Data Compilation/Analysis Packet

Class Manager's MUST complete this packet!

Data Compilation Instructions:

1. As you Data Collection Teams collect data throughout the day of the Field Lab, record their information in this packet. Some tests take the entire 40 minutes of time given, so the team may not have enough time to find you before they go to their next test. Therefore, you may need to go find them!
2. Record ALL data from the class (many tests were performed by two groups in your class). You should also be comparing you class's data with other Class Managers. If there seems to be a discrepancy, you may want to join a group performing that test to find out why.
3. **You and your fellow Class Manager MUST have this packet completed by the time we get back to school on the day of the field trip. You MUST turn in one copy to your teacher. Therefore, you should fill out TWO copies, one should be turned into your teacher, and the other should be kept to have available for your class the day after.**
4. You are responsible for calculating the Water Quality "Q Value" using the attached charts and pages. You must have this Q Value for Above the Dam and Below the Dam data. See pages 9-21.
5. You must calculate the Water Quality from the Macroinvertebrate survey as well – for both the Above the Dam and Below the Dam. See attached pages 22-23.
6. **ONCE AGAIN YOU MUST TURN IN ONE PACKET TO YOUR TEACHER AT THE END OF THE FIELD TRIP!!**

	Above Dam (Include Units!!!)	Below Dam (Include Units!!!)
Dissolved oxygen		
Phosphate		
Nitrate Nitrogen		
Nitrate		
Alkalinity-Phenol		
Alkalanity-Total		
Acidity- Methyl Orange Test		
Acidity Phenolpthaelin test		
Biological Oxygen Demand (BOD) (performed back at school)		
Fecal Coliform (performed back at school)	colonies/mL	colonies/mL
pH		
Temp		
Total Dissolved Solids		

	Above Dam (Include Units!!!)	Below Dam (Include Units!!!)
Conductivity		
Silt Depth		
Turbidity		
Water Depth		
Rate of Flow		
Total Water Q value (from attached charts..**attach calculation page at end of this packet**)		

River Bank Flood Survey: Collect all River Bank Flood Data from team members who did test. **Attach to back of packet.** Summarize the findings below about the Flood Bank above and below the dam:

- Flood Bank above the dam:

- Flood Bank below the dam:

VEGETATION SURVEY-CLOSE TO CREEK

Disturbance Sensitive	Common Native	Invasive & Exotic	Native Invasive	Other
Blue Cohosh	Virginia Bluebells	Garlic Mustard	Missouri Gooseberry	Poison Ivy
Maidenhair Fern	Wild Columbine	Dame's Rocket		Stinging Nettle
Doll's Eyes or Baneberry	Blue Phlox	Moneywort		Gypsy Moth
White Trillium	Blue-eyed Mary	Ground Ivy	List any other Plants found:	
Large-flowered Bellwort	Red Trillium	Multiflora Rose		
Bleeding Hearts	Wild Geranium	Buckthorn		
Hepatica	Swamp Buttercup	Honeysuckle Shrubs		
Virginia Spiderwort	Sensitive Fern	Japanese Honeysuckle		
	Red Bud	Autumn Olive		
	Box Elder	Reed Canary Grass		
	Elm			
	Oak			
	Maple			

VEGETATION SURVEY-FAR FROM CREEK

Disturbance Sensitive	Common Native	Invasive & Exotic	Native Invasive	Other
Blue Cohosh	Virginia Bluebells	Garlic Mustard	Missouri Gooseberry	Poison Ivy
Maidenhair Fern	Wild Columbine	Dame's Rocket		Stinging Nettle
Doll's Eyes or Baneberry	Blue Phlox	Moneywort		Gypsy Moth
White Trillium	Blue-eyed Mary	Ground Ivy	List any other Plants found:	
Large-flowered Bellwort	Red Trillium	Multiflora Rose		
Bleeding Hearts	Wild Geranium	Buckthorn		
Hepatica	Swamp Buttercup	Honeysuckle Shrubs		
Virginia Spiderwort	Sensitive Fern	Japanese Honeysuckle		
	Red Bud	Autumn Olive		
	Box Elder	Reed Canary Grass		
	Elm			
	Oak			
	Maple			

SOIL TESTS

	Above/Near	Above/Far	Below/Near	Below/Far
Nitrate/Nitrogen				
Potassium/Potash Phosphorous				
Potassium				
pH, _____				
Soil Core				
" of organic				
" of soil				
" of clay				

MACROINVERTEBRATES:

Make a check mark next to each type of invertebrate found **ABOVE** the dam.

_____ Stone Fly

_____ Alderfly

_____ Dobsonfly

_____ Snipe Fly

_____ Caddisfly

_____ Mayfly

_____ Riffle Beetle

_____ Water Penny

_____ Damselfly

_____ Dragon fly

_____ Crayfish

_____ Crane Fly

_____ Clam/Mussel

_____ Black Fly

_____ Midge

_____ Sowbug

_____ Scud

_____ Right handed Snails/Other snails

_____ Worms

_____ Leech

_____ Left-handed pouch snail

_____ Blood Worm Midge

Make a check mark next to each type of invertebrate found **BELOW** the dam.

_____ Stone Fly

_____ Alderfly

_____ Dobsonfly

_____ Snipe Fly

_____ Caddisfly

_____ Mayfly

_____ Riffle Beetle

_____ Water Penny

_____ Damselfly

_____ Dragon fly

_____ Crayfish

_____ Crane Fly

_____ Clam/Mussel

_____ Black Fly

_____ Midge

_____ Sowbug

_____ Scud

_____ Right handed Snails/Other snails

_____ Worms

_____ Leech

_____ Left-handed pouch snail

_____ Blood Worm Midge

USE THE ATTACHED "Illinois Citizen Stream Monitoring Assessment Form" to calculate a Total Cumulative Score and a Water Quality Rating for both above and below the dam. **Attach pages at the end of this packet.**

Macro invert ratings	Total Cumulative Score	Water Quality Rating
Above the Dam		
Below the Dam		

Vertebrate Survey
(collect data from ALL CLASSES for this!)

TRIAL	Above the Dam	Below the Dam
1		
2		
3		
4		
5		
6		
7		

STORM DRAIN TEST

Instructions are located in the lid of the Storm Drain Test Kit.

→ ***Circle one: Above Dam / Below Dam*** ←

Chlorine _____ ppm

Detergents _____ ppm

Determining the Q Value

In order to determine the overall water quality index percent, you must first calculate the Q-value. Each Q-value involves looking up each individual data on its corresponding Q graph. Each piece of data from the creek will have its own Q graph. (Your teacher will give you special instruction on how to read the dissolved oxygen chart and Q-value graph.)

Example: If your average turbidity value is four feet, then the corresponding Q-value from the graph would be 45.

Next, enter your Q-values for piece of data on your Water Quality Index page. Now you want to multiply each of the Q-values by the weighing factor right next to it. This calculation will give you the percent for that specific piece of data.

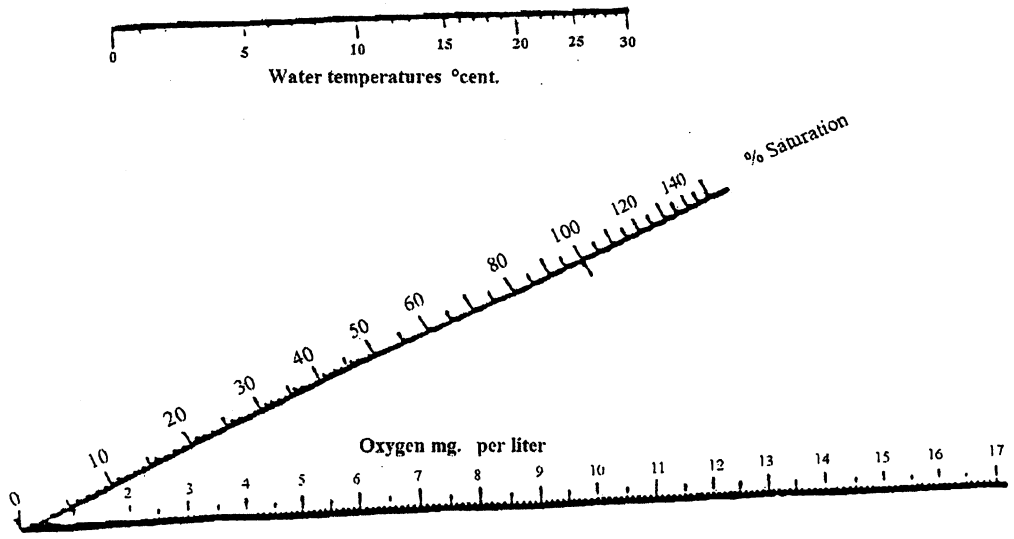
To determine the **overall** Water Quality Index just add up all of the percentages from the data table. You can now use this value and the table at the bottom of your data page to get an indication of the overall quality of Salt Creek.

Use the chart on the next page to convert the Dissolved Oxygen level in ppm to a Percent Saturation of Dissolved Oxygen (ppm is equivalent to mg/L). To do this, follow these instructions:

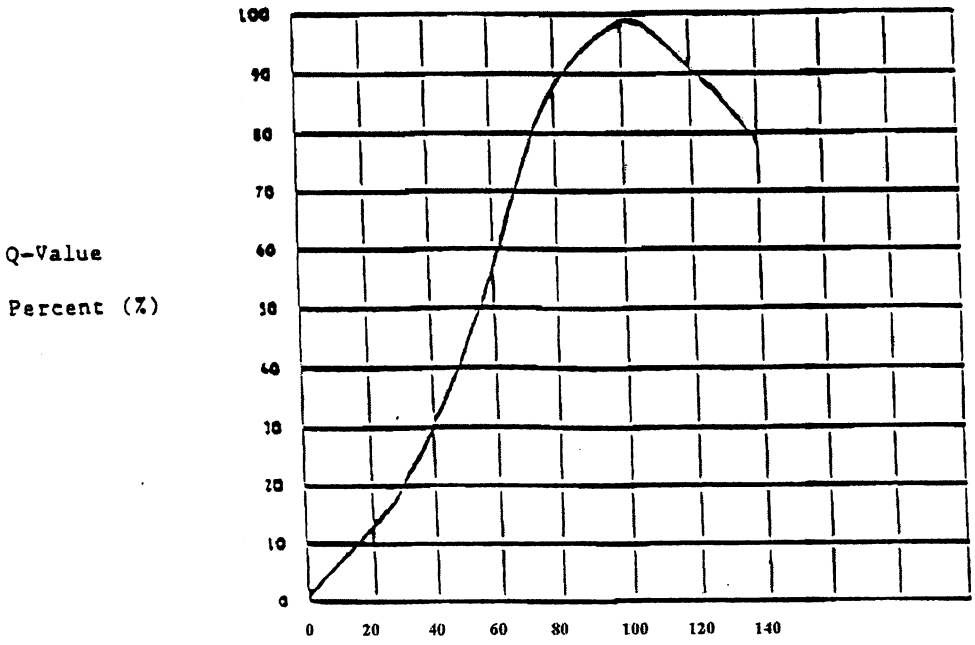
1. Mark the Dissolved Oxygen value on the lower line of the *Level of oxygen saturation chart* below.
2. Then, mark the water temperature on the upper line on the chart.
3. Draw a straight line from oxygen in mg/L mark to the water temperature mark.

The converted Percent Saturation value is where the drawn straight line passes through the % saturation line.

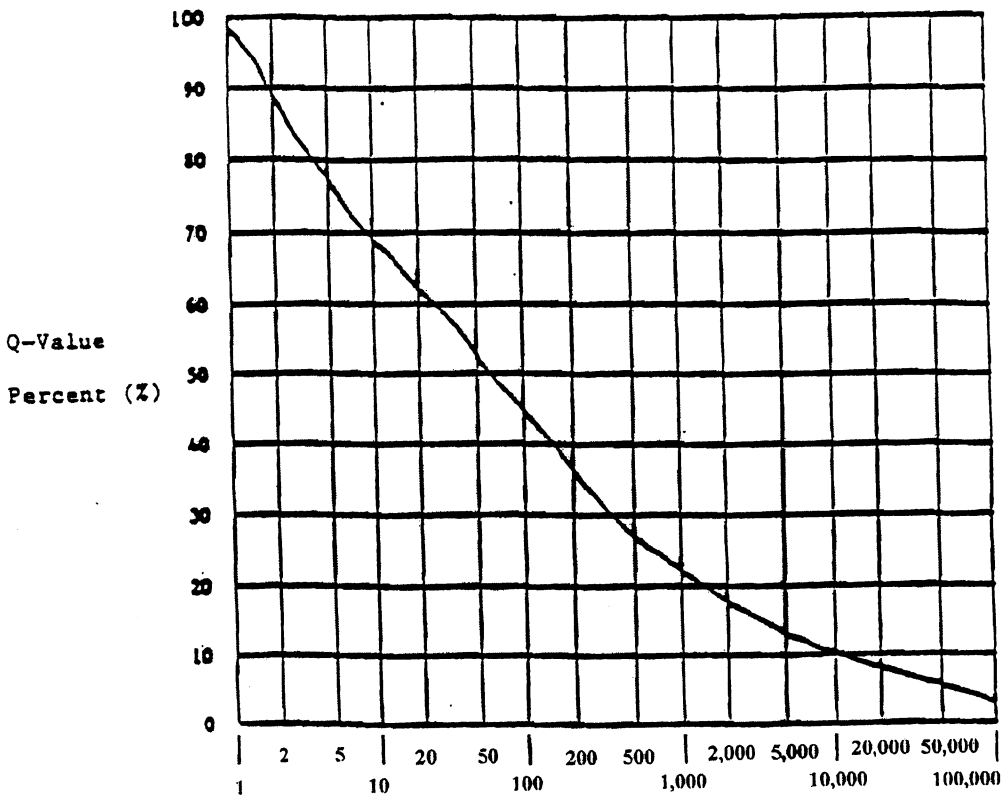
Dissolved Oxygen vs. Water Quality Value Chart



Oxygen Saturation Chart



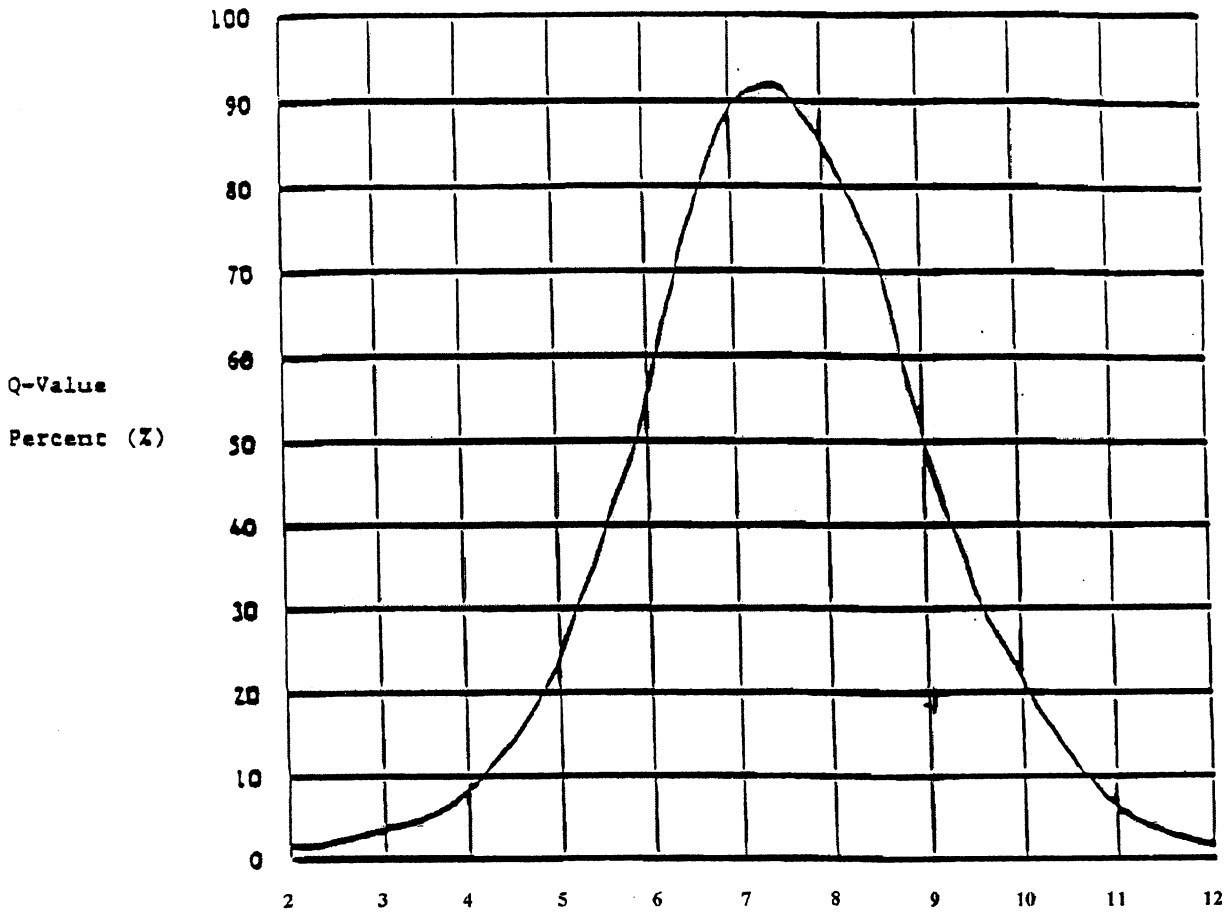
Fecal Coliform vs. Water Quality Value Chart



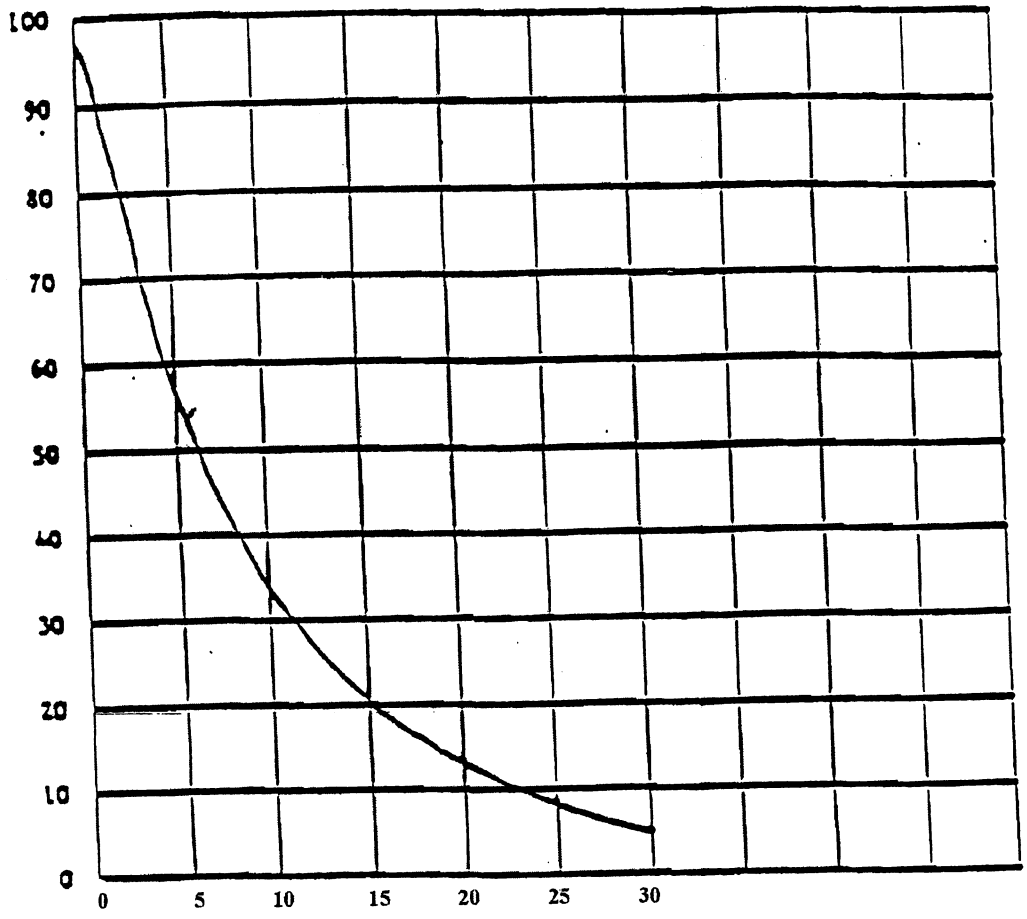
Colonies per 100 mL

(Note: If FC>10^5, Q=2.0)

pH vs. Water Quality Value Chart



Biochemical Oxygen Demand vs. Water Quality Value Chart

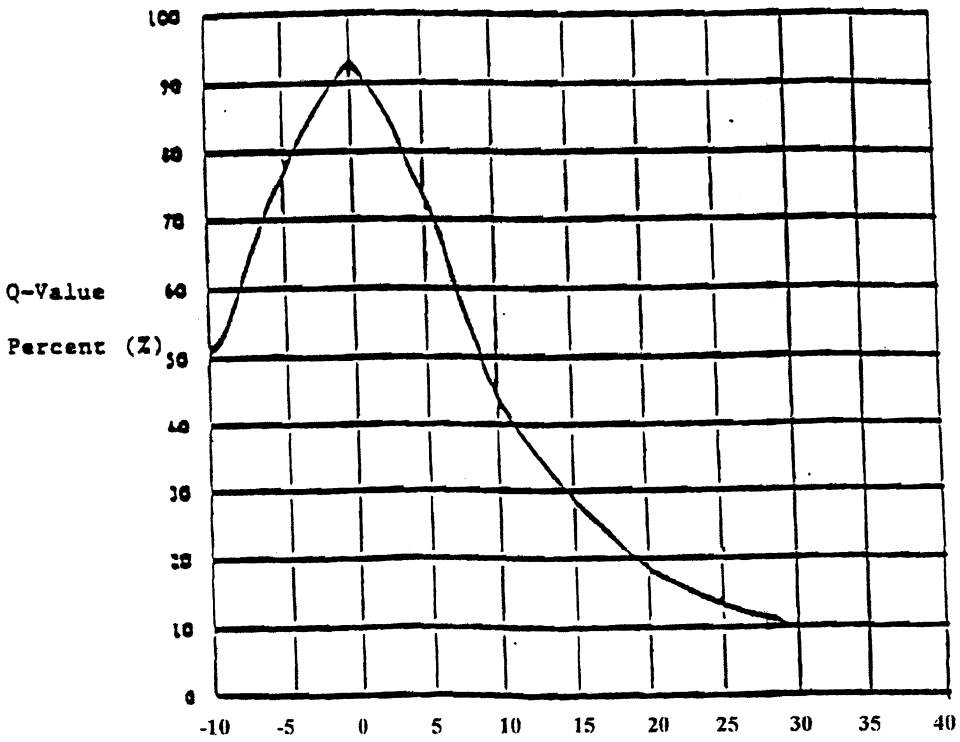


)-Value

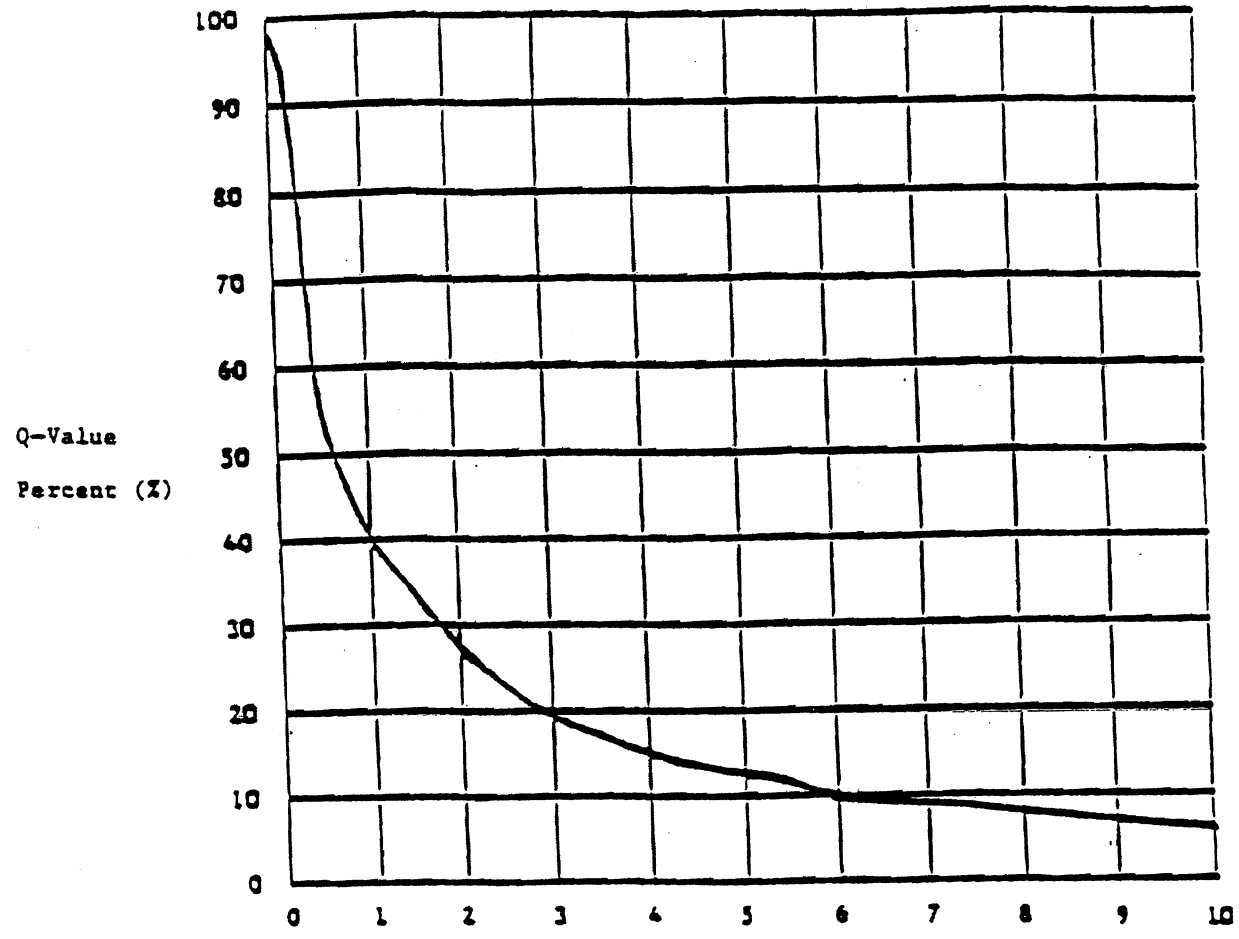
'ercent (%)

BODs: (mg/L)

Change in Temperature vs. Water Quality Value Chart



Phosphate vs. Water Quality Value Chart



Nitrate vs. Water Quality Value Chart

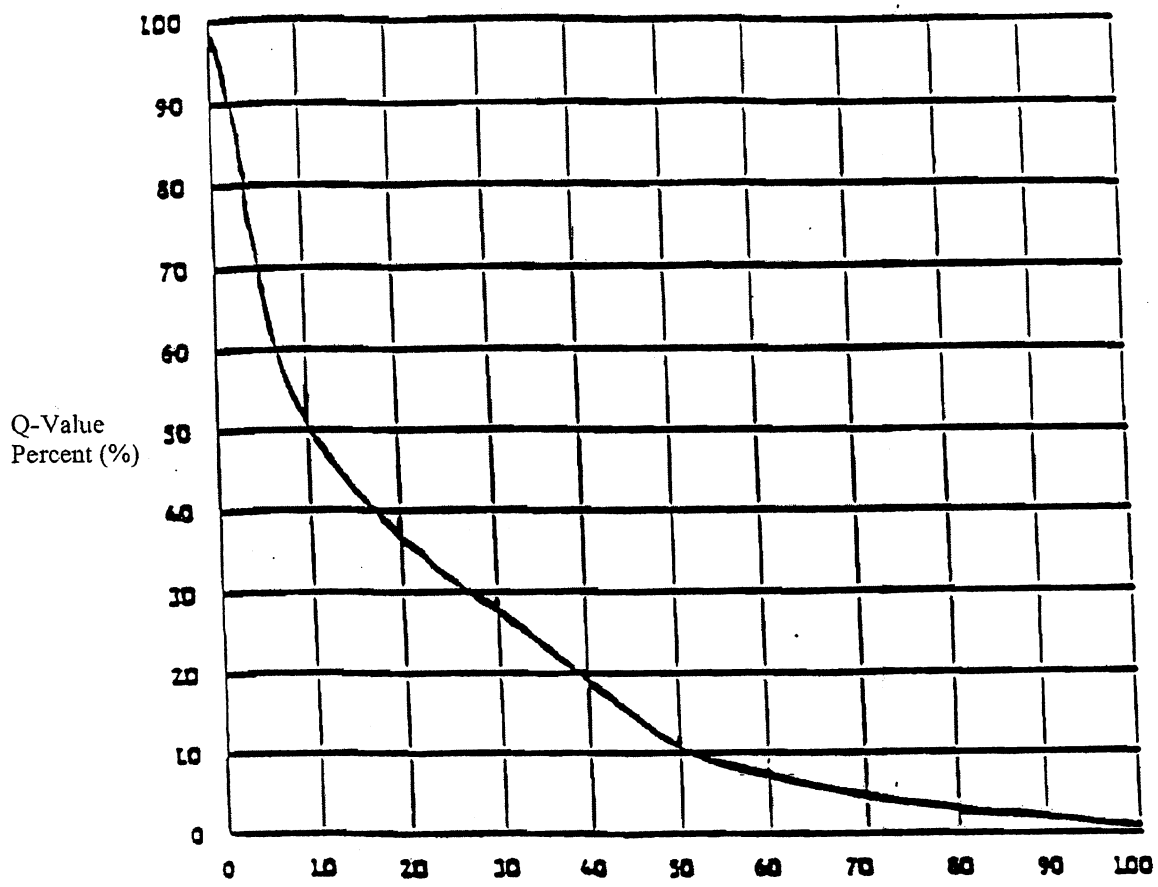
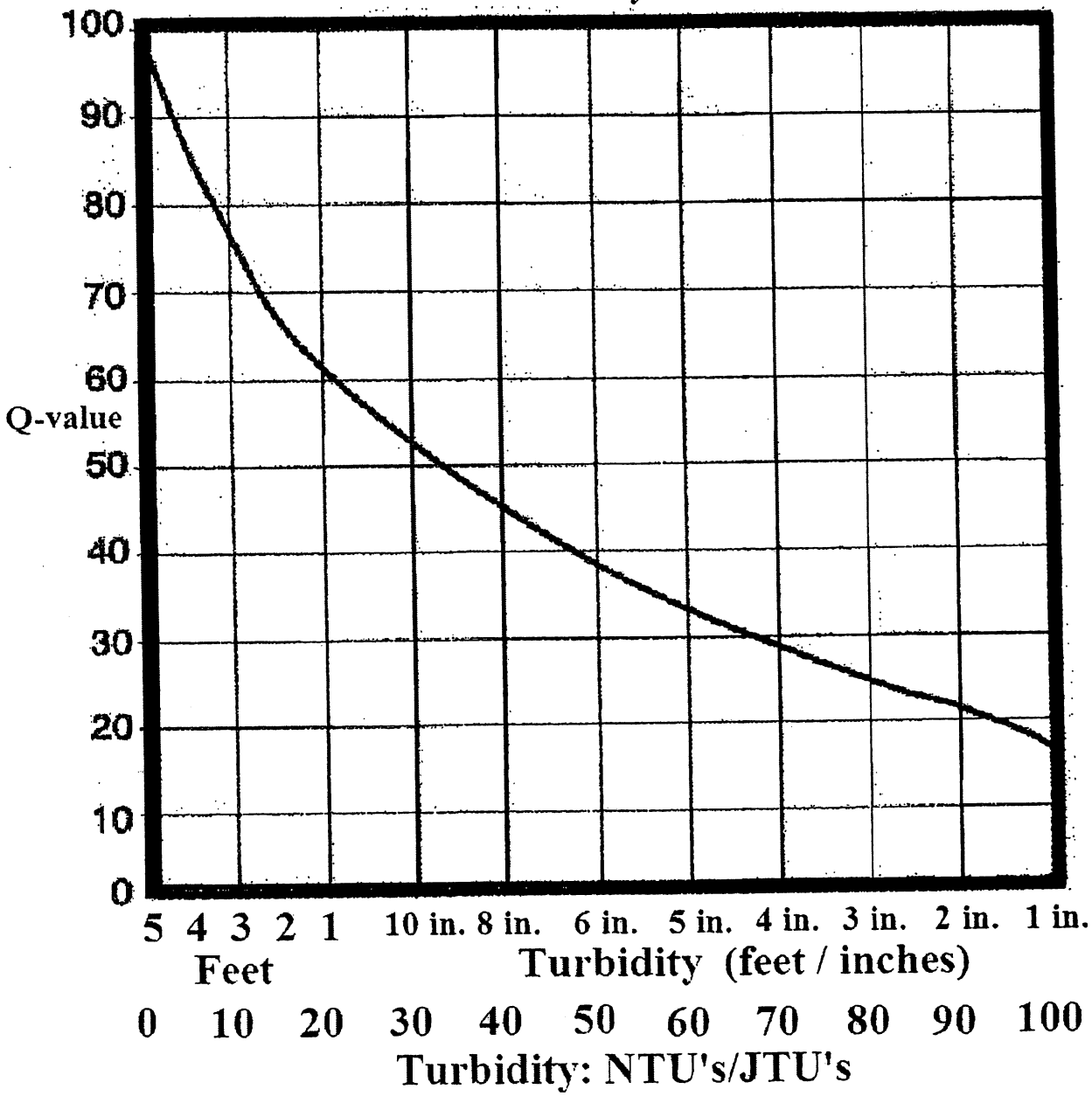
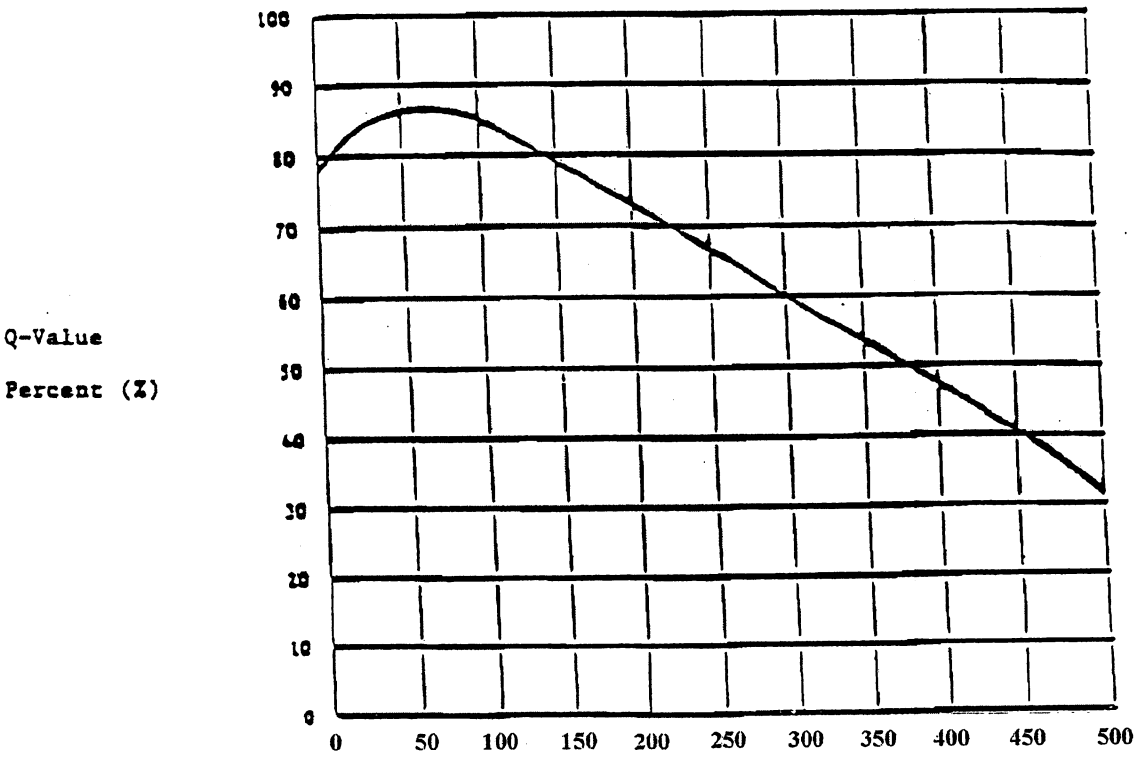


Chart 8: Turbidity Test Results



Total Solids vs. Water Quality Value Chart



"DRAFT"

Water Quality Index
(Blank Form)

School: _____
Date: _____ Time: _____
Water Conditions: _____
Weather Conditions: _____
Air Temp _____ 0C

River/Strem: ABOVE DAM
River Mile Marker: _____
Location: Latitude ____ 0 ____ min ____ sec
Longitude ____ 0 ____ min ____ sec
Site: _____
Site Location or Address _____

ppm = mg/L

Test	Test Data	Q-Value	Weighing Factor	Total
1. Dissolved Oxygen	$DO_{day\,1}$ ____ mg/L % Sat _____	_____	0.17	____%
2. Fecal Coliform	_____ colonies/100mL	_____	0.16	____%
3. pH	_____ units	_____	0.11	____%
4. BOD	$DO_{day\,0}$ ____mg/L $DO_{day\,1}$ - $DO_{day\,5}$ ____mg/L	_____	0.11	____%
5. Temperature Change	$Temp_{sam\,1}$ _____ 0c ΔT = ___ 0c $Temp_{sam\,2}$ _____ 0c	_____	0.10	____%
6. Phosphate	_____ mg/L	_____	0.10	____%
7. Nitrate	_____ mg/L	_____	0.10	____%
8. Turbidity	_____ meters _____ feet	_____	0.08	____%
9. Total Solids	_____ mg/L	_____	0.07	____%

OVERALL WATER QUALITY INDEX ____%

Overall Water Quality Index	Quality of Water
90%-100%	Excellent
70%-90%	Good
50%-70%	Medium
25%-50%	Bad
0-25%	Very Bad

"DRAFT"

Water Quality Index
(Blank Form)

School: _____
Date: _____ Time: _____
Water Conditions: _____
Weather Conditions: _____
Air Temp _____ 0C

River/Strem: BELOW DAM
River Mile Marker: _____
Location: Latitude ____ 0 ____ min ____ sec
Longitude ____ 0 ____ min ____ sec
Site: _____
Site Location or Address _____

ppm = mg/L

Test	Test Data	Q-Value	Weighing Factor	Total
1. Dissolved Oxygen	$DO_{day\ 1}$ ____ mg/L % Sat _____	_____	0.17	____%
2. Fecal Coliform	_____ colonies/100mL	_____	0.16	____%
3. pH	_____ units	_____	0.11	____%
4. BOD	$DO_{day\ 5}$ ____mg/L $DO_{day\ 1} - DO_{day\ 5}$ ____mg/L	_____	0.11	____%
5. Temperature Change	$Temp_{sam\ 1}$ _____ Oc ΔT = ____ Oc $Temp_{sam\ 2}$ _____ Oc	_____	0.10	____%
6. Phosphate	_____ mg/L	_____	0.10	____%
7. Nitrate	_____ mg/L	_____	0.10	____%
8. Turbidity	_____ meters _____ feet	_____	0.08	____%
9. Total Solids	_____ mg/L	_____	0.07	____%

OVERALL WATER QUALITY INDEX ____%

Overall Water Quality Index	Quality of Water
90%-100%	Excellent
70%-90%	Good
50%-70%	Medium
25%-50%	Bad
0-25%	Very Bad