	kg/ha
MGCODE	N	Y	char(1)	enum			
SO4S_OUTPUT	N	Y	numeric(6,2)	range	0.0000	2.0400	kg/ha
SO4SCODE	N	Y	char(1)	enum			
CL_OUTPUT	N	Y	numeric(6,2)	range	0.0000	9.0900	kg/ha
CLCODE	N	Y	char(1)	enum			
DOC_OUTPUT	N	Y	numeric(5,2)	range	0.0000	11.8300	kg/ha
DOCCODE	N	Y	char(1)	enum			

6. Stream water sample log sheet: field and laboratory comments

Attribute List:

STCODE	N	N	char(5)	enum			
ENTITY	N	N	numeric(1,0)	range	6.0000	6.0000	number
SITECODE	Y	N	char(6)	place			
WATERYEAR	N	N	numeric(4,0)	range	1969.0000	2019.0000	number
DATE_TIME	Y	N	datetime	range	10/9/1968	5/22/2019	YYYY-MM-DD hh:mm:ss
LABNO	N	Y	char(4)	freetext	12:00:00 PM	2:55:00 PM	
TYPE	N	N	char(2)	enum			
QCCODE	N	N	char(2)	enum			
QA_SAMPLE	N	Y	char(6)	freetext			
SAMPLER_TYPE	N	N	char(2)	enum			
LOW_VOLUME	N	N	char(1)	enum			
FIELD_COMMENTS	N	Y	char(254)	freetext			
LAB_COMMENTS	N	Y	char(254)	freetext			
SEQ_INDEX	N	N	numeric(5,0)	range	1.0000	9110.0000	number

Attributes Definitions:

- ALK
Alkalinity as calcium carbonate (CaCO₃); method: electrometric titration to pH 4.5; all data is converted from the formerly used units of bicarbonate carbon (HCO₃-C)
- ALK_MO
Mean monthly alkalinity concentration as CaCO₃ (calcium carbonate)
- ALK_OUT_MO
Total monthly alkalinity outflow as CaCO₃ (calcium carbonate). All units are now converted from HCO₃-C (bi-carbonate)
- ALK_OUTPUT
Alkalinity outflow as CaCO₃ (calcium carbonate)
- ALK_YR

Mean annual alkalinity concentration as CaCO₃ (calcium carbonate). All units are now converted from HCO₃-C (bi-carbonate)

ALKCODE

Alkalinity value qualifier code

ALKCODE_MO

Monthly alkalinity qualifier value code

ALKCODE_YR

Annual alkalinity qualifier value code

ANCA

Anion-cation ratio: micro equivalence ratio of anions to cations by calculation - provided only as an analytical check. Requires anions: ALK, SO₄S, CL, NO₃N, PO₄P, cations: pH, Na, K, Ca, Mg, NH₄N

ANCACODE

Anion-cation ratio qualifier code

CA

Ca, dissolved calcium (filtrable) concentration; method flame atomic absorption spectroscopy

CA_MO

Mean monthly calcium concentration

CA_OUT_MO

Total monthly calcium outflow

CA_OUTPUT

Calcium outflow

CA_YR

Mean annual calcium concentration

CACODE

Ca value qualifier code

CACODE_MO

Monthly calcium value qualifier code

CACODE_YR

Annual Ca value qualifier code

CL

Chloride (dissolved) concentration; method: ion chromatography (automated ferric thiocyanate before 1993)

CL_MO

Mean monthly chloride concentration

CL_OUT_MO

Total monthly chloride outflow

CL_OUTPUT

Chloride outflow

CL_YR

Mean annual chloride concentration

CLCODE

Cl value qualifier code

CLCODE_MO

Monthly chloride value qualifier code

CLCODE_YR

Annual Cl value qualifier code

COND

Specific conductance; method: wheatstone bridge

COND_MO

Mean monthly specific conductivity concentration

COND_YR

Mean annual specific conductivity concentration

CONDCODE

Conductivity value qualifier code

CONDCODE_MO

Monthly conductivity value qualifier code

CONDCODE_YR

Annual conductivity value qualifier code

DATE_TIME

Collection date and time (PST) of the stream water sample - sample collected proportionally to streamflow from the previous sample date and time. Assume beginning date of first sample period for each collector is October 1st.

DOC

DOC, dissolved organic carbon concentration; method: combustion

DOC_MO

Mean monthly dissolved organic carbon concentration

DOC_OUT_MO

Total monthly dissolved organic carbon outflow

DOC_OUTPUT

Dissolved organic carbon outflow

DOC_YR

Mean annual dissolved organic carbon concentration

DOCCODE

DOC value qualifier code

DOCCODE_MO

Monthly dissolved organic carbon value qualifier code

DOCCODE_YR

Annual DOC value qualifier code

DON

Dissolved organic nitrogen - not measured analytically; mathematically determined by subtracting NH3-N and NO3-N from Total dissolved nitrogen. Values before May 2005 are determined by TKN minus NH3-N.

DON_MO

Mean monthly dissolved organic N concentration - not measured analytically; mathematically determined by subtracting NH3-N and NO3-N from Total dissolved nitrogen. Values before May 2005 are determined by TKN minus NH3-N

DON_OUT_MO

Total monthly dissolved organic N outflow - not measured analytically; mathematically determined by subtracting NH3-N and NO3-N from Total dissolved nitrogen. Values before May 2005 are determined by TKN minus NH3-N

DON_OUTPUT

Dissolved organic N outflow - not measured analytically; mathematically determined by subtracting NH3-N and NO3-N from Total dissolved nitrogen. Values before May 2005 are determined by TKN minus NH3-N

DON_YR

Mean annual dissolved organic N concentration - not measured analytically; mathematically determined by subtracting NH3-N and NO3-N from Total dissolved nitrogen. Values before May 2005 are determined by TKN minus NH3-N

DONCODE

Dissolved organic nitrogen value qualifier code

DONCODE_MO

Monthly dissolved organic N value qualifier code

DONCODE_YR

Annual dissolved organic N value qualifier code

ENTITY

Entity number

FIELD_COMMENTS

Field comments related to the collection of the water sample

INTERVAL

Proportional sampling interval length in days

K

K, dissolved potassium (filtrable) concentration; method flame atomic absorption spectroscopy

K_MO

Mean monthly potassium concentration

K_OUT_MO

Total monthly potassium outflow

K_OUTPUT

Potassium outflow

K_YR

Mean annual potassium concentration

KCODE

K value qualifier code

KCODE_MO

Monthly potassium value qualifier code

KCODE_YR

Annual K value qualifier code

LAB_COMMENTS

Laboratory comments related to the handling and analyses of the sample

LABNO

Lab number code for sample

LOW_VOLUME

Indicator of a low volume sampler that may restrict the breadth of laboratory analyses

MEAN_LPS

Mean discharge over the sampling interval

MG

Mg, dissolved magnesium (filtrable) concentration; method flame atomic absorption spectroscopy

MG_MO

Mean monthly magnesium concentration

MG_OUT_MO

Total monthly magnesium outflow

MG_OUTPUT

Magnesium outflow

MG_YR

Mean annual magnesium concentration

MGCODE

Mg value qualifier code

MGCODE_MO

Monthly magnesium value qualifier code

MGCODE_YR

Annual Mg value qualifier code

MONTH

Month of summary

NA

Na, dissolved sodium (filtrable) concentration; method flame atomic absorption spectroscopy

NA_MO

Mean monthly sodium concentration

NA_OUT_MO

Total monthly sodium outflow

NA_OUTPUT

Sodium outflow

NA_YR

Mean annual sodium concentration

NACODE

Na value qualifier code

NACODE_MO

Monthly sodium value qualifier code

NACODE_YR

Annual Na value qualifier code

NH3N

Ammonia-nitrogen (NH3-N) concentration, ammonia as nitrogen; method: automated phenate

NH3N_MO

Mean monthly ammonia-nitrogen (NH3-N) concentration

NH3N_OUT_MO

Total monthly ammonia-nitrogen (NH3-N) outflow

NH3N_OUTPUT

Ammonia-nitrogen (NH3-N) outflow

NH3N_YR

Mean annual ammonia (NH3-N) concentration

NH3NCODE

NH3-N value qualifier code

NH3NCODE_MO

Monthly ammonia-nitrogen (NH3-N) value qualifier code

NH3NCODE_YR

Annual NH3-N value qualifier code

NO3N

Nitrate-nitrogen (NO3-N), nitrate + nitrite as nitrogen concentration; method: automated cadmium reduction

NO3N_MO

Mean monthly nitrate-nitrogen (NO3-N) concentration

NO3N_OUT_MO

Total monthly nitrate-nitrogen (NO3-N) outflow

NO3N_OUTPUT

Nitrate-nitrogen (NO3-N) outflow

NO3N_YR

Mean annual nitrate-nitrogen (NO3-N) concentration

NO3NCODE

NO3-N value qualifier code

NO3NCODE_MO

Monthly nitrate-nitrogen (NO3-N) value qualifier code

NO3NCODE_YR

Annual NO3-N value qualifier code

PARTN

Particulate N, also known as total suspended nitrogen - not measured analytically; mathematically determined by subtraction of Total dissolved nitrogen (TDN) from Unfiltered Total nitrogen (UTN). Values before May 2005 are determined by UTKN minus TKN.

PARTN_MO

Mean monthly particulate N concentration - not measured analytically; mathematically determined by subtraction of Total dissolved nitrogen (TDN) from Unfiltered Total nitrogen (UTN). Values before May 2005 are determined by UTKN minus TKN.

PARTN_OUT_MO

Total monthly particulate N outflow - not measured analytically; mathematically determined by subtraction of Total dissolved nitrogen (TDN) from Unfiltered Total nitrogen (UTN). Values before May 2005 are determined by UTKN minus TKN.

PARTN_OUTPUT

Particulate N outflow - not measured analytically; mathematically determined by subtraction of Total dissolved nitrogen (TDN) from Unfiltered Total nitrogen (UTN). Values before May 2005 are determined by UTKN minus TKN.

PARTN_YR

Mean annual particulate N concentration - not measured analytically; mathematically determined by subtraction of Total dissolved nitrogen (TDN) from Unfiltered Total nitrogen (UTN). Values before May 2005 are determined by UTKN minus TKN.

PARTNCODE

Particulate N value qualifier code

PARTNCODE_MO

Monthly particulate N value qualifier code

PARTNCODE_YR

Annual particulate N value qualifier code

PARTP

Particulate P, also known as total suspended phosphorus - not measured analytically; mathematically determined by subtraction of Total Dissolved P (TDP) from Unfiltered Total P (UTP)

PARTP_MO

Mean monthly particulate P - not measured analytically; mathematically determined by subtraction of Total Dissolved P (TDP) from Unfiltered Total P (UTP)

PARTP_OUT_MO

Total monthly particulate P outflow - not measured analytically; mathematically determined by subtraction of Total Dissolved P (TDP) from Unfiltered Total P (UTP)

PARTP_OUTPUT

Particulate P outflow - not measured analytically; mathematically determined by subtraction of Total Dissolved P (TDP) from Unfiltered Total P (UTP)

PARTP_YR

Mean annual particulate P - not measured analytically; mathematically determined by subtraction of Total Dissolved P (TDP) from Unfiltered Total P (UTP)

PARTPCODE

Particulate P value qualifier code

PARTPCODE_MO

Monthly particulate P value qualifier code

PARTPCODE_YR

Annual particulate P value qualifier code

PH

pH (hydrogen concentration); method: glass electrode

PH_MO

Mean monthly pH

PH_YR

Mean annual pH

PHCODE

pH value qualifier code

PHCODE_MO

Monthly pH value qualifier code

PHCODE_YR

Annual pH value qualifier code

PO4P

Ortho phosphorus concentration, soluble reactive phosphorus, phosphate (PO4-P); method: ascorbic acid finish

PO4P_MO

Mean monthly ortho phosphorus (PO4-P) concentration

PO4P_OUT_MO

Total monthly ortho phosphorus (PO4-P) outflow

PO4P_OUTPUT

Ortho phosphorus (PO4-P) outflow

PO4P_YR

Mean annual ortho phosphorus (PO4-P) concentration

PO4PCODE

Ortho phosphorus value qualifier code

PO4PCODE_MO

Monthly ortho phosphorus (PO4-P) value qualifier code

PO4PCODE_YR

Annual ortho phosphorus value qualifier code

PVOL

Sample volume from streamflow porportional sampler

PVOLCODE

Sample volume code

Q_AREA_CM

Streamflow in cm for the time interval represented by the proportional sample

Q_AREA_MO

Total monthly streamflow over watershed area

Q_AREA_YR

Total annual streamflow for the wateryear

QA_SAMPLE

Quality assurance sample number assigned if sample water is further analyzed for internal laboratory purposes

QCCODE

Quality control sample codes are assigned to samples collected for examining integrity of proportional sample analysis

QCODE

Streamflow value qualifier code

QCODE_MO

Monthly streamflow value qualifier code

QCODE_YR

Annual streamflow value qualifier code

SAMPLER_TYPE

Type of water sampler or method used to collect water

SEQ_INDEX

Sequential index generated primarily by the temporal order in which samples are collected

SI

Silica as silicon concentration; method: automated molybdenum blue

SI_MO

Mean monthly silica concentration

SI_OUT_MO

Total monthly silica outflow

SI_OUTPUT

Silica outflow

SI_YR

Mean annual silica concentration

SICODE

Silica value qualifier code

SICODE_MO

Monthly silica value qualifier code

SICODE_YR

Annual silica value qualifier code

SITECODE

Gaging station site code

SO4S

SO4-S (dissolved) concentration, sulfate as sulfur; method ion chromatography (automated barium sulfate before 1993)

SO4S_MO

Mean monthly sulfate-sulfur (SO4-S) concentration

SO4S_OUT_MO

Total monthly sulfate-sulfur (SO4-S) outflow

SO4S_OUTPUT

SO4-S (sulfate-sulfur) outflow

SO4S_YR

Mean annual SO4-S (sulfate-sulfur) concentration

SO4SCODE

SO4-S value qualifier code

SO4SCODE_MO

Monthly sulfate-sulfur (SO4-S) value qualifier code

SO4SCODE_YR

Annual SO4-S value qualifier code

SSED

Suspended sediment concentration; method: nonfiltrable residue, gravimetric

SSED_MO

Mean monthly suspended sediment concentration

SSED_OUT_MO

Total monthly suspended sediment outflow

SSED_OUTPUT

Suspended sediment outflow

SSED_YR

Mean annual suspended sediment concentration

SSEDCODE

Suspended sediment value qualifier code

SSEDCODE_MO

Monthly suspended sediment value qualifier code

SSEDCODE_YR

Annual suspended sediment value qualifier code

STCODE

Study code

TDN

Total dissolved nitrogen concentration (filtered sample); method: persulfate digestion and analysis by automated colorimetric analysis; instrument: Technicon Auto-Analyzer II

TDN_MO

Mean monthly total dissolved nitrogen concentration

TDN_OUT_MO

Total monthly total dissolved nitrogen outflow (filtered sample)

TDN_OUTPUT

Total dissolved nitrogen outflow (filtered sample)

TDN_YR

Mean annual total dissolved nitrogen concentration

TDNCODE

Total dissolved nitrogen value qualifier code

TDNCODE_MO

Monthly total dissolved nitrogen value qualifier code

TDNCODE_YR

Annual total dissolved nitrogen value qualifier code

TDP

Total dissolved phosphorus concentration; method: persulfate/H2SO4 digestion, ascorbic acid finish

TDP_MO

Mean monthly total dissolved phosphorus concentration

TDP_OUT_MO

Total monthly total dissolved phosphorus outflow

TDP_OUTPUT

Total dissolved phosphorus outflow

TDP_YR

Mean annual total dissolved phosphorus concentration

TDPCODE

Total dissolved phosphorus value qualifier code

TDPCODE_MO

Monthly total dissolved phosphorus value qualifier code

TDPCODE_YR

Annual total dissolved phosphorus value qualifier code

TKN

Total Kjeldahl nitrogen concentration on filtered sample (dissolved); method: Kjeldahl digestion H2SO4, CuSO4/KCl, nessler finish

TKN_MO

Mean monthly total kjeldahl nitrogen concentration (dissolved)

TKN_OUT_MO

Total monthly total Kjeldahl nitrogen (dissolved) outflow

TKN_OUTPUT

Total Kjeldahl nitrogen (dissolved) outflow

TKN_YR

Mean annual total kjeldahl nitrogen concentration (dissolved)

TKNCODE

Total Kjeldahl nitrogen value qualifier code

TKNCODE_MO

Monthly total Kjeldahl nitrogen (dissolved) value qualifier code

TKNCODE_YR

Annual total Kjeldahl nitrogen value qualifier code

TYPE

Sample type indicator

UTKN

Total Kjeldahl nitrogen concentration on unfiltered sample; method: Kjeldahl digestion H2SO4, CuSO4/KCl, nessler finish

UTKN_MO

Mean monthly unfiltered total Kjeldahl nitrogen concentration

UTKN_OUT_MO

Total monthly unfiltered total Kjeldahl nitrogen outflow

UTKN_OUTPUT

Unfiltered total Kjeldahl nitrogen outflow

UTKN_YR

Mean annual unfiltered total Kjeldahl nitrogen concentration

UTKNCODE

Unfiltered total Kjeldahl nitrogen value qualifier code

UTKNCODE_MO

Monthly unfiltered total Kjeldahl nitrogen value qualifier code

UTKNCODE_YR

Annual unfiltered total Kjeldahl nitrogen value qualifier code

UTN

Total nitrogen concentration (unfiltered sample); method: persulfate digestion and analysis by automated colorimetric analysis; instrument: Technicon Auto-Analyzer II

UTN_MO

Mean monthly total nitrogen concentration (unfiltered samples)

UTN_OUT_MO

Total monthly total nitrogen outflow (unfiltered sample)

UTN_OUTPUT

Total nitrogen outflow (unfiltered sample)

UTN_YR

Mean annual total nitrogen concentration (unfiltered samples)

UTNCODE

Unfiltered total nitrogen value qualifier code

UTNCODE_MO

Monthly unfiltered total nitrogen value qualifier code

UTNCODE_YR

Annual unfiltered total nitrogen value qualifier code

UTP

Unfiltered total phosphorus concentration; method: persulfate/H2SO4 digestion, ascorbic acid finish

UTP_MO

Mean monthly unfiltered total phosphorus concentration

UTP_OUT_MO

Total monthly unfiltered total phosphorus outflow

UTP_OUTPUT

Unfiltered total phosphorus outflow

UTP_YR

Mean annual unfiltered total phosphorus concentration

UTPCODE

Unfiltered total phosphorus value qualifier code

UTPCODE_MO

Monthly unfiltered total phosphorus value qualifier code

UTPCODE_YR

Annual unfiltered total phosphorus value qualifier code

WATERYEAR

Water year of sample or annual summary (October-September)

YEAR

Calendar year of annual or monthly summary

Enumerated Domains:

Enumerated Domain for Attribute: ALKCODE

*	Value is below detection limit for analysis (used beginning in 1991)
A	Accepted value
E	Estimated value
N	No analytical measurement
Q	Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: ANCACODE

D	Derived anion-cation ratio value is based on the full set of anions and cations
N	No anion-cation ratio calculation determined due to missing analytical components
D*	Derived value - mathematically determined from other analytical measurements, one or more of which were below the detection limit
DE	Derived value - mathematically determined from other analytical measurements, one or more of which were estimated values
DQ	Derived value - mathematically determined from other analytical measurements,

one or more of which were questionable values

Enumerated Domain for Attribute: CACODE

- * Value is below detection limit for analysis (used beginning in 1991)
- A Accepted value
- E Estimated value
- N No analytical measurement
- Q Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: CLCODE

- * Value is below detection limit for analysis (used beginning in 1991)
- A Accepted value
- E Estimated value
- N No analytical measurement
- Q Value is questionable (used beginning in 1991)
- C Value confirmed, contamination or experimental tracer suspected (code use begins May 2007)

Enumerated Domain for Attribute: CONDCODE

- * Value is below detection limit for analysis (used beginning in 1991)
- A Accepted value
- E Estimated value
- N No analytical measurement
- Q Value is questionable (used beginning in 1991)
- C Confirmed value, contamination or experimental tracer suspected (code use begins May 2007)

Enumerated Domain for Attribute: DOCCODE

- * Value is below detection limit for analysis (used beginning in 1991)
- A Accepted value
- E Estimated value
- N No analytical measurement
- Q Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: KCODE

- * Value is below detection limit for analysis (used beginning in 1991)
- A Accepted value
- E Estimated value
- N No analytical measurement
- Q Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: MGCODE

- * Value is below detection limit for analysis (used beginning in 1991)

A	Accepted value
E	Estimated value
N	No analytical measurement
Q	Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: NACODE

*	Value is below detection limit for analysis (used beginning in 1991)
A	Accepted value
E	Estimated value
N	No analytical measurement
Q	Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: NH3NCODE

*	Value is below detection limit for analysis (used beginning in 1991)
A	Accepted value
E	Estimated value
N	No analytical measurement
Q	Value is questionable (used beginning in 1991)
C	Value confirmed, contamination suspected (code use begins May 2007)

Enumerated Domain for Attribute: NO3NCODE

*	Value is below detection limit for analysis (used beginning in 1991)
A	Accepted value
E	Estimated value
N	No analytical measurement
Q	Value is questionable (used beginning in 1991)
C	Value confirmed, contamination suspected (code use begins May 2011)

Enumerated Domain for Attribute: PO4PCODE

*	Value is below detection limit for analysis (used beginning in 1991)
A	Accepted value
E	Estimated value
N	No analytical measurement
Q	Value is questionable (used beginning in 1991)
C	Value confirmed, contamination suspected (code use begins May 2011)

Enumerated Domain for Attribute: DONCODE

N	No derived value is calculated due to missing analytical components
D	Derived value - mathematically determined from other analytical measurements

D*	Derived value - mathematically determined from other analytical measurements, one or more of which were below the detection limit
DE	Derived value - mathematically determined from other analytical measurements, one or more of which were estimated values
DQ	Derived value - mathematically determined from other analytical measurements, one or more of which were questionable values
DC	Derived value confirmed, contamination suspected (code use begins May 2007)

Enumerated Domain for Attribute: PHCODE

A	Accepted value
E	Estimated value
N	No analytical measurement
Q	Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: PARTNCODE

N	No derived value is calculated due to missing analytical components
D	Derived value - mathematically determined from other analytical measurements
D*	Derived value - mathematically determined from other analytical measurements, one or more of which were below the detection limit
DE	Derived value - mathematically determined from other analytical measurements, one or more of which were estimated values
DQ	Derived value - mathematically determined from other analytical measurements, one or more of which were questionable values
DC	Derived value confirmed, contamination suspected (code use begins May 2007)

Enumerated Domain for Attribute: PARTPCODE

N	No derived value is calculated due to missing analytical components
D	Derived value - mathematically determined from other analytical measurements
D*	Derived value - mathematically determined from other analytical measurements, one or more of which were below the detection limit
DE	Derived value - mathematically determined from other analytical measurements, one or more of which were estimated values
DQ	Derived value - mathematically determined from other analytical measurements, one or more of which were questionable values

Enumerated Domain for Attribute: PVOLCODE

A	Accepted value for sample volume
E	Sample volume value is estimated
Q	Sample volume value is questionable - typically implies volume is measured correctly, but volume does not proportionally represent the collection period
N	No sample volume value available

Enumerated Domain for Attribute: QCODE

A	Accepted value for streamflow
N	No streamflow available for period
E	Estimated streamflow value
P	Provisional streamflow value is likely to change - used for USGS Lookout Creek streamflow
Q	Streamflow value for the period is questionable

Enumerated Domain for Attribute: SICODE

*	Value is below detection limit for analysis (used beginning in 1991)
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A	Accepted value
E	Estimated value
N	No analytical measurement
Q	Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: SO4SCODE

*	Value is below detection limit for analysis (used beginning in 1991)
A	Accepted value
E	Estimated value
N	No analytical measurement
Q	Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: SSED CODE

A	Accepted value
E	Estimated value
N	No analytical measurement
Q	Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: STCODE

CF002	Study code CF002
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Enumerated Domain for Attribute: TKNCODE

*	Value is below detection limit for analysis (used beginning in 1991)
A	Accepted value
E	Estimated value
N	No analytical measurement
Q	Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: TDPCODE

*	Value is below detection limit for analysis (used beginning in 1991)
A	Accepted value
E	Estimated value
N	No analytical measurement
Q	Value is questionable (used beginning in 1991)
C	Value confirmed, contamination suspected (code use begins May 2011)

Enumerated Domain for Attribute: TYPE

QB	Quality control samples taken below turbulence box
QS	Quality control sample taken through sampler
QL	Quality control sample taken through sampler and left in gage house until next collection
QA	Quality control sample taken above flume

C	Sample combined with preceeding saved sample(s) for analysis - not used after 1981
G	Grab sample taken in lieu of proportional sample
S	Sample saved to combine with following collection (type 'C') due to insufficient water (not used after 1981). Nutrient concentrations of the following stream water sample are used to determine fluxes for this period.
N	No sample is collected for this period
F	Complete, full sample. Sampler operational throughout sampling period.
YE	Year end marker allows summary by water year - this is not a sample. Flux values are calculated from streamflow ending Sep 30 and use analyte concentrations from the following sample. 'Y' markers are inserted every Sep30
A	Augmented sample - grab sample added to insufficient proportional sample (rarely used after 1987)
P	Partial sample - proportional sampler did not operate successfully over entire period
B	Biased sample - consecutive samples are proportionally separated and combined based on streamflow - code use begins WY 2008 to approx. two 3-week sampling intervals (where one sample is for 4 wks and the next for 2 wks)

Enumerated Domain for Attribute: UTKNCODE

*	Value is below detection limit for analysis (used beginning in 1991)
A	Accepted value
E	Estimated value
N	No analytical measurement
Q	Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: UTPCODE

*	Value is below detection limit for analysis (used beginning in 1991)
A	Accepted value
E	Estimated value
N	No analytical measurement
Q	Value is questionable (used beginning in 1991)
C	Value confirmed, contamination suspected (code use begins May 2011)

Enumerated Domain for Attribute: UTNCODE

*	Value is below detection limit for analysis (used beginning in 1991)
A	Accepted value
E	Estimated value
Q	Value is questionable (used beginning in 1991)
D	Derived value - mathematically determined from other analytical measurements
D*	Derived value - mathematically determined from other analytical measurements, one or more of which were below the detection limit
DE	Derived value - mathematically determined from other analytical measurements, one or more of which were estimated values
DQ	Derived value - mathematically determined from other analytical measurements, one or more of which were questionable values
N	No analytical measurement or no derived value calculated due to missing analytical components

C Value confirmed, contamination suspected (code use begins May 2011)

Enumerated Domain for Attribute: TDNCODE

* Value is below detection limit for analysis (used beginning in 1991)

A Accepted value

E Estimated value

Q Value is questionable (used beginning in 1991)

D Derived value - mathematically determined from other analytical measurements

D* Derived value - mathematically determined from other analytical measurements, one or more of which were below the detection limit

DE Derived value - mathematically determined from other analytical measurements, one or more of which were estimated values

DQ Derived value - mathematically determined from other analytical measurements, one or more of which were questionable values

N No analytical measurement or no derived value calculated due to missing analytical components

C Value confirmed, contamination suspected (code use begins May 2007)

Enumerated Domain for Attribute: STCODE

CF002 Study code CF002

Enumerated Domain for Attribute: TYPE

QB Quality control samples taken below turbulence box

QS Quality control sample taken through sampler

QL Quality control sample taken through sampler and left in gage house until next collection

QA Quality control sample taken above flume

C Sample combined with preceeding saved sample(s) for analysis - not used after 1981

G Grab sample taken in lieu of proportional sample

S Sample saved to combine with following collection (type 'C') due to insufficient water (not used after 1981). Nutrient concentrations of the following stream water sample are used to determine fluxes for this period.

N No sample is collected for this period

F Complete, full sample. Sampler operational throughout sampling period.

YE Year end marker allows summary by water year - this is not a sample. Flux values are calculated from streamflow ending Sep 30 and use analyte concentrations from the following sample. 'Y' markers are inserted every Sep30

A Augmented sample - grab sample added to insufficient proportional sample (rarely used after 1987)

P Partial sample - proportional sampler did not operate successfully over entire period

B Biased sample - consecutive samples are proportionally separated and combined based on streamflow - code use begins WY 2008 to approx. two 3-week sampling intervals (where one sample is for 4 wks and the next for 2 wks)

Enumerated Domain for Attribute: ALKCODE_MO

A Accepted monthly value

* Monthly value includes one or more values measured below the detection limit

E Monthly value includes estimated values

- I Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
- N No analyses conducted for proportional samples taken during the month
- Q Monthly value includes questionable sample values

Enumerated Domain for Attribute: CACODE_MO

- A Accepted monthly value
- E Monthly value includes estimated values
- I Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
- N No analyses conducted for proportional samples taken during the month
- Q Monthly value includes questionable sample values
- IE Monthly value incomplete - only 6-25 days are proportionally sampled in the month; one or more values estimated

Enumerated Domain for Attribute: CLCODE_MO

- A Accepted monthly value
- I Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
- N No analyses conducted for proportional samples taken during the month
- E Monthly value includes estimated values

Enumerated Domain for Attribute: CONDCODE_MO

- A Accepted monthly value
- E Monthly value includes estimated values
- I Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
- N No analyses conducted for proportional samples taken during the month
- Q Monthly value includes questionable sample values
- IE Monthly value incomplete - only 6-25 days are proportionally sampled in the month; one or more values estimated

Enumerated Domain for Attribute: DOCCODE_MO

- A Accepted monthly value
- I Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
- N No analyses conducted for proportional samples taken during the month
- Q Monthly value includes questionable sample values
- E Monthly value includes estimated values

Enumerated Domain for Attribute: DONCODE_MO

- D Monthly value based on derived values
- D* Monthly value based on derived values; one or more values measured below the detection limit
- DE Monthly value based on derived values; one or more values estimated
- DQ Monthly value based on derived values; one or more values questionable
- DQ* Monthly value based on derived values; one or more values questionable; one or more values measured below the detection limit

ID	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values
ID*	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values of which one or more values measured below the detection limit
N	No analyses conducted for proportional samples taken during the month
DE*	Monthly value based on derived values; one or more values estimated

Enumerated Domain for Attribute: KCODE_MO

A	Accepted monthly value
E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values

Enumerated Domain for Attribute: MGCODE_MO

A	Accepted monthly value
E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values

Enumerated Domain for Attribute: NACODE_MO

A	Accepted monthly value
E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values

Enumerated Domain for Attribute: NH3NCODE_MO

A	Accepted monthly value
*	Monthly value includes one or more values measured below the detection limit
E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q*	Monthly value includes questionable sample values
I*	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; one or more values measured below the detection limit
E*	Monthly value includes estimated values; one or more values measured below the detection limit

Enumerated Domain for Attribute: NO3NCODE_MO

A	Accepted monthly value
*	Monthly value includes one or more values measured below the detection limit

E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values
Q*	Monthly value includes questionable sample values
I*	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; one or more values measured below the detection limit
E*	Monthly value includes estimated values; one or more values measured below the detection limit

Enumerated Domain for Attribute: PARTNCODE_MO

D	Monthly value based on derived values
D*	Monthly value based on derived values; one or more values measured below the detection limit
DE	Monthly value based on derived values; one or more values estimated
DQ	Monthly value based on derived values; one or more values questionable
ID	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values
N	No analyses conducted for proportional samples taken during the month
DQ*	Monthly value based on derived values; one or more values measured below the detection limit; one or more values questionable
ID*	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values; one or more values measured below the detection limit
DE*	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values; one or more values estimated

Enumerated Domain for Attribute: PARTPCODE_MO

D	Monthly value based on derived values
DE	Monthly value based on derived values; one or more values estimated
DQ	Monthly value based on derived values; one or more values questionable
ID	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values
IDE	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values of which one or more values are estimated
N	No analyses conducted for proportional samples taken during the month

Enumerated Domain for Attribute: PHCODE_MO

A	Accepted monthly value
E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values
IE	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; one or more values estimated

Enumerated Domain for Attribute: PO4PCODE_MO

A	Accepted monthly value
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- * Monthly value includes one or more values measured below the detection limit
- E Monthly value includes estimated values
- I Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
- N No analyses conducted for proportional samples taken during the month
- Q Monthly value includes questionable sample values

Enumerated Domain for Attribute: QCODE_MO

- A Accepted monthly value
- E Monthly value includes estimated values
- I Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
- N No analyses conducted for proportional samples taken during the month
- Q Monthly value includes questionable sample values
- P Monthly value includes provisional values subject to change

Enumerated Domain for Attribute: SICODE_MO

- A Accepted monthly value
- I Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
- N No analyses conducted for proportional samples taken during the month
- Q Monthly value includes questionable sample values
- IQ Monthly value incomplete - only 6-25 days are proportionally sampled in the month; one or more values questionable
- E Monthly value includes estimated values
- EQ Monthly value includes estimated values; one or more values were questionable

Enumerated Domain for Attribute: SO4SCODE_MO

- A Accepted monthly value
- E Monthly value includes estimated values
- I Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
- N No analyses conducted for proportional samples taken during the month

Enumerated Domain for Attribute: SSED_CODE_MO

- A Accepted monthly value
- E Monthly value includes estimated values
- I Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
- N No analyses conducted for proportional samples taken during the month
- Q Monthly value includes questionable sample values

Enumerated Domain for Attribute: TDN_CODE_MO

- * Monthly value includes one or more values measured below the detection limit
- D Monthly value based on derived values

D*	Monthly value based on derived values; one or more values measured below the detection limit
DE	Monthly value based on derived values; one or more values estimated
DQ	Monthly value based on derived values; one or more values questionable
DQ*	Monthly value based on derived values; one or more values questionable; one or more values measured below the detection limit
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
ID	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values
ID*	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values of which one or more values measured below the detection limit
IDE	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values of which one or more values are estimated
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values
E	Monthly value includes estimated values
DE*	Monthly value based on derived values; one or more values estimated
Q*	Monthly value includes questionable sample values; one or more values measured below the detection limit
A	Accepted monthly value
I*	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary; one or more values measured below the detection limit
E*	One or more values estimated; one or more values measured below the detection limit

Enumerated Domain for Attribute: TDPCODE_MO

A	Accepted monthly value
E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values

Enumerated Domain for Attribute: TKNCODE_MO

A	Accepted monthly value
*	Monthly value includes one or more values measured below the detection limit
E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values

Enumerated Domain for Attribute: UTKNCODE_MO

A	Accepted monthly value
*	Monthly value includes one or more values measured below the detection limit
E	Monthly value includes estimated values

I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values

Enumerated Domain for Attribute: UTNCODE_MO

*	Monthly value includes one or more values measured below the detection limit
D	Monthly value based on derived values
D*	Monthly value based on derived values; one or more values measured below the detection limit
DE	Monthly value based on derived values; one or more values estimated
DQ	Monthly value based on derived values; one or more values questionable
DQ*	Monthly value based on derived values; one or more values questionable; one or more values measured below the detection limit
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
ID	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values
ID*	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values of which one or more values measured below the detection limit
IDE	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values of which one or more values are estimated
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values
E	Monthly value includes estimated values
DE*	Monthly value based on derived values; one or more values estimated; one or more values measured below the detection limit
Q*	Monthly value includes questionable sample values; one or more values measured below the detection limit
A	Accepted monthly value
I*	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary; one or more values measured below the detection limit
E*	One or more values estimated; one or more values measured below the detection limit

Enumerated Domain for Attribute: UTPCODE_MO

A	Accepted monthly value
E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values
IE	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; one or more values estimated

Enumerated Domain for Attribute: ALKCODE_YR

N	No analyses conducted in water year
Q	Annual value includes questionable sample values
I	Annual value incomplete; values are missing for part of the year and not

included in annual summary

E	Annual value includes estimated values
A	Accepted annual value
*	Annual value includes one or more values measured below the detection limit
I*	Annual value incomplete; one or more values are missing for part of the year; one or more values measured below the detection limit
IE	Annual value incomplete; one or more values are missing for part of the year; one or more values estimated
IQ	Annual value incomplete; one or more values are missing for part of the year; one or more values questionable

Enumerated Domain for Attribute: CACODE_YR

N	No analyses conducted in water year
Q	Annual value includes questionable sample values
I	Annual value incomplete; values are missing for part of the year and not included in annual summary
E	Annual value includes estimated values
A	Accepted annual value
*	Annual value includes one or more values measured below the detection limit
I*	Annual value incomplete; one or more values are missing for part of the year; one or more values measured below the detection limit
IE	Annual value incomplete; one or more values are missing for part of the year; one or more values estimated
IQ	Annual value incomplete; one or more values are missing for part of the year; one or more values questionable

Enumerated Domain for Attribute: CLCODE_YR

N	No analyses conducted in water year
Q	Annual value includes questionable sample values
I	Annual value incomplete; values are missing for part of the year and not included in annual summary
E	Annual value includes estimated values
A	Accepted annual value
*	Annual value includes one or more values measured below the detection limit
I*	Annual value incomplete; one or more values are missing for part of the year; one or more values measured below the detection limit
IE	Annual value incomplete; one or more values are missing for part of the year; one or more values estimated
IQ	Annual value incomplete; one or more values are missing for part of the year; one or more values questionable

Enumerated Domain for Attribute: CONDCODE_YR

N	No analyses conducted in water year
Q	Annual value includes questionable sample values
I	Annual value incomplete; values are missing for part of the year and not included in annual summary
E	Annual value includes estimated values
A	Accepted annual value
*	Annual value includes one or more values measured below the detection limit

I*	Annual value incomplete; one or more values are missing for part of the year; one or more values measured below the detection limit
IE	Annual value incomplete; one or more values are missing for part of the year; one or more values estimated
IQ	Annual value incomplete; one or more values are missing for part of the year; one or more values questionable

Enumerated Domain for Attribute: DOCCODE_YR

N	No analyses conducted in water year
Q	Annual value includes questionable sample values
I	Annual value incomplete; values are missing for part of the year and not included in annual summary
E	Annual value includes estimated values
A	Accepted annual value
*	Annual value includes one or more values measured below the detection limit
I*	Annual value incomplete; one or more values are missing for part of the year; one or more values measured below the detection limit
IE	Annual value incomplete; one or more values are missing for part of the year; one or more values estimated
IQ	Annual value incomplete; one or more values are missing for part of the year; one or more values questionable

Enumerated Domain for Attribute: KCODE_YR

N	No analyses conducted in water year
Q	Annual value includes questionable sample values
I	Annual value incomplete; values are missing for part of the year and not included in annual summary
E	Annual value includes estimated values
A	Accepted annual value
*	Annual value includes one or more values measured below the detection limit
I*	Annual value incomplete; one or more values are missing for part of the year; one or more values measured below the detection limit
IE	Annual value incomplete; one or more values are missing for part of the year; one or more values estimated
IQ	Annual value incomplete; one or more values are missing for part of the year; one or more values questionable

Enumerated Domain for Attribute: MGCODE_YR

N	No analyses conducted in water year
Q	Annual value includes questionable sample values
I	Annual value incomplete; values are missing for part of the year and not included in annual summary
E	Annual value includes estimated values
A	Accepted annual value
*	Annual value includes one or more values measured below the detection limit
I*	Annual value incomplete; one or more values are missing for part of the year; one or more values measured below the detection limit
IE	Annual value incomplete; one or more values are missing for part of the year; one or more values estimated
IQ	Annual value incomplete; one or more values are missing for part of the year; one or more values questionable

Enumerated Domain for Attribute: NACODE_YR

N	No analyses conducted in water year
Q	Annual value includes questionable sample values
I	Annual value incomplete; values are missing for part of the year and not included in annual summary
E	Annual value includes estimated values
A	Accepted annual value
*	Annual value includes one or more values measured below the detection limit
I*	Annual value incomplete; one or more values are missing for part of the year; one or more values measured below the detection limit
IE	Annual value incomplete; one or more values are missing for part of the year; one or more values estimated
IQ	Annual value incomplete; one or more values are missing for part of the year; one or more values questionable

Enumerated Domain for Attribute: NH3NCODE_YR

N	No analyses conducted in water year
Q	Annual value includes questionable sample values
I	Annual value incomplete; values are missing for part of the year and not included in annual summary
E	Annual value includes estimated values
A	Accepted annual value
*	Annual value includes one or more values measured below the detection limit
I*	Annual value incomplete; one or more values are missing for part of the year; one or more values measured below the detection limit
IE	Annual value incomplete; one or more values are missing for part of the year; one or more values estimated
IQ	Annual value incomplete; one or more values are missing for part of the year; one or more values questionable

Enumerated Domain for Attribute: NO3NCODE_YR

N	No analyses conducted in water year
Q	Annual value includes questionable sample values
I	Annual value incomplete; values are missing for part of the year and not included in annual summary
E	Annual value includes estimated values
A	Accepted annual value
*	Annual value includes one or more values measured below the detection limit
I*	Annual value incomplete; one or more values are missing for part of the year; one or more values measured below the detection limit
IE	Annual value incomplete; one or more values are missing for part of the year; one or more values estimated
IQ	Annual value incomplete; one or more values are missing for part of the year; one or more values questionable

Enumerated Domain for Attribute: PO4PCODE_YR

N	No analyses conducted in water year
Q	Annual value includes questionable sample values
I	Annual value incomplete; values are missing for part of the year and not included in annual summary
E	Annual value includes estimated values

A	Accepted annual value
*	Annual value includes one or more values measured below the detection limit
I*	Annual value incomplete; one or more values are missing for part of the year; one or more values measured below the detection limit
IE	Annual value incomplete; one or more values are missing for part of the year; one or more values estimated
IQ	Annual value incomplete; one or more values are missing for part of the year; one or more values questionable

Enumerated Domain for Attribute: DONCODE_YR

N	No derived values are calculated for the entire water year
D	Annual value based on derived values
D*	Annual value based on derived values; one or more values measured below the detection limit
DE	Annual value based on derived values; one or more values estimated
DQ	Annual value based on derived values; one or more values questionable
ID	Annual value incomplete; one or more values are missing for part of the year; annual value based on derived values
ID*	Annual value incomplete; one or more values are missing for part of the year; annual value based on derived values of which one or more values measured below the detection limit
IDE	Annual value incomplete; one or more values are missing for part of the year; annual value based on derived values of which one or more values are estimated
IDQ	Annual value incomplete; one or more values are missing for part of the year; annual value based on derived values of which one or more values are questionable

Enumerated Domain for Attribute: PHCODE_YR

N	No analyses conducted in water year
Q	Annual value includes questionable sample values
I	Annual value incomplete; values are missing for part of the year and not included in annual summary
E	Annual value includes estimated values
A	Accepted annual value
IE	Annual value incomplete; one or more values are missing for part of the year; one or more values estimated
IQ	Annual value incomplete; one or more values are missing for part of the year; one or more values questionable

Enumerated Domain for Attribute: PARTNCODE_YR

N	No derived values are calculated for the entire water year
D	Annual value based on derived values
D*	Annual value based on derived values; one or more values measured below the detection limit
DE	Annual value based on derived values; one or more values estimated
DQ	Annual value based on derived values; one or more values questionable
ID	Annual value incomplete; one or more values are missing for part of the year; annual value based on derived values
ID*	Annual value incomplete; one or more values are missing for part of the year; annual value based on derived values of which one or more values measured below the detection limit
IDE	Annual value incomplete; one or more values are missing for part of the year; annual value based on derived values of which one or more values are

estimated

IDQ Annual value incomplete; one or more values are missing for part of the year;
annual value based on derived values of which one or more values are
questionable

Enumerated Domain for Attribute: PARTPCODE_YR

N No derived values are calculated for the entire water year

D Annual value based on derived values

D* Annual value based on derived values; one or more values measured below the
detection limit

DE Annual value based on derived values; one or more values estimated

DQ Annual value based on derived values; one or more values questionable

ID Annual value incomplete; one or more values are missing for part of the year;
annual value based on derived values

ID* Annual value incomplete; one or more values are missing for part of the year;
annual value based on derived values of which one or more values measured
below the detection limit

IDE Annual value incomplete; one or more values are missing for part of the year;
annual value based on derived values of which one or more values are
estimated

IDQ Annual value incomplete; one or more values are missing for part of the year;
annual value based on derived values of which one or more values are
questionable

Enumerated Domain for Attribute: QCODE_YR

N No streamflow available for period

E Total includes estimated streamflow values

I Incomplete, parts of year missing from annual summary

A Accepted value - all streamflow is included and not estimated for the wateryear

P Provisional streamflow is included (subject to change) used for USGS Lookout
Creek streamflow

Enumerated Domain for Attribute: SICODE_YR

N No analyses conducted in water year

Q Annual value includes questionable sample values

I Annual value incomplete; values are missing for part of the year and not
included in annual summary

E Annual value includes estimated values

A Accepted annual value

* Annual value includes one or more values measured below the detection limit

I* Annual value incomplete; one or more values are missing for part of the year;
one or more values measured below the detection limit

IE Annual value incomplete; one or more values are missing for part of the year;
one or more values estimated

IQ Annual value incomplete; one or more values are missing for part of the year;
one or more values questionable

Enumerated Domain for Attribute: SO4SCODE_YR

N No analyses conducted in water year

Q Annual value includes questionable sample values

I Annual value incomplete; values are missing for part of the year and not
included in annual summary

E	Annual value includes estimated values
A	Accepted annual value
*	Annual value includes one or more values measured below the detection limit
I*	Annual value incomplete; one or more values are missing for part of the year; one or more values measured below the detection limit
IE	Annual value incomplete; one or more values are missing for part of the year; one or more values estimated
IQ	Annual value incomplete; one or more values are missing for part of the year; one or more values questionable

Enumerated Domain for Attribute: SSED_CODE_YR

N	No analyses conducted in water year
Q	Annual value includes questionable sample values
I	Annual value incomplete; values are missing for part of the year and not included in annual summary
E	Annual value includes estimated values
A	Accepted annual value
IE	Annual value incomplete; one or more values are missing for part of the year; one or more values estimated
IQ	Annual value incomplete; one or more values are missing for part of the year; one or more values questionable

Enumerated Domain for Attribute: ST_CODE

CF002	Study code CF002
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Enumerated Domain for Attribute: TKN_CODE_YR

N	No analyses conducted in water year
Q	Annual value includes questionable sample values
I	Annual value incomplete; values are missing for part of the year and not included in annual summary
E	Annual value includes estimated values
A	Accepted annual value
*	Annual value includes one or more values measured below the detection limit
I*	Annual value incomplete; one or more values are missing for part of the year; one or more values measured below the detection limit
IE	Annual value incomplete; one or more values are missing for part of the year; one or more values estimated
IQ	Annual value incomplete; one or more values are missing for part of the year; one or more values questionable

Enumerated Domain for Attribute: TDPCODE_YR

N	No analyses conducted in water year
Q	Annual value includes questionable sample values
I	Annual value incomplete; values are missing for part of the year and not included in annual summary
E	Annual value includes estimated values
A	Accepted annual value
*	Annual value includes one or more values measured below the detection limit
I*	Annual value incomplete; one or more values are missing for part of the year; one or more values measured below the detection limit

IE Annual value incomplete; one or more values are missing for part of the year;
one or more values estimated
IQ Annual value incomplete; one or more values are missing for part of the year;
one or more values questionable

Enumerated Domain for Attribute: UTKNCODE_YR

N No analyses conducted in water year
Q Annual value includes questionable sample values
I Annual value incomplete; values are missing for part of the year and not
included in annual summary
E Annual value includes estimated values
A Accepted annual value
* Annual value includes one or more values measured below the detection limit
I* Annual value incomplete; one or more values are missing for part of the year;
one or more values measured below the detection limit
IE Annual value incomplete; one or more values are missing for part of the year;
one or more values estimated
IQ Annual value incomplete; one or more values are missing for part of the year;
one or more values questionable

Enumerated Domain for Attribute: UTPCODE_YR

N No analyses conducted in water year
Q Annual value includes questionable sample values
I Annual value incomplete; values are missing for part of the year and not
included in annual summary
E Annual value includes estimated values
A Accepted annual value
* Annual value includes one or more values measured below the detection limit
I* Annual value incomplete; one or more values are missing for part of the year;
one or more values measured below the detection limit
IE Annual value incomplete; one or more values are missing for part of the year;
one or more values estimated
IQ Annual value incomplete; one or more values are missing for part of the year;
one or more values questionable

Enumerated Domain for Attribute: UTNCODE_YR

N No analyses conducted in water year
Q Annual value includes questionable sample values
I Annual value incomplete; values are missing for part of the year and not
included in annual summary
E Annual value includes estimated values
A Accepted annual value
* Annual value includes one or more values measured below the detection limit
D Annual value based on derived values
D* Annual value based on derived values; one or more values measured below the
detection limit
DE Annual value based on derived values; one or more values estimated
DQ Annual value based on derived values; one or more values questionable
I* Annual value incomplete; one or more values are missing for part of the year;
one or more values measured below the detection limit

ID	Annual value incomplete; one or more values are missing for part of the year; annual value based on derived values
ID*	Annual value incomplete; one or more values are missing for part of the year; annual value based on derived values of which one or more values measured below the detection limit
IDE	Annual value incomplete; one or more values are missing for part of the year; annual value based on derived values of which one or more values are estimated
IDQ	Annual value incomplete; one or more values are missing for part of the year; annual value based on derived values of which one or more values are questionable
IE	Annual value incomplete; one or more values are missing for part of the year; one or more values estimated
IQ	Annual value incomplete; one or more values are missing for part of the year; one or more values questionable

Enumerated Domain for Attribute: TDNCODE_YR

N	No analyses conducted in water year
Q	Annual value includes questionable sample values
I	Annual value incomplete; values are missing for part of the year and not included in annual summary
E	Annual value includes estimated values
A	Accepted annual value
*	Annual value includes one or more values measured below the detection limit
D	Annual value based on derived values
D*	Annual value based on derived values; one or more values measured below the detection limit
DE	Annual value based on derived values; one or more values estimated
DQ	Annual value based on derived values; one or more values questionable
I*	Annual value incomplete; one or more values are missing for part of the year; one or more values measured below the detection limit
ID	Annual value incomplete; one or more values are missing for part of the year; annual value based on derived values
ID*	Annual value incomplete; one or more values are missing for part of the year; annual value based on derived values of which one or more values measured below the detection limit
IDE	Annual value incomplete; one or more values are missing for part of the year; annual value based on derived values of which one or more values are estimated
IDQ	Annual value incomplete; one or more values are missing for part of the year; annual value based on derived values of which one or more values are questionable
IE	Annual value incomplete; one or more values are missing for part of the year; one or more values estimated
IQ	Annual value incomplete; one or more values are missing for part of the year; one or more values questionable

Enumerated Domain for Attribute: STCODE

CF002	Study code CF002
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Enumerated Domain for Attribute: TYPE

QB	Quality control samples taken below turbulence box
QS	Quality control sample taken through sampler
QL	Quality control sample taken through sampler and left in gage house until next collection
QA	Quality control sample taken above flume

C	Sample combined with preceeding saved sample(s) for analysis - not used after 1981
G	Grab sample taken in lieu of proportional sample
S	Sample saved to combine with following collection (type 'C') due to insufficient water (not used after 1981). Nutrient concentrations of the following stream water sample are used to determine fluxes for this period.
N	No sample is collected for this period
F	Complete, full sample. Sampler operational throughout sampling period.
YE	Year end marker allows summary by water year - this is not a sample. Flux values are calculated from streamflow ending Sep 30 and use analyte concentrations from the following sample. 'Y' markers are inserted every Sep30
A	Augmented sample - grab sample added to insufficient proportional sample (rarely used after 1987)
P	Partial sample - proportional sampler did not operate successfully over entire period
B	Biased sample - consecutive samples are proportionally separated and combined based on streamflow - code use begins WY 2008 to approx. two 3-week sampling intervals (where one sample is for 4 wks and the next for 2 wks)

Enumerated Domain for Attribute: ALKCODE_MO

A	Accepted monthly value
*	Monthly value includes one or more values measured below the detection limit
E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values

Enumerated Domain for Attribute: CACODE_MO

A	Accepted monthly value
E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values
IE	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; one or more values estimated

Enumerated Domain for Attribute: CLCODE_MO

A	Accepted monthly value
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
E	Monthly value includes estimated values

Enumerated Domain for Attribute: DOCCODE_MO

A	Accepted monthly value
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month

- Q Monthly value includes questionable sample values
- E Monthly value includes estimated values

Enumerated Domain for Attribute: DONCODE_MO

- D Monthly value based on derived values
- D* Monthly value based on derived values; one or more values measured below the detection limit
- DE Monthly value based on derived values; one or more values estimated
- DQ Monthly value based on derived values; one or more values questionable
- DQ* Monthly value based on derived values; one or more values questionable; one or more values measured below the detection limit
- ID Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values
- ID* Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values of which one or more values measured below the detection limit
- N No analyses conducted for proportional samples taken during the month
- DE* Monthly value based on derived values; one or more values estimated

Enumerated Domain for Attribute: KCODE_MO

- A Accepted monthly value
- E Monthly value includes estimated values
- I Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
- N No analyses conducted for proportional samples taken during the month
- Q Monthly value includes questionable sample values

Enumerated Domain for Attribute: MGCODE_MO

- A Accepted monthly value
- E Monthly value includes estimated values
- I Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
- N No analyses conducted for proportional samples taken during the month
- Q Monthly value includes questionable sample values

Enumerated Domain for Attribute: NACODE_MO

- A Accepted monthly value
- E Monthly value includes estimated values
- I Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
- N No analyses conducted for proportional samples taken during the month
- Q Monthly value includes questionable sample values

Enumerated Domain for Attribute: NH3NCODE_MO

- A Accepted monthly value
- * Monthly value includes one or more values measured below the detection limit
- E Monthly value includes estimated values

I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q*	Monthly value includes questionable sample values
I*	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; one or more values measured below the detection limit
E*	Monthly value includes estimated values; one or more values measured below the detection limit

Enumerated Domain for Attribute: NO3NCODE_MO

A	Accepted monthly value
*	Monthly value includes one or more values measured below the detection limit
E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values
Q*	Monthly value includes questionable sample values
I*	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; one or more values measured below the detection limit
E*	Monthly value includes estimated values; one or more values measured below the detection limit

Enumerated Domain for Attribute: PARTNCODE_MO

D	Monthly value based on derived values
D*	Monthly value based on derived values; one or more values measured below the detection limit
DE	Monthly value based on derived values; one or more values estimated
DQ	Monthly value based on derived values; one or more values questionable
ID	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values
N	No analyses conducted for proportional samples taken during the month
DQ*	Monthly value based on derived values; one or more values measured below the detection limit; one or more values questionable
ID*	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values; one or more values measured below the detection limit
DE*	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values; one or more values estimated

Enumerated Domain for Attribute: PARTPCODE_MO

D	Monthly value based on derived values
DE	Monthly value based on derived values; one or more values estimated
DQ	Monthly value based on derived values; one or more values questionable
ID	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values
IDE	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values of which one or more values are estimated
N	No analyses conducted for proportional samples taken during the month

Enumerated Domain for Attribute: PO4PCODE_MO

A	Accepted monthly value
*	Monthly value includes one or more values measured below the detection limit
E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values

Enumerated Domain for Attribute: QCODE_MO

A	Accepted monthly value
E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values
P	Monthly value includes provisional values subject to change

Enumerated Domain for Attribute: SICODE_MO

A	Accepted monthly value
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values
IQ	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; one or more values questionable
E	Monthly value includes estimated values
EQ	Monthly value includes estimated values; one or more values were questionable

Enumerated Domain for Attribute: SO4SCODE_MO

A	Accepted monthly value
E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month

Enumerated Domain for Attribute: SSED_CODE_MO

A	Accepted monthly value
E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values

Enumerated Domain for Attribute: TDN_CODE_MO

*	Monthly value includes one or more values measured below the detection limit
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D	Monthly value based on derived values
D*	Monthly value based on derived values; one or more values measured below the detection limit
DE	Monthly value based on derived values; one or more values estimated
DQ	Monthly value based on derived values; one or more values questionable
DQ*	Monthly value based on derived values; one or more values questionable; one or more values measured below the detection limit
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
ID	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values
ID*	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values of which one or more values measured below the detection limit
IDE	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values of which one or more values are estimated
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values
E	Monthly value includes estimated values
DE*	Monthly value based on derived values; one or more values estimated
Q*	Monthly value includes questionable sample values; one or more values measured below the detection limit
A	Accepted monthly value
I*	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary; one or more values measured below the detection limit
E*	One or more values estimated; one or more values measured below the detection limit

Enumerated Domain for Attribute: TDPCODE_MO

A	Accepted monthly value
E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values

Enumerated Domain for Attribute: TKNCODE_MO

A	Accepted monthly value
*	Monthly value includes one or more values measured below the detection limit
E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values

Enumerated Domain for Attribute: UTKNCODE_MO

A	Accepted monthly value
*	Monthly value includes one or more values measured below the detection limit

E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values

Enumerated Domain for Attribute: UTNCODE_MO

*	Monthly value includes one or more values measured below the detection limit
D	Monthly value based on derived values
D*	Monthly value based on derived values; one or more values measured below the detection limit
DE	Monthly value based on derived values; one or more values estimated
DQ	Monthly value based on derived values; one or more values questionable
DQ*	Monthly value based on derived values; one or more values questionable; one or more values measured below the detection limit
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
ID	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values
ID*	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values of which one or more values measured below the detection limit
IDE	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; monthly value based on derived values of which one or more values are estimated
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values
E	Monthly value includes estimated values
DE*	Monthly value based on derived values; one or more values estimated; one or more values measured below the detection limit
Q*	Monthly value includes questionable sample values; one or more values measured below the detection limit
A	Accepted monthly value
I*	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary; one or more values measured below the detection limit
E*	One or more values estimated; one or more values measured below the detection limit

Enumerated Domain for Attribute: UTPCODE_MO

A	Accepted monthly value
E	Monthly value includes estimated values
I	Monthly value incomplete - at least 5 days available, but 25 or fewer days available for month summary
N	No analyses conducted for proportional samples taken during the month
Q	Monthly value includes questionable sample values
IE	Monthly value incomplete - only 6-25 days are proportionally sampled in the month; one or more values estimated

Enumerated Domain for Attribute: ALKCODE

*	Value is below detection limit for analysis (used beginning in 1991)
A	Accepted value

- E Estimated value
- N No analytical measurement
- Q Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: CACODE

- * Value is below detection limit for analysis (used beginning in 1991)
- A Accepted value
- E Estimated value
- N No analytical measurement
- Q Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: CLCODE

- * Value is below detection limit for analysis (used beginning in 1991)
- A Accepted value
- E Estimated value
- N No analytical measurement
- Q Value is questionable (used beginning in 1991)
- C Value confirmed, contamination or experimental tracer suspected (code use begins May 2007)

Enumerated Domain for Attribute: DOCCODE

- * Value is below detection limit for analysis (used beginning in 1991)
- A Accepted value
- E Estimated value
- N No analytical measurement
- Q Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: KCODE

- * Value is below detection limit for analysis (used beginning in 1991)
- A Accepted value
- E Estimated value
- N No analytical measurement
- Q Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: MGCODE

- * Value is below detection limit for analysis (used beginning in 1991)
- A Accepted value
- E Estimated value
- N No analytical measurement
- Q Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: NACODE

- * Value is below detection limit for analysis (used beginning in 1991)
- A Accepted value
- E Estimated value
- N No analytical measurement
- Q Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: NH3NCODE

- * Value is below detection limit for analysis (used beginning in 1991)
- A Accepted value
- E Estimated value
- N No analytical measurement
- Q Value is questionable (used beginning in 1991)
- C Value confirmed, contamination suspected (code use begins May 2007)

Enumerated Domain for Attribute: NO3NCODE

- * Value is below detection limit for analysis (used beginning in 1991)
- A Accepted value
- E Estimated value
- N No analytical measurement
- Q Value is questionable (used beginning in 1991)
- C Value confirmed, contamination suspected (code use begins May 2011)

Enumerated Domain for Attribute: PO4PCODE

- * Value is below detection limit for analysis (used beginning in 1991)
- A Accepted value
- E Estimated value
- N No analytical measurement
- Q Value is questionable (used beginning in 1991)
- C Value confirmed, contamination suspected (code use begins May 2011)

Enumerated Domain for Attribute: DONCODE

- N No derived value is calculated due to missing analytical components
- D Derived value - mathematically determined from other analytical measurements
- D* Derived value - mathematically determined from other analytical measurements, one or more of which were below the detection limit
- DE Derived value - mathematically determined from other analytical measurements, one or more of which were estimated values
- DQ Derived value - mathematically determined from other analytical measurements, one or more of which were questionable values
- DC Derived value confirmed, contamination suspected (code use begins May 2007)

Enumerated Domain for Attribute: PARTNCODE

N	No derived value is calculated due to missing analytical components
D	Derived value - mathematically determined from other analytical measurements
D*	Derived value - mathematically determined from other analytical measurements, one or more of which were below the detection limit
DE	Derived value - mathematically determined from other analytical measurements, one or more of which were estimated values
DQ	Derived value - mathematically determined from other analytical measurements, one or more of which were questionable values
DC	Derived value confirmed, contamination suspected (code use begins May 2007)

Enumerated Domain for Attribute: PARTPCODE

N	No derived value is calculated due to missing analytical components
D	Derived value - mathematically determined from other analytical measurements
D*	Derived value - mathematically determined from other analytical measurements, one or more of which were below the detection limit
DE	Derived value - mathematically determined from other analytical measurements, one or more of which were estimated values
DQ	Derived value - mathematically determined from other analytical measurements, one or more of which were questionable values

Enumerated Domain for Attribute: QCODE

A	Accepted value for streamflow
N	No streamflow available for period
E	Estimated streamflow value
P	Provisional streamflow value is likely to change - used for USGS Lookout Creek streamflow
Q	Streamflow value for the period is questionable

Enumerated Domain for Attribute: SICODE

*	Value is below detection limit for analysis (used beginning in 1991)
A	Accepted value
E	Estimated value
N	No analytical measurement
Q	Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: SO4SCODE

*	Value is below detection limit for analysis (used beginning in 1991)
A	Accepted value
E	Estimated value
N	No analytical measurement
Q	Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: SSED CODE

A	Accepted value
E	Estimated value
N	No analytical measurement

Q Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: STCODE

CF002 Study code CF002

Enumerated Domain for Attribute: TKNCODE

* Value is below detection limit for analysis (used beginning in 1991)

A Accepted value

E Estimated value

N No analytical measurement

Q Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: TDPCODE

* Value is below detection limit for analysis (used beginning in 1991)

A Accepted value

E Estimated value

N No analytical measurement

Q Value is questionable (used beginning in 1991)

C Value confirmed, contamination suspected (code use begins May 2011)

Enumerated Domain for Attribute: TYPE

QB Quality control samples taken below turbulence box

QS Quality control sample taken through sampler

QL Quality control sample taken through sampler and left in gage house until next collection

QA Quality control sample taken above flume

C Sample combined with preceeding saved sample(s) for analysis - not used after 1981

G Grab sample taken in lieu of proportional sample

S Sample saved to combine with following collection (type 'C') due to insufficient water (not used after 1981). Nutrient concentrations of the following stream water sample are used to determine fluxes for this period.

N No sample is collected for this period

F Complete, full sample. Sampler operational throughout sampling period.

YE Year end marker allows summary by water year - this is not a sample. Flux values are calculated from streamflow ending Sep 30 and use analyte concentrations from the following sample. 'Y' markers are inserted every Sep30

A Augmented sample - grab sample added to insufficient proportional sample (rarely used after 1987)

P Partial sample - proportional sampler did not operate successfully over entire period

B Biased sample - consecutive samples are proportionally separated and combined based on streamflow - code use begins WY 2008 to approx. two 3-week sampling intervals (where one sample is for 4 wks and the next for 2 wks)

Enumerated Domain for Attribute: UTKNCODE

* Value is below detection limit for analysis (used beginning in 1991)

A	Accepted value
E	Estimated value
N	No analytical measurement
Q	Value is questionable (used beginning in 1991)

Enumerated Domain for Attribute: UTPCODE

*	Value is below detection limit for analysis (used beginning in 1991)
A	Accepted value
E	Estimated value
N	No analytical measurement
Q	Value is questionable (used beginning in 1991)
C	Value confirmed, contamination suspected (code use begins May 2011)

Enumerated Domain for Attribute: UTNCODE

*	Value is below detection limit for analysis (used beginning in 1991)
A	Accepted value
E	Estimated value
Q	Value is questionable (used beginning in 1991)
D	Derived value - mathematically determined from other analytical measurements
D*	Derived value - mathematically determined from other analytical measurements, one or more of which were below the detection limit
DE	Derived value - mathematically determined from other analytical measurements, one or more of which were estimated values
DQ	Derived value - mathematically determined from other analytical measurements, one or more of which were questionable values
N	No analytical measurement or no derived value calculated due to missing analytical components
C	Value confirmed, contamination suspected (code use begins May 2011)

Enumerated Domain for Attribute: TDNCODE

*	Value is below detection limit for analysis (used beginning in 1991)
A	Accepted value
E	Estimated value
Q	Value is questionable (used beginning in 1991)
D	Derived value - mathematically determined from other analytical measurements
D*	Derived value - mathematically determined from other analytical measurements, one or more of which were below the detection limit
DE	Derived value - mathematically determined from other analytical measurements, one or more of which were estimated values
DQ	Derived value - mathematically determined from other analytical measurements, one or more of which were questionable values
N	No analytical measurement or no derived value calculated due to missing analytical components
C	Value confirmed, contamination suspected (code use begins May 2007)

Enumerated Domain for Attribute: STCODE

CF002

Study code CF002

Enumerated Domain for Attribute: TYPE

QB	Quality control samples taken below turbulence box
QS	Quality control sample taken through sampler
QL	Quality control sample taken through sampler and left in gage house until next collection
QA	Quality control sample taken above flume
C	Sample combined with preceeding saved sample(s) for analysis - not used after 1981
G	Grab sample taken in lieu of proportional sample
S	Sample saved to combine with following collection (type 'C') due to insufficient water (not used after 1981). Nutrient concentrations of the following stream water sample are used to determine fluxes for this period.
N	No sample is collected for this period
F	Complete, full sample. Sampler operational throughout sampling period.
YE	Year end marker allows summary by water year - this is not a sample. Flux values are calculated from streamflow ending Sep 30 and use analyte concentrations from the following sample. 'Y' markers are inserted every Sep30
A	Augmented sample - grab sample added to insufficient proportional sample (rarely used after 1987)
P	Partial sample - proportional sampler did not operate successfully over entire period
B	Biased sample - consecutive samples are proportionally separated and combined based on streamflow - code use begins WY 2008 to approx. two 3-week sampling intervals (where one sample is for 4 wks and the next for 2 wks)

Enumerated Domain for Attribute: QCCODE

NA	Water sample is not a quality control sample
QA	Quality control water sample taken above the flume
QB	Quality control water sample taken below the turbulence box
QL	Quality control water sample taken through the sampler and left in the gage house until the next collection
QS	Quality control water sample taken through the sampler
QZ	Additional or miscellaneous quality control water sample

Enumerated Domain for Attribute: SAMPLER_TYPE

GR	Grab sample taken manually from the flume
RI	Instantaneous sample collected through the battery-powered proportional water sampler
RM	Proportional water sample taken through the battery-powered proportional water sampler with reed switch assembly and mechanical timer
RS	Proportional water sample taken through the battery-powered proportional water sampler with reed switch assembly and solid state time and circuit board
SG	Proportional water sample taken through Sigma sampler with timing controlled by a Campbell Scientific data logger
SI	Instantaneous water sample taken through Sigma sampler

Enumerated Domain for Attribute: LOW_VOLUME

N	Sample is of sufficient volume for laboratory analyses
Y	Sample is low volume and laboratory analyses may be limited