POWERTECH (USA) INC.

APPENDIX 3.5-J

COMPILED HABITAT DATA FORMS

SAMPLE COLLECTION FORM - STREAMS

Site ID	BVC01	Date	4/15/2008

Water Chemistry		
Sample ID	Transect	Comments
		NA - Sampled by Respec

Reach-wide Benthos Sample		
Sample ID	No. of Jars	Comment
BVC01HF	1	High flow sampling. Composit sample from 11 transects. Midge hatch in progress.

Transect		A		B		C		D		E		F		G		H		I		J		K	
Substrate	Channel	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan
Fine/Sand	Pool		P	F	P							F	P	F	P							F	P
Gravel	Glide								G		G										G		
Coarse	Riffle	C				C	R	C		C						C	R	C	R	C			
other	Run																						

Transect		A	B	C	D	E	F	G	H	I	J	K
Sample Location	Left											
	Right											
	Center											

Substrate Size Classes
Fine/Sand - ladybug or smaller (<2mm)
Gravel - ladybug to tennis ball (2 to 64mm)
Coarse - tennis ball to car sized (64 to 4000mm)
Other - bedrock, hardpan, wood etc

SAMPLE COLLECTION FORM - STREAMS

Site ID	BVC04	Date	4/14/2008

Water Chemistry		
Sample ID	Transect	Comments
		NA - Sampled by Respec

Reach-wide Benthos Sample		
Sample ID	No. of Jars	Comment
BVC04HF	2	Spring sampling. Composit sample from 11 transects. Midge hatch in progress.

Transect		A		B		C		D		E		F		G		H		I		J		K	
Substrate	Channel	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan
Fine/Sand	Pool							F	P	F	P	F	P	F	P			F	P	F	P	F	P
Gravel	Glide	G		G		G																	
Coarse	Riffle		R		R		R									C	R						
other	Run																						

Transect		A	B	C	D	E	F	G	H	I	J	K
Sample Location	Left											
	Right											
	Center											

Substrate Size Classes
Fine/Sand - ladybug or smaller (<2mm)
Gravel - ladybug to tennis ball (2 to 64mm)
Coarse - tennis ball to car sized (64 to 4000mm)
Other - bedrock, hardpan, wood etc

On Site Description Data

Section A

Project Site ID: BVC01		T 7S, R 1E, SW 1/4 of Sec 9		**Date: 14 APR 2008**
Stream Name: Beaver Creek				Time: 14:51
Transect 1(Downstream)			**Transect 11(Upstream)**	
GPS Coordinates (utm):	Northing: 43°26' 57.11"	Easting: 104°00' 56.12"	Northing: 43°26' 57.00"	Easting: 104°00' 48.26"
Investigators: C. Foreman, G. McKee (Sections A, B, C), A. Wones, K. Shook, E. Krantz (Sections D, E, F, G, H, I, J)				

Section B

Preliminary Mean Stream Width (PMSW)

	Width Number											
	1	2	3	4	5	6	7	8	9	10	Sum	Avg. PMSW
Width (0.1m)	6.7	6.9	7.7	8.8	5.9	11.3	8.2	5.0	5.9	7.1	73.5	7.35

Transect Spacing *: 22 m

*If PMSW <10m space transects every 3 PMSW. If >10m, transects are spaced every 2 PMSW.

Total Reach Length: 220 m

Reach Length = 11 Transects, 10 distances apart X 3 PMSW = 30 PMSW or 20 PMSW if width >10m.

Section C

Water Quality

Reading	**Time (2400)**	**Water Temperature (°C)**	**Air Temperature (oC)**	**Turbidity (NTU)**	**Secchi (cm)**	**Dissolved Oxygen (mg/L**	**Specific Conductance (µS/cm)**	**Conductivity (µS/cm)**
Morning								
Afternoon	14:55	16.0	16.9	14.3	-	12.21	7,186	

Visual Observations

1) Odor (~~Yes~~ / No)	**2) Septic (~~Yes~~ / No)**	**3) Deadfish (~~Yes~~ / No)**	**4) Surface Film (~~Yes~~ / No)**
5) Color: Clear		**6) Ice Cover (~~Yes~~ / No)**	

Weather Conditions:	**Current**	**Past 24 hrs**
Clear/sunny	✓	✓
Partly cloudy	☐	☐
Intermittent showers	☐	☐
Steady rain	☐	☐
Heavy rain	☐	☐

Field Comments: Heavy silt deposition in pools. WQ by Respec. pH = 8.27

Section D

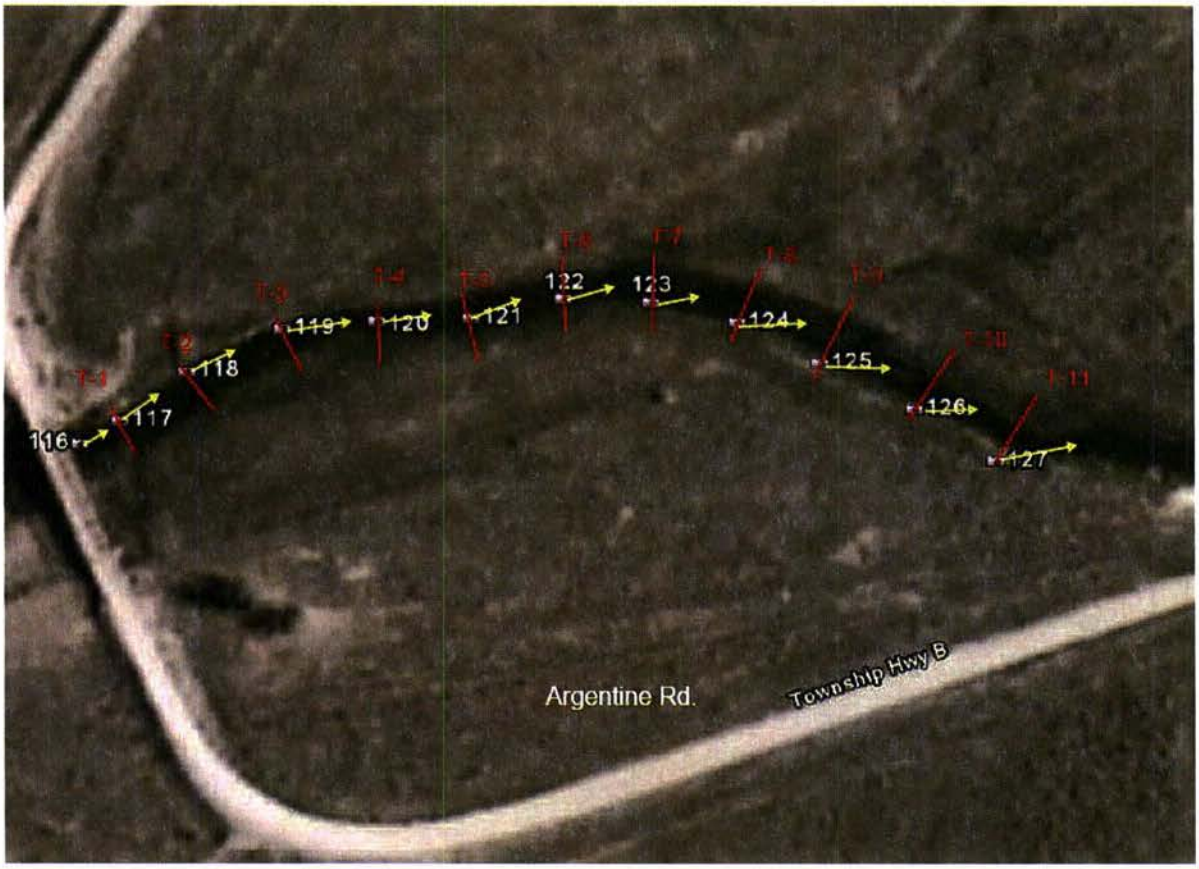
Habitats Available number of each (also place on map Section E)	Pool 3 Run/Glide 2 Riffle 3 Other (describe) see Table 1 Lengths of Riffle(s): 10.7, 10.7, 6.7, _____, _____. Nearest Transect # : 3, 9, 11, _____, _____. Total Length (riffles) = 28.0 Pool Forming Elements See Table 1= _____LS, F

Map, Slope Measurements, and Photo-documentation Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Date: 16 APR 2008

Section E cont.

Draw a map of the site with location of most upstream and most downstream transects. Include locations of photographic points, direction of photograph, and frame number.



Approximately 240 m.

Bed Substrate Composition

Project Site ID:BVC01	Stream Name: Beaver Creek	Date: 17 APR 2008

Section F

Organic Substrates

	Description	Tally	Number
Detritus	sticks, wood, coarse plant material (CPOM)		2
Muck-Mud	black, very fine organic (FPOM)		

Inorganic Substrates

	Diameter	Tally	Number
Clay	<0.004 (slick)		1
Silt	0.004-0.062		15
Sand	0.062-2 (gritty)		
Very Fine Gravel	>2-4		
Fine Gravel	>4-8		
Medium Gravel	>8-16		1
Coarse Gravel	>16-32		7
Very Coarse Gravel	>32-64		17
Cobble	>64-128		9
Large Cobble	>128-256		3
Boulder	>256-512		
Large Boulder	>512		
		Total Number:	55

Section G

Large Woody Debris Data

1

Project Site ID: BVC01 Stream Name: Beaver Creek m/d/yr: 04/17/2008 Page 1 of 1

Transect Spacing	Log Jam Number	LWD Number	Zone	Meander Location	Habitat Association	Angle	Length	Diameter
1-2	0	0						
2-3	0	0						
3-4	0	0						
4-5	0	0						
5-6	0	0						
6-7	0	0						
7-8	0	0						
8-9	0	0						
9-10	0	0						
10-11	0	0						

Zone: Zone 1 is water surface at baseflow, Zone 2 is between baseflow surface and bankfull flow surface, Zone 3 is bankfull channel width above bankfull flow surface.
Meander Location: IM=inside meander, OM=outside meander, CO=crossover, SS=straight section
Habitat Association: PL=pool, RF=riffle, RN=run

LARGE WOODY DEBRIS CATEGORIES (≥10 cm small end diameter; ≥1.5 m length)				
Categories	**1**	**2**	**3**	**4**
Diameter Large End	0.1-<0.3m	0.3-0.6m	0.6-0.8m	>0.8m
Length	>1.5-5m	5-15m	>15m	-

Stream Shade and Canopy Cover Monitoring

Project Site ID:BVC01	Stream Name: Beaver Creek	Date: 17 APR 2008

Section H

Site Name:BVC04							Date: 4/17/2008
Reach Length:				Transect Interval:			Initials:
Transect	Left Bank	Center Upstream	Center Right	Center-downstream	Center Left	Right Bank	Comments:
1	0	0	0	0	0	0	
2	0	0	0	0	0	7	RB = bank
3	0	0	0	0	0	6	RB = bank
4	7	0	0	0	0	5	LB = grass/bank RB = bank
5	9	0	0	0	0	13	LB = grass/bank RB = grass/bank
6	3	0	0	0	0	4	LB = grass RB = grass
7	16	0	0	0	0	3	LB = grass RB = grass
8	4	0	0	0	0	0	LB = grass
9	2	0	0	0	0	0	LB = Bank
10	3	0	0	0	0	0	LB = Grass
11	0	0	0	0	0	0	

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 4/15/08		1 of 11
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	1.3	1.3
Bank Angle (degrees)	25	21
Streambank length (0.1 m)	8.6	2.7
Length of Streambank Vegetated (0.1 m)	8.6	2.7
Length of Streambank Eroded (0.1 m)	0	0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / pasture/rangeland / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / pasture/rangeland / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / moderate / high	none / low / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / none	seedling/sprout / young/sapling / mature / decadent / dead / none
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.3			
LBF	1.5	0.0		
LEW	3.0	0.4	0.00	
LCB	3.5	0.5	0.09	
STR (@1/4)	4.9	0.5	0.12	
STR (@1/2)	6.1	0.4	0.03	
STR (@3/4)	7.5	0.5	0.09	
RCB	8.8	0.4	0.03	
REW	9.4	0.4	0.00	
RBF	11.8	0.0		
RTB	13.7			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 13.4

Bankfull width (RBF-LBF)= 10.2

Channel Bottom Width (RCB-LCB)= 5.4

Stream Width (REW-LEW)= 6.3

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 4/15/08		2 of 11
Habitat Type Along Transect (circle one):	[pool] riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	1.7	1.8
Bank Angle (degrees)	**15**	41
Streambank length (0.1 m)	8.6	2.7
Length of Streambank Vegetated (0.1 m)	8.6	2.7
Length of Streambank Eroded (0.1 m)	0	0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [not present]	seedling/sprout / young/sapling / mature / decadent / dead / [not present]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.3			
LBF	6.9	0.0		
LEW	8.1	0.3	0.00	
LCB	10.4	0.6	0.30	
STR (@1/4)	9.6	0.4	0.09	
STR (@1/2)	11.8	0.8	0.52	
STR (@3/4)	13.3	0.7	0.43	
RCB	13.9	0.6	0.37	
REW	14.6	0.3	0.00	
RBF	15.0	0.0		
RTB	15.9			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 15.5

Bankfull width (RBF-LBF)= 8.1

Channel Bottom Width (RCB-LCB)= 3.5

Stream Width (REW-LEW)= 6.5

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number 3 of 11
Date: 4/15/08		
Habitat Type Along Transect (circle one): pool riffle [run]		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	1.6	1.6
Bank Angle (degrees)	8	48
Streambank length (0.1 m)	12.0	3.3
Length of Streambank Vegetated (0.1 m)	12.0	0.5
Length of Streambank Eroded (0.1 m)	0	2.9
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.2	0.2
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / [decadent] / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.3			
LBF	9.8	0.0		
LEW	11.2	0.5	0.00	
LCB	12.7	0.5	0.06	
STR (@1/4)	12.9	0.5	0.09	
STR (@1/2)	14.2	0.5	0.06	
STR (@3/4)	15.1	0.5	0.09	
RCB	15.6	0.5	0.06	
REW	16.0	0.3	0.00	
RBF	16.9	0.0		
RTB	17.7			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 17.4

Bankfull width (RBF-LBF)= 7.2

Channel Bottom Width (RCB-LCB)= 3.0

Stream Width (REW-LEW)= 4.8

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number 4 of 11
Date: 4/15/08		
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	1.7	1.7
Bank Angle (degrees)	15	43
Streambank length (0.1 m)	8.1	2.6
Length of Streambank Vegetated (0.1 m)	8.1	2.6
Length of Streambank Eroded (0.1 m)	0	0
Length of Streambank Deposition (0.1 m)	0.6	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.3	0.1
Undercut Bank (0.1 m)	0.2	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.3			
LBF	7.9	0.0		
LEW	7.8	0.2	0.00	
LCB	8.0	0.3	0.12	
STR (@1/4)	9.6	0.3	0.06	
STR (@1/2)	11.2	0.4	0.15	
STR (@3/4)	12.9	0.4	0.15	
RCB	13.9	0.3	0.06	
REW	14.3	0.2	0.00	
RBF	14.4	0.0		
RTB	15.7			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 15.4

Bankfull width (RBF-LBF)= 6.5

Channel Bottom Width (RCB-LCB)= 5.8

Stream Width (REW-LEW)= 6.6

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08, 4/17/08		5 of 11
Habitat Type Along Transect (circle one):	[pool] riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.6	1.5
Bank Angle (degrees)	23	45
Streambank length (0.1 m)	4.0	4.0
Length of Streambank Vegetated (0.1 m)	3.9	3.2
Length of Streambank Eroded (0.1 m)	0.1	0.8
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.0			
LBF	3.7	0.0		
LEW	3.7	0.4	0.07	
LCB	4.7	0.7	0.21	
STR (@1/4)	5.8	0.6	0.29	
STR (@1/2)	7.3	0.6	0.31	
STR (@3/4)	9.5	0.6	0.25	
RCB	10.9	0.6	0.21	
REW	11.3	0.5	0.12	
RBF	11.7	0.1		
RTB	12.9			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 12.9

Bankfull width (RBF-LBF)= 8.0

Channel Bottom Width (RCB-LCB)= 6.2

Stream Width (REW-LEW)= 7.6

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number 6 of 11
Date: 4/16/08, 4/17/08		
Habitat Type Along Transect (circle one):	[pool] riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.8	1.5
Bank Angle (degrees)	25	55
Streambank length (0.1 m)	3.0	2.2
Length of Streambank Vegetated (0.1 m)	3.0	
Length of Streambank Eroded (0.1 m)	0	
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / [decadent] / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.5			
LBF	4.1	0.0		
LEW	4.7	0.9*	0.30	
LCB	4.7	0.9	0.30	
STR (@1/4)	6.4	0.9	0.42	
STR (@1/2)	8.5	1.0	0.64	
STR (@3/4)	10.5	0.9	0.59	
RCB	11.5	0.7	0.31	
REW	11.8	0.5*	0.14	
RBF	12.2	0.0		
RTB	13.1			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 12.6

Bankfull width (RBF-LBF)= 8.1

Channel Bottom Width (RCB-LCB)= 6.9

Stream Width (REW-LEW)= 7.2

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08, 4/17/08		7 of 11
Habitat Type Along Transect (circle one):	[pool] riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.6	1.8
Bank Angle (degrees)	23	50
Streambank length (0.1 m)	3.0	2.2
Length of Streambank Vegetated (0.1 m)	2.9	1.5
Length of Streambank Eroded (0.1 m)	0.1	0.7
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.2	0.2
Undercut Bank (0.1 m)	0	0.25
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / [young/sapling] / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.5			
LBF	4.1	0.0		
LEW	4.7	0.7	0.21	
LCB	4.7	0.7	0.21	
STR (@1/4)	6.4	1.0	0.50	
STR (@1/2)	8.4	1.0	0.51	
STR (@3/4)	10.1	0.9	0.40	
RCB	12.0	0.9	0.39	
REW	12.5	0.7	0.16	
RBF	13.2	0.0		
RTB	14.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 13.5

Bankfull width (RBF-LBF)= 9.1

Channel Bottom Width (RCB-LCB)= 7.3

Stream Width (REW-LEW)= 7.8

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number 8 of 11
Date: 4/16/08, 4/17/08		
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.5	1.5
Bank Angle (degrees)	23	41
Streambank length (0.1 m)	3.0	3.0
Length of Streambank Vegetated (0.1 m)	3.0	1.8
Length of Streambank Eroded (0.1 m)	0	1.2
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.2	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland, [pasture/rangeland], prairie, wetland, shrub, woodland/forested, barnyard, developed, other-specify	cropland, [pasture/rangeland], prairie, wetland, shrub, woodland/forested, barnyard, developed, other-specify
Animal Vegetation Use (circle one)	none, low, [moderate], high	none, low, [moderate], high
Riparian Vegetation Type (Dominant)	sedge/rush, cottonwoods, [grass/forb], green ash, willows, silver maple, shrubs, other_____	sedge/rush, cottonwoods, grass/forb, green ash, willows, silver maple, [shrubs], other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout, young/sapling, mature, decadent, dead, [none]	seedling/sprout, young/sapling, mature, decadent, dead, [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.5			
LBF	3.4	0.0		
LEW	4.0	0.6	0.10	
LCB	4.4	0.6	0.20	
STR (@1/4)	5.6	0.6	0.20	
STR (@1/2)	7.2	0.6	0.19	
STR (@3/4)	8.8	0.7	0.24	
RCB	10.1	0.7	0.20	
REW	10.6	0.5	0.00	
RBF	11.9	1.0		
RTB	12.5			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___12.0___

Bankfull width (RBF-LBF)=___8.5___

Channel Bottom Width (RCB-LCB)=___ 5.7____

Stream Width (REW-LEW)=___ 6.6

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number 9 of 11
Date: 4/16/08, 4/17/08		
Habitat Type Along Transect (circle one): pool riffle [run]		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)	1.6	1.5
Bank Angle (degrees)	25	25
Streambank length (0.1 m)	3.3	4.8
Length of Streambank Vegetated (0.1 m)	2.9	8.8
Length of Streambank Eroded (0.1 m)	0.4	0.4
Length of Streambank Deposition (0.1 m)	0	1.0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.7
Undercut Bank (0.1 m)	0.2	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / [young/sapling] / mature / decadent / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.5			
LBF	3.7	0.0		
LEW	4.0	0.5	0.00	
LCB	4.7	0.5	0.18	
STR (@1/4)	5.6	0.5	0.19	
STR (@1/2)	6.9	0.5	0.19	
STR (@3/4)	8.7	0.5	0.11	
RCB	9.4	0.4	0.11	
REW	10.9	0.5	0.01	
RBF	12.5	0.0		
RTB	14.3			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 13.8

Bankfull width (RBF-LBF) = 8.8

Channel Bottom Width (RCB-LCB) = 4.7

Stream Width (REW-LEW) = 6.9

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08, 4/17/08		10 of 11
Habitat Type Along Transect (circle one): pool riffle run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.8	2.0
Bank Angle (degrees)	29	20
Streambank length (0.1 m)	2.8	6
Length of Streambank Vegetated (0.1 m)	2.4	5.8
Length of Streambank Eroded (0.1 m)	0.4	0.2
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.2	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.5			
LBF	3.4	0.0		
LEW	3.6	0.4	0.02	
LCB	3.9	0.6	0.20	
STR (@1/4)	4.9	0.7	0.32	
STR (@1/2)	6.1	0.8	0.38	
STR (@3/4)	7.5	0.8	0.19	
RCB	8.0	0.8	0.14	
REW	8.5	0.7	0.00	
RBF	10.2	0.2		
RTB	14.3			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___13.8___

Bankfull width (RBF-LBF)=____ 6.8__

Channel Bottom Width (RCB-LCB)=____4.0

Stream Width (REW-LEW)=____4.9____

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08, 4/17/08		11 of 11
Habitat Type Along Transect (circle one): pool	riffle	run

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)		
Bank Angle (degrees)	35	10
Streambank length (0.1 m)	5.0	10.4
Length of Streambank Vegetated (0.1 m)	2.4	9.7
Length of Streambank Eroded (0.1 m)	2.6	0.7
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.2	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / pasture/rangeland / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / pasture/rangeland / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / moderate / high	none / low / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / none	seedling/sprout / young/sapling / mature / decadent / dead / none
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.5			
LBF	1.5	0.0		
LEW	3.3	0.5	0.01	
LCB	3.5	0.7	0.13	
STR (@1/4)	4.2	0.7	0.20	
STR (@1/2)	5.1	0.7	0.18	
STR (@3/4)	5.8	0.7	0.11	
RCB	6.3	0.7	0.08	
REW	6.7	0.5	0.00	
RBF	8.8	0.2		
RTB	16.8			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 16.3

Bankfull width (RBF-LBF) = 7.3

Channel Bottom Width (RCB-LCB) = 2.9

Stream Width (REW-LEW) = 3.5

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

SAMPLE COLLECTION FORM - STREAMS

Site ID	BVC01	Date	7/9/2008

Water Chemistry		
Sample ID	Transect	Comments
		NA

Reach-wide Benthos Sample		
Sample ID	No. of Jars	Comment
BVC01	1	Low flow sampling. Composit sample from 11 transects. Appears to have low benthic abundance.

Transect		A		B		C		D		E		F		G		H		I		J		K	
Substrate	Channel	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan
Fine/Sand	Pool								P		P		P								P		P
Gravel	Glide	G	GL	G	GL			G		G		G		G		G		G		G		G	
Coarse	Riffle					C	R								R		R		R				
other	Run																						

Transect		A	B	C	D	E	F	G	H	I	J	K
Sample Location	Left	X			X			X			X	
	Right		X			X			X			X
	Center			X			X			X		

Substrate Size Classes
Fine/Sand - ladybug or smaller (<2mm)
Gravel - ladybug to tennis ball (2 to 64mm)
Coarse - tennis ball to car sized (64 to 4000mm)
Other - bedrock, hardpan, wood etc

SAMPLE COLLECTION FORM - STREAMS

Site ID	BVC04	Date	7/8/2008

Water Chemistry		
Sample ID	Transect	Comments

Reach-wide Benthos Sample		
Sample ID	No. of Jars	Comment
BVC04	2	Spring sampling. Composit sample from 11 transects.

Transect		A		B		C		D		E		F		G		H		I		J		K	
Substrate	Channel	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan	Sub	Chan
Fine/Sand	Pool											F				F	P	F	P	F	P		P
Gravel	Glide		GL			G	GL	G		G			GL	G									
Coarse	Riffle	C		C	R				R		R				R							C	
other	Run																						

Transect		A	B	C	D	E	F	G	H	I	J	K
Sample Location	Left	X			X			X			X	
	Right		X			X			X			X
	Center			X			X			X		

Substrate Size Classes
Fine/Sand - ladybug or smaller (<2mm)
Gravel - ladybug to tennis ball (2 to 64mm)
Coarse - tennis ball to car sized (64 to 4000mm)
Other - bedrock, hardpan, wood etc

On Site Description Data

Section A

Project Site ID: BVC01		T_____, R_____, _____1/4 of Sec_____		Date: 09 JUL 2008
Stream Name: Beaver Creek				Time: 14:51
Transect 1(Upstream)			**Transect 11(Downstream)**	
GPS Coordinates (utm): WGS84	Northing: 4820631.96	Easting: 0571323.79	Northing: 4820515.00	Easting: 0571485.75
Investigators: C. Foreman, G. McKee (Sections A, B, C), A. Wones, K. Shook, M. Winland (Sections D, E, F, G, H, I, J)				

Section B

Preliminary Mean Stream Width (PMSW)

	Width Number											
	1	2	3	4	5	6	7	8	9	10	Sum	Avg. PMSW
Width (0.1m)	6.7	6.9	7.7	8.8	5.9	11.3	8.2	5.0	5.9	7.1	73.5	7.35

Transect Spacing *: 22 m

*If PMSW <10m space transects every 3 PMSW. If >10m, transects are spaced every 2 PMSW.

Total Reach Length: 220 m

Reach Length = 11 Transects, 10 distances apart X 3 PMSW = 30 PMSW or 20 PMSW if width >10m.

Section C

Water Quality

Reading	Time (2400)	Water Temperature (°C)	Air Temperature (oC)	Turbidity (NTU)	Secchi (cm)	Dissolved Oxygen (mg/L	Specific Conductance (µS/cm)	Conductivity (µS/cm)
Morning	0945	23.63	25.5			8.41		5,939
Afternoon								

Visual Observations

1) Odor (~~Yes~~ / No)	**2) Septic (~~Yes~~ / No)**	**3) Deadfish (~~Yes~~ / No)**	**4) Surface Film (~~Yes~~ / No)**
5) Color: Olive Drab, clear		**6) Ice Cover (~~Yes~~ / No)**	

Weather Conditions:	Current	Past 24 hrs
Clear/sunny	☐	☐
Partly cloudy	✓	✓
Intermittent showers	☐	☐
Steady rain	☐	☐
Heavy rain	☐	☐

Field Comments: wind 5-10 mph, sparse high clouds.

Section D

Habitats Available number of each (also place on map Section E)	Pool 2 Run/Glide 1 Riffle 2 Other (describe) see Table 1 Lengths of Riffle(s): 13, 57.8, 6.7, _____, _____. Nearest Transect # : 3, 7, _____, _____, _____. Total Length (riffles) = 70.8 Pool Forming Elements See Table 1= _____ F

Map, Slope Measurements, and Photo-documentation Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Date: 09 JUL 2008

Section E cont.

Draw a map of the site with location of most upstream and most downstream transects. Include locations of photographic points, direction of photograph, and frame number.

Approximately 320 m.

Bed Substrate Composition

Project Site ID:BVC01	Stream Name: Beaver Creek	Date: 09 JUL 2008

Section F

Organic Substrates

	Description	Tally	Number
Detritus	sticks, wood, coarse plant material (CPOM)		2
Muck-Mud	black, very fine organic (FPOM)		6

Inorganic Substrates

	Diameter	Tally	Number
Clay	<0.004 (slick)		1
Silt	0.004-0.062		8
Sand	0.062-2 (gritty)		1
Very Fine Gravel	>2-4		6
Fine Gravel	>4-8		2
Medium Gravel	>8-16		19
Coarse Gravel	>16-32		15
Very Coarse Gravel	>32-64		28
Cobble	>64-128		20
Large Cobble	>128-256		5
Boulder	>256-512		1
Large Boulder	>512		1
		Total Number:	105

Section G

Large Woody Debris Data

1

Project Site ID: BVC01 Stream Name: Beaver Creek m/d/yr: 07/09/2008 Page 1 of 1

Transect Spacing	Log Jam Number	LWD Number	Zone	Meander Location	Habitat Association	Angle	Length	Diameter
1-2	0	0						
2-3	0	0						
3-4	0	0						
4-5	0	0						
5-6	0	0						
6-7	0	0						
7-8	0	0						
8-9	0	0						
9-10	0	0						
10-11	0	0						

Zone: Zone 1 is water surface at baseflow, Zone 2 is between baseflow surface and bankfull flow surface, Zone 3 is bankfull channel width above bankfull flow surface.
Meander Location: IM=inside meander, OM=outside meander, CO=crossover, SS=straight section
Habitat Association: PL=pool, RF=riffle, RN=run

LARGE WOODY DEBRIS CATEGORIES (≥10 cm small end diameter; ≥1.5 m length)				
Categories	**1**	**2**	**3**	**4**
Diameter Large End	0.1-<0.3m	0.3-0.6m	0.6-0.8m	>0.8m
Length	>1.5-5m	5-15m	>15m	-

Stream Shade and Canopy Cover Monitoring

Project Site ID:BVC01	Stream Name: Beaver Creek	Date: 17 APR 2008

Section H

Site Name:BVC01							Date: 7/09/2008
Reach Length:				Transect Interval:			Initials:
Transect	Left Bank	Center Upstream	Center Right	Center-downstream	Center Left	Right Bank	Comments:
1	0	0	0	0	0	0	
2	0	0	0	0	0	4	RB = bank
3	0	0	0	0	0	7	RB = bank
4	0	0	0	0	0	0	LB = grass/bank RB = bank
5	0	0	0	0	0	0	LB = grass/bank RB = grass/bank
6	0	0	0	0	0	3	LB = grass RB = grass
7	0	0	0	0	0	0	LB = grass RB = grass
8	0	0	0	0	0	0	LB = grass
9	0	0	0	0	0	0	LB = Bank
10	0	0	0	0	0	0	LB = Grass
11	0	0	0	0	0	0	

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		1 of 11
Habitat Type Along Transect (circle one): pool riffle [run]		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.56	1.52
Bank Angle (degrees)	24	16
Streambank length (0.1 m)	3.5	6.4
Length of Streambank Vegetated (0.1 m)	3.5	6.4
Length of Streambank Eroded (0.1 m)	0	0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.* 0.2	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.0			
LBF	1.0	0.0		
LEW	2.6	0.66	0.00	
LCB	3.3	0.73	0.12	
STR (@1/4)	4.5	0.74	0.18	
STR (@1/2)	6.0	0.77	0.23	
STR (@3/4)	7.8	0.77	0.25	
RCB	8.7	0.69	0.16	
REW	9.2	0.56	0.00	
RBF	10.9	0.18		
RTB	14.6			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 14.6

Bankfull width (RBF-LBF)= 9.9

Channel Bottom Width (RCB-LCB)= 5.4

Stream Width (REW-LEW)= 6.6

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		2 of 11
Habitat Type Along Transect (circle one): pool riffle [run]		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	2.57	2.80
Bank Angle (degrees)	**8**	55
Streambank length (0.1 m)	10.35	3.2
Length of Streambank Vegetated (0.1 m)	10.32	3.2
Length of Streambank Eroded (0.1 m)	0	0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.10
Undercut Bank (0.1 m)	0	010
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [not present]	seedling/sprout / young/sapling / mature / decadent / dead / [not present]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.* 0.5	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	20.5			
LBF	27.3	0.0		
LEW	28.0	0.59	0.00	
LCB	30.0	0.95	0.35	
STR (@1/4)	31.0	1.09	0.48	
STR (@1/2)	32.4	1.20	0.54	
STR (@3/4)	33.9	1.24	0.53	
RCB	34.7	1.18	0.46	
REW	35.0	0.77	0.00	
RBF	35.0	0.25		
RTB	36.2			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 15.7

Bankfull width (RBF-LBF)= 7.7

Channel Bottom Width (RCB-LCB)= 4.7

Stream Width (REW-LEW)= 7.0

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number 3 of 11
Date: 7/11/08		
Habitat Type Along Transect (circle one): pool **[riffle]** run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	1.9	2.5
Bank Angle (degrees)	8	54
Streambank length (0.1 m)	12.7	3.0
Length of Streambank Vegetated (0.1 m)	12.7	2.0
Length of Streambank Eroded (0.1 m)	0	1.0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / **[pasture/rangeland]** / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / **[pasture/rangeland]** / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / **[moderate]** / high	none / low / **[moderate]** / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / **[grass/forb]** / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / **[grass/forb]** / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / **[none]**	seedling/sprout / young/sapling / mature / **[decadent]** / dead / **[none]**
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.* 0.2, grass sp. 0.2. Total = 0.4	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	20.0			
LBF	29.1	0.00		
LEW	31.7	0.67	0.00	
LCB	32.4	0.77	0.11	
STR (@1/4)	33.2	0.85	0.17	
STR (@1/2)	34.1	0.87	0.19	
STR (@3/4)	35.0	0.93	0.18	
RCB	35.4	0.91	0.15	
REW	35.8	0.77	0.00	
RBF	35.9	0.35		
RTB	37.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 17.0

Bankfull width (RBF-LBF)= 6.8

Channel Bottom Width (RCB-LCB)= 3.0

Stream Width (REW-LEW)= 4.1

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number 4 of 11
Date: 7/11/08		
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	1.6	2.0
Bank Angle (degrees)	14	25
Streambank length (0.1 m)	7.9	6.0
Length of Streambank Vegetated (0.1 m)	7.4	5.4
Length of Streambank Eroded (0.1 m)	0.5	0.6
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	*Chara sp.* 0.5	
Emergent Macrophytes (0.1 m)	*Juncus sp.* 0.5	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.3			
LBF	5.8	0.00		
LEW	6.1	0.65	0.00	
LCB	7.6	0.80	0.27	
STR (@1/4)	8.5	0.81	0.23	
STR (@1/2)	9.9	0.91	0.29	
STR (@3/4)	11.8	1.10	0.26	
RCB	12.7	0.85	0.22	
REW	13.4	0.70	0.00	
RBF	13.9	0.00		
RTB	19.4			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 19.1

Bankfull width (RBF-LBF)= 8.2

Channel Bottom Width (RCB-LCB)= 5.1

Stream Width (REW-LEW)= 7.3

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number 5 of 11
Date: 7/11/08		
Habitat Type Along Transect (circle one):	[pool] riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	2.1	2.1
Bank Angle (degrees)	21	32
Streambank length (0.1 m)	7.7	4.2
Length of Streambank Vegetated (0.1 m)	7.7	3.18
Length of Streambank Eroded (0.1 m)	0	0.2
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.2	0.1
Undercut Bank (0.1 m)	0.2	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.* 0.3	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.4			
LBF	6.2	0.00		
LEW	6.5	0.70	0.02	
LCB	7.2	0.98	0.35	
STR (@1/4)	8.5	1.12	0.49	
STR (@1/2)	10.1	1.28	0.59	
STR (@3/4)	12.5	1.12	0.48	
RCB	13.8	0.99	0.30	
REW	14.1	0.87	0.15	
RBF	14.6	0.00		
RTB	17.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 16.6

Bankfull width (RBF-LBF)= 8.4

Channel Bottom Width (RCB-LCB)= 6.7

Stream Width (REW-LEW)= 7.7

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		6 of 11
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	1.9	1.9
Bank Angle (degrees)	22	36
Streambank length (0.1 m)	7.0	3.4
Length of Streambank Vegetated (0.1 m)	6.9	3.2
Length of Streambank Eroded (0.1 m)	0.1	0.2
Length of Streambank Deposition (0.1 m)	0	2.5
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.1	0.1
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.* 0.1	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	2.0			
LBF	5.0	0.00		
LEW	5.7	0.61	0.00	
LCB	5.8	0.89	0.34	
STR (@1/4)	7.4	0.90	0.48	
STR (@1/2)	9.4	1.03	0.55	
STR (@3/4)	11.7	0.98	0.44	
RCB	13.4	0.91	0.37	
REW	13.9	0.79	0.24	
RBF	14.5	0.05		
RTB	15.3			

Location Codes:

LTB left top bank

RTB right top bank
LBF left bankfull
RBF right bankfull

LCB left channel bottom
RCB right channel bottom
LEW left edge water

REW right edge water
STR stream

Bank top width (RTB-LTB) = 13.3

Bankfull width (RBF-LBF)= 9.5

Channel Bottom Width (RCB-LCB)= 7.6

Stream Width (REW-LEW)= 8.2

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		7 of 11
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.7	1.5
Bank Angle (degrees)	22	23
Streambank length (0.1 m)	5.8	4.8
Length of Streambank Vegetated (0.1 m)	5.7	4.6
Length of Streambank Eroded (0.1 m)	0.1	0.2
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	*Chara sp.* 0.05	
Emergent Macrophytes (0.1 m)	Juncus Sp. & Grass 0.30	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	1.0			
LBF	4.7	0.00		
LEW	5.4	0.60	0.17	
LCB	6.0	0.62	0.20	
STR (@1/4)	7.1	0.58	0.16	
STR (@1/2)	8.5	0.50	0.17	
STR (@3/4)	6.0	0.49	0.19	
RCB	10.7	0.44	0.15	
REW	11.2	0.35	0.01	
RBF	13.4	0.03		
RTB	15.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 14.0

Bankfull width (RBF-LBF)= 8.7

Channel Bottom Width (RCB-LCB)= 4.7

Stream Width (REW-LEW)= 5.8

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		8 of 11
Habitat Type Along Transect (circle one): pool **riffle** run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.9	1.6
Bank Angle (degrees)	25	11
Streambank length (0.1 m)	4.3	5.5
Length of Streambank Vegetated (0.1 m)	3.9	5.3
Length of Streambank Eroded (0.1 m)	0.4	0.2
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.10	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / **pasture/rangeland** / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / **pasture/rangeland** / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / **moderate** / high	none / low / **moderate** / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / **grass/forb** / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / **grass/forb** / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / **none**	seedling/sprout / young/sapling / mature / **decadent** / dead / none
Submergent Macrophytes (0.1 m)	*Chara sp.* 0.1	
Emergent Macrophytes (0.1 m)	*Juncus sp.* 0.25	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.7			
LBF	4.0	0.00		
LEW	4.1	0.58	0.13	
LCB	4.4	0.75	0.30	
STR (@1/4)	5.6	0.58	0.29	
STR (@1/2)	7.0	0.48	0.18	
STR (@3/4)	8.6	0.42	0.17	
RCB	9.9	0.38	0.15	
REW	10.3	0.35	0.10	
RBF	10.6	0.00		
RTB	14.5			

Location Codes:

LTB left top bank
RTB *right top bank*
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___16.9_____

Bankfull width (RBF-LBF)=____11.3____

Channel Bottom Width (RCB-LCB)=___8.1_ _____

Stream Width (REW-LEW)=___8.1___

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number 9 of 11
Date: 7/11/08		
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)	2.2	2.0
Bank Angle (degrees)	32	12.5
Streambank length (0.1 m)	3.9	8.4
Length of Streambank Vegetated (0.1 m)	2.9	8.2
Length of Streambank Eroded (0.1 m)	1.0	0.2
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.1	0
Undercut Bank (0.1 m)	0.1	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	*Chara sp.* 0.20	
Emergent Macrophytes (0.1 m)	*Juncus sp.* 0.1	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	3.7			
LBF	5.5	0.0		
LEW	6.5	0.2	0.05	
LCB	7.0	0.2	0.10	
STR (@1/4)	8.8	0.4	0.31	
STR (@1/2)	10.4	0.3	0.35	
STR (@3/4)	12.2	0.4	0.31	
RCB	14.3	0.2	0.14	
REW	14.7	0.0	0.01	
RBF	14.9	-0.4		
RTB	22.6			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 18.9

Bankfull width (RBF-LBF)= 9.4

Channel Bottom Width (RCB-LCB)= 7.3

Stream Width (REW-LEW)= 8.2

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		10 of 11
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)	2.0	1.7
Bank Angle (degrees)	33	34.5
Streambank length (0.1 m)	6.0	7.6
Length of Streambank Vegetated (0.1 m)	4.5	6.60
Length of Streambank Eroded (0.1 m)	1.5	1.0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.1	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.* 0.1	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	-0.6			
LBF	2.6	0.0		
LEW	2.9	0.60	0.01	
LCB	3.9	1.19	0.60	
STR (@1/4)	5.0	1.04	0.58	
STR (@1/2)	6.3	0.87	0.45	
STR (@3/4)	8.2	0.82	0.24	
RCB	9.2	0.92	0.18	
REW	9.8	0.84	0.00	
RBF	11.5	0		
RTB	16.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___16.6___

Bankfull width (RBF-LBF)=____ 8.9__

Channel Bottom Width (RCB-LCB)=____5.3

Stream Width (REW-LEW)=____6.9____

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC01	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		11 of 11
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	2.1	1.9
Bank Angle (degrees)	30	30
Streambank length (0.1 m)	4.3	4.0
Length of Streambank Vegetated (0.1 m)	3.6	3.9
Length of Streambank Eroded (0.1 m)	0.7	0.1
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / [moderate] / high	none / low / [moderate] / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus Sp.* 0.5	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	1.0			
LBF	2.8	0.0		
LEW	3.6	0.90	0.00	
LCB	4.0	1.15	0.30	
STR (@1/4)	5.4	1.42	0.52	
STR (@1/2)	7.0	1.53	0.63	
STR (@3/4)	9.0	1.45	0.55	
RCB	9.7	1.30	0.41	
REW	11.0	0.96	0.00	
RBF	11.6	0.44		
RTB	13.6			

Location Codes:

LTB left top bank

RTB right top bank
LBF left bankfull
RBF right bankfull

LCB left channel bottom
RCB right channel bottom
LEW left edge water

REW right edge water
STR stream

Bank top width (RTB-LTB) =___12.6__

Bankfull width (RBF-LBF)=_____8.8_

Channel Bottom Width (RCB-LCB)=___5.6

Stream Width (REW-LEW)=____ 7.4__

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

On Site Description Data

Section A

Project Site ID: BVC04		T_____, R_____, _____1/4 of Sec_____		Date: 14 APR 2008
Stream Name: Beaver Creek				Time: 17:32
Transect 1(Upstream)			**Transect 11(Downstream)**	
GPS Coordinates (utm):	Northing: 4810963	Easting: 0579684	Northing:	Easting:
Investigators: C. Foreman, G. McKee (Sections A, B, C), A. Wones, K. Shook, E. Krantz (Sections D, E, F, G, H, I, J)				

Section B

Preliminary Mean Stream Width (PMSW)

	Width Number											
	1	2	3	4	5	6	7	8	9	10	Sum	Avg. PMSW
Width (0.1m)	6.1	7.1	3.6	6.7	7.7	7.0	8.0	5.5	5.4	4.5	61.6	6.2

Transect Spacing *: 18.5

*If PMSW <10m space transects every 3 PMSW. If >10m, transects are spaced every 2 PMSW.

Total Reach Length: 184.9

Reach Length = 11 Transects, 10 distances apart X 3 PMSW = 30 PMSW or 20 PMSW if width >10m.

Section C

Water Quality

Reading	Time (2400)	Water Temperature (°C)	Air Temperature (oC)	Turbidity (NTU)	Secchi (cm)	Dissolved Oxygen (mg/L	Specific Conductance (µS/cm)	Conductivity (µS/cm)
Morning	11:28	7.0	-	-	-	-	-	-
Afternoon	18:43	16.03	-	11.8	-	9.20	5109	

Visual Observations

1) Odor (~~Yes~~ / No)	**2) Septic (~~Yes~~ / No)**	**3) Deadfish (~~Yes~~ / No)**	**4) Surface Film (~~Yes~~ / No)**
5) Color: Clear		**6) Ice Cover (~~Yes~~ / No)**	

Weather Conditions:	Current	Past 24 hrs
Clear/sunny	✓	✓
Partly cloudy	☐	☐
Intermittent showers	☐	☐
Steady rain	☐	☐
Heavy rain	☐	☐

Field Comments: Heavy silt deposition in pools.

Section D

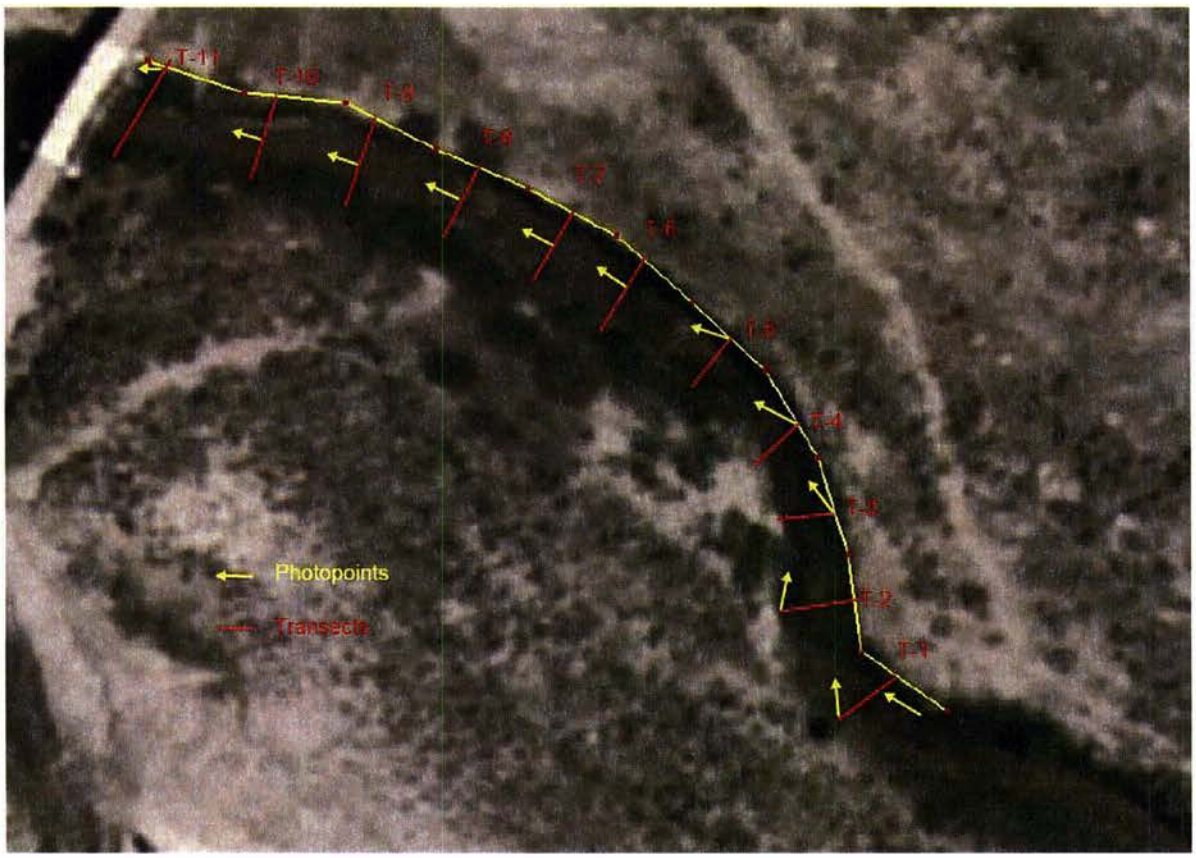
Habitats Available number of each (also place on map Section E)	Pool__2__ Run/Glide__2____ Riffle__3__ Other (describe) see Table 1 Lengths of Riffle(s):__22.0__, __22.0__, __10.7__, _____, _____. Nearest Transect # :__1,2__, __2,3__, __8__, _____, _____. Total Length (riffles) =____54.6____ Pool Forming Elements See Table 1= _____LS, F

Map, Slope Measurements, and Photo-documentation Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Date: 16 APR 2008

Section E cont.

Draw a map of the site with location of most upstream and most downstream transects. Include locations of photographic points, direction of photograph, and frame number.



Approximately 200 m.

Bed Substrate Composition

Project Site ID:BVC04	Stream Name: Beaver Creek	Date: 16 APR 2008

Section F

Organic Substrates

	Description	Tally	Number
Detritus	sticks, wood, coarse plant material (CPOM)		1
Muck-Mud	black, very fine organic (FPOM)		

Inorganic Substrates

	Diameter	Tally	Number
Clay	<0.004 (slick)		1
Silt	0.004-0.062		26
Sand	0.062-2 (gritty)		4
Very Fine Gravel	>2-4		3
Fine Gravel	>4-8		3
Medium Gravel	>8-16		3
Coarse Gravel	>16-32		5
Very Coarse Gravel	>32-64		5
Cobble	>64-128		4
Large Cobble	>128-256		
Boulder	>256-512		
Large Boulder	>512		
		Total Number:	55

Section G

Large Woody Debris Data

1

Project Site ID: BVC04 Stream Name: Beaver Creek m/d/yr: 04/16/2008 Page 1 of 1

Transect Spacing	Log Jam Number	LWD Number	Zone	Meander Location	Habitat Association	Angle	Length	Diameter
1-2	0	0						
2-3	0	0						
3-4	0	0						
4-5	0	1	2	IM	Run	0	4.5	0.25
5-6	1	1	2	OM	Riffle	90	3.0	0.15
5-6	1	2	2	OM	Riffle	45	1.5	0.10
5-6	1	3	2	OM	Riffle	35	1.8	0.25
5-6	1	4	2	OM	Riffle	125	2.0	0.10
5-6	1	5	2	OM	Riffle	45	1.6	0.15
6-7	0	0						
7-8	0	0						
8-9	0	1	2	SS	Riffle	45	2.0	0.17
8-9	0	2	2	SS	Riffle	45	2.2	0.15
9-10	0	0						
10-11	0	0						

Zone: Zone 1 is water surface at baseflow, Zone 2 is between baseflow surface and bankfull flow surface, Zone 3 is bankfull channel width above bankfull flow surface.
Meander Location: IM=inside meander, OM=outside meander, CO=crossover, SS=straight section
Habitat Association: PL=pool, RF=riffle, RN=run

LARGE WOODY DEBRIS CATEGORIES (≥10 cm small end diameter; ≥1.5 m length)				
Categories	**1**	**2**	**3**	**4**
Diameter Large End	0.1-<0.3m	0.3-0.6m	0.6-0.8m	>0.8m
Length	>1.5-5m	5-15m	>15m	-

Stream Shade and Canopy Cover Monitoring

Project Site ID:BVC04	Stream Name: Beaver Creek	Date: 16 APR 2008

Section H

Site Name:BVC04							Date: 4/16/2008
Reach Length: 220 m				Transect Interval: 22 m			Initials: AW
Transect	Left Bank	Center Upstream	Center Right	Center-downstream	Center Left	Right Bank	Comments:
1	0	0	0	0	0	5	RB = Shrubs
2	0	0	0	0	0	2	RB = Tree
3	0	0	0	0	0	5	RB = Tree
4	2	0	0	0	0	0	LB = Shrubs
5	6	0	0	0	0	0	LB = Shrubs
6	4	0	0	0	0	0	LB = Bank
7	8	0	0	0	0	3	LB = Bank RB = Shrub
8	6	0	0	0	0	0	LB = Bank
9	3	0	0	0	0	10	LB = Bank RB = Shrubs
10	2	0	0	0	0	4	LB = Forbs RB = Grass
11	5	13	0	0	4	4	LB, CU, CL = Bridge RB = Shrubs
Note: No leaves on trees and shrubs. Cover from shrubs reported here is more potential than actual cover at this time of year.							

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08		1 of 11
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	3.7	3.9
Bank Angle (degrees)	26.0	40.0
Streambank length (0.1 m)	8.0	6.0
Length of Streambank Vegetated (0.1 m)	8.0	5.4
Length of Streambank Eroded (0.1 m)	0	0.6
Length of Streambank Deposition (0.1 m)	0.4	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / [mature] / decadent / dead	seedling/sprout / young/sapling / mature / decadent / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.3			
LBF	5.1	0.0		
LEW	7.1	* 1.0	0.0	
LCB	7.9	1.1	0.18	
STR (@1/4)	9.1	1.2	0.19	
STR (@1/2)	10.1	1.2	0.21	
STR (@3/4)	11.6	1.4	0.20	
RCB	12.2	1.3	0.17	
REW	13.1	* 1.3	0.09	
RBF	13.5	0.4		
RTB	17.4			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___17.1____

Bankfull width (RBF-LBF)=____8.4____

Channel Bottom Width (RCB-LCB)=____4.4_____

Stream Width (REW-LEW)=____6.0_____

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number 2 of 11
Date: 4/16/08		
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	2.3	2.2
Bank Angle (degrees)	27	34
Streambank length (0.1 m)	4.6	4.8
Length of Streambank Vegetated (0.1 m)	4.0	3.6
Length of Streambank Eroded (0.1 m)	0.6	1.2
Length of Streambank Deposition (0.1 m)	0	0.4
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [not present]	seedling/sprout / young/sapling / [mature] / decadent / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.3			
LBF	1.8	0.0		
LEW	4.1	* 0.3	0.0	
LCB	4.6	0.4	0.20	
STR (@1/4)	5.4	0.3	0.12	
STR (@1/2)	6.4	0.3	0.12	
STR (@3/4)	7.5	0.4	0.17	
RCB	8.1	0.4	0.17	
REW	8.8	* 0.3	0.0	
RBF	10.0	0.0		
RTB	11.0			

Location Codes:

LTB left top bank

RTB right top bank
LBF left bankfull
RBF right bankfull

LCB left channel bottom
RCB right channel bottom
LEW left edge water

REW right edge water
STR stream

Bank top width (RTB-LTB) =___10.7_____

Bankfull width (RBF-LBF)=____8.2____

Channel Bottom Width (RCB-LCB)=____3.5_____

Stream Width (REW-LEW)=____4.7_____

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08		3 of 11
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.8	2.0
Bank Angle (degrees)	11	50
Streambank length (0.1 m)	11.3	2.4
Length of Streambank Vegetated (0.1 m)	10.7	1.2
Length of Streambank Eroded (0.1 m)	0.6	1.2
Length of Streambank Deposition (0.1 m)	0	0.4
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	1.0
Undercut Bank (0.1 m)	0	0.1
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / [decadent] / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	1.4			
LBF	10.6	0.0		
LEW	11.7	* 0.4	0.0	
LCB	12.0	0.4	0.06	
STR (@1/4)	12.7	0.5	0.11	
STR (@1/2)	13.7	0.5	0.12	
STR (@3/4)	14.9	0.5	0.13	
RCB	15.9	0.6	0.20	
REW	15.9	* 0.6	0.20	
RBF	16.6	0.0		
RTB	17.3			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 15.9

Bankfull width (RBF-LBF)= 5.9

Channel Bottom Width (RCB-LCB)= 4.0

Stream Width (REW-LEW)= 4.2

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08		4 of 11
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)	1.8	1.6
Bank Angle (degrees)	26.5	38.0
Streambank length (0.1 m)	4.7	3.0
Length of Streambank Vegetated (0.1 m)	3.5	2.6
Length of Streambank Eroded (0.1 m)	1.2	0.4
Length of Streambank Deposition (0.1 m)	0.6	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0			
LBF	3.0	0.0		
LEW	4.1	* 0.5	0.0	
LCB	4.5	0.6	0.15	
STR (@1/4)	6.0	0.5	0.09	
STR (@1/2)	7.5	0.4	0.10	
STR (@3/4)	9.1	0.4	0.10	
RCB	10.5	0.4	0.05	
REW	11.0	* 0.4	0	
RBF	12.3	-0.1		
RTB	13.1			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 13.1
Bankfull width (RBF-LBF)= 9.3
Channel Bottom Width (RCB-LCB)= 6.0
Stream Width (REW-LEW)= 6.9

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08		5 of 11
Habitat Type Along Transect (circle one): pool riffle [run]		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	2.5	2.2
Bank Angle (degrees)	48	40.0
Streambank length (0.1 m)	3.2	6.0
Length of Streambank Vegetated (0.1 m)	0.3	5.4
Length of Streambank Eroded (0.1 m)	2.9	0.6
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / [decadent] / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.3			
LBF	1.3	0.0		
LEW	2.5	0.8	0.00	
LCB	2.8	1.0	0.20	
STR (@1/4)	9.7	1.0	0.28	
STR (@1/2)	5.5	0.8	0.15	
STR (@3/4)	7.3	0.7	0.12	
RCB	8.7	0.7	0.06	
REW	9.0	0.7	0.00	
RBF	11.0	0.0		
RTB	14.3			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 14.0

Bankfull width (RBF-LBF)= 9.7

Channel Bottom Width (RCB-LCB)= 5.9

Stream Width (REW-LEW)= 6.5

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08		6 of 11
Habitat Type Along Transect (circle one):	[pool] riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)	3.5	3.6
Bank Angle (degrees)	46	20
Streambank length (0.1 m)	4.6	6.3
Length of Streambank Vegetated (0.1 m)	1.6	5.6
Length of Streambank Eroded (0.1 m)	2.8	0.7
Length of Streambank Deposition (0.1 m)	0	2.5
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / [decadent] / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.0			
LBF	1.9	0		
LEW	2.7	0.4*	0.00	
LCB	3.2	0.6	0.24	
STR (@1/4)	4.4	0.7	0.31	
STR (@1/2)	6.1	0.7	0.26	
STR (@3/4)	8.0	0.6	0.20	
RCB	8.8	0.6	0.10	
REW	10.0	0.5*	0.00	
RBF	13.1	0.0		
RTB	12.1			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 17.1
Bankfull width (RBF-LBF) = 11.3
Channel Bottom Width (RCB-LCB) = 5.6
Stream Width (REW-LEW) = 7.3

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08		7 of 11
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)	3.2	3.1
Bank Angle (degrees)	55	50
Streambank length (0.1 m)	4.0	5.2
Length of Streambank Vegetated (0.1 m)	1.8	4.2
Length of Streambank Eroded (0.1 m)	2.2	1.0
Length of Streambank Deposition (0.1 m)	0	0.5
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.2
Undercut Bank (0.1 m)	0	0.25
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / [young/sapling] / mature / decadent / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	1.6			
LBF	3.4	0.0		
LEW	3.7	0.3	0.00	
LCB	4.0	0.5	0.20	
STR (@1/4)	6.4	0.8	0.60	
STR (@1/2)	8.5	0.6	0.61	
STR (@3/4)	11.4	0.7	0.73	
RCB	13.7	0.4	0.42	
REW	14.3	0.2	0.04	
RBF	14.5	-0.5		
RTB	17.7			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 16.1

Bankfull width (RBF-LBF)= 11.1

Channel Bottom Width (RCB-LCB)= 9.7

Stream Width (REW-LEW)= 10.7

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number 8 of 11
Date: 4/16/08		
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	3.2	3.1
Bank Angle (degrees)	55	25
Streambank length (0.1 m)	3.9	8.3
Length of Streambank Vegetated (0.1 m)	1.3	5.8
Length of Streambank Eroded (0.1 m)	2.6	2.5
Length of Streambank Deposition (0.1 m)	0	0.4
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	1.4			
LBF	2.4	0.0		
LEW	3.4	0.6*	0.10	
LCB	3.5	0.6	0.04	
STR (@1/4)	4.3	0.6	0.18	
STR (@1/2)	8.5	0.5	0.12	
STR (@3/4)	10.6	0.5	0.18	
RCB	11.6	0.5	0.16	
REW	11:6	0.5*	0.16	
RBF	13.7	0.0		
RTB	18.3			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 16.9

Bankfull width (RBF-LBF)= 11.3

Channel Bottom Width (RCB-LCB)= 8.1

Stream Width (REW-LEW)= 8.1

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number 9 of 11
Date: 4/16/08		
Habitat Type Along Transect (circle one):	[pool] riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)	3.2	3.2
Bank Angle (degrees)	48	24.5
Streambank length (0.1 m)	4.1	9.0
Length of Streambank Vegetated (0.1 m)	2.1	8.8
Length of Streambank Eroded (0.1 m)	2.0	0.2
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.7
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / [young/sapling] / mature / decadent / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	3.7			
LBF	5.5	0.0		
LEW	6.5	0.2	0.05	
LCB	7.0	0.2	0.10	
STR (@1/4)	8.8	0.4	0.31	
STR (@1/2)	10.4	0.3	0.35	
STR (@3/4)	12.2	0.4	0.31	
RCB	14.3	0.2	0.14	
REW	14.7	0.0	0.01	
RBF	14.9	-0.4		
RTB	22.6			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 18.9

Bankfull width (RBF-LBF)= 9.4

Channel Bottom Width (RCB-LCB)= 7.3

Stream Width (REW-LEW)= 8.2

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number 10 of 11
Date: 4/16/08		
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	1.7	1.8
Bank Angle (degrees)	25	28
Streambank length (0.1 m)	3.0	4.2
Length of Streambank Vegetated (0.1 m)	2.7	3.8
Length of Streambank Eroded (0.1 m)	0.3	0.4
Length of Streambank Deposition (0.1 m)	0.8	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / woodland/forested / [pasture/rangeland] / barnyard / prairie / developed / wetland / other-specify / shrub	cropland / woodland/forested / [pasture/rangeland] / barnyard / prairie / developed / wetland / other-specify / shrub
Animal Vegetation Use (circle one)	none / moderate / [low] / high	none / [moderate] / low / high
Riparian Vegetation Type (Dominant)	sedge/rush / willows / cottonwoods / silver maple / grass/forb / shrubs / green ash / other_____	sedge/rush / willows / cottonwoods / silver maple / [grass/forb] / shrubs / green ash / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / decadent / young/sapling / dead / mature / [none]	seedling/sprout / decadent / young/sapling / dead / mature / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.7			
LBF	1.8	0.0		
LEW	3.2	0.5	0.02	
LCB	3.5	0.6	0.10	
STR (@1/4)	4.9	0.7	0.26	
STR (@1/2)	7.3	0.7	0.35	
STR (@3/4)	8.5	0.6	0.30	
RCB	10.1	0.6	0.17	
REW	10.3	0.5	0.00	
RBF	10.4	0.1		
RTB	13.1			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 12.4

Bankfull width (RBF-LBF)= 8.6

Channel Bottom Width (RCB-LCB)= 6.6

Stream Width (REW-LEW)= 7.1

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 4/16/08		11 of 11
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	P
Bank Height (0.1 m)	1.9	2.1
Bank Angle (degrees)	30	37
Streambank length (0.1 m)	3.2	3.7
Length of Streambank Vegetated (0.1 m)	1.7	2.7
Length of Streambank Eroded (0.1 m)	1.5	1.0
Length of Streambank Deposition (0.1 m)	2.0	0.5
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	0	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.0			
LBF	0.6	0.0		
LEW	3.0	0.6	0.01	
LCB	3.7	0.8	0.20	
STR (@1/4)	4.9	0.8	0.24	
STR (@1/2)	6.1	1.0	0.35	
STR (@3/4)	7.9	1.0	0.31	
RCB	8.8	1.0	0.20	
REW	9.6	0.8	0.00	
RBF	7.3	0.4		
RTB	12.5			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 12.5

Bankfull width (RBF-LBF)= 6.7

Channel Bottom Width (RCB-LCB)= 5.2

Stream Width (REW-LEW)= 6.5

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

On Site Description Data

Section A

Project Site ID: BVC04		T_____, R_____, _____1/4 of Sec_____		Date: 8 JUL 2008
Stream Name: Beaver Creek				Time: 12:05
Transect 1(Upstream)			**Transect 11(Downstream)**	
GPS Coordinates (utm): WGS 84	Northing: 4811175.61	Easting: 0579834.93	Northing: 4811171.63	Easting: 0579653.03
Investigators: A. Wones, K. Shook, L. Dunn				

Section B

Preliminary Mean Stream Width (PMSW)

	Width Number											
	1	2	3	4	5	6	7	8	9	10	Sum	Avg. PMSW
Width (0.1m)	6.1	7.1	3.6	6.7	7.7	7.0	8.0	5.5	5.4	4.5	61.6	6.2

Transect Spacing *: 18.5

*If PMSW <10m space transects every 3 PMSW. If >10m, transects are spaced every 2 PMSW.

Total Reach Length: 184.9

Reach Length = 11 Transects, 10 distances apart X 3 PMSW = 30 PMSW or 20 PMSW if width >10m.

Section C

Water Quality

Reading	Time (2400)	Water Temperature (°C)	Air Temperature (oC)	Turbidity (NTU)	Secchi (cm)	Dissolved Oxygen (mg/L	Specific Conductance (µS/cm)	Conductivity (µS/cm)
Morning			-	-	-	-	-	-
Afternoon	12:05	24	25	-	-	-	-	-

Visual Observations

1) Odor (~~Yes~~ / No)	**2) Septic (~~Yes~~ / No)**	**3) Deadfish (~~Yes~~ / No)**	**4) Surface Film (~~Yes~~ / No)**
5) Color: Clear, Olive drab		**6) Ice Cover (~~Yes~~ / No)**	

Weather Conditions:	Current	Past 24 hrs
Clear/sunny	☐	☐
Partly cloudy	✓	☐
Intermittent showers	☐	✓
Steady rain	☐	☐
Heavy rain	☐	☐

Field Comments: Heavy silt deposition in pools.

Section D

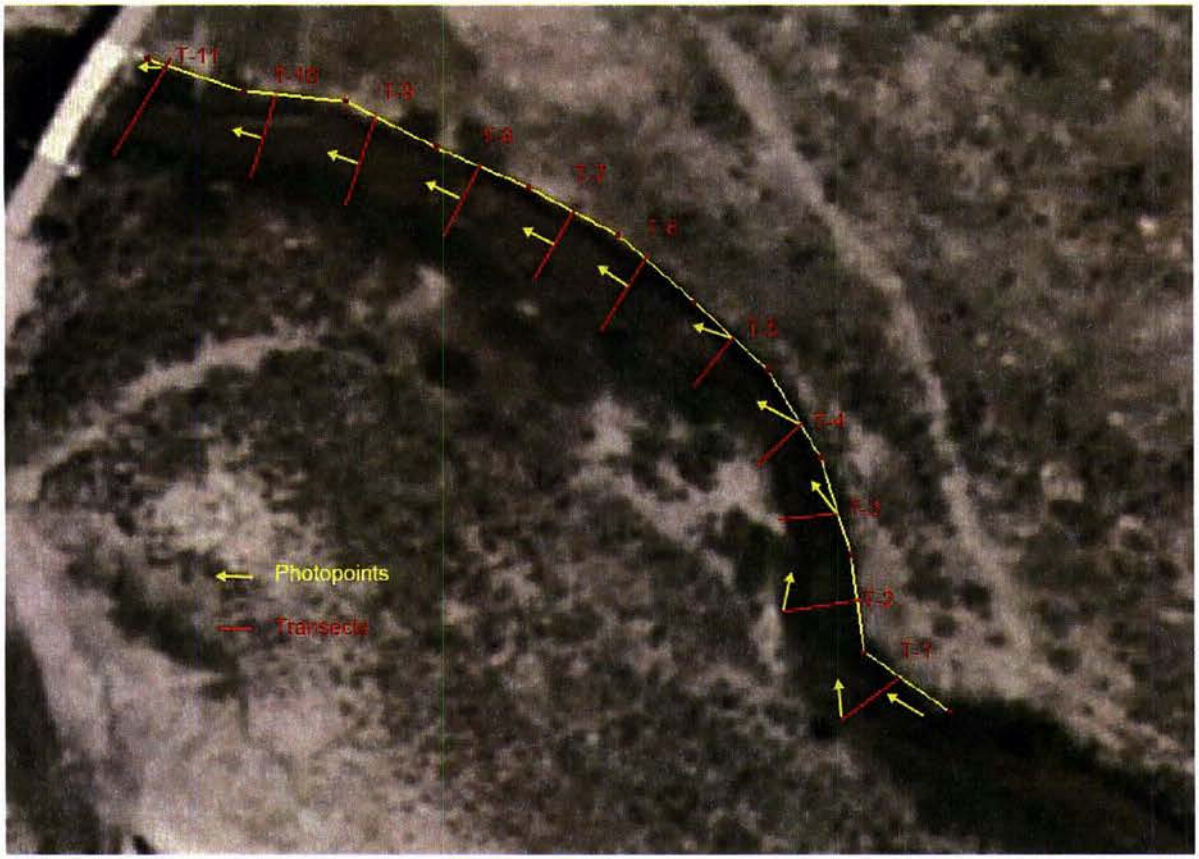
Habitats Available number of each (also place on map Section E)	Pool 1 Run/Glide 3 Riffle 3 Other (describe) see Table 1 Lengths of Riffle(s): 25.3, 18.6 *, 14.0*. * Two sides of an island. Nearest Transect # : 2, 4, 7, _____, _____. Total Length (riffles) = 57.9 Pool Forming Elements See Table 1= ____ F

Map, Slope Measurements, and Photo-documentation Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Date: 8 July 2008

Section E cont.

Draw a map of the site with location of most upstream and most downstream transects. Include locations of photographic points, direction of photograph, and frame number.



Approximately 200 m.

Bed Substrate Composition

Project Site ID:BVC04	Stream Name: Beaver Creek	Date: 8JUL 2008

Section F

Organic Substrates

	Description	Tally	Number
Detritus	sticks, wood, coarse plant material (CPOM)		
Muck-Mud	black, very fine organic (FPOM)		20

Inorganic Substrates

	Diameter	Tally	Number
Clay	<0.004 (slick)		1
Silt	0.004-0.062		15
Sand	0.062-2 (gritty)		10
Very Fine Gravel	>2-4		0
Fine Gravel	>4-8		7
Medium Gravel	>8-16		9
Coarse Gravel	>16-32		13
Very Coarse Gravel	>32-64		18
Cobble	>64-128		11
Large Cobble	>128-256		1
Boulder	>256-512		
Large Boulder	>512		
		Total Number:	105

Section G

Large Woody Debris Data

1

Project Site ID: BVC04 Stream Name: Beaver Creek m/d/yr: 07/11/2008 Page 1 of 1

Transect Spacing	Log Jam Number	LWD Number	Zone	Meander Location	Habitat Association	Angle	Length	Diameter
1-2	0	0						
2-3	0	0						
3-4	0	0						
4-5	0	0						
5-6	0	0						
6-7	0	0						
7-8	0	1	2	SS	Riffle	250	2.0	0.12
8-9	0	0						
9-10	0	0						
10-11	0	2	3	SS	Pool	180	8.0	0.4

Zone: Zone 1 is water surface at baseflow, Zone 2 is between baseflow surface and bankfull flow surface, Zone 3 is bankfull channel width above bankfull flow surface.

Meander Location: IM=inside meander, OM=outside meander, CO=crossover, SS=straight section

Habitat Association: PL=pool, RF=riffle, RN=run

LARGE WOODY DEBRIS CATEGORIES (≥10 cm small end diameter; ≥1.5 m length)				
Categories	**1**	**2**	**3**	**4**
Diameter Large End	0.1-<0.3m	0.3-0.6m	0.6-0.8m	>0.8m
Length	>1.5-5m	5-15m	>15m	-

Stream Shade and Canopy Cover Monitoring

Project Site ID:BVC04	Stream Name: Beaver Creek	Date: 8 JUL 2008

Section H

Site Name:BVC04							Date: 7/8/2008
Reach Length: 185 m				Transect Interval: 18.5 m			Initials: KS, LD
Transect	Left Bank	Center Upstream	Center Right	Center-downstream	Center Left	Right Bank	Comments:
1	0	0	0	0	0	8	RB = Shrubs
2	0	0	0	0	0	0	RB = Tree
3	2	0	0	0	0	1	RB = Tree
4	4	0	0	0	0	0	LB = Shrubs
5	8	0	0	0	0	4	LB = Shrubs
6	5	0	0	0	0	3	LB = Bank
7	13	0	0	0	0	3	LB = Bank RB = Shrub
8	8	0	0	0	0	9	LB = Bank
9	3	0	0	0	0	13	LB = Bank RB = Shrubs
10	11	0	0	0	0	11	LB = Forbs RB = Grass
11	12	16	2	0	9	12	LB, CU, CL = Bridge RB = Shrubs
Note: Cover in Transect 11 from bridge.							

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 7/8/08		1 of 11
Habitat Type Along Transect (circle one): pool riffle [run]		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	2.1	2.8
Bank Angle (degrees)	14	57
Streambank length (0.1 m)	8.3	5.0
Length of Streambank Vegetated (0.1 m)	7.3	4.0
Length of Streambank Eroded (0.1 m)	0	1.0
Length of Streambank Deposition (0.1 m)	1.0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.1	0.3
Undercut Bank (0.1 m)	0	0.3
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus Sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.4			
LBF	7.8	0.00		
LEW	9.3	0.58	0.00	
LCB	10.7	0.90	0.32	
STR (@1/4)	11.3	1.31	0.45	
STR (@1/2)	11.8	0.90	0.40	
STR (@3/4)	12.4	0.90	0.40	
RCB	13.3	1.60	0.39	
REW	13.6	0.81	0.35	
RBF	13.7	0.10		
RTB	16.5			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___16.1_____

Bankfull width (RBF-LBF)=____ 6.0___

Channel Bottom Width (RCB-LCB)=____ 2.6

Stream Width (REW-LEW)=___ 4.3____

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		2 of 11
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	2.2	2.3
Bank Angle (degrees)	**16**	27
Streambank length (0.1 m)	8.1	4.6
Length of Streambank Vegetated (0.1 m)	8.5	3.1
Length of Streambank Eroded (0.1 m)	0.5	1.0
Length of Streambank Deposition (0.1 m)	0	0.5
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.1	0.1
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [not present]	seedling/sprout / young/sapling / mature / decadent / dead / [not present]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus Sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	1.0			
LBF	6.1	0.00		
LEW	8.5	0.25	0.00	
LCB	8.9	0.38	0.11	
STR (@1/4)	9.8	0.41	0.15	
STR (@1/2)	10.6	0.47	0.22	
STR (@3/4)	11.6	0.46	0.17	
RCB	12.0	0.47	0.12	
REW	13.1	0.38	0.00	
RBF	14.2	-0.02		
RTB	16.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 15.0

Bankfull width (RBF-LBF)= 8.2

Channel Bottom Width (RCB-LCB)= 3.1

Stream Width (REW-LEW)= 4.6

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number 3 of 11
Date: 7/11/08		
Habitat Type Along Transect (circle one): pool riffle [run]		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	2.7	2.4
Bank Angle (degrees)	30	25
Streambank length (0.1 m)	5.3	6.3
Length of Streambank Vegetated (0.1 m)	5.0	4.3
Length of Streambank Eroded (0.1 m)	0.3	1.0
Length of Streambank Deposition (0.1 m)	0	1.0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.1	0.1
Undercut Bank (0.1 m)	0.2	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / [decadent] / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.5			
LBF	4.0	0.00		
LEW	4.6	0.31	0.05	
LCB	5.1	0.69	0.31	
STR (@1/4)	6.2	0.58	0.29	
STR (@1/2)	7.6	0.44	0.19	
STR (@3/4)	9.0	0.45	0.15	
RCB	9.8	0.43	0.16	
REW	10.3	0.33	0.00	
RBF	12.6	-0.34		
RTB	15.5			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 15.0

Bankfull width (RBF-LBF)= 8.6

Channel Bottom Width (RCB-LCB)= 4.7

Stream Width (REW-LEW)= 5.7

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number 4 of 11
Date: 7/11/08		
Habitat Type Along Transect (circle one): pool [riffle] run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)	3.7	3.7
Bank Angle (degrees)	45	22
Streambank length (0.1 m)	4.7	7.3
Length of Streambank Vegetated (0.1 m)	1.0	7.30
Length of Streambank Eroded (0.1 m)	3.7	0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.2
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / [young/sapling] / mature / decadent / dead / none
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.3			
LBF	3.0	0.0		
LEW	3.4	0.54	0.06	
LCB	3.7	0.74	0.31	
STR (@1/4)	4.6	0.79	0.36	
STR (@1/2)	6.4	0.63	0.12	
STR (@3/4)	8.4	0.71	0.21	
RCB	9.2	0.76	0.17	
REW	10.4	0.67	0.00	
RBF	11.1	0.05		
RTB	17.6			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) =___17.3_____

Bankfull width (RBF-LBF)=____ _8.1___

Channel Bottom Width (RCB-LCB)=____ _5.5____

Stream Width (REW-LEW)=____ 7.0___

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number 5 of 11
Date: 7/11/08		
Habitat Type Along Transect (circle one): pool riffle [run]		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	3.5	3.2
Bank Angle (degrees)	55	21
Streambank length (0.1 m)	4.4	8.0
Length of Streambank Vegetated (0.1 m)	2.0	7.5
Length of Streambank Eroded (0.1 m)	2.4	0.5
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.2
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / [young/sapling] / mature / decadent / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	0.7			
LBF	2.2	0.0		
LEW	3.0	0.50	0.00	
LCB	3.3	0.84	0.32	
STR (@1/4)	4.6	0.91	0.49	
STR (@1/2)	6.8	0.75	0.38	
STR (@3/4)	8.6	0.50	0.26	
RCB	9.8	0.48	0.21	
REW	10.7	0.40	0.00	
RBF	13.4	0.0		
RTB	17.7			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 17.0

Bankfull width (RBF-LBF)= 11.2

Channel Bottom Width (RCB-LCB)= 6.6

Stream Width (REW-LEW)= 7.7

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number 6 of 11
Date: 7/11/08		
Habitat Type Along Transect (circle one): pool riffle run		

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	3.7	3.9
Bank Angle (degrees)	53	40
Streambank length (0.1 m)	4.6	5.7
Length of Streambank Vegetated (0.1 m)	4.1	5.7
Length of Streambank Eroded (0.1 m)	0.5	0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0.1	2.0
Undercut Bank (0.1 m)	0.1	0.3
Riparian landuse (circle one)	Cropland / pasture/rangeland / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / pasture/rangeland / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / moderate / high	none / low / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / none	seedling/sprout / young/sapling / mature / decadent / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	8.0			
LBF	10.3	0		
LEW	11.0	0.52	0.06	
LCB	11.3	0.85	0.38	
STR (@1/4)	13.0	0.97	0.52	
STR (@1/2)	14.6	1.02	0.53	
STR (@3/4)	18.4	1.02	0.50	
RCB	20.0	1.07	0.45	
REW	20.9	0.67	0.00	
RBF	21.5	0.0		
RTB	25.5			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 17.5

Bankfull width (RBF-LBF)= 11.2

Channel Bottom Width (RCB-LCB)= 8.7

Stream Width (REW-LEW)= 9.9

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		7 of 11
Habitat Type Along Transect (circle one): pool	riffle	run

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	3.4	3.6
Bank Angle (degrees)	60	29
Streambank length (0.1 m)	3.9	8.0
Length of Streambank Vegetated (0.1 m)	0.1	8.0
Length of Streambank Eroded (0.1 m)	3.8	0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.3
Undercut Bank (0.1 m)	0	0.4
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / young/sapling / mature / decadent / dead / [none]
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	13.0			
LBF	14.1	0.0		
LEW	14.5	0.68	0.00	
LCB	14.9	0.84	0.19	
STR (@1/4)	15.9	0.99	0.34	
STR (@1/2)	22.2	1.01	0.29	
STR (@3/4)	23.6	1.13	0.23	
RCB	24.4	1.11	0.33	
REW	24.6	1.17	0.30	
RBF	25.3	0.02		
RTB	31.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 18.0

Bankfull width (RBF-LBF)= 11.2

Channel Bottom Width (RCB-LCB)= 9.5

Stream Width (REW-LEW)= 10.1

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number 8 of 11
Date: 7/11/08		
Habitat Type Along Transect (circle one):	[pool] riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	P
Bank Height (0.1 m)	3.2	3.3
Bank Angle (degrees)	55	30
Streambank length (0.1 m)	4.4	7.6
Length of Streambank Vegetated (0.1 m)	3.4	7.2
Length of Streambank Eroded (0.1 m)	1.0	0
Length of Streambank Deposition (0.1 m)	0	0.4
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.1
Undercut Bank (0.1 m)	0	0
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / [shrubs] / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / [young/sapling] / mature / decadent / dead / none
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	1.0			
LBF	2.8	0.0		
LEW	3.1	1.05	0.00	
LCB	3.5	0.61	0.31	
STR (@1/4)	5.0	0.70	0.34	
STR (@1/2)	7.4	0.89	0.52	
STR (@3/4)	10.5	0.85	0.50	
RCB	11.7	0.70	0.27	
REW	12.5	0.60	0.11	
RBF	13.0	0.0		
RTB	18.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 17.0

Bankfull width (RBF-LBF)= 10.2

Channel Bottom Width (RCB-LCB)= 8.2

Stream Width (REW-LEW)= 9.4

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 7/8/08		9 of 11
Habitat Type Along Transect (circle one):	[pool] riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	3.8	3.7
Bank Angle (degrees)	40	26
Streambank length (0.1 m)	5.2	8.4
Length of Streambank Vegetated (0.1 m)	4.1	8.4
Length of Streambank Eroded (0.1 m)	1.1	0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.2
Undercut Bank (0.1 m)	0	0.1
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / [grass/forb] / green ash / willows / silver maple / [shrubs] / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / [none]	seedling/sprout / [young/sapling] / mature / decadent / dead
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	Juncus sp.	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	1.0			
LBF	3.5	0.0		
LEW	4.2	0.60	0.02	
LCB	4.3	1.05	0.42	
STR (@1/4)	7.2	0.90	0.44	
STR (@1/2)	9.3	1.02	0.55	
STR (@3/4)	11.2	1.10	0.40	
RCB	12.4	0.95	0.28	
REW	12.9	0.90	0.20	
RBF	13.1	0.0		
RTB	20.0			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 19.0

Bankfull width (RBF-LBF)= 9.6

Channel Bottom Width (RCB-LCB 8.1

Stream Width (REW-LEW)= 8.7

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 7/11/08		10 of 11
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	A	A
Bank Height (0.1 m)	3.5	3.7
Bank Angle (degrees)	20.5	28
Streambank length (0.1 m)	3.0	40
Length of Streambank Vegetated (0.1 m)	10.7	6.8
Length of Streambank Eroded (0.1 m)	10.7	6.8
Length of Streambank Deposition (0.1 m)	0.8	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	0.2
Undercut Bank (0.1 m)	0	0.2
Riparian landuse (circle one)	Cropland / pasture/rangeland / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / pasture/rangeland / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / low / moderate / high	none / low / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / young/sapling / mature / decadent / dead / none	seedling/sprout / young/sapling / mature / decadent / dead / none
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	1.5			
LBF	9.9	0.0		
LEW	10.3	0.55	0.01	
LCB	11.5	0.82	0.31	
STR (@1/4)	12.5	0.85	0.36	
STR (@1/2)	14.3	0.95	0.41	
STR (@3/4)	16.3	1.04	0.38	
RCB	17.2	1.00	0.32	
REW	17.9	0.75	0.01	
RBF	18.3	0.0		
RTB	22.5			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 21.0

Bankfull width (RBF-LBF) = 8.4

Channel Bottom Width (RCB-LCB) = 5.7

Stream Width (REW-LEW) = 7.6

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Transect Data

Project Site ID: BVC04	Stream Name: Beaver Creek	Transect Number
Date: 7/8/08		11 of 11
Habitat Type Along Transect (circle one):	pool riffle run	

Section I

Streambank and Riparian Features	Left Bank	Right Bank
Bank Substrate (dominant)	Silt/Clay	Silt/Clay
Bank Slumpage (present, p or absent, a)	P	A
Bank Height (0.1 m)	3.2	3.8
Bank Angle (degrees)	35	37
Streambank length (0.1 m)	5.4	6.5
Length of Streambank Vegetated (0.1 m)	4.4	5.5
Length of Streambank Eroded (0.1 m)	1.0	1.0
Length of Streambank Deposition (0.1 m)	0	0
Riparian Buffer Width (m)	0	0
Overhanging Vegetation (0.1 m)	0	1.0
Undercut Bank (0.1 m)	0	0.1
Riparian landuse (circle one)	Cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify	cropland / [pasture/rangeland] / prairie / wetland / shrub / woodland/forested / barnyard / developed / other-specify
Animal Vegetation Use (circle one)	none / [low] / moderate / high	none / [low] / moderate / high
Riparian Vegetation Type (Dominant)	sedge/rush / cottonwoods / grass/forb / green ash / [willows] / silver maple / shrubs / other_____	sedge/rush / cottonwoods / grass/forb / green ash / willows / silver maple / shrubs / other_____
Riparian Age Class(es) of Trees, if present	seedling/sprout / [young/sapling] / mature / decadent / dead / none	seedling/sprout / [young/sapling] / mature / decadent / dead / none
Submergent Macrophytes (0.1 m)	0	
Emergent Macrophytes (0.1 m)	*Juncus sp.*	

Section J

Transect Data and Depth Velocity Data
(record units under the heading for each column)

Location Code	Station	Bankfull Depth	Water Depth	Velocity
LTB	5.0			
LBF	6.8	0.0		
LEW	8.6	0.78	0.01	
LCB	9.1	0.90	0.24	
STR (@1/4)	11.0	1.21	0.40	
STR (@1/2)	12.9	1.32	0.39	
STR (@3/4)	14.3	1.52	0.42	
RCB	15.8	1.50	0.28	
REW	16.2	1.31	0.14	
RBF	16.6	0.0		
RTB	20.9			

Location Codes:

LTB left top bank
RTB right top bank
LBF left bankfull
RBF right bankfull
LCB left channel bottom
RCB right channel bottom
LEW left edge water
REW right edge water
STR stream

Bank top width (RTB-LTB) = 15.9

Bankfull width (RBF-LBF)= 9.8

Channel Bottom Width (RCB-LCB)= 6.7

Stream Width (REW-LEW)= 7.7

* Bankfull Depth for LEW or REW should equal L(R)CB Bankfull Depth minus L(R)CB Water Depth.

Photo 1. Site BVC01 looking upstream at Transect 1, April 15, 2008.

Photo 2. Site BVC01 looking upstream at Transect 2, April 15, 2008.

Photo 3. Site BVC01 looking upstream at Transect 3, April 15, 2008.

Photo 4. Site BVC01 looking upstream at Transect 4, April 15, 2008.

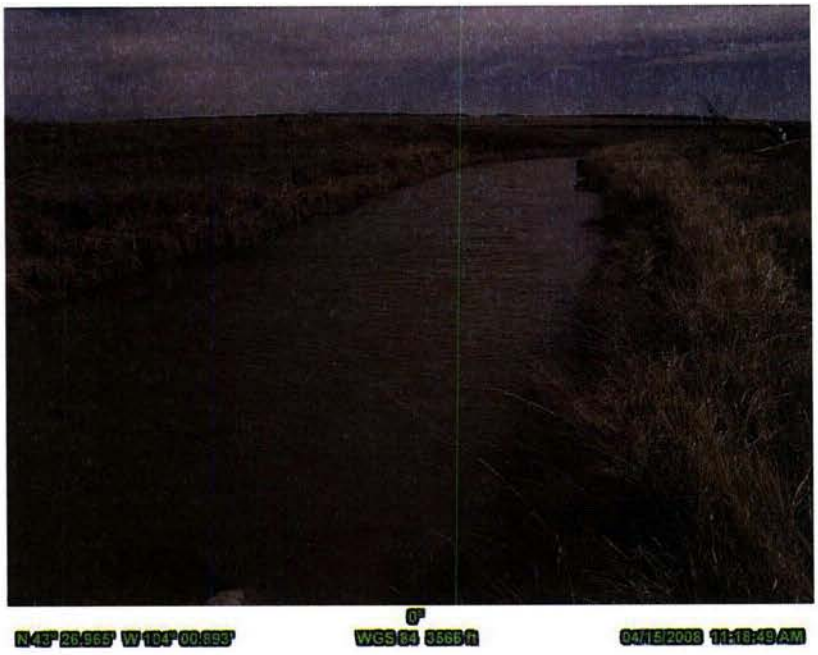


Photo 5. Site BVC01 looking upstream at Transcect 5, April 15, 2008.

Photo 6. Site BVC01 f looking upstream at Transcect 6, April 15, 2008.

Photo 7. Site BVC01 looking upstream at Transcect 7, April 15, 2008.

Photo 8. Site BVC01 looking upstream at Transect 8, April 15, 2008.

Photo 9. Site BVC01 looking upstream at Transcect 9, April 15, 2008.

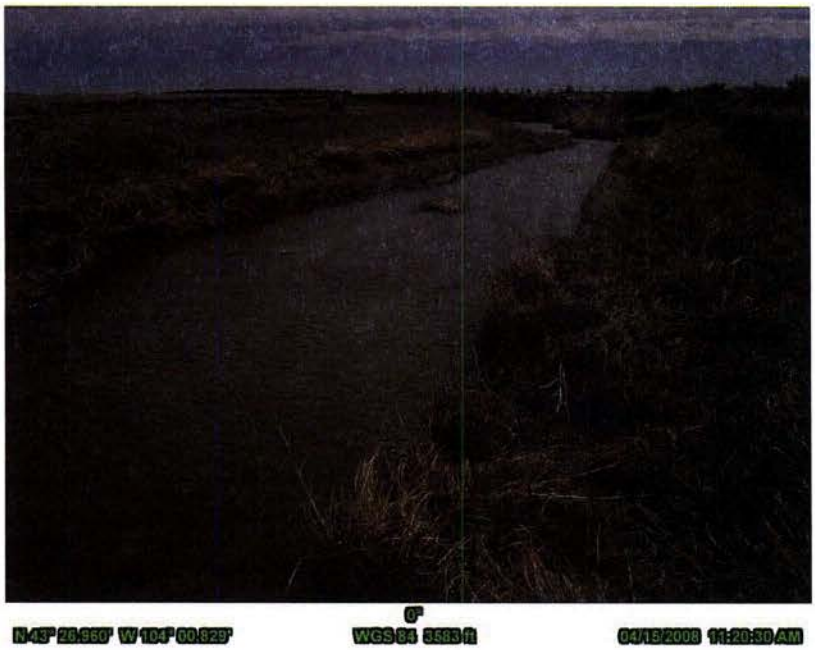


Photo 10. Site BVC01 looking upstream at Transcect 10, April 15, 2008.

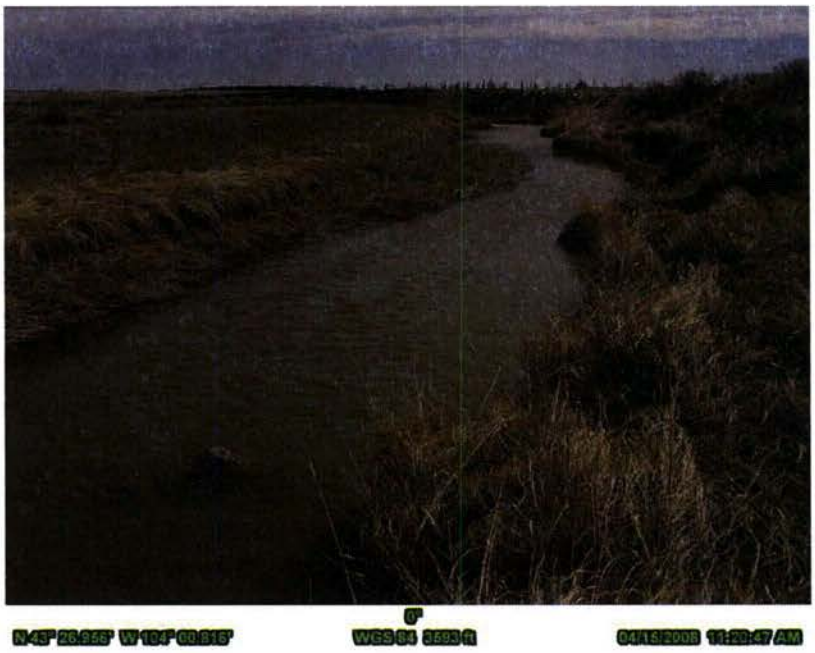


Photo 11. Site BVC01 looking upstream at Transect 11 April 15, 2008.

Photo 12. Site BVC01 looking upstream from Transect 11 April 15, 2008.

Photo 13. Site BVC04 looking upstream from Transect 1 April 16, 2008.

Photo 14. Site BVC04 looking upstream from Transect 2 April 16, 2008.

Photo 15. Site BVC04 looking upstream from Transect 3 April 16, 2008.

Photo 16. Site BVC04 looking upstream from Transect 4 April 16, 2008.

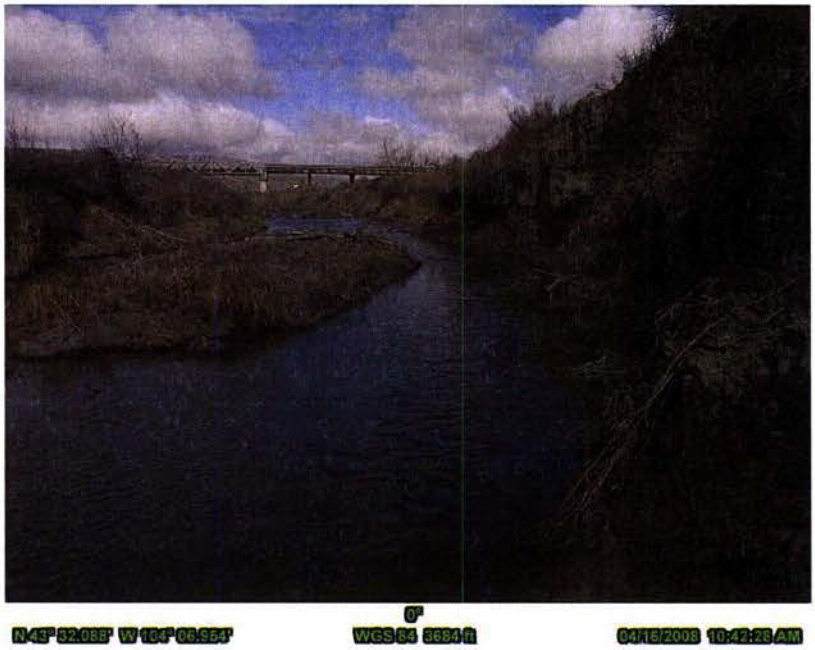


Photo 17. Site BVC04 looking upstream from Transect 5 April 16, 2008.

Photo 18. Site BVC04 looking upstream from Transect 6 April 16, 2008.

Photo 19. Site BVC04 looking upstream from Transect 7 April 16, 2008.

Photo 20. Site BVC04 looking upstream from Transect 8 April 16, 2008.

Photo 21. Site BVC04 looking upstream from Transect 9 April 16, 2008.

Photo 22. Site BVC04 looking upstream from Transect 10 April 16, 2008.

Photo 23. Site BVC04 looking upstream from Transect 11 April 16, 2008.

Photo 24. Site BVC01 looking upstream at Transect 1, July 9, 2008.

Photo 25. Site BVC01 looking upstream at Transect 2, July 9, 2008.

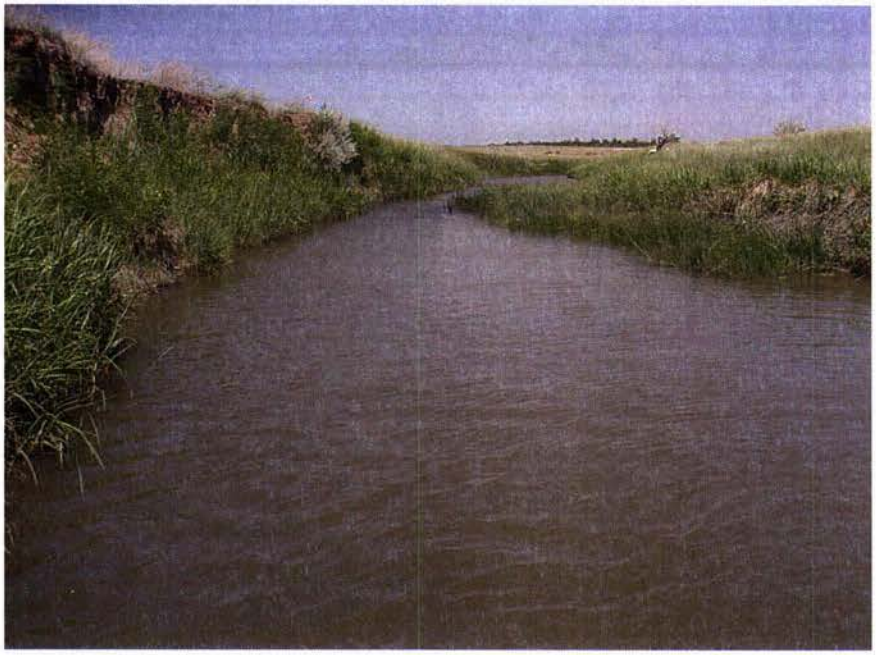


Photo 26. Site BVC01 looking upstream at Transect 3, July 9, 2008.

Photo 27. Site BVC01 looking upstream at Transect 4, July 9, 2008.

Photo 28. Site BVC01 looking upstream at Transect 5, July 9, 2008.

Photo 29. Site BVC01 f looking upstream at Transect 6, July 9, 2008.

Photo 30. Site BVC01 looking upstream at Transect 7, July 9, 2008.

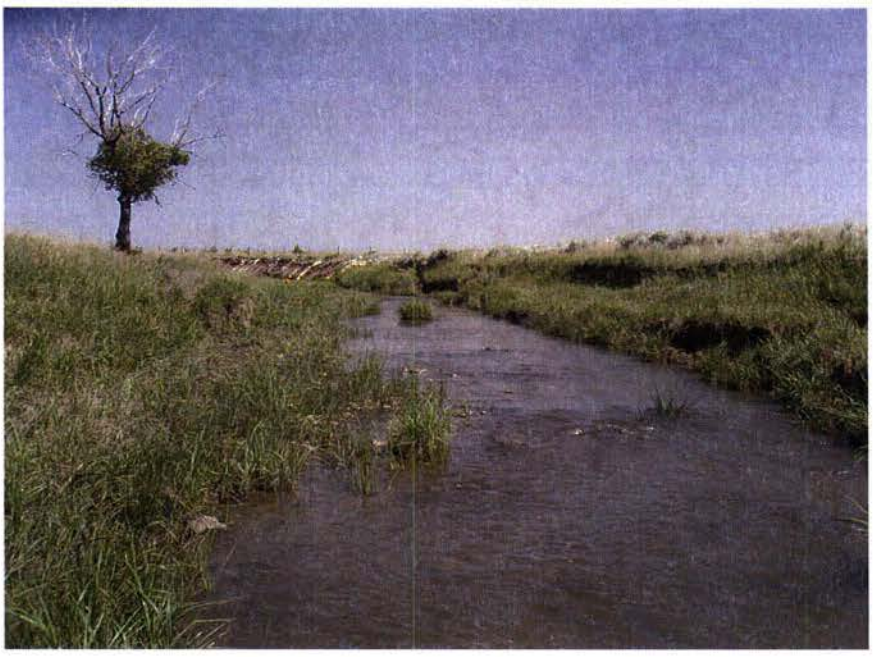


Photo 31. Site BVC01 looking upstream at Transect 8, July 9, 2008.

Photo 32. Site BVC01 looking upstream at Transect 9, July 9, 2008.

Photo 33. Site BVC01 looking upstream at Transect 10, July 9, 2008.

Photo 34. Site BVC01 looking upstream at Transect 11, July 9, 2008.

Photo 35. Site BVC04 looking upstream at Transect 1, July 8, 2008.

Photo 36. Site BVC04 looking upstream from Transect 1 July 8, 2008.

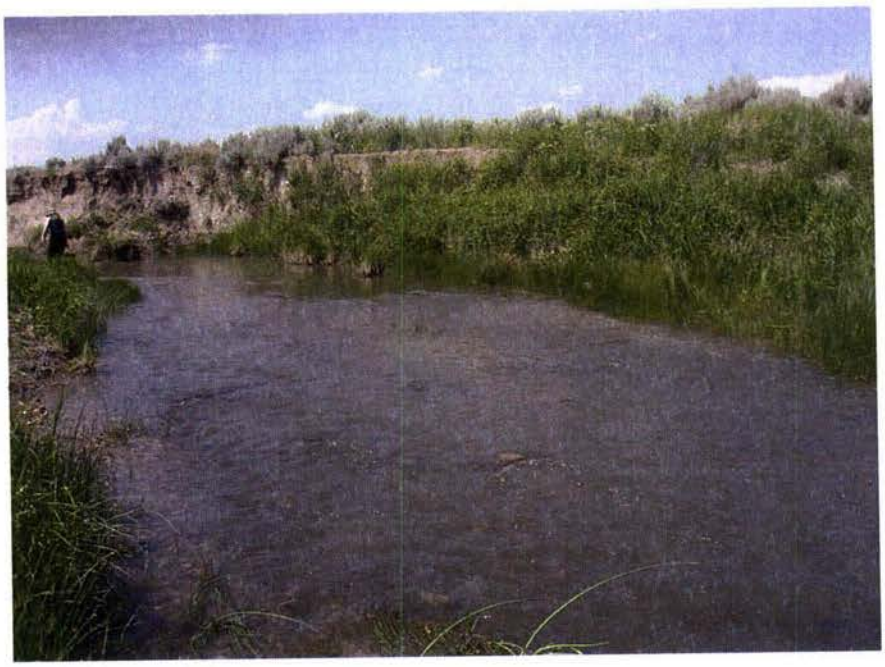


Photo 37. Site BVC04 looking upstream from Transect 2 July 8, 2008.

Photo 38. Site BVC04 looking upstream from Transect 3 July 8, 2008.

Photo 39. Site BVC04 looking upstream from Transect 4 July 8, 2008.

Photo 40. Site BVC04 looking upstream from Transect 5 July 8, 2008.

Photo 41. Site BVC04 looking upstream from Transect 6 July 8, 2008.

Photo 42. Site BVC04 looking upstream from Transect 7 July 8, 2008.

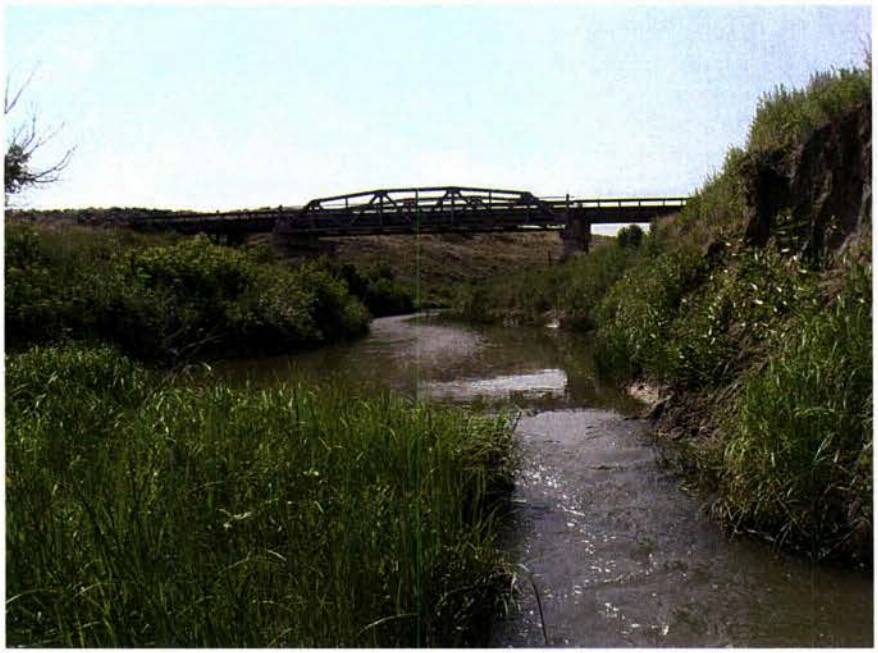


Photo 43. Site BVC04 looking upstream from Transect 8 July 8, 2008.

Photo 44. Site BVC04 looking upstream from Transect 9 July 8, 2008.

Photo 45. Site BVC04 looking upstream from Transect 10 July 8, 2008.

Photo 46. Site BVC04 looking upstream from Transect 11 July 8, 2008.

Photo 47. Site BVC04 looking downstream from Transect 11 July 8, 2008.

APPENDIX 3.5-K

FISH COLLECTION DATA FORMS

S. D. GAME FISH AND PARKS - STREAM SURVEY FIELD DATA SHEET
REVISED 2JUL2008

Stream Name: Beaver Creek

Site Number:

DATE (d d m m m y y): 16APR08

Site Description: BVC01 - Beaver Creek downstream

Site Length (meters): 100 S 09 R 01E T 07S

pH:
Cond. (umhos/cm): 7186
Temp.(C) air:
Water: 11.8

Dist. below top net (meters) / Stream Widths (meters)

Dist. below top net (meters)	Stream Widths (meters)
0	07.4 50 05.7
100	07.5 60 04.8
200	07.6 70 05.6
300	07.1 80 06.5
400	06.6 90 06.4
	100 06.3

Smith-Roots
Mode:
Volts:

Personnel: A. Wones, K. Shook

#1 Data | #2 Scales | #3 Lengths | #4 #8 Weights | #5 #6 #7

	Pass #1	Pass #2	Pass #3	Pass #4	Pass #5
Start time: (hhmm)					
End time: (hhmm)					
Smith-Root (seconds)					
Shocker #1					
Smith-Root (seconds)					
Shocker #2					
Smith-Root (seconds)					
Shocker #3					

Barge Shocker:
Range (H/L): Percent: Amps: . Pulse:

Pass	Start time (h h m m)	End time (h h m m)	Duration (seconds)	Anode #1	Anode #2	Anode #3
1						
2						
3						
4						
5						

REVISED 2JUL2008

Stream Name: Beaver Creek

Bulk Weights - (Record #5)

	(m m)			(m m)			Pass#	Species			Total Number			Total Weight		
Size Range:	2	9	to	0	6	4	1	F	H	M	0	6	4	0	8	1
Size Range:	4	1	to	4	8		1	P	L	K	0	0	2	0	0	8
Size Range:			to	1	2	0	1	G	R	S	0	0	1	0	2	5
Size Range:	4	8	to	0	4	8	1	L	N	D	0	0	1	0	0	<1
Size Range:			to													
Size Range:			to													
Size Range:			to													
Size Range:			to													
Size Range:			to													
Size Range:			to													

Digital Photos - Description

Top Blocking Net Looking Upstream 122

Top Blocking Net Looking Downstream

Bottom Blocking Net Looking Upstream 116

Bottom Blocking Net Looking Downstream

Upstream blocknet UTM: E 579651; N 4811171

Downstream blocknet UTM: E 579745; N 4811201

Video Camera

Tape #:

Begin:

End:

	(d d m m m y y)	Personnel
Photos labeled:		
Photos filed:		

Comments: FHM = fathead minnow, GRS = Green Sunfish, LND = Long-Nosed Dace.
PLK = Plains Killifish.

DATA ENTRY - RECORD 2

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

Field Q.C. by:

Batch Number:

DATA ENTRY - RECORD 3

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 4

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 5

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

SOUTH DAKOTA GAME FISH AND PARKS 3305 WEST SOUTH STREET RAPID CITY, SD 57702

REVISED 2JUL2008

Stream Name Beaver Creek

Site Number BVC01

DATE dd-mmm-yy: 16APR08

example 02MAY92

Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments	Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments
1	1	FHM	030					Fathead Minnow	51	1	FHM	053					
2	1	FHM	048						52	1	FHM	040					
3	1	FHM	060						53	1	FHM	056					
4	1	FHM	062						54	1	FHM	049					
5	1	FHM	046						55	1	FHM	050					
6	1	FHM	050						56	1	FHM	030					
7	1	FHM	061						57	1	FHM	061					
8	1	FHM	059						58	1	FHM	036					
9	1	FHM	048						59	1	FHM	049					
10	1	FHM	052						60	1	FHM	053					
11	1	FHM	058						61	1	FHM	059					
12	1	FHM	043						62	1	FHM	038					
13	1	FHM	043						63	1	FHM	036					
14	1	FHM	059						64	1	FHM	042	0081				Combined Wt. For all FHM
15	1	FHM	059						65	1	PLK	041					Plains Killifish
16	1	FHM	062						66	1	PLK	048	0008				Combined Wt. For all PLK
17	1	FHM	041						67	1	GRS	120	0025				Green Sunfish
18	1	FHM	048						68	1	LND	048	000<1				Long-Nosed Dace
19	1	FHM	056						69	1							
20	1	FHM	060						70	1							
21	1	FHM	050						71	1							
22	1	FHM	044						72	1							
23	1	FHM	045						73	1							
24	1	FHM	061						74	1							
25	1	FHM	054						75	1							
26	1	FHM	030						76	1							
27	1	FHM	059						77	1							
28	1	FHM	030						78	1							
29	1	FHM	055						79	1							
30	1	FHM	046						80	1							
31	1	FHM	050						81	1							
32	1	FHM	031						82	1							
33	1	FHM	052						83	1							
34	1	FHM	066						84	1							
35	1	FHM	056						85	1							
36	1	FHM	030						86	1							
37	1	FHM	032						87	1							
38	1	FHM	035						88	1							
39	1	FHM	030						89	1							
40	1	FHM	034						90	1							
41	1	FHM	059						91	1							
42	1	FHM	052						92	1							
43	1	FHM	057						93	1							
44	1	FHM	064						94	1							
45	1	FHM	058						95	1							
46	1	FHM	037						96	1							
47	1	FHM	029						97	1							
48	1	FHM	046						98	1							
49	1	FHM	035						99	1							
50	1	FHM	064						00	1							

S. D. GAME FISH AND PARKS - STREAM SURVEY FIELD DATA SHEET
REVISED 2JUL2008

Stream Name: Beaver Creek

Site Number:

Site Description: BVC04 - Upstream Site

DATE (d d m m m y y): 16APR08

Site Length (meters): 100 S R T

pH:
Cond. (umhos/cm): 5109
Temp.(C) air:
Water: 7.0

Dist. below top net (meters)	Stream Widths (meters)		
0	50		
10	10	46 04	2
20		70	
30	6	58 04	7
40	6	99	
		100 6	0

Smith-Roots
Mode:
Volts:

Personnel:

#1		#2		#3		#4	
#5		#6		#7		#8	
Data		Scales		Lengths		Weights	

	Pass #1	Pass #2	Pass #3	Pass #4	Pass #5
Start time: (hhmm)					
End time: (hhmm)					
Smith-Root (seconds)					
Shocker #1					
Smith-Root (seconds)					
Shocker #2					
Smith-Root (seconds)					
Shocker #3					

Barge Shocker:
Range (H/L): Percent: Amps: . Pulse:

Pass	Start time (h h m m)	End time (h h m m)	Duration (seconds)	Anode #1	Anode #2	Anode #3
1						
2						
3						
4						
5						

Stream Name: Beaver Creek

Bulk Weights - (Record #5)

	(m m)			(m m)			Pass#	Species			Total Number			Total Weight		
Size Range:	4	9	to	1	1	2	1	G	R	S	0	0	4	0	3	0
Size Range:		0	to	2	1	5	1	C	H	C	0	0	1	0	7	2
Size Range:			to				1	C	A	P			3		2	8
Size Range:	4	2	to	0	6	6	1	P	L	K	0	1	0	0	1	4
Size Range:	2	1	to	0	6	6	1	F	H	M		8	4	0	9	2
Size Range:			to													
Size Range:			to													
Size Range:			to													
Size Range:			to													
Size Range:			to													

Digital Photos - Description

Top Blocking Net Looking Upstream

Top Blocking Net Looking Downstream

Bottom Blocking Net Looking Upstream

Bottom Blocking Net Looking Downstream

Upstream Blocknet E 571380 N 4820615

Downstream blocknet E 571444 N4820551

Video Camera

Tape #:

Begin:

End:

	(d d m m m y y)	Personnel
Photos labeled:		
Photos filed:		

Comments: GRS=Green Sunfish, CHC= Channel Catfish, PLK= Plains Killifish, FHM= Fathead Minnow CAP= CARP

Water temp 7.0 C at 11:28 and 16.03 at 18:43; Turbidity 11.8, DO 9.20

DATA ENTRY - RECORD 2

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

Field Q.C. by: A. Wones

Batch Number:

DATA ENTRY - RECORD 3

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 4

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 5

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

SOUTH DAKOTA GAME FISH AND PARKS 3305 WEST SOUTH STREET RAPID CITY, SD 57702

REVISED 2JULY, 2008

Stream Name Beaver Creek

Site Number BVC04

DATE dd-mmm-yy						
1	6	A	P	R	0	8

Page __1__ **of** _2__

example 0 2 M A Y 9 2

Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments
1	1	GRS	112	0025				Green Sunfish
2	1	GRS	050					
3	1	GRS	049					
4	1	GRS	053	0030				Comb. Wt
5	1	CHC	215	0072				Channel Catfish
6	1	PLK	04					Plains Killifish
7	1	PLK	06					
8	1	PLK	04					Comb. Wt
9	1	PLK	05					
10	1	PLK	04					
11	1	PLK	04					
12	1	PLK	04					
13	1	PLK	05					
14	1	PLK	04					
15	1	PLK	04					
16	1	CAP	111	0021				Carp
17	1	CAP	062					Comb. Wt of #17,18=7g
18	1	CAP	053	7				Comb. Wt
19	1	FHM	052					Fathead Minnow
20	1	FHM	041	92				Comb. Wt .
21	1	FHM	042					
22	1	FHM	054					
23	1	FHM	035					
24	1	FHM	037					
25	1	FHM	041					
26	1	FHM	043					
27	1	FHM	036					
28	1	FHM	033					
29	1	FHM	044					
30	1	FHM	046					
31	1	FHM	052					
32	1	FHM	036					
33	1	FHM	050					
34	1	FHM	039					
35	1	FHM	057					
36	1	FHM	036					
37	1	FHM	033					
38	1	FHM	039					
39	1	FHM	065					
40	1	FHM	043					
41	1	FHM	060					
42	1	FHM	021					
43	1	FHM	040					
44	1	FHM	030					
45	1	FHM	039					
46	1	FHM	056					
47	1	FHM	054					
48	1	FHM	063					
49	1	FHM	049					
50	1	FHM	066					
51	1	FHM	045					
52	1	FHM	047					
53	1	FHM	031					
54	1	FHM	048					
55	1	FHM	055					
56	1	FHM	040					
57	1	FHM	045					
58	1	FHM	046					
59	1	FHM	035					
60	1	FHM	045					
61	1	FHM	054					
62	1	FHM	039					
63	1	FHM	043					
64	1	FHM	031					
65	1	FHM	058					
66	1	FHM	056					
67	1	FHM	047					
68	1	FHM	053					
69	1	FHM	032					
70	1	FHM	038					
71	1	FHM	041					
72	1	FHM	039					
73	1	FHM	051					
74	1	FHM	044					
75	1	FHM	038					
76	1	FHM	057					
77	1	FHM	050					
78	1	FHM	041					
79	1	FHM	044					
80	1	FHM	057					
81	1	FHM	045					
82	1	FHM	047					
83	1	FHM	043					
84	1	FHM	045					
85	1	FHM	046					
86	1	FHM	052					
87	1	FHM	047					
88	1	FHM	040					
89	1	FHM	048					
90	1	FHM	045					
91	1	FHM	047					
92	1	FHM	041					
93	1	FHM	045					
94	1	FHM	035					
95	1	FHM	039					
96	1	FHM	047					
97	1	FHM	058					
98	1	FHM	047					
99	1	FHM	031					
00	1	FHM	027					

S. D. GAME FISH AND PARKS - STREAM SURVEY FIELD DATA SHEET
REVISED 2JUL2008

Stream Name: Cheyenne River

Site Number:

DATE (d d m m m y y): 15APR08

Site Description: Site CHR05 - Cheyenne River at Marietta

Site Length (meters): 100 S 06 R 02E T 39N

pH:

Cond. (umhos/cm):

Temp.(C) air:

Water: 15.0

Dist. below top net (meters): 0, 10, 20, 30, 40

Stream Widths (meters): 50, 60, 70, 80, 90, 100

Smith-Roots: Mode: Volts:

Personnel:

#1 #2 #3 #4
#5 #6 #7 #8
Data Scales Lengths Weights

	Pass #1	Pass #2	Pass #3	Pass #4	Pass #5
Start time: (hhmm)					
End time: (hhmm)					
Smith-Root (seconds)					
Shocker #1					
Smith-Root (seconds)					
Shocker #2					
Smith-Root (seconds)					
Shocker #3					

Barge Shocker:

Range (H/L): Percent: Amps: . Pulse:

Pass	Start time (h h m m)	End time (h h m m)	Duration (seconds)	Anode #1	Anode #2	Anode #3
1						
2						
3						
4						
5						

REVISED 2JUL2008

Stream Name: Cheyenne River

Bulk Weights - (Record #5)

	(m m)			(m m)			Pass#	Species	Total Number	Total Weight
Size Range:	9	7	to	0	9	7		RIC	001	013
Size Range:	9	8	to	0	9	8		GRS	001	020
Size Range:	3	2	to	0	7	4		PLK	048	069
Size Range:	8	2	to	2	2	0		SRS	014	612
Size Range:	5	1	to	0	5	1		PTM	001	00<1
Size Range:	3	1	to	0	6	7		SAS	038	053
Size Range:	2	5	to	0	8	8		CRC	100	091
Size Range:			to							
Size Range:			to							
Size Range:			to							

Digital Photos - Description

Top Blocking Net Looking Upstream

Top Blocking Net Looking Downstream

Bottom Blocking Net Looking Upstream

Bottom Blocking Net Looking Downstream

Upstream blocknet at UTM E0587455 N4804678

Downstream blocknet at UTM E0587538 N4804736

Video Camera

Tape #:

Begin:

End:

	(d d m m m y y)	Personnel
Photos labeled:		
Photos filed:		

Comments: RIC= River Carpsucker; GRS = Green Sunfish; PLK = Plains killifish; SRS = Shorthead Redhorse Sucker; PTM = Plains Topminnow; SAS = Sand Shiner; CRC = Creek Chub.

DATA ENTRY - RECORD 2

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

Field Q.C. by: A. Wones

Batch Number:

DATA ENTRY - RECORD 3

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 4

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 5

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

SOUTH DAKOTA GAME FISH AND PARKS 3305 WEST SOUTH STREET RAPID CITY, SD 57702

Revised: 08JUL08

Stream Name Cheyenne River

Site Number CHR05

DATE dd-mmm-yy							
1	5	A	P	R	0	8

example 0 2 M A Y 9 2

Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments
1	1	CRC	039					Creek Chu
2	1	CRC	068	091				Combined wt =
3	1	CRC	049					
4	1	CRC	050					
5	1	CRC	061					
6	1	CRC	045					
7	1	CRC	075					
8	1	CRC	039					
9	1	CRC	046					
10	1	CRC	038					
11	1	CRC	041					
12	1	CRC	035					
13	1	CRC	035					
14	1	CRC	058					
15	1	CRC	043					
16	1	CRC	040					
17	1	CRC	040					
18	1	CRC	060					
19	1	CRC	049					
20	1	CRC	037					
21	1	CRC	041					
22	1	CRC	033					
23	1	CRC	032					
24	1	CRC	052					
25	1	CRC	031					
26	1	CRC	026					
27	1	CRC	050					
28	1	CRC	046					
29	1	CRC	054					
30	1	CRC	045					
31	1	CRC	052					
32	1	CRC	033					
33	1	CRC	030					
34	1	CRC	050					
35	1	CRC	035					
36	1	CRC	071					
37	1	CRC	048					
38	1	CRC	066					
39	1	CRC	044					
40	1	CRC	041					
41	1	CRC	040					
42	1	CRC	039					
43	1	CRC	036					
44	1	CRC	070					
45	1	CRC	051					
46	1	CRC	042					
47	1	CRC	088					
48	1	CRC	036					
49	1	CRC	077					
50	1	CRC	075					
51	1	CRC	044					
52	1	CRC	042					
53	1	CRC	045					
54	1	CRC	077					
55	1	CRC	037					
56	1	CRC	048					
57	1	CRC	041					
58	1	CRC	074					
59	1	CRC	037					
60	1	CRC	038					
61	1	CRC	039					
62	1	CRC	040					
63	1	CRC	025					
64	1	CRC	042					
65	1	CRC	030					
66	1	CRC	052					
67	1	CRC	030					
68	1	CRC	058					
69	1	CRC	043					
70	1	CRC	060					
71	1	CRC	062					
72	1	CRC	052					
73	1	CRC	041					
74	1	CRC	058					
75	1	CRC	044					
76	1	CRC	041					
77	1	CRC	040					
78	1	CRC	042					
79	1	CRC	060					
80	1	CRC	038					
81	1	CRC	070					
82	1	CRC	057					
83	1	CRC	049					
84	1	CRC	047					
85	1	CRC	059					
86	1	CRC	059					
87	1	CRC	038					
88	1	CRC	058					
89	1	CRC	040					
90	1	CRC	032					
91	1	CRC	037					
92	1	CRC	036					
93	1	CRC	047					
94	1	CRC	041					
95	1	CRC	056					
96	1	CRC	048					
97	1	CRC	050					
98	1	CRC	040					
99	1	CRC	040					
00	1	CRC	045					

SOUTH DAKOTA GAME FISH AND PARKS 3305 WEST SOUTH STREET RAPID CITY, SD 57702

Revised: 2JUL08

Stream Name Cheyenne River

Site Number CHR05

DATE dd-mmm-yy						
1	5	A	P	R	0	8

example 0 2 M A Y 9 2

Page 2 of 3

Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments
1	1	RIC	097	0013				likely River carpsucker
2	1	GRS	098	0020				Green sunfish
3	1	PLK	058					Plains killifish.
4	1	PLK	065	0069				Combined wt
5	1	PLK	035					
6	1	PLK	057					
7	1	PLK	039					
8	1	PLK	070					
9	1	PLK	042					
10	1	PLK	072					
11	1	PLK	046					
12	1	PLK	036					
13	1	PLK	044					
14	1	PLK	052					
15	1	PLK	065					
16	1	PLK	040					
17	1	PLK	067					
18	1	PLK	068					
19	1	PLK	052					
20	1	PLK	060					
21	1	PLK	060					
22	1	PLK	074					
23	1	PLK	048					
24	1	PLK	041					
25	1	PLK	040					
26	1	PLK	032					
27	1	PLK	064					
28	1	PLK	057					
29	1	PLK	040					
30	1	PLK	043					
31	1	PLK	053					
32	1	PLK	068					
33	1	PLK	037					
34	1	PLK	042					
35	1	PLK	034					
36	1	PLK	046					
37	1	PLK	036					
38	1	PLK	040					
39	1	PLK	049					
40	1	PLK	048					
41	1	PLK	060					
42	1	PLK	041					
43	1	PLK	032					
44	1	PLK	051					
45	1	PLK	038					
46	1	PLK	040					
47	1	PLK	060					
48	1	PLK	045					
49	1	PLK	036					
50	1	PLK	044					
51	1	SRS	174	0072				Shorthead redhorse sucker
52	1	SRS	220	0122				
53	1	SRS	201	1000				
54	1	SRS	197	0094				
55	1	SRS	178	0080				
56	1	SRS	169	0054				
57	1	SRS	110	0007				
58	1	SRS	084	0005				
59	1	SRS	085	0003				
60	1	SRS	195	0098				
61	1	SRS	173	0068				
62	1	SRS	082	0003				
63	1	SRS	083	0003				
64	1	SRS	088	0003				
65	1	PTM	051	<1				Plains Topminnow
66	1	SAS	067					Sand Shiner.
67	1	SAS	038	0053				Combined Wt
68	1	SAS	062					
69	1	SAS	058					
70	1	SAS	059					
71	1	SAS	060					
72	1	SAS	049					
73	1	SAS	047					
74	1	SAS	058					
75	1	SAS	059					
76	1	SAS	044					
77	1	SAS	047					
78	1	SAS	040					
79	1	SAS	055					
80	1	SAS	062					
81	1	SAS	051					
82	1	SAS	063					
83	1	SAS	044					
84	1	SAS	031					
85	1	SAS	045					
86	1	SAS	039					
87	1	SAS	057					
88	1	SAS	057					
89	1	SAS	057					
90	1	SAS	035					
91	1	SAS	034					
92	1	SAS	043					
93	1	SAS	046					
94	1	SAS	057					
95	1	SAS	049					
96	1	SAS	033					
97	1	SAS	050					
98	1	SAS	029					
99	1	SAS	043					
00	1	SAS	045					

SOUTH DAKOTA GAME FISH AND PARKS 3305 WEST SOUTH STREET RAPID CITY, SD 57702

Revised: 2JUL08

Stream Name Cheyenne River

Site Number CHR05

DATE dd-mmm-yy
15APR08

example 02MAY92

Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Scar.	Mor.	Sex	Comments	Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Scar.	Mor.	Sex	Comments
1	1	SAS	033					Sand Shiner	51	1							
2	1	SAS	032						52	1							
3	1	SAS	032						53	1							
4	1								54	1							
5	1								55	1							
6	1								56	1							
7	1								57	1							
8	1								58	1							
9	1								59	1							
10	1								60	1							
11	1								61	1							
12	1								62	1							
13	1								63	1							
14	1								64	1							
15	1								65	1							
16	1								66	1							
17	1								67	1							
18	1								68	1							
19	1								69	1							
20	1								70	1							
21	1								71	1							
22	1								72	1							
23	1								73	1							
24	1								74	1							
25	1								75	1							
26	1								76	1							
27	1								77	1							
28	1								78	1							
29	1								79	1							
30	1								80	1							
31	1								81	1							
32	1								82	1							
33	1								83	1							
34	1								84	1							
35	1								85	1							
36	1								86	1							
37	1								87	1							
38	1								88	1							
39	1								89	1							
40	1								90	1							
41	1								91	1							
42	1								92	1							
43	1								93	1							
44	1								94	1							
45	1								95	1							
46	1								96	1							
47	1								97	1							
48	1								98	1							
49	1								99	1							
50	1								00	1							

S. D. GAME FISH AND PARKS - STREAM SURVEY FIELD DATA SHEET

Stream Name: Beaver Creek

Site Number:

Site Description: BVC01 - Beaver Creek downstream

DATE (d d m m m y y): 1 0 J U L 0 8

Site Length (meters): 1 0 0 S 0 9 R 0 1 E T 0 7 S

pH: 7.9

Cond. (umhos/cm): 2141

Temp.(C) air: 25.5

Water: 23.4

Dist. below top net (meters)

Stream Widths (meters)

Dist. below top net (meters)	Stream Widths (meters)
0	50.0
10.0	60.0
20.0	70.0
30.0	80.0
40.0	90.0
	100.0

Smith-Roots

Mode:

Volts:

Personnel: A. Wones, K. Shook, M. Winland

#1	#2	#3	#4
#5	#6	#7	#8
Data	Scales	Lengths	Weights

	Pass #1	Pass #2	Pass #3	Pass #4	Pass #5
Start time: (hhmm)					
End time: (hhmm)					
Smith-Root (seconds)					
Shocker #1					
Smith-Root (seconds)					
Shocker #2					
Smith-Root (seconds)					
Shocker #3					

Barge Shocker:

Range (H/L): Percent: Amps: . Pulse:

Pass	Start time (h h m m)	End time (h h m m)	Duration (seconds)	Anode #1	Anode #2	Anode #3
1						
2						
3						
4						
5						

Stream Name: Beaver Creek

Bulk Weights - (Record #5)

	(m m)			(m m)			Pass#	Species			Total Number			Total Weight		
Size Range:			to	1	7	1	1	C	A	P			1		7	3
Size Range:	4	8	to		6	3	1	P	T	M			6		1	2
Size Range:			to		7	3	1	P	L	M			1			3
Size Range:			to		5	9	1	L	N	D			1			2
Size Range:	4	4	to		5	6	1	S	A	S		1	0		1	0
Size Range:	5	0	to		7	1	1	P	L	K			5			9
Size Range:	4	1	to		6	7	1	F	H	M		3	3		5	2
Size Range:			to													
Size Range:			to													
Size Range:			to													

Digital Photos - Description

Top Blocking Net Looking Upstream 107

Top Blocking Net Looking Downstream 108

Bottom Blocking Net Looking Upstream 103

Bottom Blocking Net Looking Downstream 104

Upstream blocknet UTM: N 579656; E 4811179

Downstream blocknet UTM: E 579641; N 4811209

Video Camera

Tape #:

Begin:

End:

	(d d m m m y y)	Personnel
Photos labeled:		
Photos filed:		

Comments: FHM = fathead minnow, LND = Long-Nosed Dace, SAS = Sand Shiner.
PLK = Plains Killifish, CAP = Carp, PTM = Plains Topminnow.
Mid reach looking upstream = 107, looking downstream 108.

DATA ENTRY - RECORD 2

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

Field Q.C. by: A. Wones

Batch Number:

DATA ENTRY - RECORD 3

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 4

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 5

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

SOUTH DAKOTA GAME FISH AND PARKS 3305 WEST SOUTH STREET RAPID CITY, SD 57702

Stream Name Beaver Creek
Site Number BVC01

DATE dd-mmm-yy								
1	0	J	U	L		0	8

Page 1 OF 1

example 0 2 M A Y 9 2

Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments	Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments
1	1	CAP	171	73				R	51	1	FHM	57					
2	1	PTM	61	12				R,C(#2-7)	52	1	FHM	48					
3	1	PTM	52					R	53	1	FHM	47					
4	1	PTM	48					R	54	1	FHM	44					
5	1	PTM	63					R	55	1	FHM	47					
6	1	PTM	62					V	56	1	FHM	42					
7	1	PTM	50					R	57	1	SAS	44	<1				
8	1	PLM	73	3				V	58	1							
9	1	LND	59	2				V	59	1							
10	1	SAS	62	7				R, (C#10-14)	60	1							
11	1	SAS	53					R	61	1							
12	1	SAS	53					R	62	1							
13	1	SAS	46					R	63	1							
14	1	SAS	56					R	64	1							
15	1	SAS	49	3				V,C(#15-18)	65	1							
16	1	SAS	58					V	66	1							
17	1	SAS	40					V	67	1							
18	1	SAS	43					V	68	1							
19	1	PLK	71	9				R, (C#19-23)	69	1							
20	1	PLK	60					R	70	1							
21	1	PLK	62					R	71	1							
22	1	PLK	57					R	72	1							
23	1	PLK	50					R	73	1							
24	1	FHM	48	5 2				C(#24-56)	74	1							
25	1	FHM	50						75	1							
26	1	FHM	48						76	1							
27	1	FHM	42						77	1							
28	1	FHM	43						78	1							
29	1	FHM	42						79	1							
30	1	FHM	59						80	1							
31	1	FHM	50						81	1							
32	1	FHM	48						82	1							
33	1	FHM	46						83	1							
34	1	FHM	58						84	1							
35	1	FHM	49						85	1							
36	1	FHM	54						86	1							
37	1	FHM	49						87	1							
38	1	FHM	60						88	1							
39	1	FHM	67						89	1							
40	1	FHM	57						90	1							
41	1	FHM	45						91	1							
42	1	FHM	53						92	1							
43	1	FHM	46						93	1							
44	1	FHM	44						94	1							
45	1	FHM	41						95	1							
46	1	FHM	58						96	1							
47	1	FHM	46						97	1							
48	1	FHM	56						98	1							
49	1	FHM	55						99	1							
50	1	FHM	50						00	1							

Comments: R = sample collected for radiological testing, V = voucher specimen, C = combined weight
5 voucher and 5 radiological samples taken from # 24-56

S. D. GAME FISH AND PARKS - STREAM SURVEY FIELD DATA SHEET

Stream Name: Beaver Creek

Site Number:

Site Description: BVC04 - Beaver Creek upstream

DATE (d d m m m y y): 1 0 J U L 0 8

Site Length (meters): 1 0 0 S R T

pH:

Cond. (umhos/cm):

Temp.(C) air: 3 5 . 0

Water: 2 8 . 0

Dist. below top net (meters) / Stream Widths (meters)

Dist. below top net (meters)	Stream Widths (meters)
0 0	5 0 0 0
1 0 0	6 0 0 0
2 0 0	7 0 0 0
3 0 0	8 0 0 0
4 0 0	9 0 0 0
	1 0 0 0

Smith-Roots

Mode:

Volts:

Personnel: A. Wones, K. Shook, M. Winland

#1 Data	#2 Scales	#3 Lengths	#4 #8 Weights
#5	#6	#7	

	Pass #1	Pass #2	Pass #3	Pass #4	Pass #5
Start time: (hhmm)					
End time: (hhmm)					
Smith-Root (seconds)					
Shocker #1					
Smith-Root (seconds)					
Shocker #2					
Smith-Root (seconds)					
Shocker #3					

Barge Shocker:

Range (H/L): Percent: Amps: . Pulse: .

Pass	Start time (h h m m)	End time (h h m m)	Duration (seconds)	Anode #1	Anode #2	Anode #3
1						
2						
3						
4						
5						

Stream Name: Beaver Creek

Bulk Weights - (Record #5)

	(m m)			(m m)			Pass#	Species			Total Number			Total Weight		
Size Range:			to	1	3	6	1	S	H	R			1	1	3	0
Size Range:			to	2	6	0	1	C	A	P			1	2	3	7
Size Range:	4	8	to		6	8	1	P	L	K			9		1	3
Size Range:	4	3	to		6	1	1	F	H	M		4	7		6	4
Size Range:	6	3	to		6	4	1	L	N	D			2			5
Size Range:	4	5	to		5	8	1	S	A	S		2	6		3	5
Size Range:			to													
Size Range:			to													
Size Range:			to													
Size Range:			to													

Digital Photos - Description

Top Blocking Net Looking Upstream 122

Top Blocking Net Looking Downstream 123

Bottom Blocking Net Looking Upstream 118

Bottom Blocking Net Looking Downstream 119

Upstream blocknet WGS84 UTM: E 5791444; N 4820573

Downstream blocknet WGS84 UTM: E 571373; N 4820623

Video Camera

Tape #:

Begin:

End:

	(d d m m m y y)	Personnel
Photos labeled:		
Photos filed:		

Comments: FHM = fathead minnow, LND = Long-Nosed Dace, SAS = Sand Shiner.
SHR = Shorthead Redhorse Sucker, CAP = Carp, PLK = Plains Killifish.
Photo of the middle of reach looking upstream: 120, looking downstream: 121

DATA ENTRY - RECORD 2

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

Field Q.C. by: A. Wones

Batch Number:

DATA ENTRY - RECORD 3

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 4

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 5

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

SOUTH DAKOTA GAME FISH AND PARKS 3305 WEST SOUTH STREET RAPID CITY, SD 57702

Stream Name Beaver Creek
Site Number BVC04

DATE dd-mmm-yy								
	1	0	J	U	L	0	8
example	0	2	M	A	Y	9	2

Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments	Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments
1	1	SHR	136	130				R	51	1	FHM	45					
2	1	CAP	260	237				R	52	1	FHM	51					
3	1	PLK	56	13				C	53	1	FHM	57					
4	1	PLK	68						54	1	FHM	55					
5	1	PLK	58						55	1	FHM	47					
6	1	PLK	48						56	1	FHM	53					
7	1	PLK	48						57	1	FHM	42					
8	1	PLK	62						58	1	FHM	49					
9	1	PLK	54						59	1	LND	63	3				V
10	1	PLK	52						60	1	LND	64	2				V
11	1	PLK	50						61	1	SAS	45	35				C
12	1	FHM	50	64				c	62	1	SAS	50					
13	1	FHM	49						63	1	SAS	47					
14	1	FHM	47						64	1	SAS	48					
15	1	FHM	55						65	1	SAS	51					
16	1	FHM	47						66	1	SAS	56					
17	1	FHM	55						67	1	SAS	55					
18	1	FHM	57						68	1	SAS	52					
19	1	FHM	49						69	1	SAS	55					
20	1	FHM	43						70	1	SAS	58					
21	1	FHM	60						71	1	SAS	57					
22	1	FHM	50						72	1	SAS	52					
23	1	FHM	55						73	1	SAS	51					
24	1	FHM	46						74	1	SAS	54					
25	1	FHM	51						75	1	SAS	48					
26	1	FHM	50						76	1	SAS	51					
27	1	FHM	51						77	1	SAS	53					
28	1	FHM	51						78	1	SAS	48					
29	1	FHM	50						79	1	SAS	52					
30	1	FHM	47						80	1	SAS	54					
31	1	FHM	44						81	1	SAS	54					
32	1	FHM	54						82	1	SAS	57					
33	1	FHM	50						83	1	SAS	51					
34	1	FHM	46						84	1	SAS	52					
35	1	FHM	45						85	1	SAS	52					
36	1	FHM	49						86	1	SAS	52					
37	1	FHM	55						87	1							
38	1	FHM	49						88	1							
39	1	FHM	47						89	1							
40	1	FHM	49						90	1							
41	1	FHM	52						91	1							
42	1	FHM	49						92	1							
43	1	FHM	55						93	1							
44	1	FHM	53						94	1							
45	1	FHM	49						95	1							
46	1	FHM	50						96	1							
47	1	FHM	61						97	1							
48	1	FHM	45						98	1							
49	1	FHM	46						99	1							
50	1	FHM	49						00	1							

Comments: R = sample collected for radiological testing, V = voucher specimen, C = combined weight
5 voucher and 5 radiological samples taken from # 12-58 (FHM), and from #61-86(SAS)

S. D. GAME FISH AND PARKS - STREAM SURVEY FIELD DATA SHEET
REVISED 2JUL2008

Stream Name: Cheyenne River

Site Number:

Site Description: Site CHR05 - Cheyenne River at Marietta

DATE (d d m m m y y): 15 APR 08

Site Length (meters): 100 S 06 R 02E T 39N

pH:
Cond. (umhos/cm):
Temp.(C) air:
Water: 15.0

Dist. below top net (meters)

0	
10	
20	
30	
40	

Stream Widths (meters)

50	
60	
70	
80	
90	
100	

Smith-Roots

Mode:	
Volts:	

Personnel:

#1		#2		#3		#4	
#5		#6		#7		#8	
Data		Scales		Lengths		Weights	

	Pass #1	Pass #2	Pass #3	Pass #4	Pass #5
Start time: (hhmm)					
End time: (hhmm)					
Smith-Root (seconds)					
Shocker #1					
Smith-Root (seconds)					
Shocker #2					
Smith-Root (seconds)					
Shocker #3					

Barge Shocker:

Range (H/L): Percent: Amps: . Pulse:

Pass	Start time (h h m m)	End time (h h m m)	Duration (seconds)	Anode #1	Anode #2	Anode #3
1						
2						
3						
4						
5						

REVISED 2JUL2008

Stream Name: Cheyenne River

Bulk Weights - (Record #5)

	(m m)			(m m)			Pass#	Species	Total Number	Total Weight
Size Range:	9	7	to	0	9	7		RIC	001	013
Size Range:	9	8	to	0	9	8		GRS	001	020
Size Range:	3	2	to	0	7	4		PLK	048	069
Size Range:	8	2	to	2	2	0		SRS	014	612
Size Range:	5	1	to	0	5	1		PTM	001	00<1
Size Range:	3	1	to	0	6	7		SAS	038	053
Size Range:	2	5	to	0	8	8		CRC	100	091
Size Range:			to							
Size Range:			to							
Size Range:			to							

Digital Photos - Description

Top Blocking Net Looking Upstream

Top Blocking Net Looking Downstream

Bottom Blocking Net Looking Upstream

Bottom Blocking Net Looking Downstream

Upstream blocknet at UTM E0587455 N4804678

Downstream blocknet at UTM E0587538 N4804736

Video Camera

Tape #:

Begin:

End:

	(d d m m m y y)	Personnel
Photos labeled:		
Photos filed:		

Comments: RIC= River Carpsucker; GRS = Green Sunfish; PLK = Plains kilifish; SRS = Shorthead Redhorse Sucker; PTM = Plains Topminnow; SAS = Sand Shiner; CRC = Creek Chub.

DATA ENTRY - RECORD 2

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

Field Q.C. by: A. Wones

Batch Number:

DATA ENTRY - RECORD 3

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 4

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

DATA ENTRY - RECORD 5

	(d d m m m y y)	Personnel
Data Entry		
Verification:		

SOUTH DAKOTA GAME FISH AND PARKS 3305 WEST SOUTH STREET RAPID CITY, SD 57702

Stream Name Cheyenne River
Site Number CHR05

DATE dd-mmm-yy						
0	9	J	U	L	0	8

example 0 2 M A Y 9 2

Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments	Fish ID #	Pass #	Species Code	Total Length (mm)	Weight (grams)	Sca.	Mor.	Sex	Comments
1	1	RIC	461	1150				R	51	1	SAS	51					
2	1	RIC	426	1200				R	52	1	SAS	45					
3	1	RIC	405	980				R	53	1	SAS	50					
4	1	RIC	381	820				R	54	1	SAS	44					
5	1	SRS	160	46				R	55	1	SAS	60					
6	1	SRS	146	32				R	56	1	SAS	47					
7	1	CAP	135	31				R	57	1	SAS	54					
8	1	CHC	290	166				R	58	1	SAS	46					
9	1	CHC	196	50				R	59	1	SAS	52					
10	1	CHC	181	49				R	60	1	SAS	46	6				V,C(60-64)
11	1	LND	74	4				V	61	1	SAS	45					V
12	1	PLK	72	10				R,C (#12-16)	62	1	SAS	50					V
13	1	PLK	59					R	63	1	SAS	46					V
14	1	PLK	51					R	64	1	SAS	50					V
15	1	PLK	68					R	65	1	FHM	46	7				R,C(65-74)
16	1	PLK	46					R	66	1	FHM	38					R
17	1	PLK	54	3			3	V,C(#17-18)	67	1	FHM	60					R
18	1	PLK	53					V	68	1	FHM	44					R
19	1	SAS	49	7				R,C(#19-23)	69	1	FHM	51					R
20	1	SAS	50					R	70	1	FHM	48					V
21	1	SAS	53					R	71	1	FHM	46					V
22	1	SAS	46					R	72	1	FHM	46					V
23	1	SAS	48					R	73	1	FHM	47					V
24	1	SAS	50	54				C	74	1	FHM	47					V
25	1	SAS	46						75	1							
26	1	SAS	49						76	1							
27	1	SAS	43						77	1							
28	1	SAS	47						78	1							
29	1	SAS	46						79	1							
30	1	SAS	50						80	1							
31	1	SAS	47						81	1							
32	1	SAS	45						82	1							
33	1	SAS	53						83	1							
34	1	SAS	46						84	1							
35	1	SAS	52						85	1							
36	1	SAS	52						86	1							
37	1	SAS	42						87	1							
38	1	SAS	47						88	1							
39	1	SAS	51						89	1							
40	1	SAS	49						90	1							
41	1	SAS	46						91	1							
42	1	SAS	54						92	1							
43	1	SAS	52						93	1							
44	1	SAS	46						94	1							
45	1	SAS	48						95	1							
46	1	SAS	53						96	1							
47	1	SAS	52						97	1							
48	1	SAS	54						98	1							
49	1	SAS	47						99	1							
50	1	SAS	46						00	1							

Comments: R = sample collected for radiological testing, V = voucher specimen, C = combined weight

APPENDIX 3.6-A

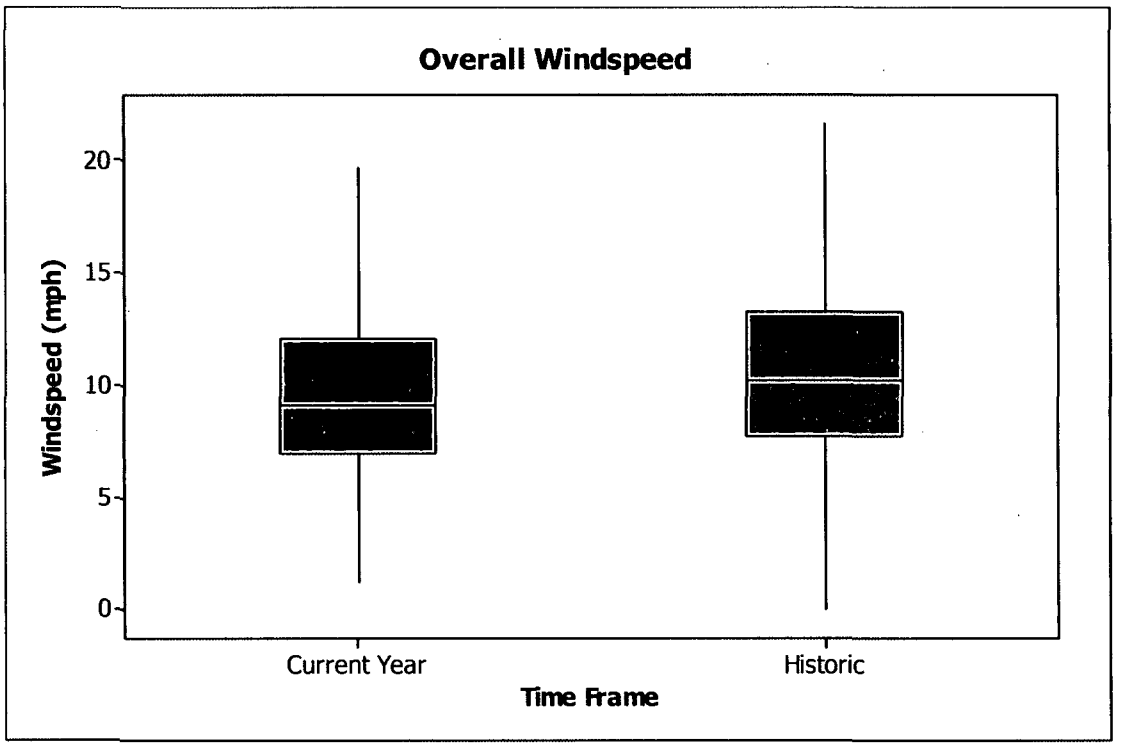
STATISTICAL REPORTS FOR CHADRON, NEBRASKA, METEOROLOGICAL SITE

APPENDIX 2.5-A
STATISTICAL REPORTS FOR CHADRON, NEBRASKA, METEOROLOGICAL SITE

WIND SPEED ANALYSIS

Descriptive Statistics: Average

Variable	Time Frame	N	N*	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	363	0	9.766	3.901	1.202	7.003	9.097	12.062	24.197
	Historic	9323	0	10.834	4.380	0.0000	7.705	10.251	13.276	36.090



Descriptive Statistics: Average

Results for Month = 1

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	31	10.039	4.094	2.628	7.401	9.351	11.741	22.461
	Historic	805	9.969	4.400	0.000	6.872	9.351	12.545	33.099

Results for Month = 2

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	28	9.265	3.874	1.202	6.539	9.456	12.080	16.662
	Historic	734	10.475	4.672	1.727	7.250	9.768	13.160	33.239

Results for Month = 3

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	31	10.404	3.879	5.155	7.690	9.111	12.706	24.197
	Historic	806	11.572	4.854	2.488	7.990	10.971	14.349	32.986

Results for Month = 4

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	30	11.210	4.791	3.812	6.482	11.637	15.219	20.545
	Historic	779	12.533	4.954	2.187	8.901	11.800	15.525	36.090

Results for Month = 5

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	30	11.037	4.779	3.040	7.314	10.209	13.414	21.464
	Historic	803	11.847	4.651	2.614	8.515	11.193	14.401	29.690

Results for Month = 6

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	30	9.173	2.852	5.124	6.830	8.768	11.103	16.576
	Historic	779	11.213	3.746	2.507	8.571	10.725	13.566	24.299

Results for Month = 7

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	31	9.991	3.371	4.327	7.597	9.627	12.062	19.401
	Historic	792	10.542	3.369	0.000	8.053	10.094	12.467	24.818

Results for Month = 8

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	30	9.421	3.151	2.865	7.624	9.205	10.766	18.912
	Historic	775	10.472	3.429	2.064	7.844	10.132	12.514	24.324

Results for Month = 9

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	30	10.667	4.215	5.220	7.115	10.023	13.396	19.880
	Historic	750	10.526	4.003	1.749	7.420	9.984	13.051	25.404

Results for Month = 10

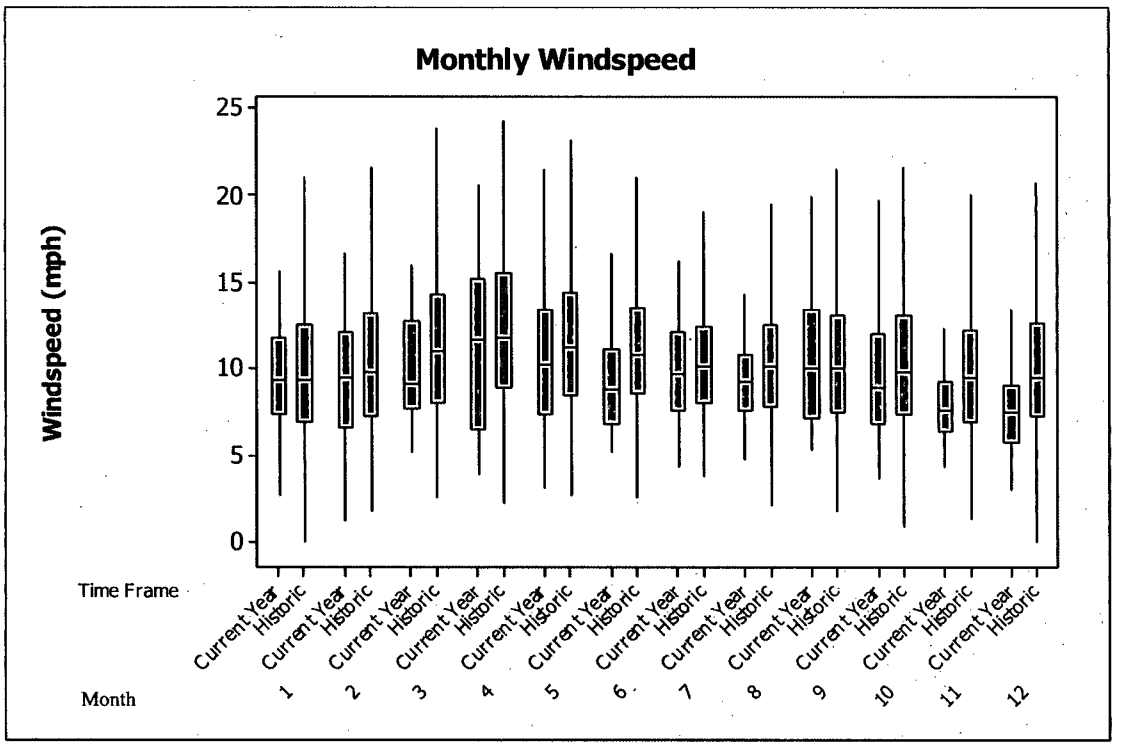
Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	31	9.678	3.770	3.607	6.814	8.911	12.034	19.648
	Historic	775	10.565	4.585	0.895	7.322	9.743	13.080	29.291

Results for Month = 11

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	30	8.398	3.250	4.316	6.382	7.567	9.261	18.245
	Historic	750	10.062	4.299	1.263	6.878	9.442	12.215	30.728

Results for Month = 12

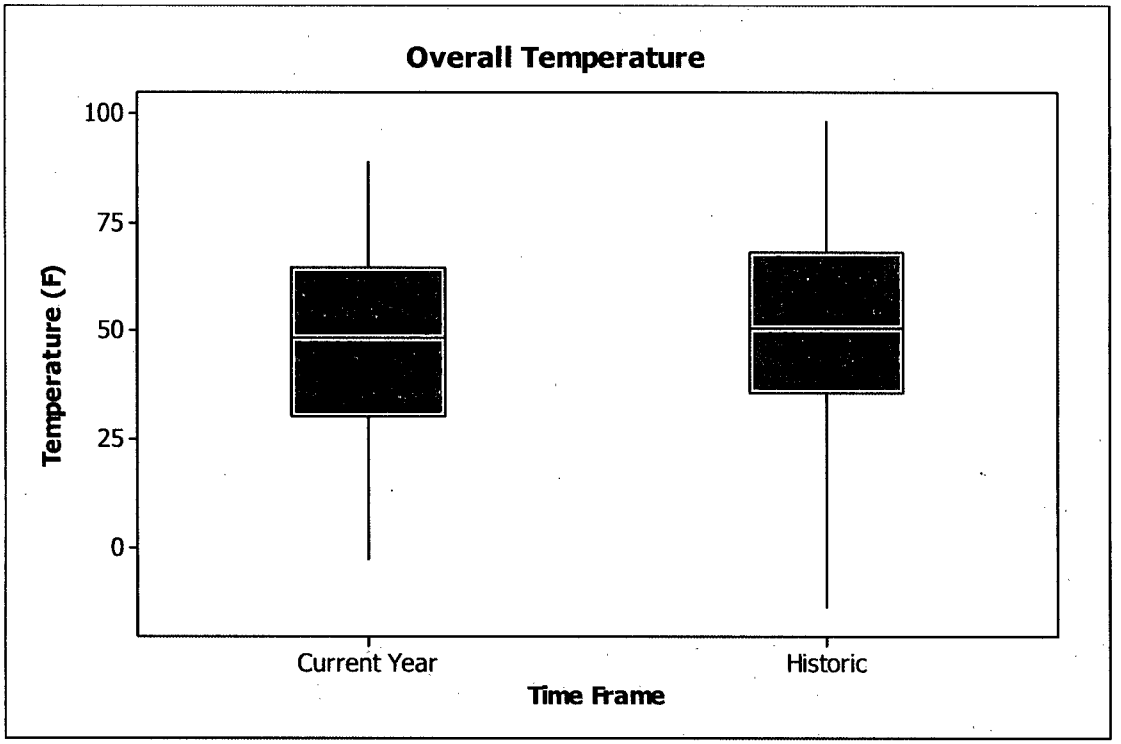
Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	31	7.899	3.515	2.945	5.676	7.419	8.985	18.620
	Historic	775	10.139	4.447	0.000	7.200	9.405	12.690	28.052



TEMPERATURE ANALYSIS

Descriptive Statistics: Average

Variable	Time Frame	N	N*	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	360	0	47.81	21.42	-3.06	30.29	48.15	64.48	89.00
	Historic	9323	0	50.520	21.204	-22.804	35.285	50.470	68.277	98.060



Descriptive Statistics: Average

Results for Month = 1

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	31	20.10	11.15	-3.06	11.02	20.90	30.05	41.75
	Historic	805	25.444	13.243	-13.206	16.486	28.325	35.735	52.363

Results for Month = 2

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	25	26.63	8.83	6.80	22.10	25.57	30.77	44.60
	Historic	734	29.789	14.064	-19.400	21.961	32.404	40.138	56.264

Results for Month = 3

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	31	35.66	6.83	19.68	31.56	35.21	39.92	49.40
	Historic	806	39.270	11.838	-5.766	32.195	39.824	47.376	67.179

Results for Month = 4

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	30	44.52	10.23	25.51	37.89	42.09	50.58	66.80
	Historic	779	48.966	10.533	17.825	41.879	48.650	56.150	78.016

Results for Month = 5

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	30	53.27	8.48	32.77	48.52	54.41	59.74	65.38
	Historic	803	59.470	9.313	32.300	52.925	59.942	66.412	82.085

Results for Month = 6

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	30	64.19	5.76	53.76	59.61	63.96	68.17	74.60
	Historic	779	70.139	8.401	42.271	64.510	70.600	76.087	90.100

Results for Month = 7

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	31	77.43	6.60	66.13	73.28	77.70	82.25	89.00
	Historic	792	77.463	7.490	55.772	72.369	77.528	82.714	98.060

Results for Month = 8

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	30	76.66	7.91	56.86	74.04	78.56	81.44	88.91
	Historic	775	75.797	7.493	49.964	71.150	76.175	81.170	96.080

Results for Month = 9

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	30	65.18	10.71	47.98	56.67	66.24	74.34	83.08
	Historic	750	65.205	10.569	30.920	57.805	65.806	72.905	92.104

Results for Month = 10

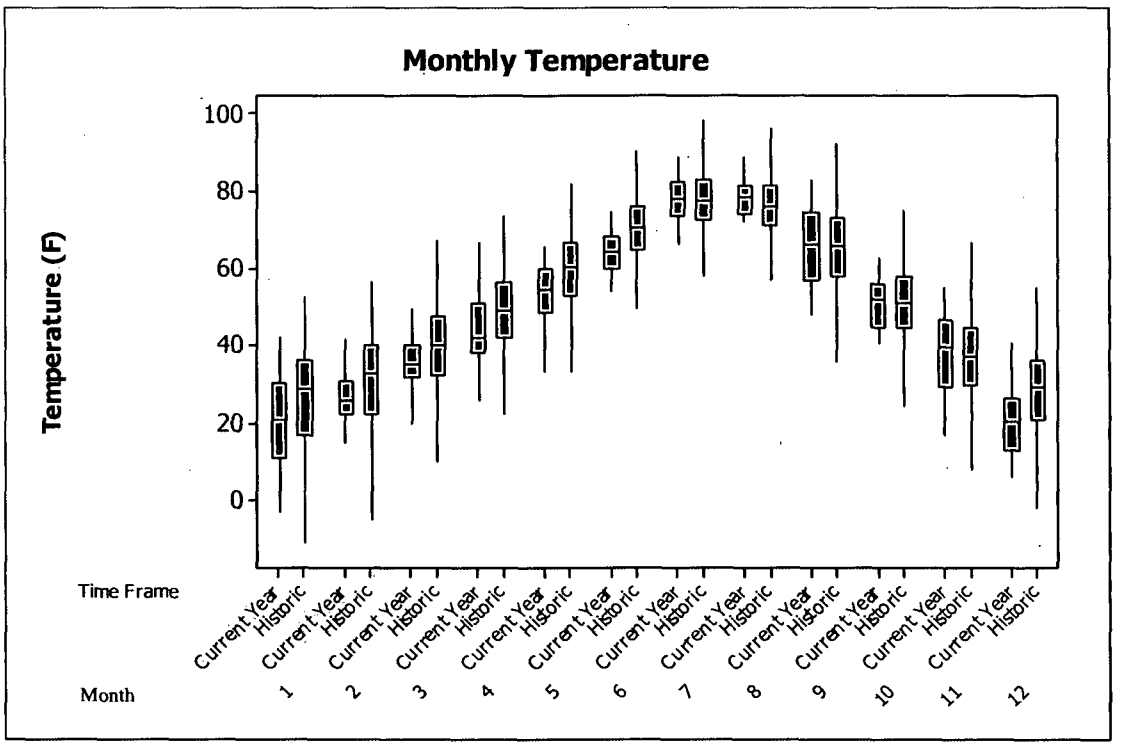
Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	31	50.72	6.48	40.40	44.46	51.80	55.79	62.83
	Historic	775	50.781	9.958	6.935	44.293	51.013	57.740	75.094

Results for Month = 11

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	30	37.37	10.94	16.48	28.94	39.33	46.27	54.82
	Historic	750	36.365	11.494	-1.710	29.576	37.075	44.349	66.358

Results for Month = 12

Variable	Time Frame	Total Count	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Average	Current Year	31	19.62	8.59	5.98	12.78	20.24	26.15	40.45
	Historic	775	26.888	12.946	-22.804	20.427	28.811	35.960	54.950


Monthly Temperature
Temperature (F)
100
80
60
40
20
0
Time Frame
Current Year
Historic
Month
1
2
3
4
5
6
7
8
9
10
11
12

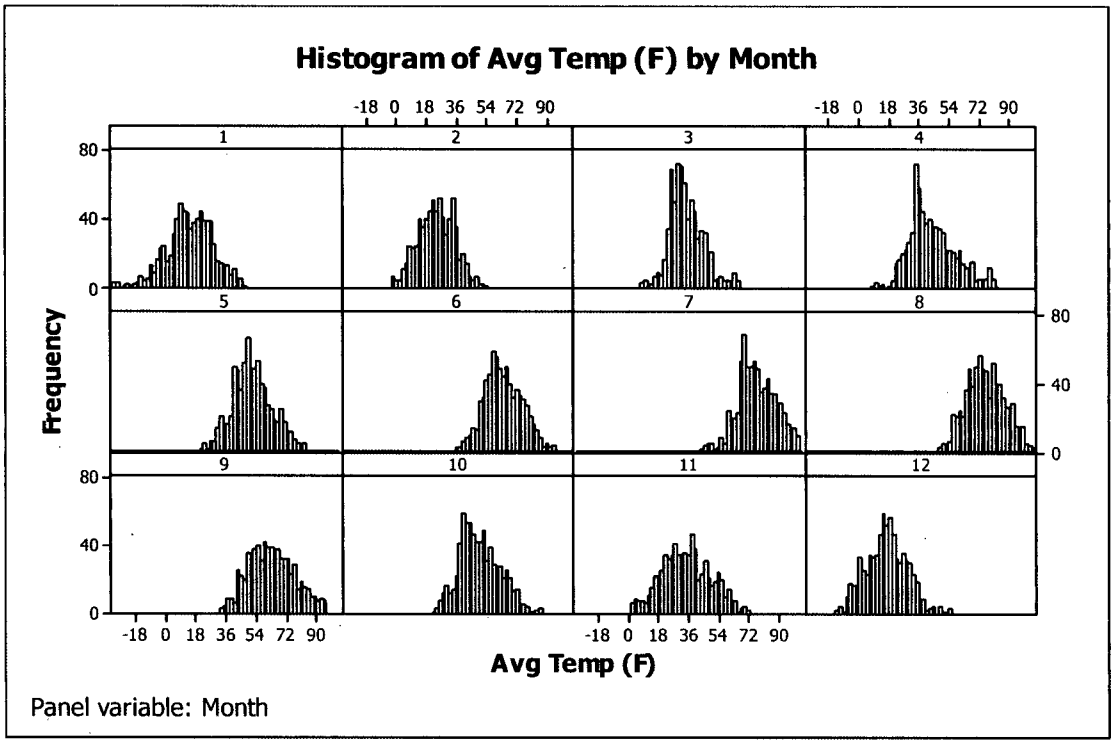
APPENDIX 3.6-B

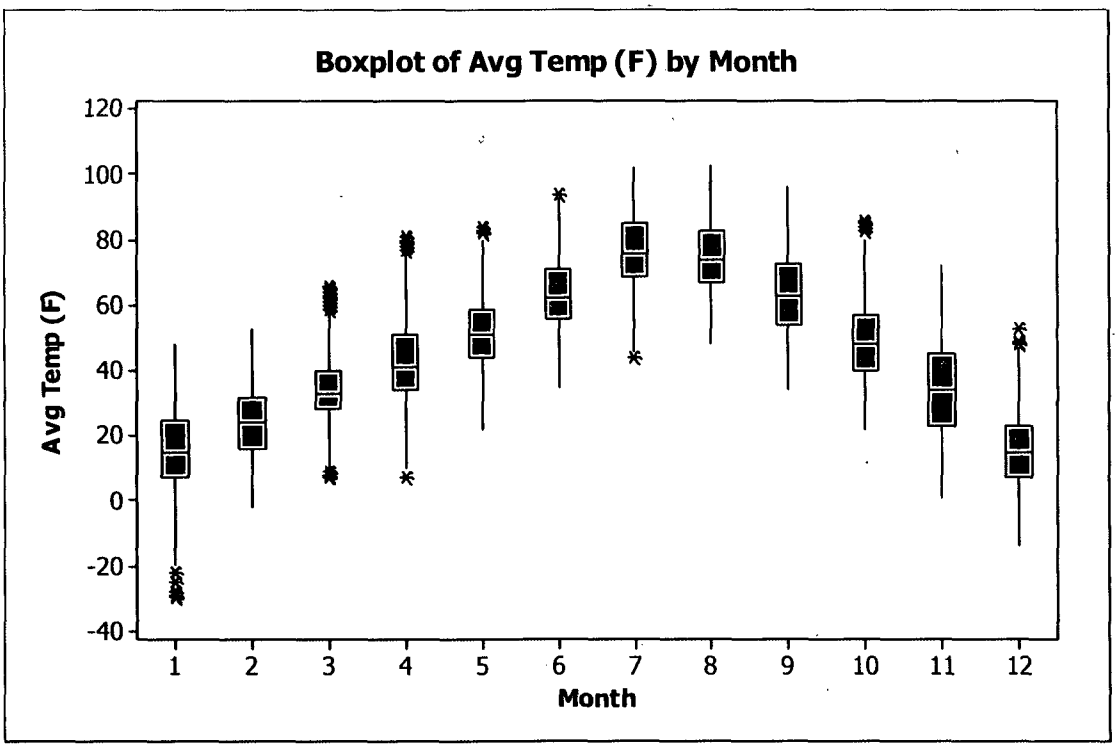
STATISTICAL REPORTS FOR DEWEY-BURDOCK METEOROLOGICAL SITE

APPENDIX 3.6-B
STATISTICAL REPORTS FOR DEWEY-BURDOCK METEOROLOGICAL SITE

Descriptive Statistics: Avg Temp (F)

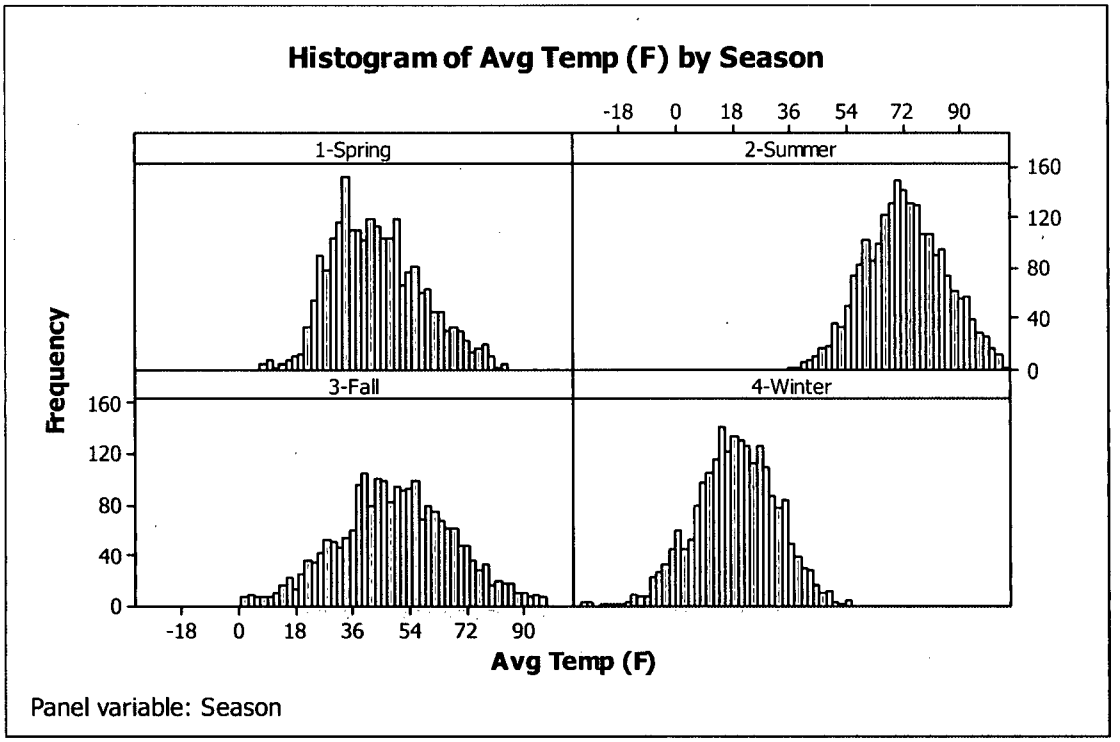
Variable	Month	N	N*	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Avg Temp (F)	1	744	0	14.792	13.859	-30.000	7.000	15.000	25.000	48.000
	2	696	0	23.520	10.861	-2.000	16.000	24.000	32.000	53.000
	3	720	0	34.550	10.040	7.000	28.000	33.000	40.000	66.000
	4	720	0	43.082	13.914	7.000	34.000	41.000	51.000	81.000
	5	744	0	52.173	11.654	22.000	44.000	51.000	59.000	84.000
	6	720	0	63.306	10.914	35.000	56.000	62.000	71.000	94.000
	7	744	0	76.858	11.231	44.000	69.000	76.000	85.000	102.000
	8	744	0	75.160	11.226	48.000	67.000	74.000	83.000	103.000
	9	720	0	63.747	13.787	34.000	54.000	63.000	73.000	96.000
	10	744	0	49.210	12.055	22.000	40.000	48.000	57.000	86.000
	11	720	0	34.061	14.761	1.000	23.000	34.000	45.000	72.000
	12	744	0	15.073	12.085	-14.000	7.000	15.000	23.000	53.000

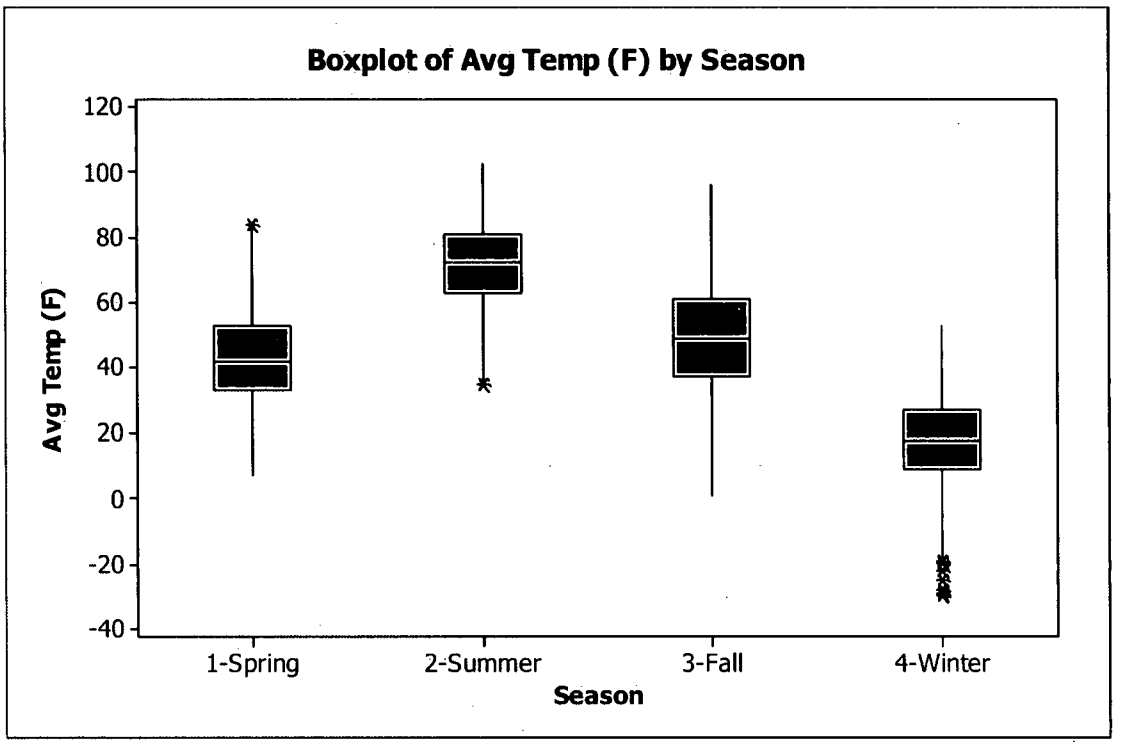




Descriptive Statistics: Avg Temp (F)

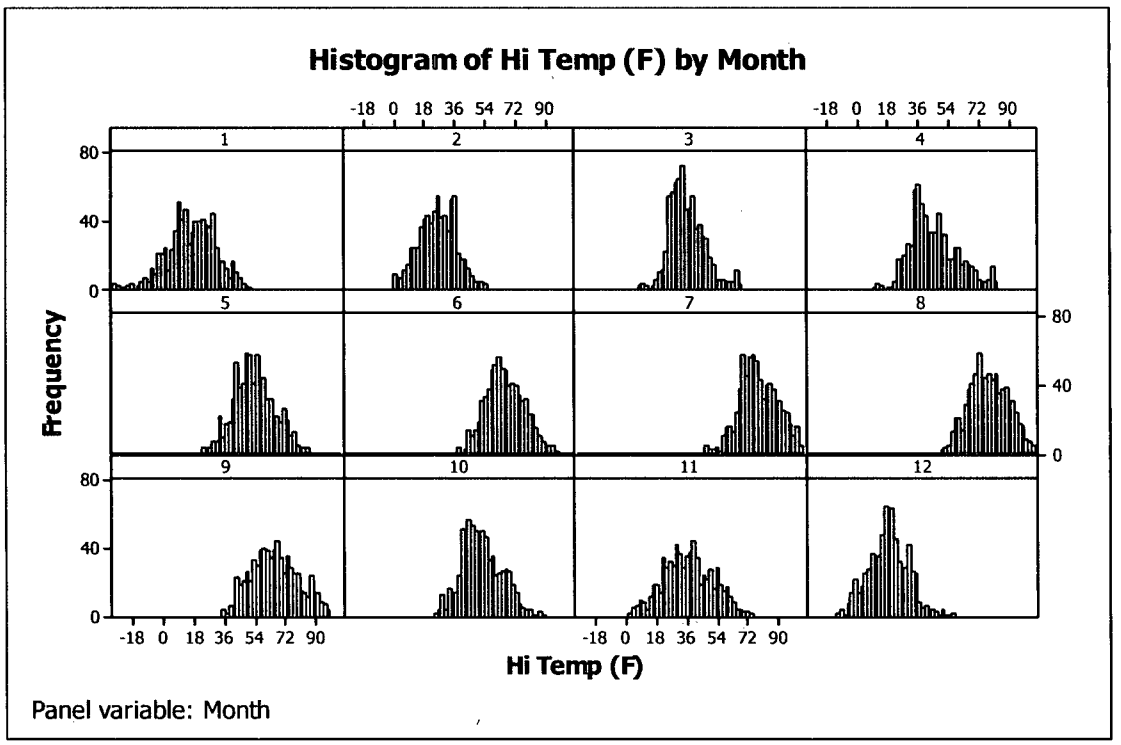
Variable	Season	N	N*	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Avg Temp (F)	1-Spring	2184	0	43.366	13.975	7.000	33.000	42.000	53.000	84.000
	2-Summer	2208	0	71.866	12.636	35.000	63.000	72.000	81.000	103.000
	3-Fall	2184	0	49.008	18.144	1.000	37.000	49.000	61.000	96.000
	4-Winter	2184	0	17.669	12.987	-30.000	9.000	18.000	27.000	53.000

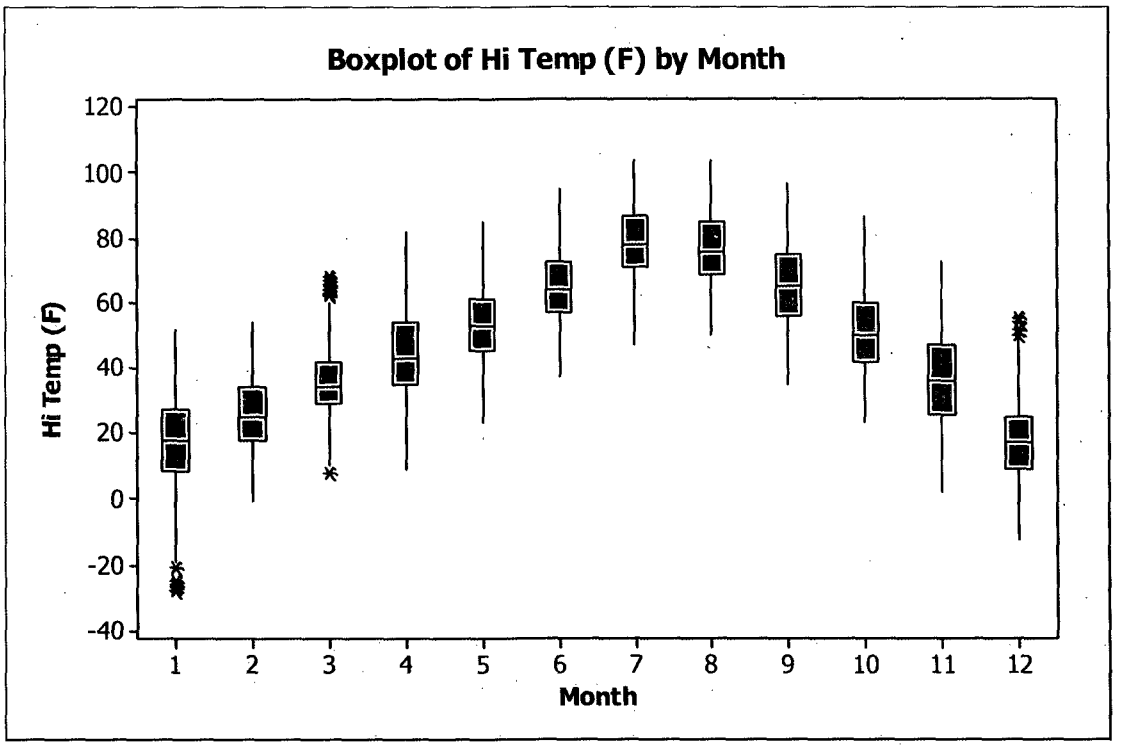

Histogram of Avg Temp (F) by Season
1-Spring
2-Summer
3-Fall
4-Winter
Frequency
Avg Temp (F)
Panel variable: Season


Boxplot of Avg Temp (F) by Season
Avg Temp (F)
1-Spring
2-Summer
3-Fall
4-Winter
Season

Descriptive Statistics: Hi Temp (F)

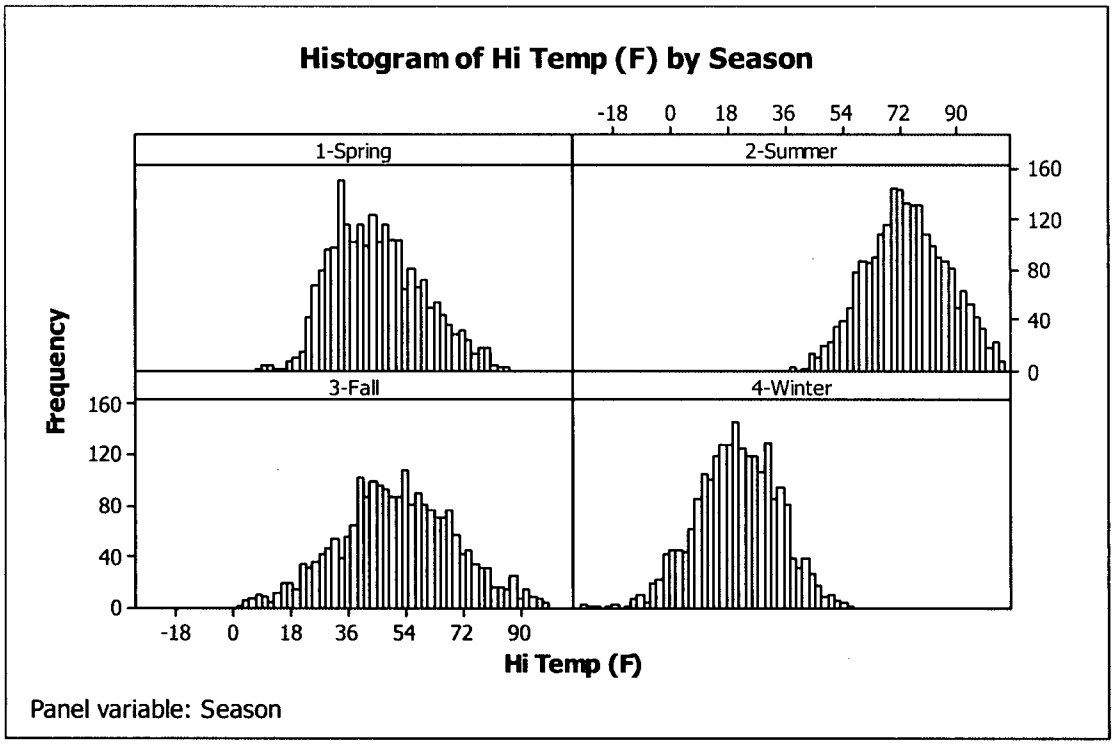
Variable	Month	N	N*	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Hi Temp (F)	1	744	0	17.176	14.043	-28.000	8.250	18.000	27.000	52.000
	2	696	0	25.307	10.827	-1.000	18.000	25.000	34.000	54.000
	3	720	0	36.100	10.286	8.000	29.000	34.000	42.000	68.000
	4	720	0	44.954	14.008	9.000	35.000	43.000	54.000	82.000
	5	744	0	53.663	11.834	23.000	45.000	53.000	61.000	85.000
	6	720	0	65.026	10.932	37.000	57.000	64.000	73.000	95.000
	7	744	0	78.593	11.209	47.000	71.000	78.000	87.000	104.000
	8	744	0	76.902	11.387	50.000	69.000	76.000	85.000	104.000
	9	720	0	65.635	13.798	35.000	56.000	65.000	75.000	97.000
	10	744	0	51.003	12.020	23.000	42.000	50.000	60.000	87.000
	11	720	0	36.133	14.917	2.000	25.250	36.000	47.000	73.000
	12	744	0	17.262	11.831	-13.000	9.000	17.000	25.000	55.000

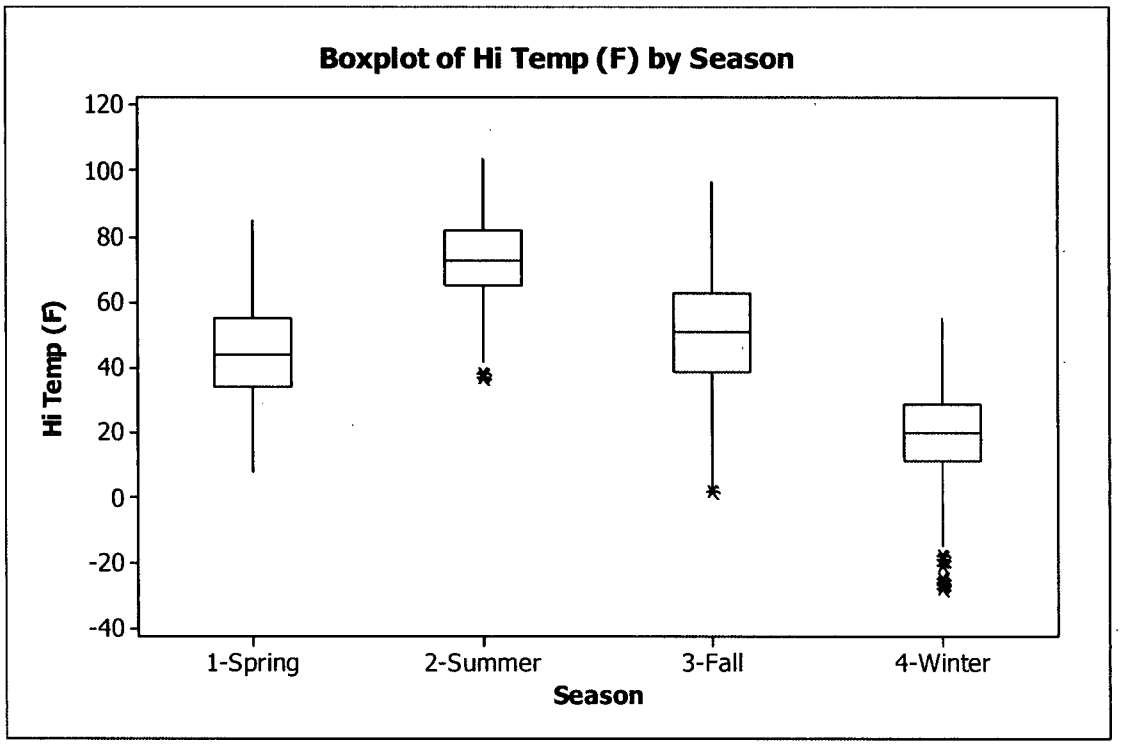




Descriptive Statistics: Hi Temp (F)

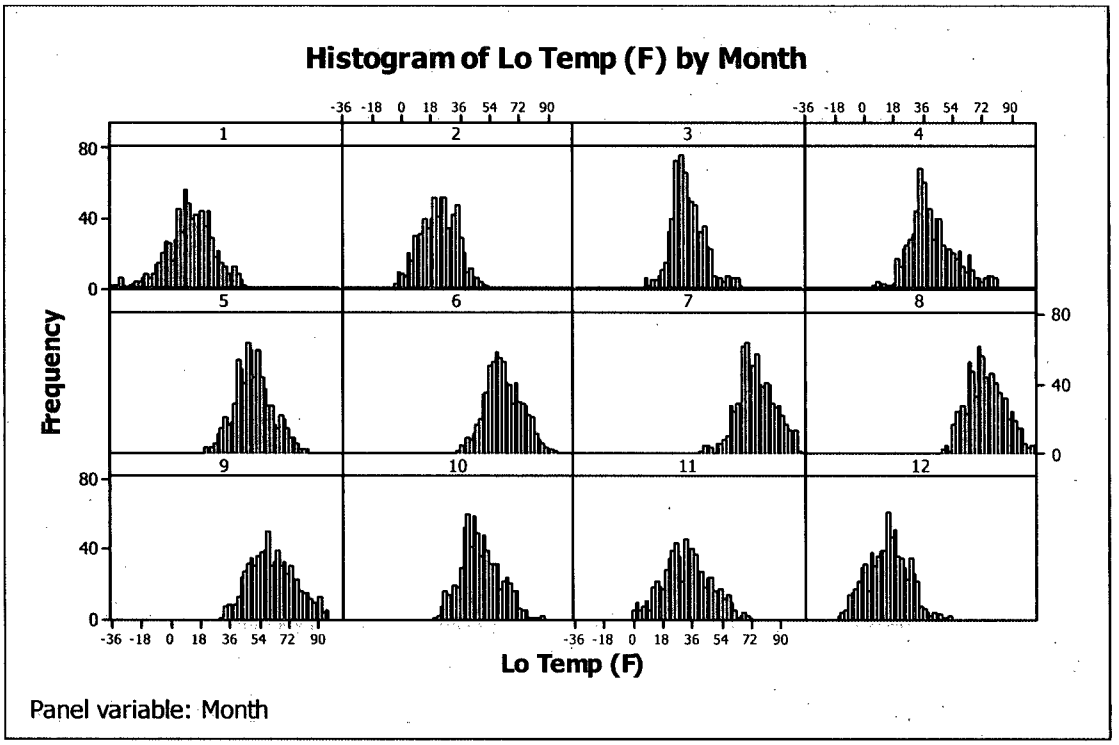
Variable	Season	N	N*	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Hi Temp (F)	1-Spring	2184	0	45.002	14.101	8.000	34.000	44.000	55.000	85.000
	2-Summer	2208	0	73.599	12.686	37.000	65.000	73.000	82.000	104.000
	3-Fall	2184	0	50.924	18.130	2.000	39.000	51.000	63.000	97.000
	4-Winter	2184	0	19.797	12.896	-28.000	11.000	20.000	29.000	55.000

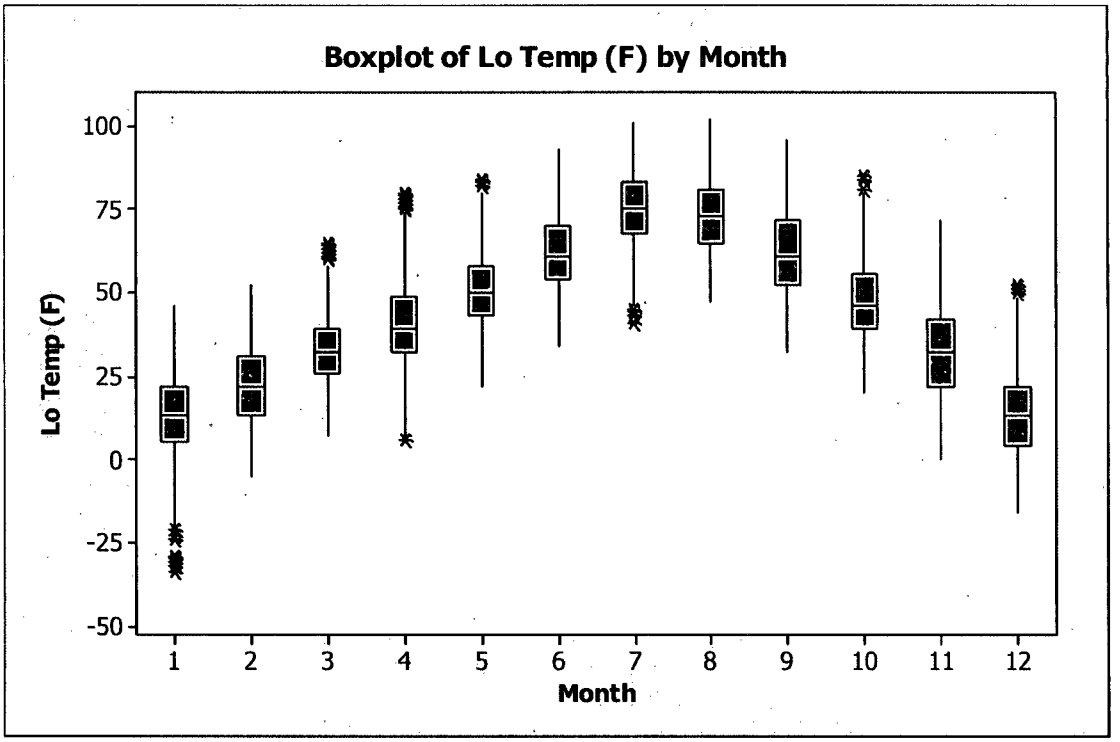

Histogram of Hi Temp (F) by Season
1-Spring
2-Summer
3-Fall
4-Winter
Frequency
Hi Temp (F)
-18 0 18 36 54 72 90
0 40 80 120 160
Panel variable: Season


Boxplot of Hi Temp (F) by Season
Hi Temp (F)
120
100
80
60
40
20
0
-20
-40
1-Spring
2-Summer
3-Fall
4-Winter
Season

Descriptive Statistics: Lo Temp (F)

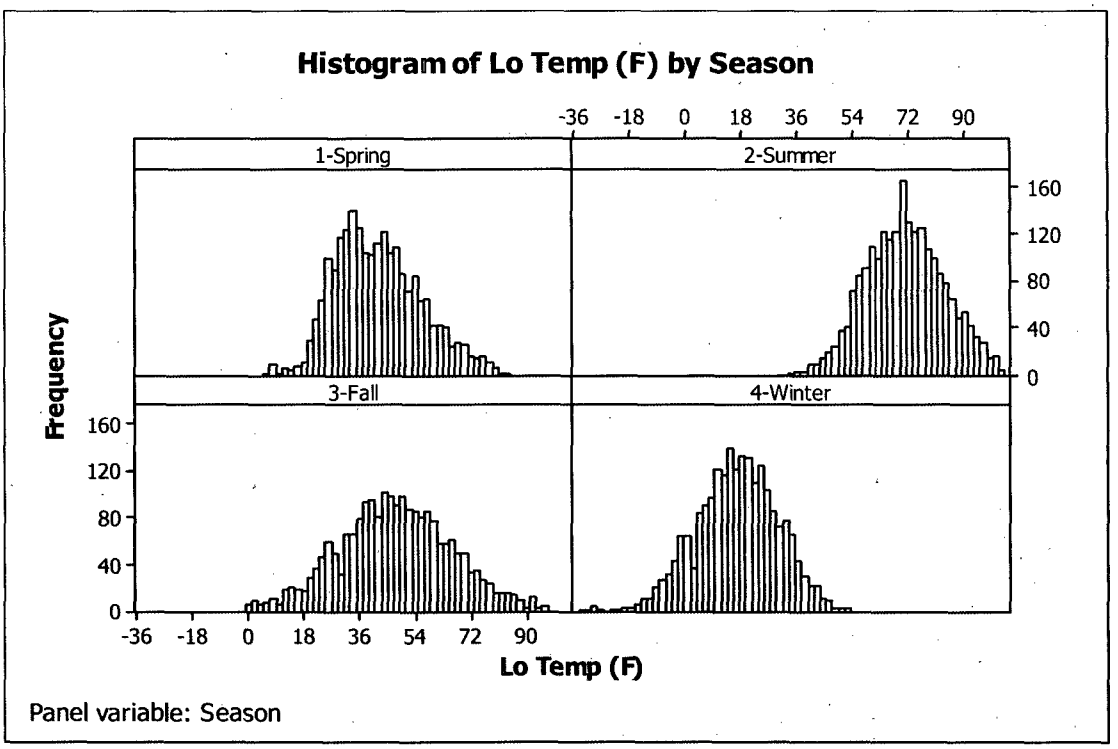
Variable	Month	N	N*	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Lo Temp (F)	1	744	0	12.538	13.869	-34.000	5.000	13.000	22.000	46.000
	2	696	0	21.797	11.032	-5.000	13.250	22.000	31.000	52.000
	3	720	0	32.993	9.890	7.000	26.000	32.000	39.000	65.000
	4	720	0	41.326	13.840	6.000	32.000	39.000	49.000	80.000
	5	744	0	50.719	11.503	22.000	43.000	50.000	58.000	84.000
	6	720	0	61.635	10.928	34.000	54.000	61.000	70.000	93.000
	7	744	0	75.144	11.330	41.000	68.000	75.000	83.000	101.000
	8	744	0	73.449	11.173	47.000	65.000	73.000	81.000	102.000
	9	720	0	61.931	13.775	32.000	52.000	61.000	72.000	96.000
	10	744	0	47.539	12.074	20.000	39.000	46.000	55.750	85.000
	11	720	0	32.004	14.599	0.000	22.000	32.000	42.000	72.000
	12	744	0	12.957	12.541	-16.000	4.000	13.000	22.000	52.000

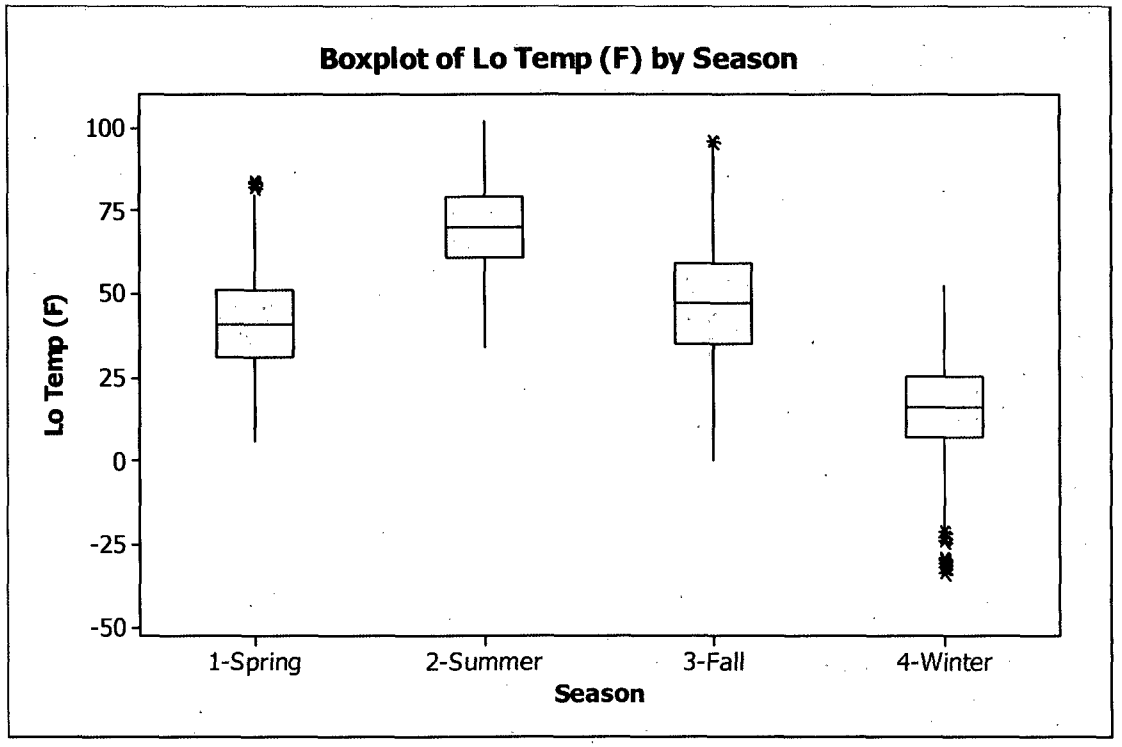




Descriptive Statistics: Lo Temp (F)

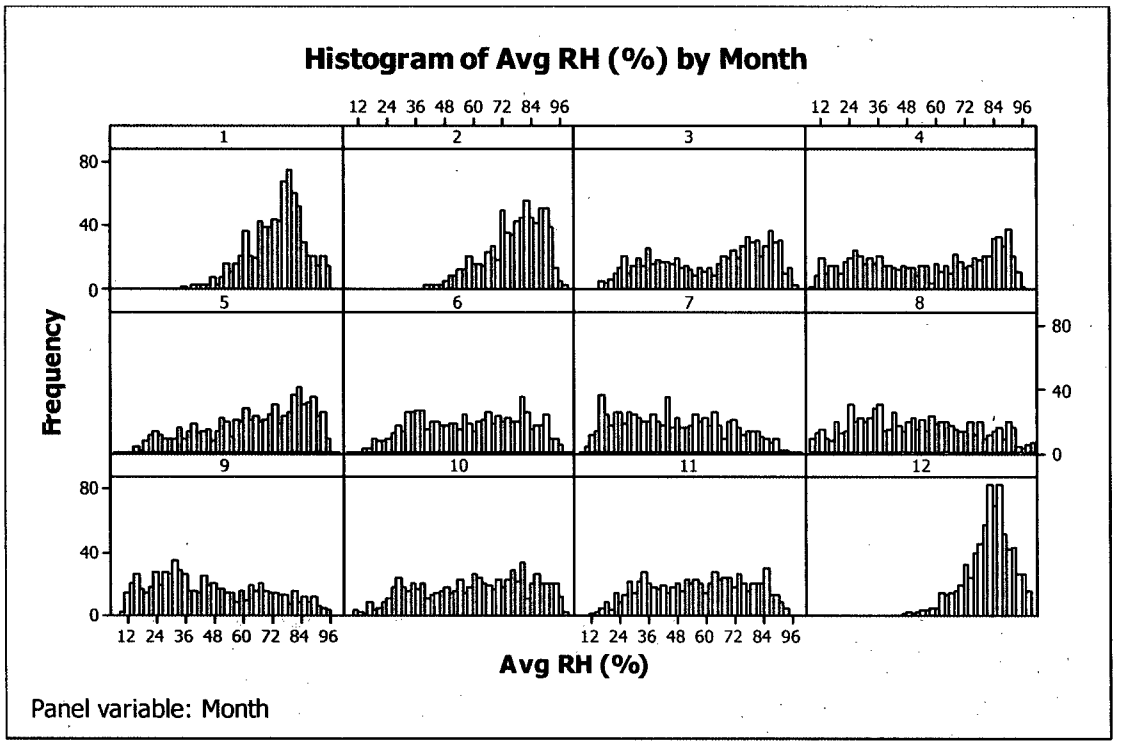
Variable	Season	N	N*	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Lo Temp (F)	1-Spring	2184	0	41.779	13.896	6.000	31.000	41.000	51.000	84.000
	2-Summer	2208	0	70.168	12.644	34.000	61.000	70.000	79.000	102.000
	3-Fall	2184	0	47.162	18.168	0.000	35.000	47.000	59.000	96.000
	4-Winter	2184	0	15.631	13.250	-34.000	7.000	16.000	25.000	52.000

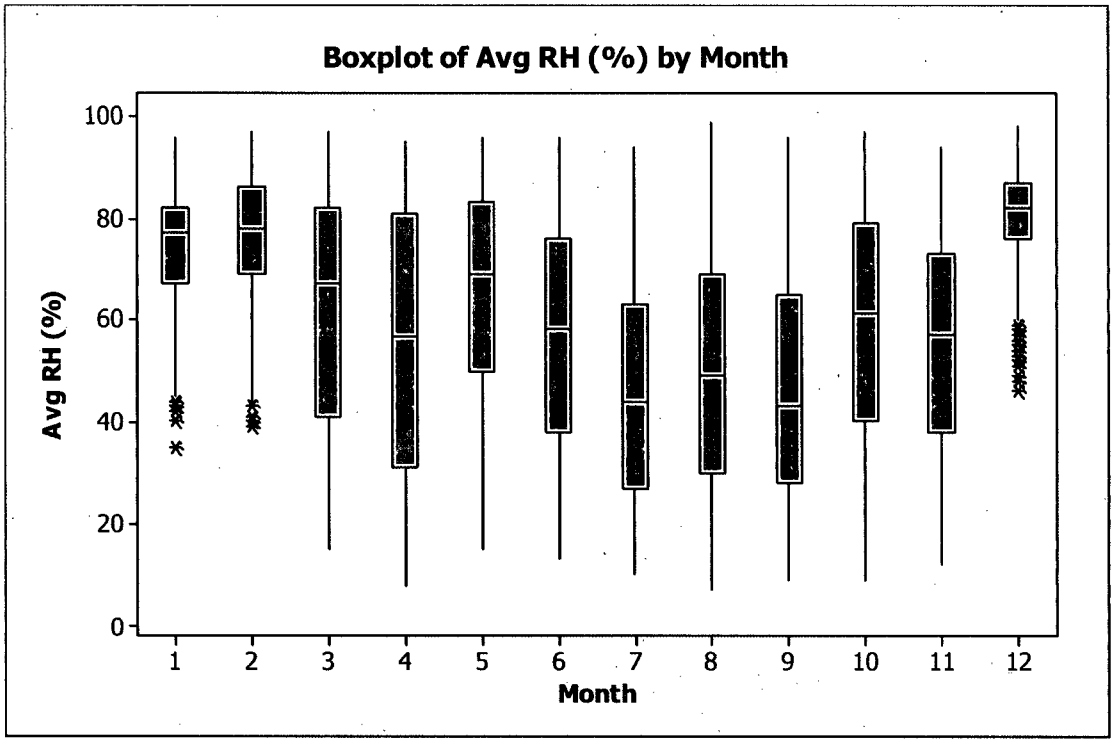

Histogram of Lo Temp (F) by Season
1-Spring
2-Summer
3-Fall
4-Winter
Frequency
Lo Temp (F)
-36 -18 0 18 36 54 72 90
0 40 80 120 160
Panel variable: Season


Boxplot of Lo Temp (F) by Season
Lo Temp (F)
100
75
50
25
0
-25
-50
1-Spring
2-Summer
3-Fall
4-Winter
Season

Descriptive Statistics: Avg RH (%)

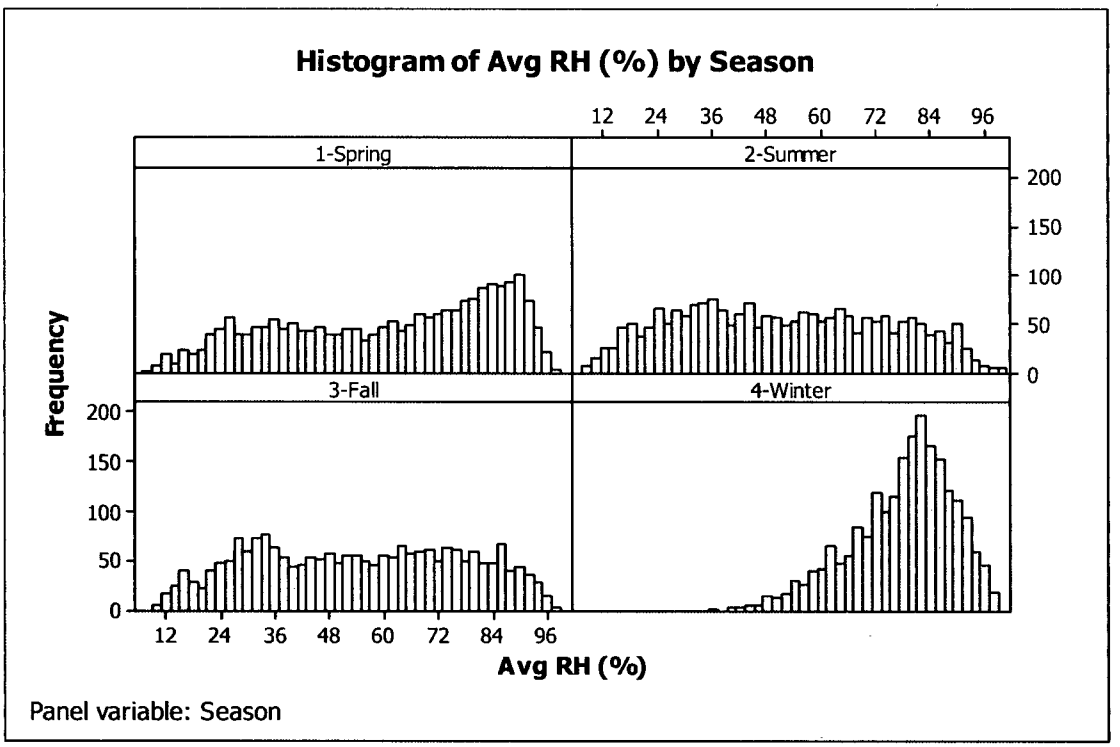
Variable	Month	N	N*	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Avg RH (%)	1	744	0	74.401	11.316	35.000	67.000	77.000	82.000	96.000
	2	696	0	76.204	12.055	39.000	69.000	78.000	86.000	97.000
	3	720	0	61.858	22.846	15.000	41.000	67.000	82.000	97.000
	4	720	0	55.276	26.033	8.000	31.250	56.500	80.750	95.000
	5	744	0	64.849	21.121	15.000	50.000	69.000	83.000	96.000
	6	720	0	57.286	21.158	13.000	38.000	58.000	76.000	96.000
	7	744	0	45.902	21.533	10.000	27.000	44.000	63.000	94.000
	8	744	0	49.981	23.951	7.000	30.000	49.000	69.000	99.000
	9	720	0	46.239	22.786	9.000	28.000	43.000	65.000	96.000
	10	744	0	59.480	22.502	9.000	40.000	61.000	79.000	97.000
	11	720	0	56.265	20.717	12.000	38.000	57.000	73.000	94.000
	12	744	0	80.942	9.595	46.000	76.000	82.000	87.000	98.000

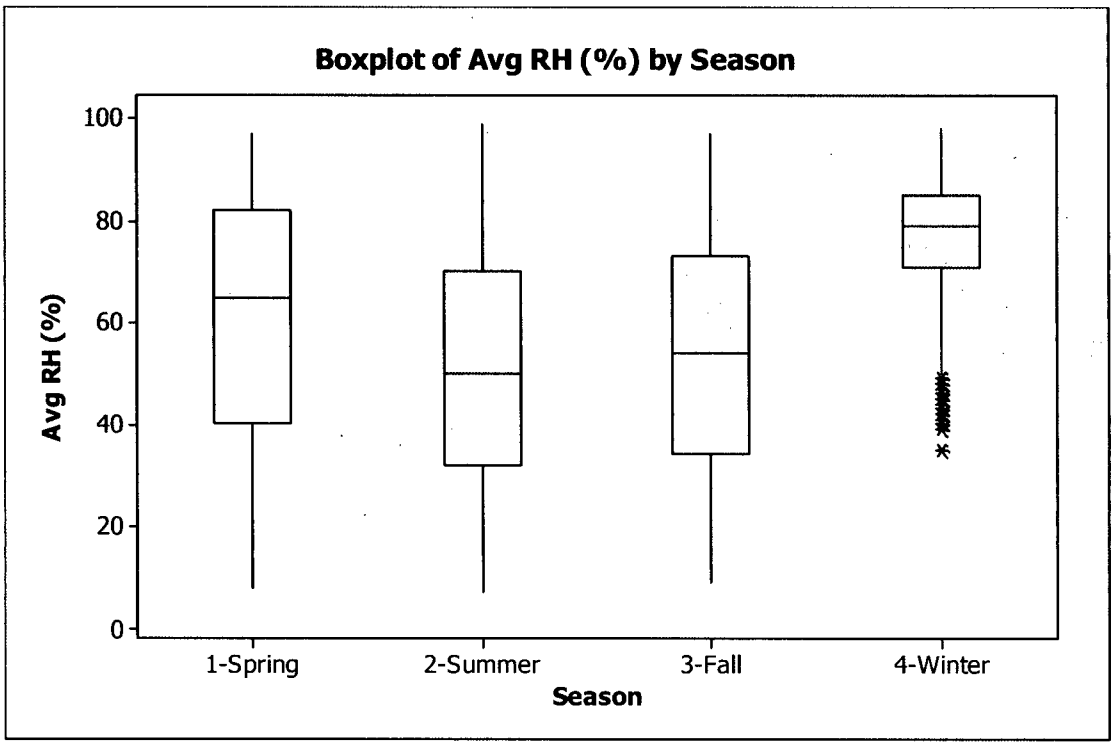




Descriptive Statistics: Avg RH (%)

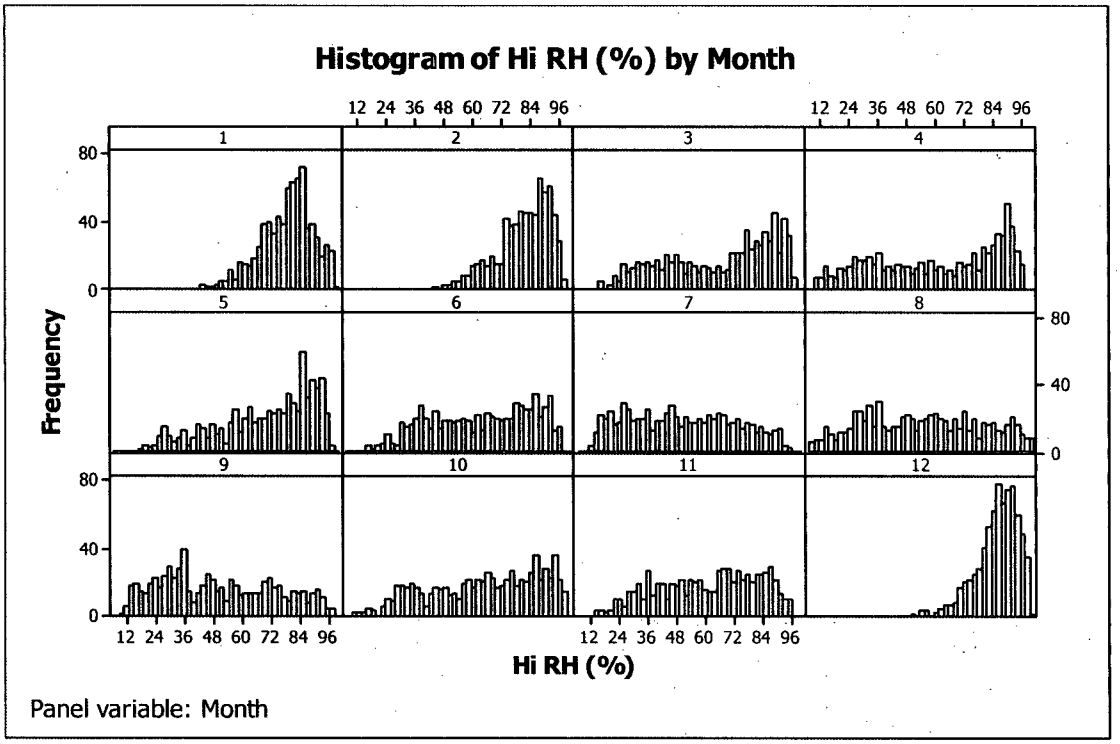
Variable	Season	N	N*	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Avg RH (%)	1-Spring	2184	0	60.707	23.727	8.000	40.000	65.000	82.000	97.000
	2-Summer	2208	0	50.989	22.739	7.000	32.000	50.000	70.000	99.000
	3-Fall	2184	0	54.055	22.726	9.000	34.000	54.000	73.000	97.000
	4-Winter	2184	0	77.204	11.355	35.000	71.000	79.000	85.000	98.000

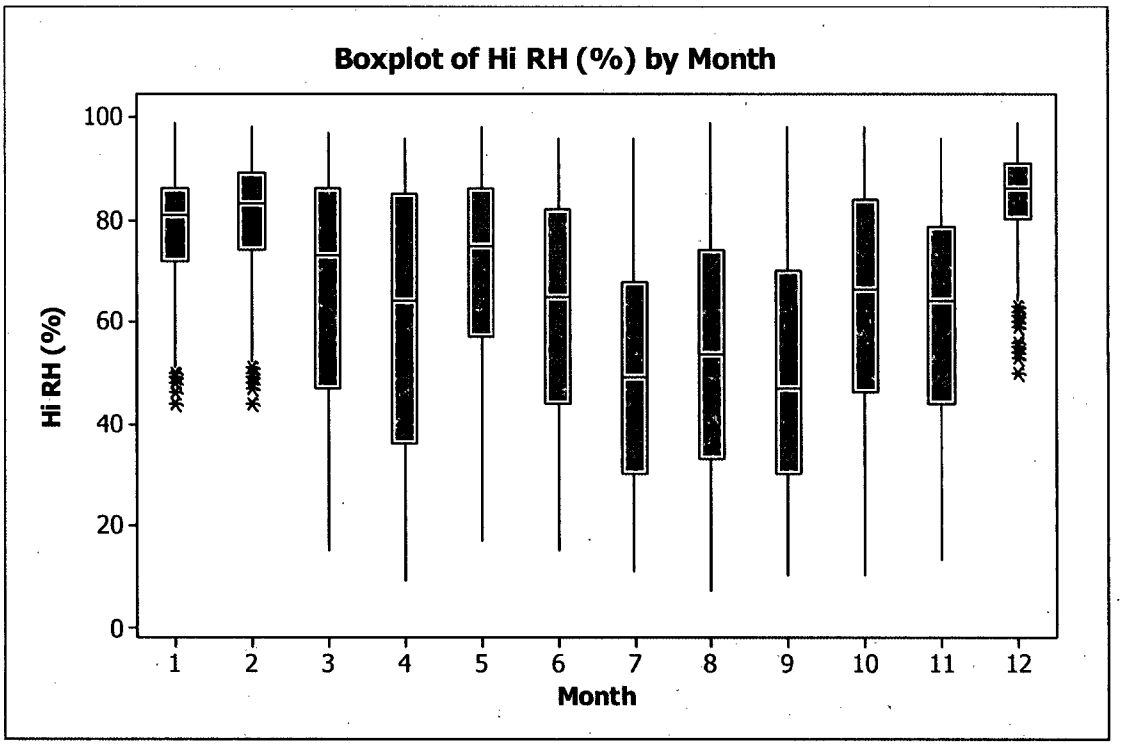

Histogram of Avg RH (%) by Season
1-Spring
2-Summer
3-Fall
4-Winter
Frequency
Avg RH (%)
Panel variable: Season


Boxplot of Avg RH (%) by Season
Avg RH (%)
1-Spring
2-Summer
3-Fall
4-Winter
Season

Descriptive Statistics: Hi RH (%)

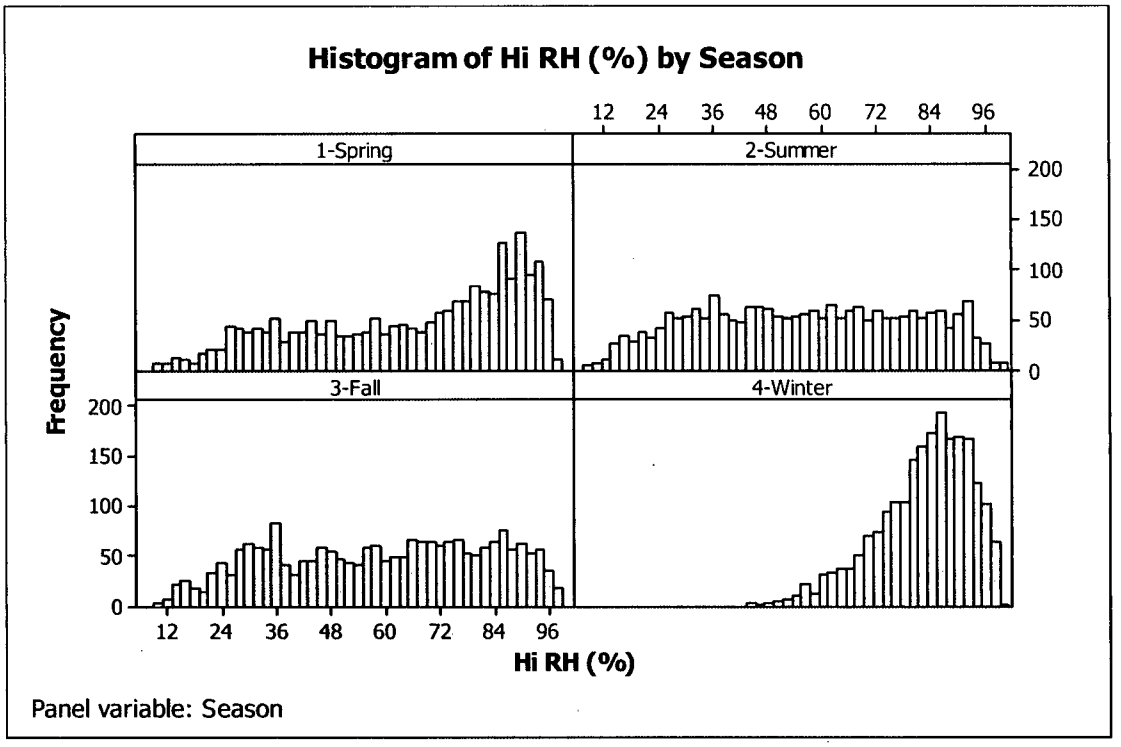
Variable	Month	N	N*	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Hi RH (%)	1	744	0	79.089	10.652	44.000	72.000	81.000	86.000	99.000
	2	696	0	80.704	10.902	44.000	74.000	83.000	89.000	98.000
	3	720	0	66.451	22.568	15.000	47.000	73.000	86.000	97.000
	4	720	0	60.206	26.101	9.000	36.000	64.000	85.000	96.000
	5	744	0	69.940	20.135	17.000	57.000	75.000	86.000	98.000
	6	720	0	62.814	21.013	15.000	44.000	65.000	82.000	96.000
	7	744	0	49.991	22.415	11.000	30.000	49.000	68.000	96.000
	8	744	0	53.909	24.419	7.000	33.000	53.500	74.000	99.000
	9	720	0	50.150	23.648	10.000	30.000	47.000	70.000	98.000
	10	744	0	63.888	22.670	10.000	46.000	66.500	84.000	98.000
	11	720	0	60.954	20.860	13.000	44.000	64.000	78.750	96.000
	12	744	0	84.997	8.711	50.000	80.000	86.000	91.000	99.000

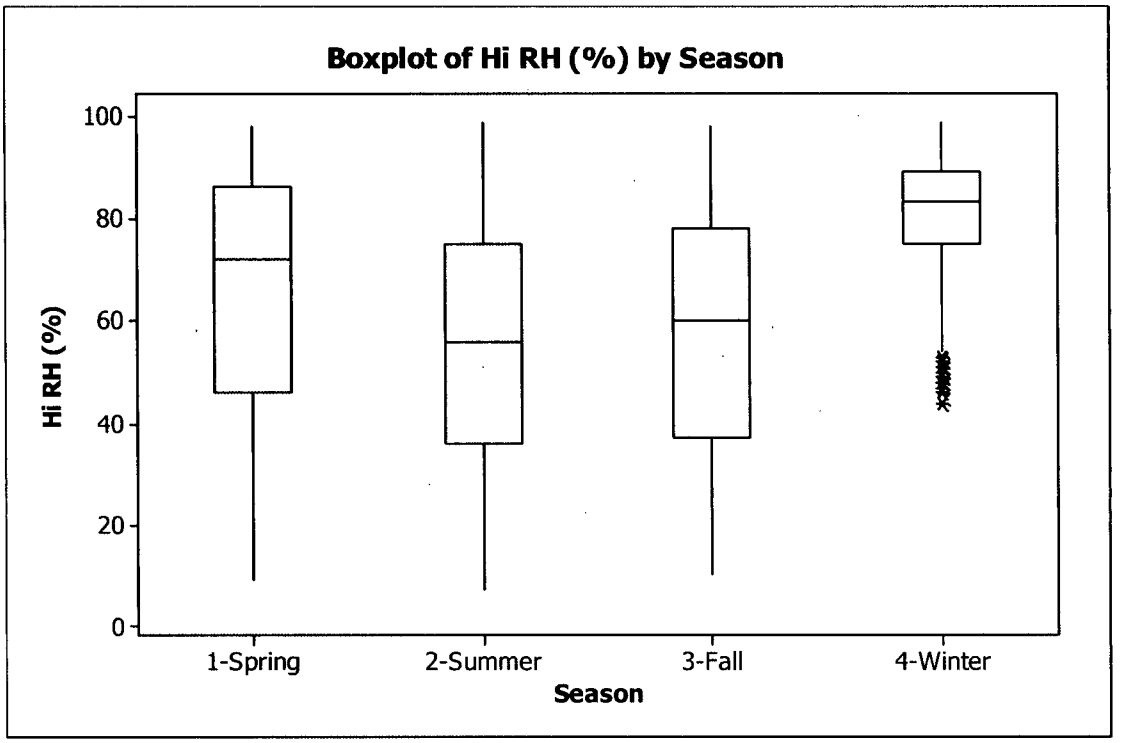




Descriptive Statistics: Hi RH (%)

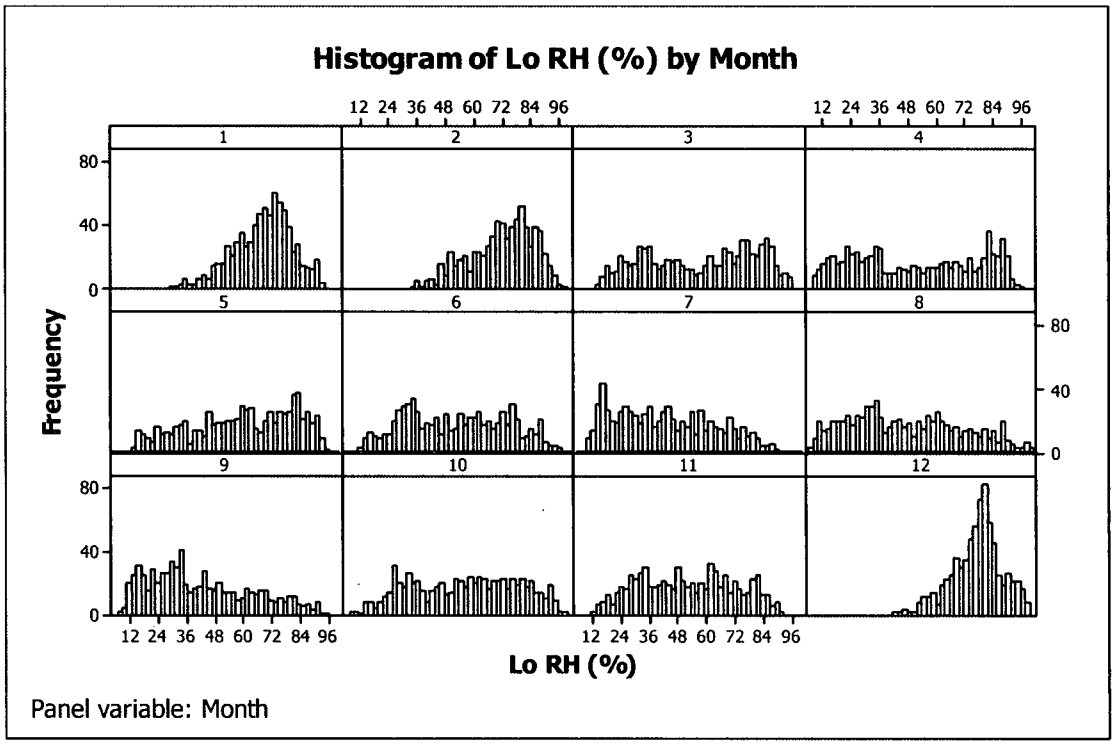
Variable	Season	N	N*	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Hi RH (%)	1-Spring	2184	0	65.581	23.375	9.000	46.000	72.000	86.000	98.000
	2-Summer	2208	0	55.492	23.286	7.000	36.000	56.000	75.000	99.000
	3-Fall	2184	0	58.392	23.180	10.000	37.000	60.000	78.000	98.000
	4-Winter	2184	0	81.616	10.422	44.000	75.000	83.000	89.000	99.000

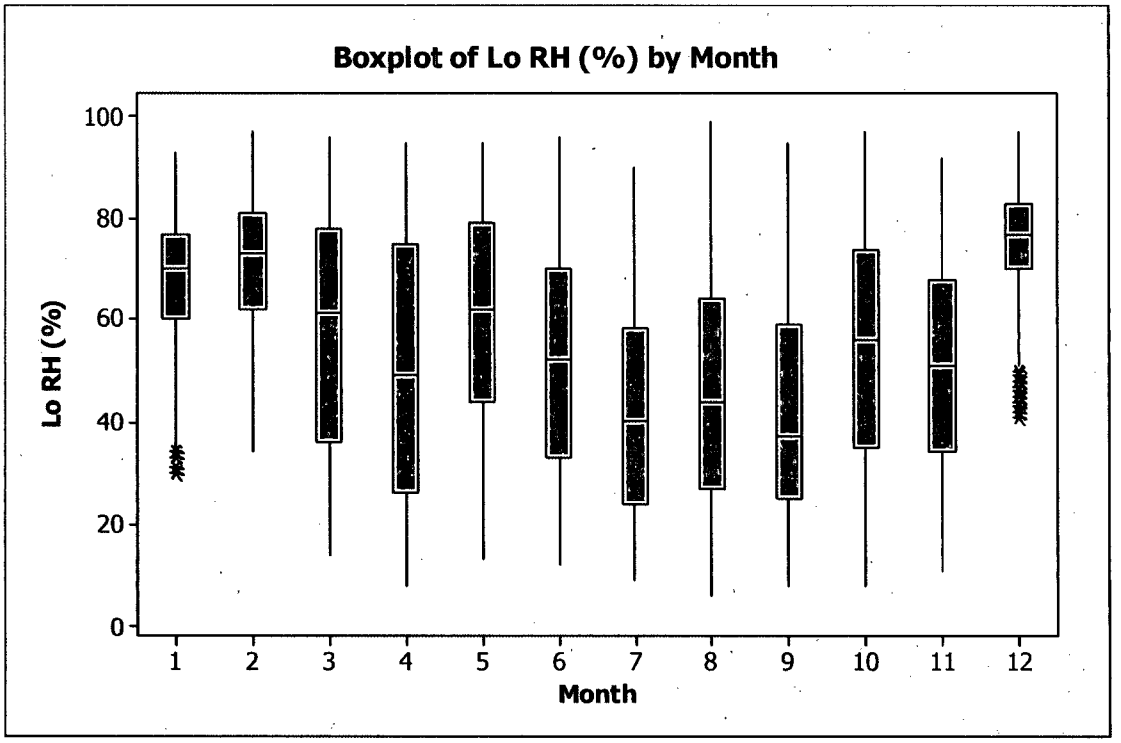

Histogram of Hi RH (%) by Season
1-Spring
2-Summer
3-Fall
4-Winter
Frequency
Hi RH (%)
Panel variable: Season


Boxplot of Hi RH (%) by Season
Hi RH (%)
1-Spring
2-Summer
3-Fall
4-Winter
Season

Descriptive Statistics: Lo RH (%)

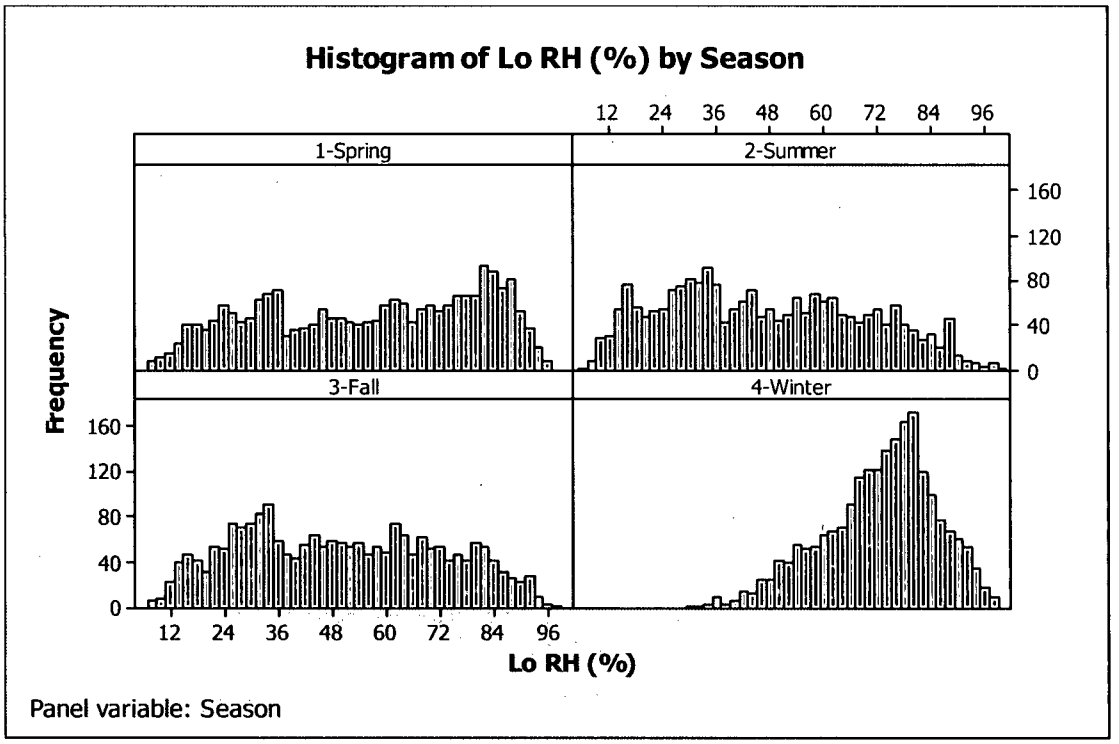
Variable	Month	N	N*	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Lo RH (%)	1	744	0	68.601	12.330	30.000	60.000	70.000	77.000	93.000
	2	696	0	71.119	13.476	34.000	62.000	73.000	81.000	97.000
	3	720	0	57.353	22.974	14.000	36.000	61.000	78.000	96.000
	4	720	0	50.326	25.874	8.000	26.250	49.000	75.000	95.000
	5	744	0	59.954	21.723	13.000	44.000	62.000	79.000	95.000
	6	720	0	51.854	21.077	12.000	33.000	52.000	70.000	96.000
	7	744	0	42.000	20.728	9.000	24.000	40.000	58.000	90.000
	8	744	0	45.991	23.599	6.000	27.000	44.000	64.000	99.000
	9	720	0	42.293	21.856	8.000	25.000	37.000	59.000	95.000
	10	744	0	54.921	22.251	8.000	35.000	56.000	74.000	97.000
	11	720	0	51.574	20.250	11.000	34.000	51.000	68.000	92.000
	12	744	0	75.931	11.041	41.000	70.000	77.000	83.000	97.000

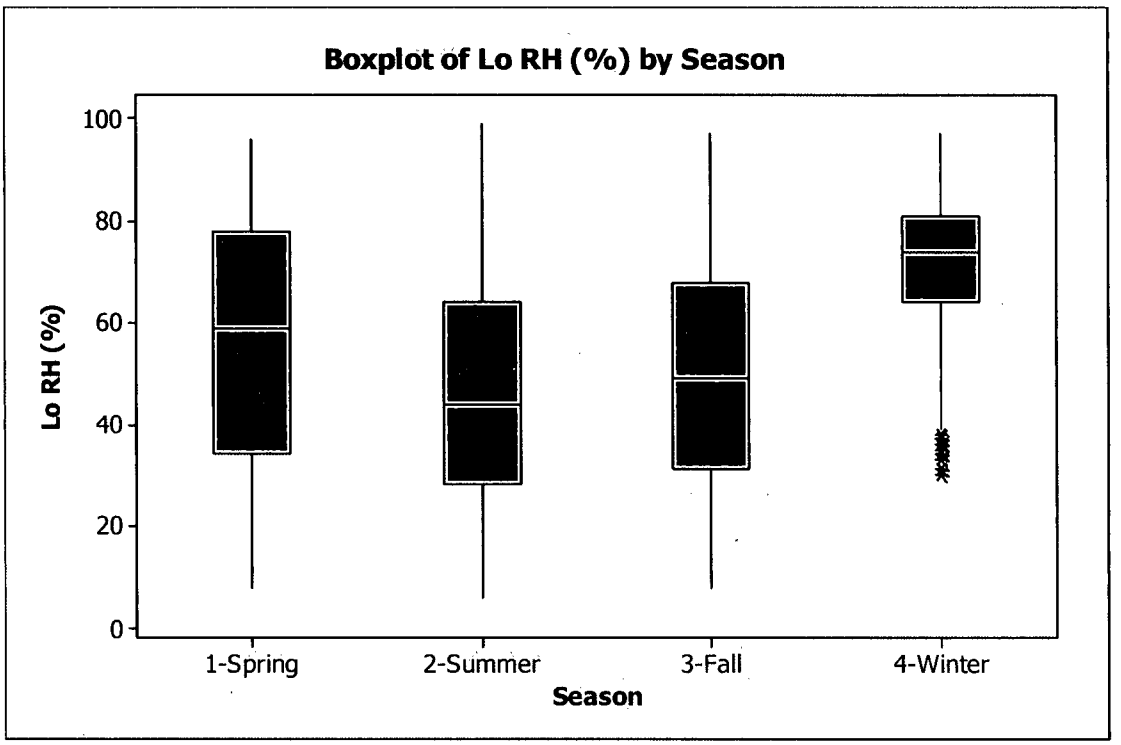




Descriptive Statistics: Lo RH (%)

Variable	Season	N	N*	Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Lo RH (%)	1-Spring	2184	0	55.923	23.906	8.000	34.000	59.000	78.000	96.000
	2-Summer	2208	0	46.558	22.206	6.000	28.000	44.000	64.000	99.000
	3-Fall	2184	0	49.654	22.123	8.000	31.000	49.000	68.000	97.000
	4-Winter	2184	0	71.901	12.669	30.000	64.000	74.000	81.000	97.000


Histogram of Lo RH (%) by Season
1-Spring
2-Summer
3-Fall
4-Winter
Frequency
Lo RH (%)
Panel variable: Season


Boxplot of Lo RH (%) by Season
Lo RH (%)
1-Spring
2-Summer
3-Fall
4-Winter
Season

Descriptive Statistics: Precip (Inches)

Variable	Month	N	N*	Sum	Maximum
Precip (Inches)	1	744	0	0.130000	0.050000
	2	696	0	0.210000	0.040000
	3	720	0	0.400000	0.130000
	4	720	0	0.980000	0.330000
	5	744	0	3.80000	0.71000
	6	720	0	1.770000	0.420000
	7	744	0	1.870000	0.460000
	8	744	0	0.870000	0.160000
	9	720	0	0.790000	0.140000
	10	744	0	1.230000	0.220000
	11	720	0	0.100000	0.050000
	12	744	0	0.270000	0.040000

APPENDIX 3.6-C

SITE-SPECIFIC WIND ANALYSIS

POWERTECH (USA) INC.

APPENDIX 3.6-C
SITE-SPECIFIC WIND ANALYSIS

Station ID: 1 Run ID:
Year: 2007 2008
Date Range: July 2007–July 2008
Time Range: 00:00 - 23:00

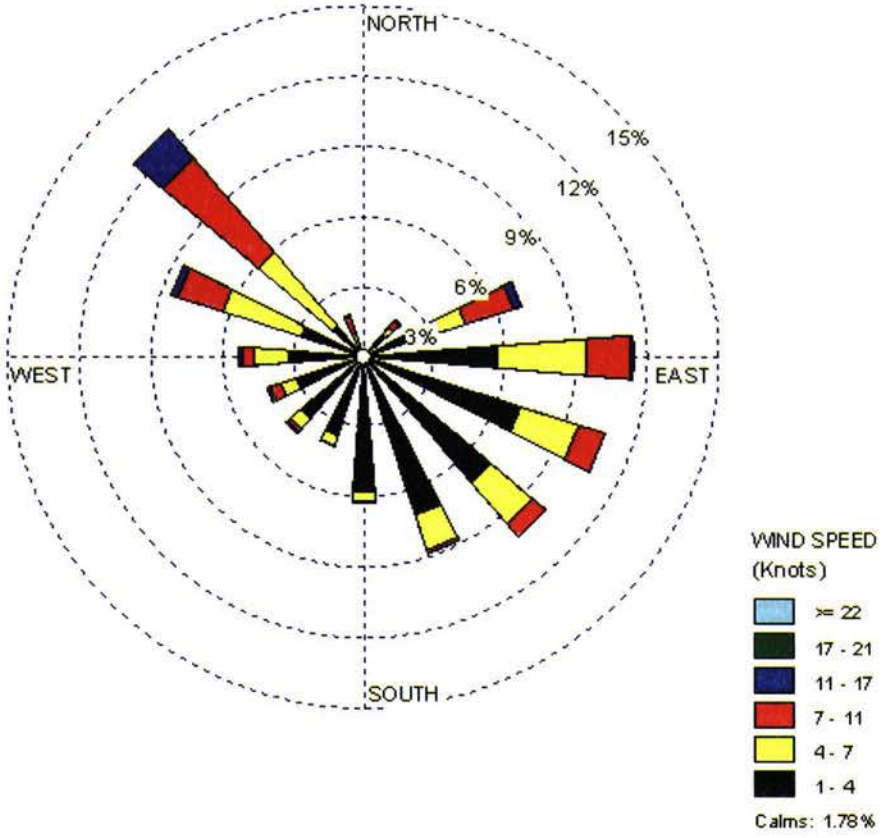
Frequency Distribution
(Normalized)

Speed Knots

Wind Direction	1 - 4	4 - 7	7 - 11	11 - 17	17 - 21	>= 22	Total
348.75 - 11.25	0.000345	0.000115	0.000000	0.000000	0.000000	0.000000	0.000459
11.25 - 33.75	0.002526	0.000804	0.000459	0.000115	0.000000	0.000000	0.003904
33.75 - 56.25	0.012517	0.003790	0.003790	0.000804	0.000230	0.000230	0.021360
56.25 - 78.75	0.028250	0.016996	0.021475	0.003330	0.000459	0.000000	0.070510
78.75 - 101.25	0.057074	0.037322	0.018489	0.001263	0.000000	0.000000	0.114148
101.25 - 123.75	0.069936	0.025609	0.011713	0.000000	0.000000	0.000000	0.107258
123.75 - 146.25	0.070740	0.022738	0.007350	0.000115	0.000115	0.000000	0.101056
146.25 - 168.75	0.071199	0.015618	0.001378	0.000345	0.000000	0.000000	0.088539
168.75 - 191.25	0.057533	0.004364	0.000459	0.000230	0.000000	0.000000	0.062586
191.25 - 213.75	0.035829	0.004364	0.000345	0.000115	0.000000	0.000000	0.040652
213.75 - 236.25	0.035140	0.005397	0.002182	0.001034	0.000000	0.000000	0.043753
236.25 - 258.75	0.030202	0.006890	0.004593	0.001493	0.000115	0.000000	0.043294
258.75 - 281.25	0.032269	0.014469	0.004364	0.001952	0.000000	0.000000	0.053055
281.25 - 303.75	0.027905	0.034566	0.019982	0.002986	0.000000	0.000000	0.085439
303.75 - 326.25	0.017570	0.040652	0.052710	0.015962	0.000230	0.000000	0.127124
326.25 - 348.75	0.004364	0.006546	0.006775	0.001263	0.000115	0.000000	0.019063
Sub-Total:	0.553399	0.240239	0.156063	0.031006	0.001263	0.000230	0.973702

Calms:
0.017646
Missing/Incomplete:
0.008652
Total: 1.000000

Frequency of Calm Winds: 1.78%
Average Wind Speed: 4.38 Knots



POWERTECH (USA) INC.

JANUARY

Station ID: 1 Run ID:
Year: 2008
Date Range: Jan 1 - Jan 31
Time Range: 00:00 - 23:00

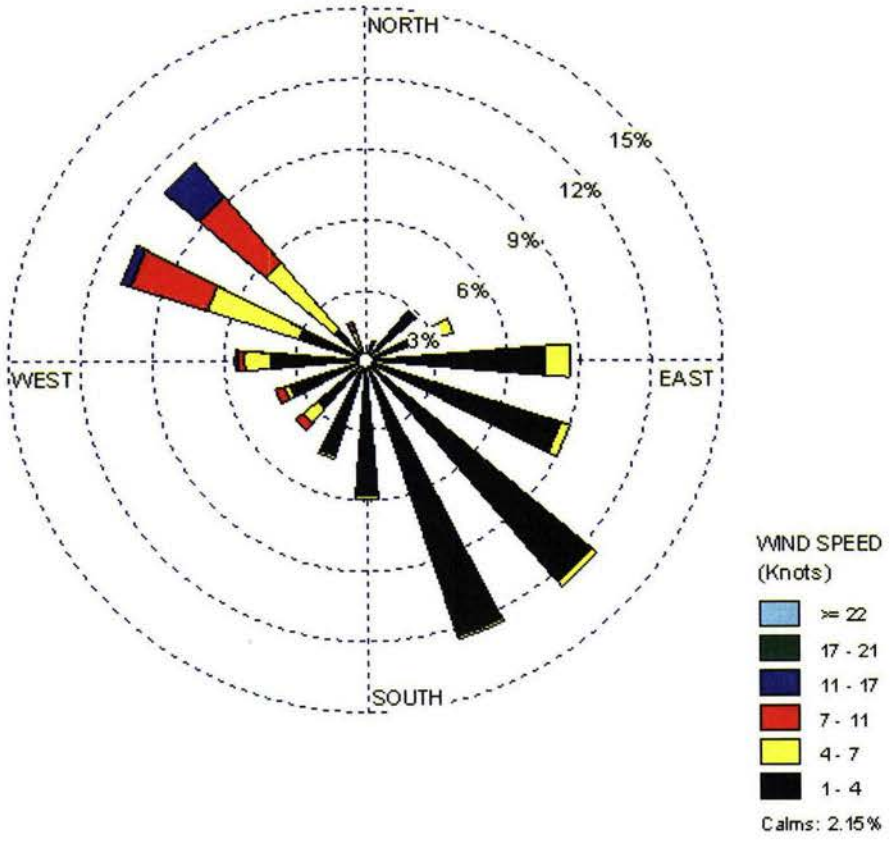
Frequency Distribution
(Normalized)

Speed Knots

Wind Direction	1 - 4	4 - 7	7 - 11	11 - 17	17 - 21	>= 22	Total
348.75 - 11.25	0.001344	0.000000	0.000000	0.000000	0.000000	0.000000	0.001344
11.25 - 33.75	0.009409	0.000000	0.000000	0.000000	0.000000	0.000000	0.009409
33.75 - 56.25	0.028226	0.000000	0.000000	0.000000	0.000000	0.000000	0.028226
56.25 - 78.75	0.032258	0.006720	0.000000	0.000000	0.000000	0.000000	0.038978
78.75 - 101.25	0.075269	0.010753	0.000000	0.000000	0.000000	0.000000	0.086022
101.25 - 123.75	0.086022	0.004032	0.000000	0.000000	0.000000	0.000000	0.090054
123.75 - 146.25	0.123656	0.002688	0.000000	0.000000	0.000000	0.000000	0.126344
146.25 - 168.75	0.123656	0.001344	0.000000	0.000000	0.000000	0.000000	0.125000
168.75 - 191.25	0.057796	0.001344	0.000000	0.000000	0.000000	0.000000	0.059140
191.25 - 213.75	0.043011	0.001344	0.000000	0.000000	0.000000	0.000000	0.044355
213.75 - 236.25	0.026882	0.008065	0.004032	0.000000	0.000000	0.000000	0.038978
236.25 - 258.75	0.033602	0.002688	0.004032	0.000000	0.000000	0.000000	0.040323
258.75 - 281.25	0.040323	0.010753	0.002688	0.001344	0.000000	0.000000	0.055108

281.25 - 303.75	0.029570	0.040323	0.033602	0.004032	0.000000	0.000000
0.107527						
303.75 - 326.25	0.017473	0.037634	0.036290	0.018817	0.000000	0.000000
0.110215						
326.25 - 348.75	0.004032	0.009409	0.002688	0.001344	0.000000	0.000000
0.017473						
Sub-Total:	0.732527	0.137097	0.083333	0.025538	0.000000	0.000000
0.887805						
Calms:						0.019512
Missing/Incomplete:						0.092683
Total:						1.000000

Frequency of Calm Winds: 2.15%
Average Wind Speed: 3.38 Knots



POWERTECH (USA) INC.

FEBRUARY

Station ID: 1 Run ID:
Year: 2008
Date Range: Feb 1 - Feb 28
Time Range: 00:00 - 23:00

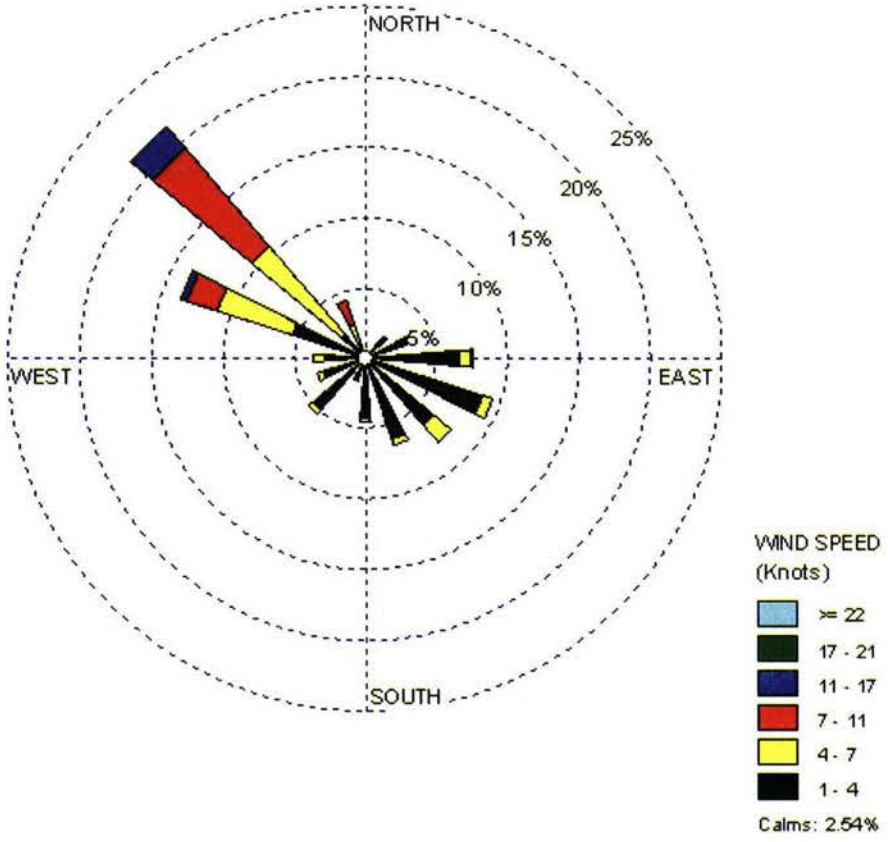
Frequency Distribution
(Normalized)

Speed Knots

Wind Direction	1 - 4	4 - 7	7 - 11	11 - 17	17 - 21	>= 22	Total
348.75 - 11.25	0.001493	0.000000	0.000000	0.000000	0.000000	0.000000	0.001493
11.25 - 33.75	0.001493	0.000000	0.000000	0.000000	0.000000	0.000000	0.001493
33.75 - 56.25	0.020896	0.000000	0.000000	0.000000	0.000000	0.000000	0.020896
56.25 - 78.75	0.044776	0.007463	0.000000	0.000000	0.000000	0.000000	0.052239
78.75 - 101.25	0.065672	0.008955	0.001493	0.000000	0.000000	0.000000	0.076119
101.25 - 123.75	0.086567	0.007463	0.000000	0.000000	0.000000	0.000000	0.094030
123.75 - 146.25	0.062687	0.016418	0.000000	0.000000	0.000000	0.000000	0.079104
146.25 - 168.75	0.061194	0.004478	0.000000	0.000000	0.000000	0.000000	0.065672
168.75 - 191.25	0.043284	0.002985	0.000000	0.000000	0.000000	0.000000	0.046269
191.25 - 213.75	0.017910	0.000000	0.000000	0.000000	0.000000	0.000000	0.017910
213.75 - 236.25	0.049254	0.002985	0.000000	0.000000	0.000000	0.000000	0.052239
236.25 - 258.75	0.031343	0.004478	0.000000	0.000000	0.000000	0.000000	0.035821
258.75 - 281.25	0.028358	0.008955	0.000000	0.000000	0.000000	0.000000	0.037313
281.25 - 303.75	0.053731	0.055224	0.022388	0.004478	0.000000	0.000000	0.135821
303.75 - 326.25	0.022388	0.082090	0.089552	0.020896	0.000000	0.000000	0.214925
326.25 - 348.75	0.007463	0.017910	0.017910	0.000000	0.000000	0.000000	0.043284
Sub-Total:	0.598507	0.219403	0.131343	0.025373	0.000000	0.000000	0.875335

Calms:
0.022788
Missing/Incomplete:
0.101877
Total:
1.000000

Frequency of Calm Winds: 2.54%
Average Wind Speed: 3.91 Knots


NORTH
25%
20%
15%
10%
5%
WEST
EAST
SOUTH
WIND SPEED
(Knots)
>= 22
17 - 21
11 - 17
7 - 11
4 - 7
1 - 4
Calms: 2.54%

POWERTECH (USA) INC.

MARCH

Station ID: 1 Run ID:
Year: 2008
Date Range: Mar 1 - Mar 31
Time Range: 00:00 - 23:00

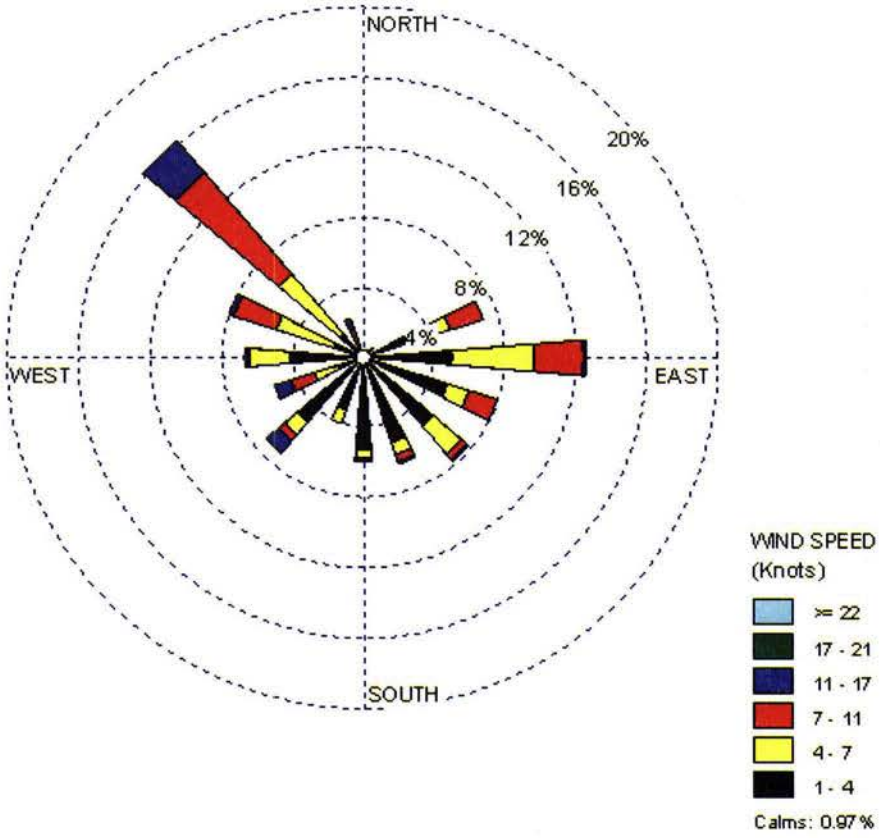
Frequency Distribution
(Normalized)

Speed Knots

Wind Direction	1 - 4	4 - 7	7 - 11	11 - 17	17 - 21	>= 22	Total
348.75 - 11.25	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
11.25 - 33.75	0.000000	0.000000	0.001389	0.000000	0.000000	0.000000	0.001389
33.75 - 56.25	0.019444	0.000000	0.004167	0.000000	0.000000	0.000000	0.023611
56.25 - 78.75	0.023611	0.020833	0.016667	0.000000	0.000000	0.000000	0.061111
78.75 - 101.25	0.040278	0.047222	0.027778	0.000000	0.000000	0.000000	0.115278
101.25 - 123.75	0.061111	0.030556	0.002778	0.000000	0.000000	0.000000	0.094444
123.75 - 146.25	0.047222	0.022222	0.000000	0.000000	0.000000	0.000000	0.069444
146.25 - 168.75	0.048611	0.013889	0.002778	0.000000	0.000000	0.000000	0.065278
168.75 - 191.25	0.047222	0.006944	0.000000	0.000000	0.000000	0.000000	0.054167
191.25 - 213.75	0.025000	0.005556	0.000000	0.001389	0.000000	0.000000	0.031944
213.75 - 236.25	0.020833	0.002778	0.002778	0.000000	0.000000	0.000000	0.026389
236.25 - 258.75	0.026389	0.008333	0.008333	0.002778	0.001389	0.000000	0.047222
258.75 - 281.25	0.030556	0.022222	0.008333	0.009722	0.000000	0.000000	0.070833
281.25 - 303.75	0.026389	0.036111	0.030556	0.005556	0.000000	0.000000	0.098611
303.75 - 326.25	0.037500	0.056944	0.080556	0.027778	0.000000	0.000000	0.202778
326.25 - 348.75	0.004167	0.008333	0.015278	0.001389	0.000000	0.000000	0.029167
Sub-Total:	0.458333	0.281944	0.201389	0.048611	0.001389	0.000000	0.896985

Calms:
0.007538
Missing/Incomplete:
0.095477
Total:
1.000000

Frequency of Calm Winds: 0.83%
Average Wind Speed: 5.04 Knots


NORTH
20%
16%
12%
8%
4%
WEST
EAST
SOUTH
WIND SPEED
(Knots)
>= 22
17 - 21
11 - 17
7 - 11
4 - 7
1 - 4
Calms: 0.97%

POWERTECH (USA) INC.

APRIL

Station ID: 1 Run ID:
Year: 2008
Date Range: Apr 1 - Apr 30
Time Range: 00:00 - 23:00

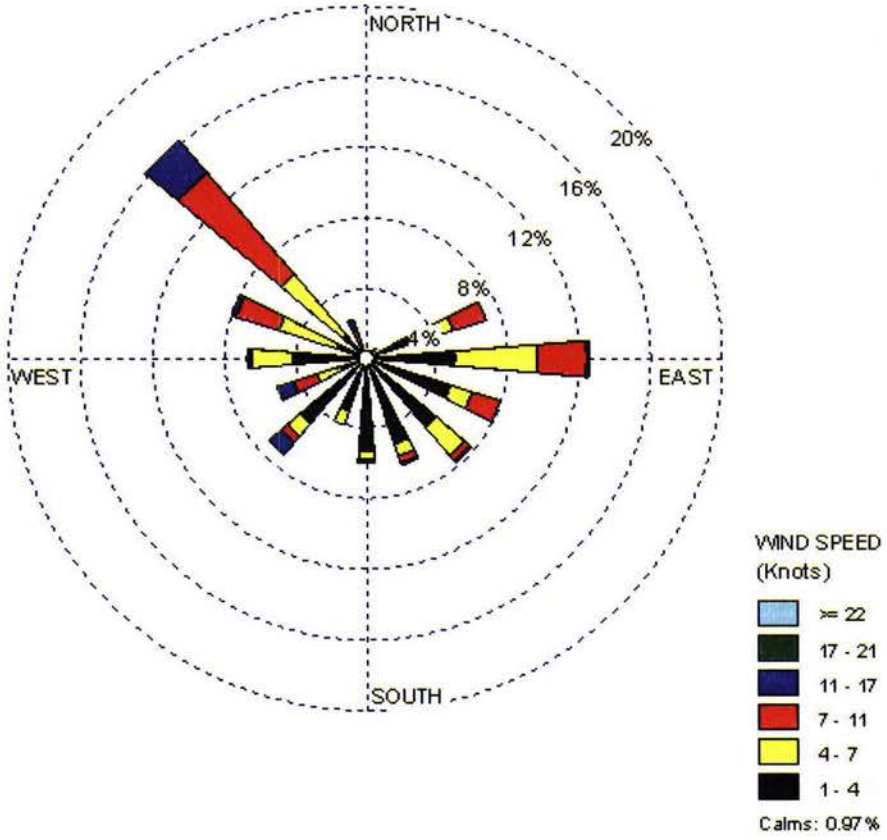
Frequency Distribution
(Normalized)

Speed Knots

Wind Direction	1 - 4	4 - 7	7 - 11	11 - 17	17 - 21	>= 22	Total
348.75 - 11.25	0.001393	0.000000	0.000000	0.000000	0.000000	0.000000	0.001393
11.25 - 33.75	0.005571	0.000000	0.000000	0.000000	0.000000	0.000000	0.005571
33.75 - 56.25	0.005571	0.002786	0.000000	0.000000	0.000000	0.000000	0.008357
56.25 - 78.75	0.029248	0.022284	0.019499	0.000000	0.000000	0.000000	0.071031
78.75 - 101.25	0.050139	0.045961	0.027855	0.001393	0.000000	0.000000	0.125348
101.25 - 123.75	0.050139	0.012535	0.016713	0.000000	0.000000	0.000000	0.079387
123.75 - 146.25	0.051532	0.020891	0.004178	0.001393	0.000000	0.000000	0.077994
146.25 - 168.75	0.051532	0.006964	0.004178	0.001393	0.000000	0.000000	0.064067
168.75 - 191.25	0.052925	0.004178	0.001393	0.001393	0.000000	0.000000	0.059889
191.25 - 213.75	0.032033	0.008357	0.000000	0.000000	0.000000	0.000000	0.040390
213.75 - 236.25	0.048747	0.009749	0.004178	0.009749	0.000000	0.000000	0.072423
236.25 - 258.75	0.015320	0.013928	0.013928	0.009749	0.000000	0.000000	0.052925
258.75 - 281.25	0.041783	0.022284	0.001393	0.001393	0.000000	0.000000	0.066852
281.25 - 303.75	0.018106	0.033426	0.025070	0.002786	0.000000	0.000000	0.079387
303.75 - 326.25	0.018106	0.044568	0.075209	0.023677	0.000000	0.000000	0.161560
326.25 - 348.75	0.004178	0.002786	0.009749	0.006964	0.000000	0.000000	0.023677
Sub-Total:	0.476323	0.250696	0.203343	0.059889	0.000000	0.000000	0.895466

Calms:
0.008816
Missing/Incomplete:
0.095718
Total:
1.000000

Frequency of Calm Winds: 0.97%
Average Wind Speed: 5.17 Knots


NORTH
20%
16%
12%
8%
4%
WEST
EAST
SOUTH
WIND SPEED
(Knots)
>= 22
17 - 21
11 - 17
7 - 11
4 - 7
1 - 4
Calms: 0.97%

POWERTECH (USA) INC.

MAY

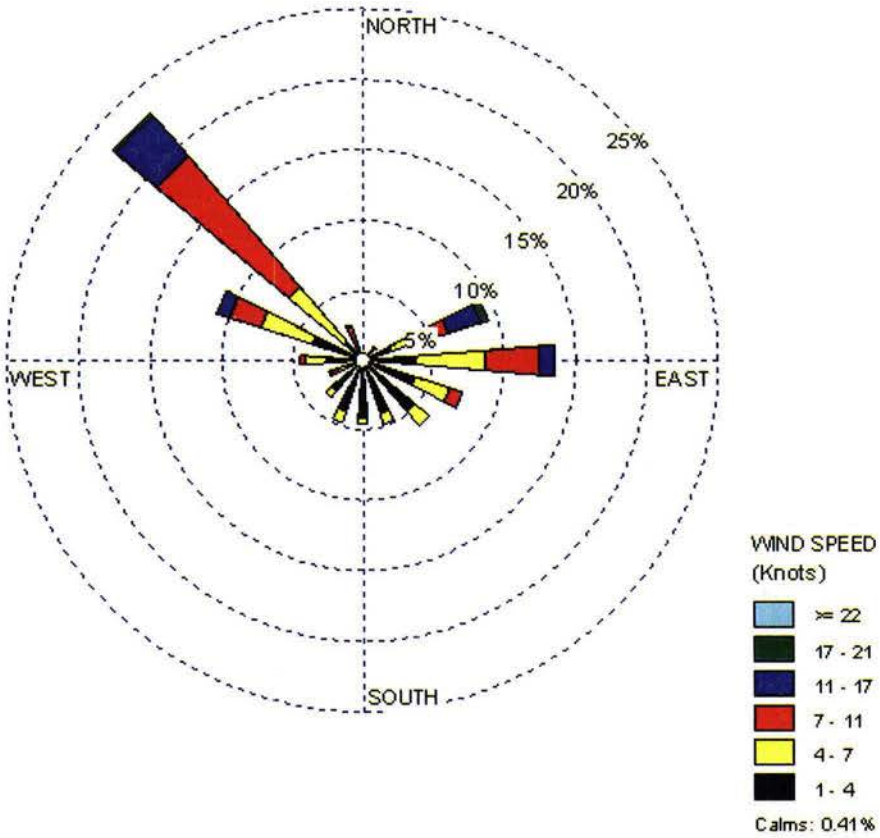
Station ID: 1 Run ID:
Year: 2008
Date Range: May 1 - May 31
Time Range: 00:00 - 23:00

Frequency Distribution
(Normalized)

	Speed Knots						
Wind Direction	1 - 4	4 - 7	7 - 11	11 - 17	17 - 21	>= 22	Total
348.75 - 11.25	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
11.25 - 33.75	0.002703	0.001351	0.001351	0.000000	0.000000	0.000000	0.005405
33.75 - 56.25	0.001351	0.001351	0.001351	0.004054	0.002703	0.002703	0.013514
56.25 - 78.75	0.021622	0.012162	0.029730	0.024324	0.005405	0.000000	0.093243
78.75 - 101.25	0.037838	0.048649	0.037838	0.010811	0.000000	0.000000	0.135135
101.25 - 123.75	0.039189	0.025676	0.009459	0.000000	0.000000	0.000000	0.074324
123.75 - 146.25	0.048649	0.013514	0.000000	0.000000	0.000000	0.000000	0.062162
146.25 - 168.75	0.040541	0.008108	0.000000	0.000000	0.000000	0.000000	0.048649
168.75 - 191.25	0.041892	0.004054	0.000000	0.000000	0.000000	0.000000	0.045946
191.25 - 213.75	0.039189	0.008108	0.000000	0.000000	0.000000	0.000000	0.047297
213.75 - 236.25	0.029730	0.005405	0.000000	0.000000	0.000000	0.000000	0.035135
236.25 - 258.75	0.012162	0.006757	0.005405	0.001351	0.000000	0.000000	0.025676
258.75 - 281.25	0.025676	0.014865	0.004054	0.000000	0.000000	0.000000	0.044595
281.25 - 303.75	0.037838	0.037838	0.022973	0.009459	0.000000	0.000000	0.108108
303.75 - 326.25	0.017568	0.051351	0.120270	0.037838	0.002703	0.000000	0.229730
326.25 - 348.75	0.005405	0.004054	0.016216	0.000000	0.001351	0.000000	0.027027
Sub-Total:	0.401351	0.243243	0.248649	0.087838	0.012162	0.002703	0.903186

Calms:
0.003676
Missing/Incomplete:
0.093137
Total:
1.000000

Frequency of Calm Winds: 0.41%
Average Wind Speed: 6.00 Knots


NORTH
EAST
SOUTH
WEST
5%
10%
15%
20%
25%
WIND SPEED
(Knots)
>= 22
17 - 21
11 - 17
7 - 11
4 - 7
1 - 4
Calms: 0.41%

JUNE

Station ID: 1 Run ID:
Year: 2008
Date Range: Jun 1 - Jun 30
Time Range: 00:00 - 23:00

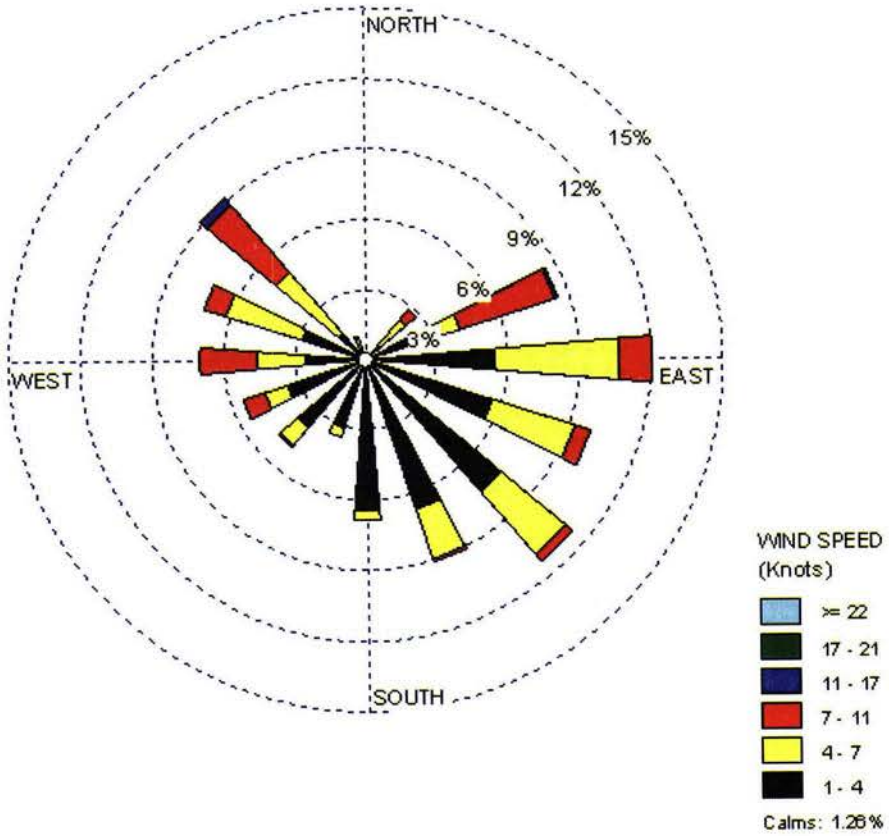
Frequency Distribution
(Normalized)

Speed Knots

Wind Direction	1 - 4	4 - 7	7 - 11	11 - 17	17 - 21	>= 22	Total
348.75 - 11.25	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
11.25 - 33.75	0.000000	0.001397	0.000000	0.000000	0.000000	0.000000	0.001397
33.75 - 56.25	0.008380	0.013966	0.005587	0.000000	0.000000	0.000000	0.027933
56.25 - 78.75	0.023743	0.018156	0.041899	0.001397	0.000000	0.000000	0.085196
78.75 - 101.25	0.054469	0.051676	0.013966	0.000000	0.000000	0.000000	0.120112
101.25 - 123.75	0.055866	0.036313	0.006983	0.000000	0.000000	0.000000	0.099162
123.75 - 146.25	0.074022	0.034916	0.004190	0.000000	0.000000	0.000000	0.113128
146.25 - 168.75	0.067039	0.022346	0.001397	0.000000	0.000000	0.000000	0.090782
168.75 - 191.25	0.064246	0.004190	0.000000	0.000000	0.000000	0.000000	0.068436
191.25 - 213.75	0.030726	0.004190	0.000000	0.000000	0.000000	0.000000	0.034916
213.75 - 236.25	0.037709	0.009777	0.000000	0.001397	0.000000	0.000000	0.048883
236.25 - 258.75	0.034916	0.009777	0.009777	0.000000	0.000000	0.000000	0.054469
258.75 - 281.25	0.025140	0.020950	0.023743	0.000000	0.000000	0.000000	0.069832
281.25 - 303.75	0.027933	0.033520	0.009777	0.000000	0.000000	0.000000	0.071229
303.75 - 326.25	0.015363	0.033520	0.037709	0.004190	0.000000	0.000000	0.090782
326.25 - 348.75	0.000000	0.009777	0.001397	0.000000	0.000000	0.000000	0.011173
Sub-Total:	0.519553	0.304469	0.156425	0.006983	0.000000	0.000000	0.892677

Calms:
0.011364
Missing/Incomplete:
0.095960
Total:
1.000000

Frequency of Calm Winds: 1.26%
Average Wind Speed: 4.45 Knots


NORTH
15%
12%
9%
6%
3%
WEST
EAST
SOUTH
WIND SPEED
(Knots)
>= 22
17 - 21
11 - 17
7 - 11
4 - 7
1 - 4
Calms: 1.26%

JULY

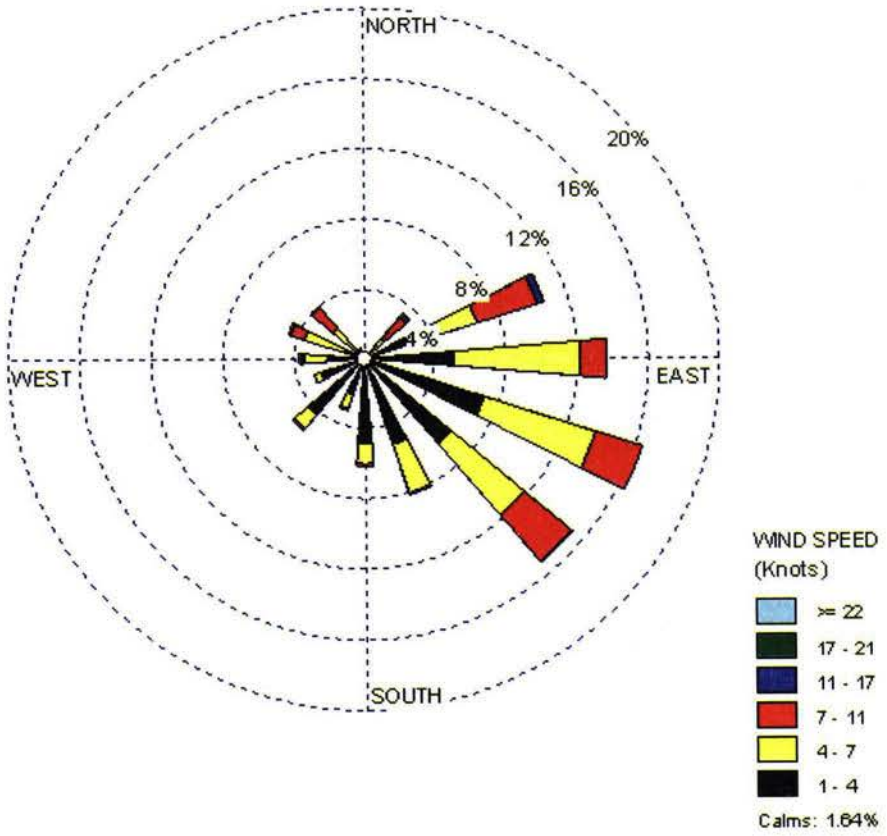
Station ID: 1 Run ID:
Year: 2007
Date Range: Jul 1 - Jul 31
Time Range: 00:00 - 23:00

Frequency Distribution
(Normalized)

	Speed Knots						
Wind Direction	1 - 4	4 - 7	7 - 11	11 - 17	17 - 21	>= 22	Total
348.75 - 11.25	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
11.25 - 33.75	0.000000	0.001364	0.001364	0.001364	0.000000	0.000000	0.004093
33.75 - 56.25	0.005457	0.009550	0.016371	0.002729	0.000000	0.000000	0.034106
56.25 - 78.75	0.031378	0.035471	0.035471	0.004093	0.000000	0.000000	0.106412
78.75 - 101.25	0.050477	0.070941	0.015007	0.000000	0.000000	0.000000	0.136426
101.25 - 123.75	0.070941	0.065484	0.027285	0.000000	0.000000	0.000000	0.163711
123.75 - 146.25	0.064120	0.053206	0.034106	0.000000	0.001364	0.000000	0.152797
146.25 - 168.75	0.051842	0.028649	0.000000	0.001364	0.000000	0.000000	0.081855
168.75 - 191.25	0.049113	0.010914	0.001364	0.000000	0.000000	0.000000	0.061392
191.25 - 213.75	0.021828	0.008186	0.001364	0.000000	0.000000	0.000000	0.031378
213.75 - 236.25	0.042292	0.009550	0.001364	0.000000	0.000000	0.000000	0.053206
236.25 - 258.75	0.025921	0.004093	0.000000	0.000000	0.000000	0.000000	0.030014
258.75 - 281.25	0.020464	0.013643	0.001364	0.001364	0.000000	0.000000	0.036835
281.25 - 303.75	0.012278	0.023192	0.008186	0.001364	0.000000	0.000000	0.045020
303.75 - 326.25	0.006821	0.016371	0.015007	0.001364	0.000000	0.000000	0.039563
326.25 - 348.75	0.002729	0.000000	0.004093	0.000000	0.000000	0.000000	0.006821
Sub-Total:	0.455662	0.350614	0.162347	0.013643	0.001364	0.000000	0.891224

Calms:
0.014833
Missing/Incomplete:
0.093943
Total:
1.000000

Frequency of Calm Winds: 1.64%
Average Wind Speed: 4.66 Knots


NORTH
20%
16%
12%
8%
4%
WEST
EAST
SOUTH
WIND SPEED
(Knots)
>= 22
17 - 21
11 - 17
7 - 11
4 - 7
1 - 4
Calms: 1.64%

POWERTECH (USA) INC.

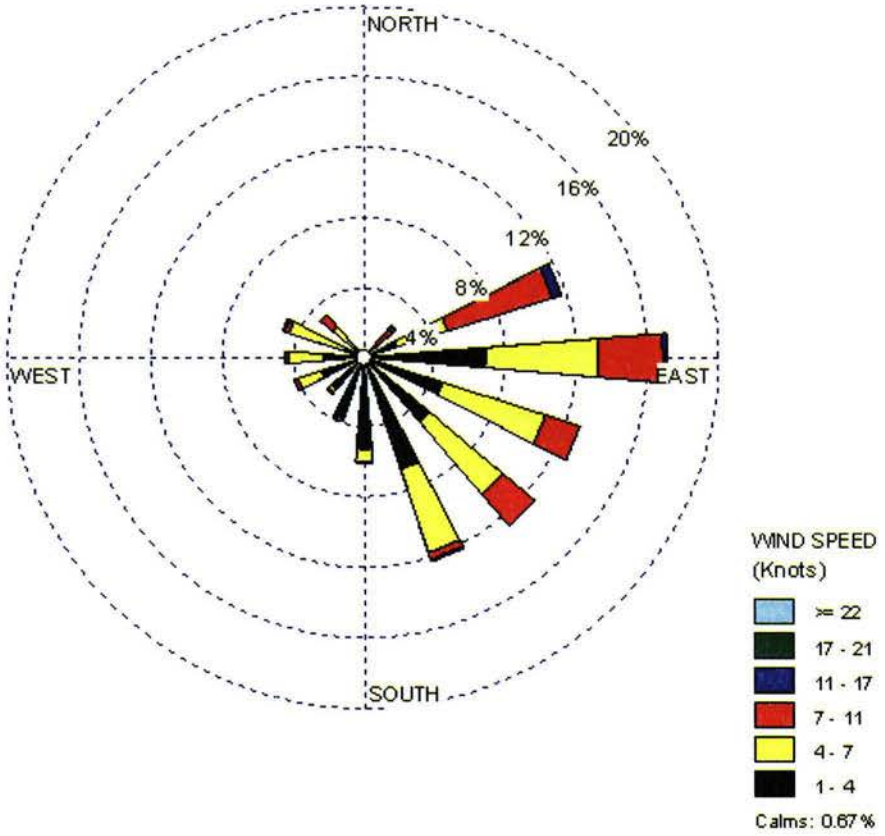
AUGUST

Station ID: 1 Run ID:
Year: 2007
Date Range: Aug 1 - Aug 31
Time Range: 00:00 - 23:00

Frequency Distribution
(Normalized)

	Speed Knots						
Wind Direction	1 - 4	4 - 7	7 - 11	11 - 17	17 - 21	>= 22	Total
348.75 - 11.25	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
11.25 - 33.75	0.001346	0.001346	0.001346	0.000000	0.000000	0.000000	0.004038
33.75 - 56.25	0.005384	0.004038	0.012113	0.002692	0.000000	0.000000	0.024226
56.25 - 78.75	0.020188	0.029610	0.061911	0.005384	0.000000	0.000000	0.117093
78.75 - 101.25	0.068641	0.063257	0.036339	0.002692	0.000000	0.000000	0.170929
101.25 - 123.75	0.047106	0.060565	0.020188	0.000000	0.000000	0.000000	0.127860
123.75 - 146.25	0.048452	0.053836	0.024226	0.000000	0.000000	0.000000	0.126514
146.25 - 168.75	0.067295	0.049798	0.004038	0.001346	0.000000	0.000000	0.122476
168.75 - 191.25	0.052490	0.006729	0.001346	0.000000	0.000000	0.000000	0.060565
191.25 - 213.75	0.037685	0.001346	0.000000	0.000000	0.000000	0.000000	0.039031
213.75 - 236.25	0.024226	0.002692	0.001346	0.000000	0.000000	0.000000	0.028264
236.25 - 258.75	0.025572	0.013459	0.002692	0.000000	0.000000	0.000000	0.041723
258.75 - 281.25	0.022880	0.020188	0.001346	0.000000	0.000000	0.000000	0.044415
281.25 - 303.75	0.012113	0.032301	0.002692	0.001346	0.000000	0.000000	0.048452
303.75 - 326.25	0.008075	0.014805	0.009421	0.000000	0.000000	0.000000	0.032301
326.25 - 348.75	0.000000	0.001346	0.004038	0.000000	0.000000	0.000000	0.005384
Sub-Total:	0.441454	0.355316	0.183042	0.013459	0.000000	0.000000	0.901099
Calms:							0.006105
Missing/Incomplete:							0.092796
Total:							1.000000

Frequency of Calm Winds: 0.67%
Average Wind Speed: 4.85 Knots


NORTH
20%
16%
12%
8%
4%
WEST
EAST
SOUTH
WIND SPEED
(Knots)
>= 22
17 - 21
11 - 17
7 - 11
4 - 7
1 - 4
Calms: 0.67%

POWERTECH (USA) INC.

SEPTEMBER

Station ID: 1 Run ID:
Year: 2007
Date Range: Sep 1 - Sep 30
Time Range: 00:00 - 23:00

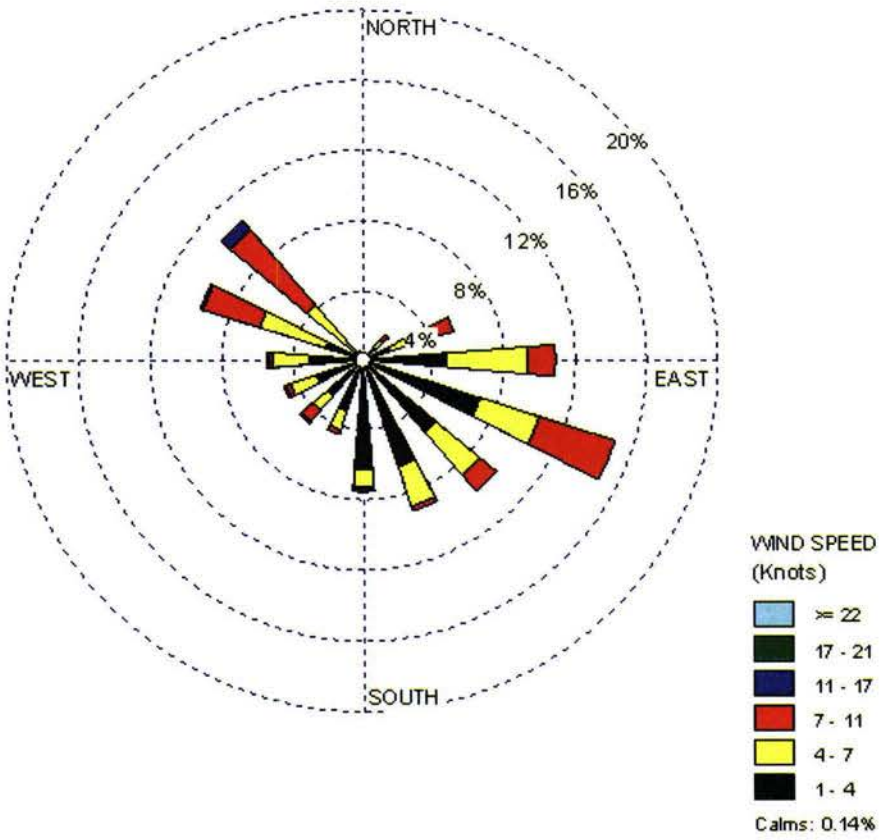
Frequency Distribution
(Normalized)

Speed Knots

Wind Direction	1 - 4	4 - 7	7 - 11	11 - 17	17 - 21	>= 22	Total
348.75 - 11.25	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
11.25 - 33.75	0.001395	0.000000	0.000000	0.000000	0.000000	0.000000	0.001395
33.75 - 56.25	0.009763	0.005579	0.004184	0.000000	0.000000	0.000000	0.019526
56.25 - 78.75	0.016736	0.026499	0.011158	0.000000	0.000000	0.000000	0.054393
78.75 - 101.25	0.047420	0.046025	0.015342	0.000000	0.000000	0.000000	0.108787
101.25 - 123.75	0.069735	0.034868	0.044630	0.000000	0.000000	0.000000	0.149233
123.75 - 146.25	0.054393	0.032078	0.012552	0.000000	0.000000	0.000000	0.099024
146.25 - 168.75	0.064156	0.023710	0.002789	0.000000	0.000000	0.000000	0.090656
168.75 - 191.25	0.062762	0.009763	0.001395	0.001395	0.000000	0.000000	0.075314
191.25 - 213.75	0.030683	0.011158	0.002789	0.000000	0.000000	0.000000	0.044630
213.75 - 236.25	0.026499	0.011158	0.008368	0.001395	0.000000	0.000000	0.047420
236.25 - 258.75	0.027894	0.015342	0.002789	0.001395	0.000000	0.000000	0.047420
258.75 - 281.25	0.030683	0.020921	0.001395	0.001395	0.000000	0.000000	0.054393
281.25 - 303.75	0.022315	0.039052	0.033473	0.001395	0.000000	0.000000	0.096234
303.75 - 326.25	0.006974	0.034868	0.055788	0.006974	0.000000	0.000000	0.104603
326.25 - 348.75	0.001395	0.001395	0.002789	0.000000	0.000000	0.000000	0.005579
Sub-Total:	0.472803	0.312413	0.199442	0.013947	0.000000	0.000000	0.902900

Calms:
0.001261
Missing/Incomplete:
0.095839
Total:
1.000000

Frequency of Calm Winds: 0.14%
Average Wind Speed: 4.76 Knots


NORTH
20%
16%
12%
8%
4%
WEST
EAST
SOUTH
WIND SPEED
(Knots)
>= 22
17 - 21
11 - 17
7 - 11
4 - 7
1 - 4
Calms: 0.14%

OCTOBER

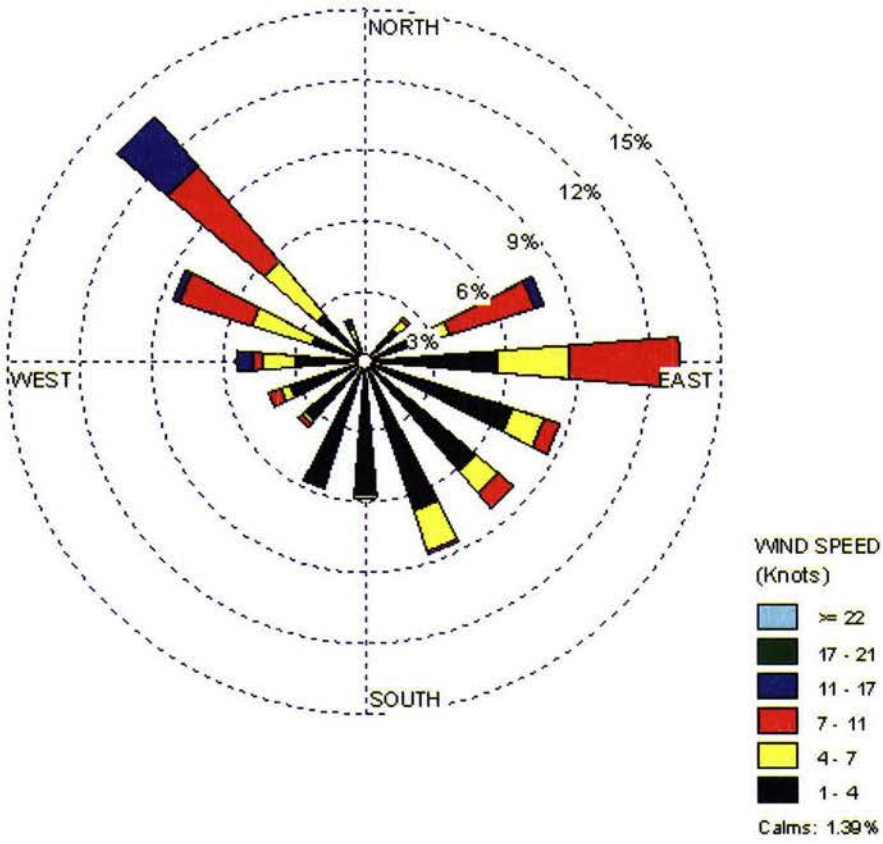
Station ID: 1 Run ID:
Year: 2007
Date Range: Oct 1 - Oct 31
Time Range: 00:00 - 23:00

Frequency Distribution
(Normalized)

	Speed Knots						
Wind Direction	1 - 4	4 - 7	7 - 11	11 - 17	17 - 21	>= 22	Total
348.75 - 11.25	0.000000	0.001391	0.000000	0.000000	0.000000	0.000000	0.001391
11.25 - 33.75	0.000000	0.002782	0.000000	0.000000	0.000000	0.000000	0.002782
33.75 - 56.25	0.018081	0.005563	0.001391	0.000000	0.000000	0.000000	0.025035
56.25 - 78.75	0.026426	0.011127	0.037552	0.004172	0.000000	0.000000	0.079277
78.75 - 101.25	0.055633	0.030598	0.045897	0.000000	0.000000	0.000000	0.132128
101.25 - 123.75	0.065369	0.013908	0.006954	0.000000	0.000000	0.000000	0.086231
123.75 - 146.25	0.061196	0.012517	0.008345	0.000000	0.000000	0.000000	0.082058
146.25 - 168.75	0.066759	0.018081	0.001391	0.000000	0.000000	0.000000	0.086231
168.75 - 191.25	0.057024	0.001391	0.000000	0.000000	0.000000	0.000000	0.058414
191.25 - 213.75	0.057024	0.000000	0.000000	0.000000	0.000000	0.000000	0.057024
213.75 - 236.25	0.033380	0.001391	0.002782	0.000000	0.000000	0.000000	0.037552
236.25 - 258.75	0.033380	0.004172	0.005563	0.000000	0.000000	0.000000	0.043115
258.75 - 281.25	0.029207	0.013908	0.004172	0.006954	0.000000	0.000000	0.054242
281.25 - 303.75	0.023644	0.026426	0.031989	0.002782	0.000000	0.000000	0.084840
303.75 - 326.25	0.026426	0.029207	0.052851	0.027816	0.000000	0.000000	0.136300
326.25 - 348.75	0.009736	0.005563	0.001391	0.002782	0.000000	0.000000	0.019471
Sub-Total:	0.563282	0.178025	0.200278	0.044506	0.000000	0.000000	0.891824

Calms:
0.012579
Missing/Incomplete:
0.095597
Total:
1.000000

Frequency of Calm Winds: 1.39%
Average Wind Speed: 4.62 Knots


NORTH
15%
12%
9%
6%
3%
WEST
EAST
SOUTH
WIND SPEED
(Knots)
>= 22
17 - 21
11 - 17
7 - 11
4 - 7
1 - 4
Calms: 1.39%

NOVEMBER

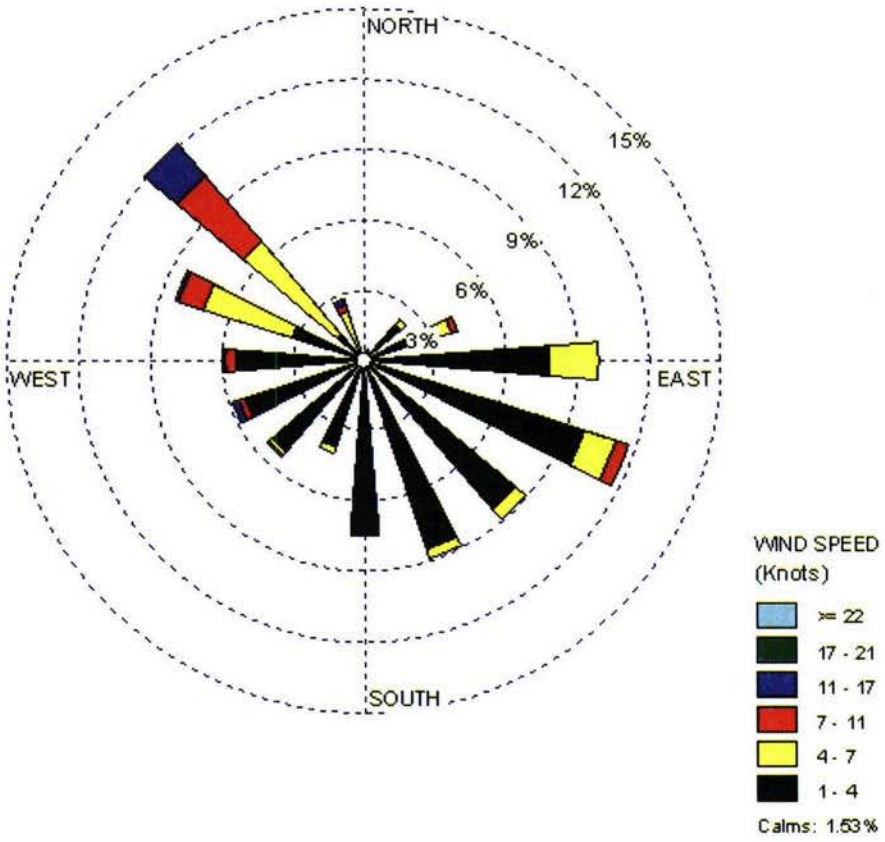
Station ID: 1 Run ID:
Year: 2007
Date Range: Nov 1 - Nov 30
Time Range: 00:00 - 23:00

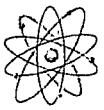
Frequency Distribution
(Normalized)

	Speed Knots						
Wind Direction	1 - 4	4 - 7	7 - 11	11 - 17	17 - 21	>= 22	Total
348.75 - 11.25	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
11.25 - 33.75	0.004167	0.001389	0.000000	0.000000	0.000000	0.000000	0.005556
33.75 - 56.25	0.020833	0.002778	0.000000	0.000000	0.000000	0.000000	0.023611
56.25 - 78.75	0.031944	0.006944	0.002778	0.000000	0.000000	0.000000	0.041667
78.75 - 101.25	0.077778	0.020833	0.000000	0.000000	0.000000	0.000000	0.098611
101.25 - 123.75	0.097222	0.013889	0.005556	0.000000	0.000000	0.000000	0.116667
123.75 - 146.25	0.083333	0.005556	0.000000	0.000000	0.000000	0.000000	0.088889
146.25 - 168.75	0.084722	0.004167	0.000000	0.000000	0.000000	0.000000	0.088889
168.75 - 191.25	0.075000	0.000000	0.000000	0.000000	0.000000	0.000000	0.075000
191.25 - 213.75	0.038889	0.002778	0.000000	0.000000	0.000000	0.000000	0.041667
213.75 - 236.25	0.051389	0.001389	0.001389	0.000000	0.000000	0.000000	0.054167
236.25 - 258.75	0.052778	0.000000	0.002778	0.002778	0.000000	0.000000	0.058333
258.75 - 281.25	0.052778	0.001389	0.004167	0.001389	0.000000	0.000000	0.059722
281.25 - 303.75	0.031944	0.038889	0.011111	0.001389	0.000000	0.000000	0.083333
303.75 - 326.25	0.015278	0.051389	0.036111	0.018056	0.000000	0.000000	0.120833
326.25 - 348.75	0.005556	0.016667	0.002778	0.002778	0.000000	0.000000	0.027778
Sub-Total:	0.723611	0.168056	0.066667	0.026389	0.000000	0.000000	0.890704

Calms:
0.013819
Missing/Incomplete:
0.095477
Total:
1.000000

Frequency of Calm Winds: 1.53%
Average Wind Speed: 3.36 Knots


NORTH
15%
12%
9%
6%
3%
WEST
EAST
SOUTH
WIND SPEED
(Knots)
>= 22
17 - 21
11 - 17
7 - 11
4 - 7
1 - 4
Calms: 1.53%



POWERTECH (USA) INC.

DECEMBER

Station ID: 1 Run ID:
Year: 2007
Date Range: Dec 1 - Dec 31
Time Range: 00:00 - 23:00

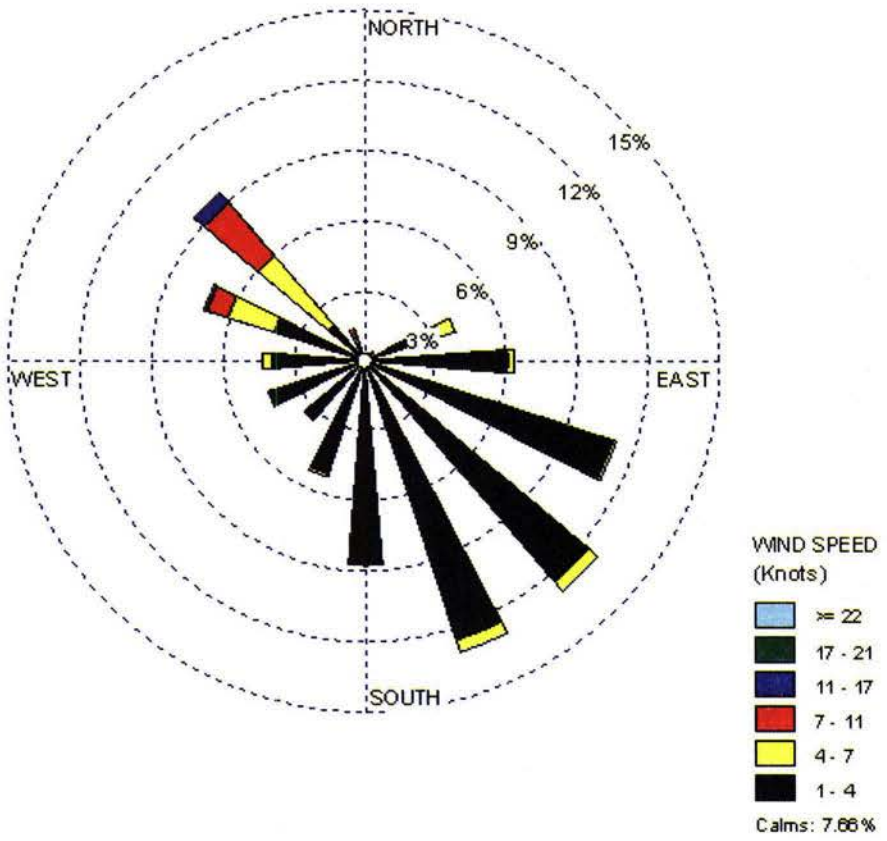
Frequency Distribution
(Normalized)

Speed Knots

Wind Direction	1 - 4	4 - 7	7 - 11	11 - 17	17 - 21	>= 22	Total
348.75 - 11.25	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
11.25 - 33.75	0.004032	0.000000	0.000000	0.000000	0.000000	0.000000	0.004032
33.75 - 56.25	0.005376	0.000000	0.000000	0.000000	0.000000	0.000000	0.005376
56.25 - 78.75	0.033602	0.006720	0.000000	0.000000	0.000000	0.000000	0.040323
78.75 - 101.25	0.060484	0.002688	0.000000	0.000000	0.000000	0.000000	0.063172
101.25 - 123.75	0.110215	0.001344	0.000000	0.000000	0.000000	0.000000	0.111559
123.75 - 146.25	0.123656	0.005376	0.000000	0.000000	0.000000	0.000000	0.129032
146.25 - 168.75	0.125000	0.005376	0.000000	0.000000	0.000000	0.000000	0.130376
168.75 - 191.25	0.087366	0.000000	0.000000	0.000000	0.000000	0.000000	0.087366
191.25 - 213.75	0.051075	0.001344	0.000000	0.000000	0.000000	0.000000	0.052419
213.75 - 236.25	0.033602	0.000000	0.000000	0.000000	0.000000	0.000000	0.033602
236.25 - 258.75	0.043011	0.000000	0.000000	0.000000	0.000000	0.000000	0.043011
258.75 - 281.25	0.038978	0.004032	0.000000	0.000000	0.000000	0.000000	0.043011
281.25 - 303.75	0.040323	0.020161	0.009409	0.001344	0.000000	0.000000	0.071237
303.75 - 326.25	0.020161	0.038978	0.029570	0.005376	0.000000	0.000000	0.094086
326.25 - 348.75	0.008065	0.002688	0.004032	0.000000	0.000000	0.000000	0.014785
Sub-Total:	0.784946	0.088710	0.043011	0.006720	0.000000	0.000000	0.837805

Calms:
0.069512
Missing/Incomplete:
0.092683
Total:
1.000000

Frequency of Calm Winds: 7.66%
Average Wind Speed: 2.46 Knots


NORTH
15%
12%
9%
6%
3%
WEST
EAST
SOUTH
WIND SPEED
(Knots)
>= 22
17 - 21
11 - 17
7 - 11
4 - 7
1 - 4
Calms: 7.66%

POWERTECH (USA) INC.

WINTER

Station ID: 1 Run ID:
Year: 2007 2008
Date Range: Dec 2007-Feb 2008
Time Range: 00:00 - 23:00

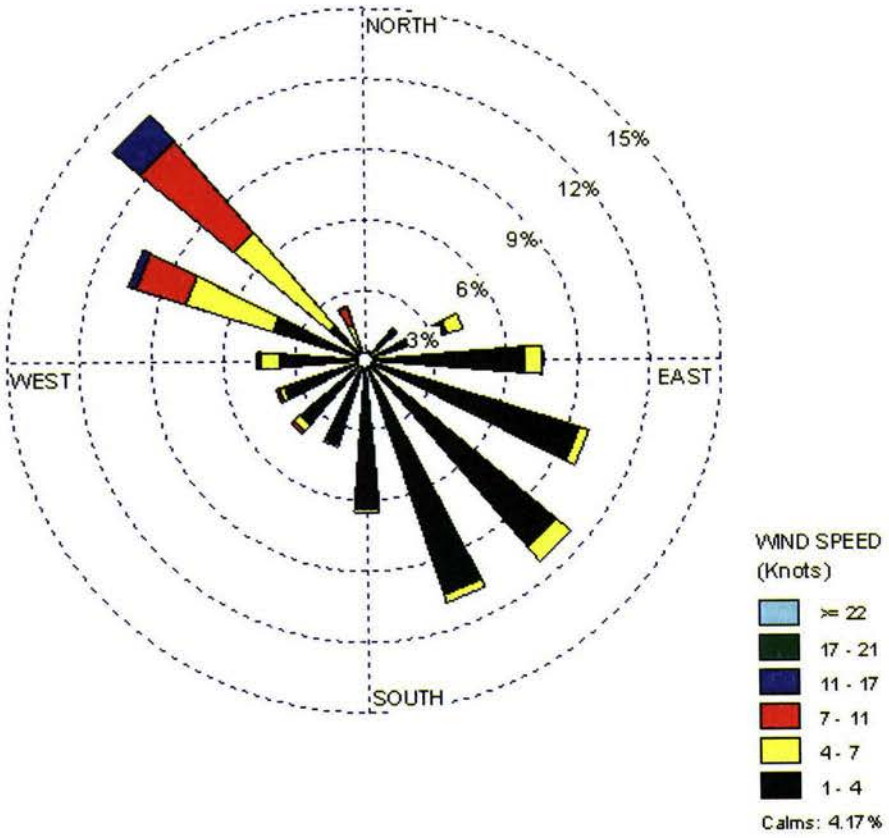
Frequency Distribution
(Normalized)

Speed Knots

Wind Direction	1 - 4	4 - 7	7 - 11	11 - 17	17 - 21	>= 22	Total
348.75 - 11.25	0.000927	0.000000	0.000000	0.000000	0.000000	0.000000	0.000927
11.25 - 33.75	0.005097	0.000000	0.000000	0.000000	0.000000	0.000000	0.005097
33.75 - 56.25	0.018072	0.000000	0.000000	0.000000	0.000000	0.000000	0.018072
56.25 - 78.75	0.036608	0.006951	0.000000	0.000000	0.000000	0.000000	0.043559
78.75 - 101.25	0.067192	0.007414	0.000463	0.000000	0.000000	0.000000	0.075070
101.25 - 123.75	0.094532	0.004171	0.000000	0.000000	0.000000	0.000000	0.098703
123.75 - 146.25	0.104727	0.007878	0.000000	0.000000	0.000000	0.000000	0.112604
146.25 - 168.75	0.104727	0.003707	0.000000	0.000000	0.000000	0.000000	0.108434
168.75 - 191.25	0.063485	0.001390	0.000000	0.000000	0.000000	0.000000	0.064875
191.25 - 213.75	0.037998	0.000927	0.000000	0.000000	0.000000	0.000000	0.038925
213.75 - 236.25	0.036145	0.003707	0.001390	0.000000	0.000000	0.000000	0.041242
236.25 - 258.75	0.036145	0.002317	0.001390	0.000000	0.000000	0.000000	0.039852
258.75 - 281.25	0.036145	0.007878	0.000927	0.000463	0.000000	0.000000	0.045412
281.25 - 303.75	0.040778	0.037998	0.021779	0.003244	0.000000	0.000000	0.103800
303.75 - 326.25	0.019926	0.051900	0.050510	0.014829	0.000000	0.000000	0.137164
326.25 - 348.75	0.006487	0.009731	0.007878	0.000463	0.000000	0.000000	0.024560
Sub-Total:	0.708990	0.145968	0.084337	0.018999	0.000000	0.000000	0.925694

Calms:
0.040286
Missing/Incomplete:
0.034020
Total:
1.000000

Frequency of Calm Winds: 4.17%
Average Wind Speed: 3.23 Knots


NORTH
15%
12%
9%
6%
3%
WEST
EAST
SOUTH
WIND SPEED
(Knots)
>= 22
17 - 21
11 - 17
7 - 11
4 - 7
1 - 4
Calms: 4.17%

SPRING

Station ID: 1 Run ID:
Year: 2008
Date Range: Mar 1 - May 31
Time Range: 00:00 - 23:00

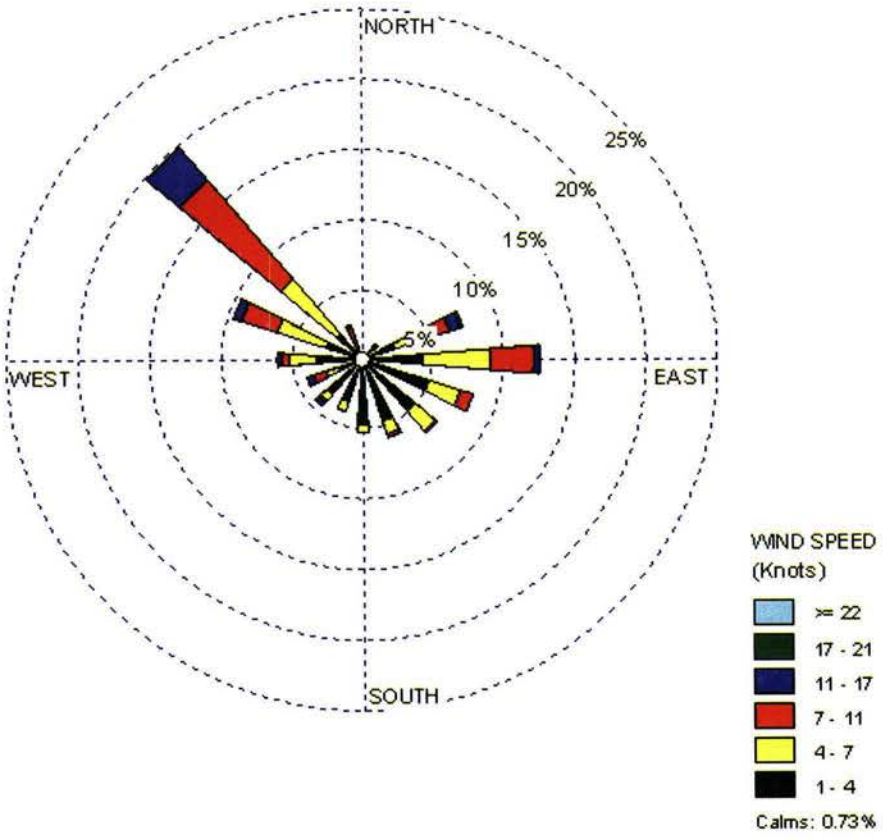
Frequency Distribution
(Normalized)

Speed Knots

Wind Direction	1 - 4	4 - 7	7 - 11	11 - 17	17 - 21	>= 22	Total
348.75 - 11.25	0.000459	0.000000	0.000000	0.000000	0.000000	0.000000	0.000459
11.25 - 33.75	0.002755	0.000459	0.000918	0.000000	0.000000	0.000000	0.004132
33.75 - 56.25	0.008724	0.001377	0.001837	0.001377	0.000918	0.000918	0.015152
56.25 - 78.75	0.024793	0.018365	0.022039	0.008264	0.001837	0.000000	0.075298
78.75 - 101.25	0.042700	0.047291	0.031221	0.004132	0.000000	0.000000	0.125344
101.25 - 123.75	0.050046	0.022957	0.009642	0.000000	0.000000	0.000000	0.082645
123.75 - 146.25	0.049128	0.018825	0.001377	0.000459	0.000000	0.000000	0.069789
146.25 - 168.75	0.046832	0.009642	0.002296	0.000459	0.000000	0.000000	0.059229
168.75 - 191.25	0.047291	0.005051	0.000459	0.000459	0.000000	0.000000	0.053260
191.25 - 213.75	0.032140	0.007346	0.000000	0.000459	0.000000	0.000000	0.039945
213.75 - 236.25	0.033058	0.005969	0.002296	0.003214	0.000000	0.000000	0.044536
236.25 - 258.75	0.017906	0.009642	0.009183	0.004591	0.000459	0.000000	0.041781
258.75 - 281.25	0.032599	0.019743	0.004591	0.003673	0.000000	0.000000	0.060606
281.25 - 303.75	0.027548	0.035813	0.026171	0.005969	0.000000	0.000000	0.095500
303.75 - 326.25	0.024334	0.050964	0.092287	0.029844	0.000918	0.000000	0.198347
326.25 - 348.75	0.004591	0.005051	0.013774	0.002755	0.000459	0.000000	0.026630
Sub-Total:	0.444904	0.258494	0.218090	0.065657	0.004591	0.000918	0.959184

Calms:
0.007098
Missing/Incomplete:
0.033718
Total:
1.000000

Frequency of Calm Winds: 0.73%
Average Wind Speed: 5.41 Knots


NORTH
25%
20%
15%
10%
5%
WEST
EAST
SOUTH
WIND SPEED
(Knots)
>= 22
17 - 21
11 - 17
7 - 11
4 - 7
1 - 4
Calms: 0.73%

SUMMER

Station ID: 1 Run ID:
Year: 2007 2008
Date Range: Jun 1 - Aug 31
Time Range: 00:00 - 23:00

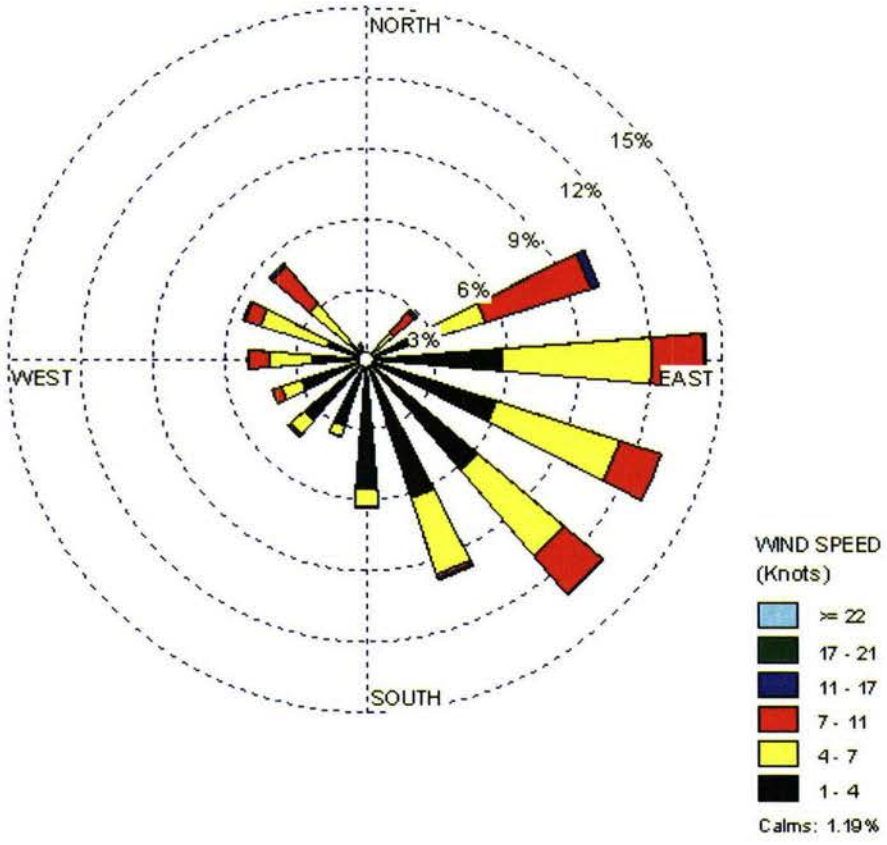
Frequency Distribution
(Normalized)

Speed Knots

Wind Direction	1 - 4	4 - 7	7 - 11	11 - 17	17 - 21	>= 22	Total
348.75 - 11.25	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
11.25 - 33.75	0.000456	0.001369	0.000912	0.000456	0.000000	0.000000	0.003193
33.75 - 56.25	0.006387	0.009124	0.011405	0.001825	0.000000	0.000000	0.028741
56.25 - 78.75	0.025091	0.027828	0.046533	0.003650	0.000000	0.000000	0.103102
78.75 - 101.25	0.057938	0.062044	0.021898	0.000912	0.000000	0.000000	0.142792
101.25 - 123.75	0.057938	0.054288	0.018248	0.000000	0.000000	0.000000	0.130474
123.75 - 146.25	0.062044	0.047445	0.020985	0.000000	0.000456	0.000000	0.130931
146.25 - 168.75	0.062044	0.033759	0.001825	0.000912	0.000000	0.000000	0.098540
168.75 - 191.25	0.055201	0.007299	0.000912	0.000000	0.000000	0.000000	0.063412
191.25 - 213.75	0.030109	0.004562	0.000456	0.000000	0.000000	0.000000	0.035128
213.75 - 236.25	0.034672	0.007299	0.000912	0.000456	0.000000	0.000000	0.043339
236.25 - 258.75	0.028741	0.009124	0.004106	0.000000	0.000000	0.000000	0.041971
258.75 - 281.25	0.022810	0.018248	0.008668	0.000456	0.000000	0.000000	0.050182
281.25 - 303.75	0.017336	0.029653	0.006843	0.000912	0.000000	0.000000	0.054745
303.75 - 326.25	0.010036	0.021442	0.020529	0.001825	0.000000	0.000000	0.053832
326.25 - 348.75	0.000912	0.003650	0.003193	0.000000	0.000000	0.000000	0.007755
Sub-Total:	0.471715	0.337135	0.167427	0.011405	0.000456	0.000000	0.955026

Calms:
0.011464
Missing/Incomplete:
0.033510
Total:
1.000000

Frequency of Calm Winds: 1.19%
Average Wind Speed: 4.66 Knots


NORTH
15%
12%
9%
6%
3%
WEST
EAST
SOUTH
WIND SPEED
(Knots)
>= 22
17 - 21
11 - 17
7 - 11
4 - 7
1 - 4
Calms: 1.19%

POWERTECH (USA) INC.

FALL

Station ID: 1 Run ID:
Year: 2007
Date Range: Sep 1 - Nov 30
Time Range: 00:00 - 23:00

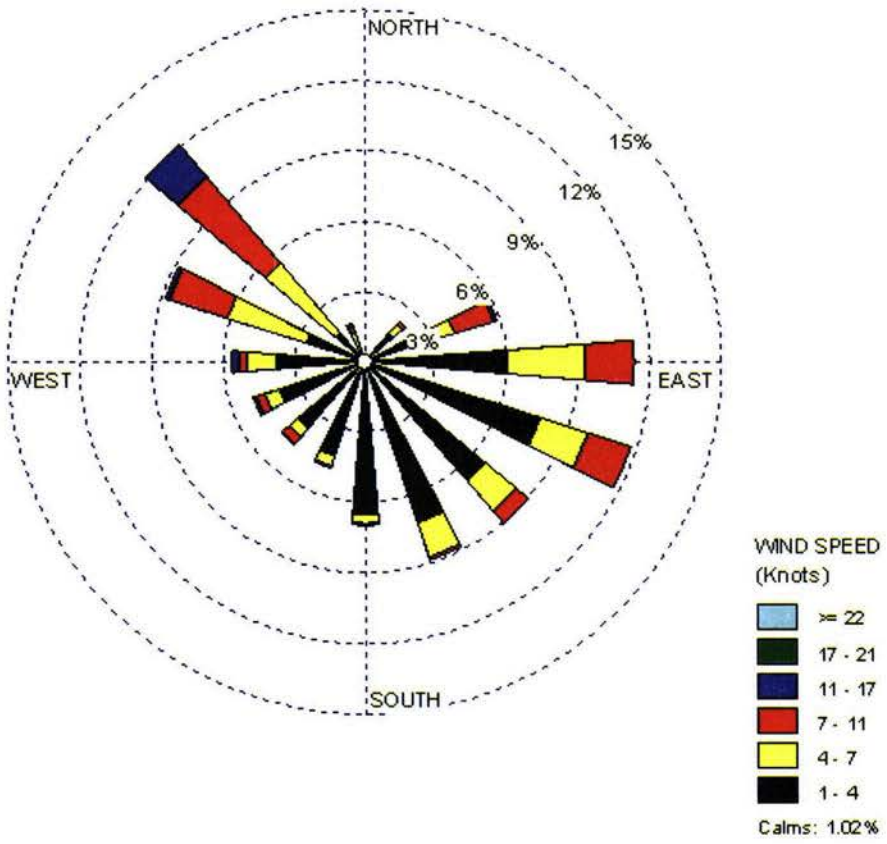
Frequency Distribution
(Normalized)

Speed Knots

Wind Direction	1 - 4	4 - 7	7 - 11	11 - 17	17 - 21	>= 22	Total
348.75 - 11.25	0.000000	0.000464	0.000000	0.000000	0.000000	0.000000	0.000464
11.25 - 33.75	0.001855	0.001391	0.000000	0.000000	0.000000	0.000000	0.003247
33.75 - 56.25	0.016234	0.004638	0.001855	0.000000	0.000000	0.000000	0.022727
56.25 - 78.75	0.025046	0.014842	0.017161	0.001391	0.000000	0.000000	0.058442
78.75 - 101.25	0.060297	0.032468	0.020408	0.000000	0.000000	0.000000	0.113173
101.25 - 123.75	0.077458	0.020872	0.019017	0.000000	0.000000	0.000000	0.117347
123.75 - 146.25	0.066327	0.016698	0.006957	0.000000	0.000000	0.000000	0.089981
146.25 - 168.75	0.071892	0.015306	0.001391	0.000000	0.000000	0.000000	0.088590
168.75 - 191.25	0.064935	0.003711	0.000464	0.000464	0.000000	0.000000	0.069573
191.25 - 213.75	0.042208	0.004638	0.000928	0.000000	0.000000	0.000000	0.047774
213.75 - 236.25	0.037106	0.004638	0.004174	0.000464	0.000000	0.000000	0.046382
236.25 - 258.75	0.038033	0.006494	0.003711	0.001391	0.000000	0.000000	0.049629
258.75 - 281.25	0.037570	0.012059	0.003247	0.003247	0.000000	0.000000	0.056122
281.25 - 303.75	0.025974	0.034787	0.025510	0.001855	0.000000	0.000000	0.088126
303.75 - 326.25	0.016234	0.038497	0.048237	0.017625	0.000000	0.000000	0.120594
326.25 - 348.75	0.005566	0.007885	0.002319	0.001855	0.000000	0.000000	0.017625
Sub-Total:	0.586735	0.219388	0.155380	0.028293	0.000000	0.000000	0.956093

Calms:
0.009857
Missing/Incomplete:
0.034050
Total:
1.000000

Frequency of Calm Winds: 1.02%
Average Wind Speed: 4.25 Knots


NORTH
15%
12%
9%
6%
3%
WEST
EAST
SOUTH
WIND SPEED
(Knots)
>= 22
17 - 21
11 - 17
7 - 11
4 - 7
1 - 4
Calms: 1.02%