LAMPIRAN A

BIOCHEMICAL OXYGEN DEMAND (BOD_5)

Introduction

The BOD, COD, TOD and TOC provide information on the load of the water. The Biochemical Oxygen Demand (BOD) in waste water, industrial waste water and surface water (lakes, rivers, streams) is an expression of the quantity of oxygen which is consumed during the decomposition of organic decomposable substances by biochemical processes.

The BOD determination is an important factor in measuring the influence of domestic and industrial waste water on sewage plants and receiving canals.

Manometric methods for determining the Biochemical Oxygen Demand (BOD) have been known for many years, but they usually require just as much expertise as the Standard Dilution Method according to German Standard Processes (Deutsche Einheitsverfahren).

The BOD Unit AL 212 resp. 214 has been compared with the Standard Dilution Method under controlled laboratory conditions. It produces comparable results and a high degree of accuracy in routine analysis.

This satisfied the demand, long felt by those directly involved in this field, for a BOD unit which is simple to operate, since the characteristic features of the standard type of manometric unit (Warburg and Sierp) are combined with modifications, which greatly simplify the system. No chemical analyses are required to determine the BOD value.

Measuring Principle

A specified amount of waste water is poured into one of the bottles (fig. 1) which is linked to a mercury pressure gauge which itself is sealed on one side. Above the sample in the bottle is a quantity of air which contains approx. 21 % oxygen.

In the course of the analysis, the bacteria consume the oxygen in the sample solution, which is continually replaced by new oxygen from the gas volume of the sample.

The oxidation of the organic substances leads to the formation of carbon dioxide, which moves over to the gas area and is then brought out of gas equilibrium by means of chemical reactions with a few drops of potash lye, which are put into the seal cup.

A negative pressure forms in the sample bottle, which is then recorded on the pressure gauge. The respective BOD value can be read off in mg/l. In the course of the analysis (usually 5 days) the sample is kept permanently in motion by magnetic stirrers, thereby ensuring a constant gas exchange (O_2 - CO_2).

Putting the Unit into Operation

1. Set up unit
   a) in a temperature controlled room, or
   b) in the thermostatically controlled cabinet AL 180 resp. 360 at 20 ± 1 °C.
2. Remove the screw stoppers on the pressure gauge housing.
3. Using the funnel, pour 2 ml mercury into each pressure gauge.
4. Then pour in 1 - 2 ml (approx. 15 - 20 drops) of distilled water. (To guarantee a uniform water vapour pressure in the pressure gauge. This small layer of water also serves to prevent mercury vapours.)

Preparing the Sample

1. Check the pH value of the sample (see 'pH value').
2. Adjust the temperature of the sample to 20 ± 1 °C before filling it into the sample bottle.
3. Measure the required sample quantity (see table 1) with the overflow measuring flask and pour it into the clean sample bottle (see 'temperature').
4. Place a magnetic stirring rod into each sample bottle.
5. Place the sample bottle on the BOD unit.
6. Fill 2 drops of potash lye 45 %* in each seal cup and place the cups into the bottles.

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* If appropriate care is taken, small pieces of soda lime or small tablets of caustic soda can be used instead of potash lye. Use TWEEZERS!

7. Connect unit to mains power and switch on motor.

8. Fasten the screw stopper of the pressure gauge housing loosely, do not tighten completely.

9. Fasten the screw cap of the sample bottle loosely, do not tighten completely.

10. Close thermostatically controlled cabinet and wait for approx. 30 minutes (to achieve temperature of 20 °C).

11. Tighten screw stopper of pressure gauge housing and screw cap of sample bottle (do not use screw driver).

12. Adjust the zero line of the scale to the upper edge of the mercury column.

13. Enter in the data sheet the exact time measurement started.

14. Read off BOD values at least once a day and enter in data sheet.

15. At the end of the fifth day measurement is completed. Read off scale value and multiply with the factor of the sample quantity chosen (see 'choice of sample volume').

16. We recommend that at least one repeat measurement is taken of each sample.

Choice of Sample Volume

The Biochemical Oxygen Demand of a sample depends on its loading with organic substances. The scale of the unit is designed for a medium range (0 - 350 mg/l). By changing the sample quantity, however, it is possible to adjust the measuring range as required.

Table 1:

measuring range	sample volume	factor
0 - 35	428 ml	0.1
0 - 70	360 ml	0.2
0 - 175	244 ml	0.5
0 - 350	157 ml	1.0
0 - 700	94 ml	2.0
0 - 1400*	57 ml	4.0

The actual BOD value is then calculated as follows:

recorded value x factor = BOD (mg/l)

Example: measuring range 0 - 70, i.e. sample volume 360 ml, recorded value 190:

190 x 0.2 = 38 mg/l

The sample volumes are to be measured with overflow measuring flasks in order to rule out errors due to inaccurate filling.

Dilution of Samples

If the measuring range is not sufficient for a heavily loaded sample, the sample can be diluted accordingly. Distilled or demineralised water is generally used for this purpose.

Table 2:

measuring range	sample volume ml	diluting water ml	factor
0 - 1400	39.3	117.7	4.0
0 - 2800	19.6	137.4	8.0
0 - 3500	15.7	141.3	10.0
0 - 7000	7.85	149.15	20.0

The actual BOD value is then calculated as follows:

recorded value x factor = BOD (mg/l)

The dilutions refer to a sample volume of 157 ml.

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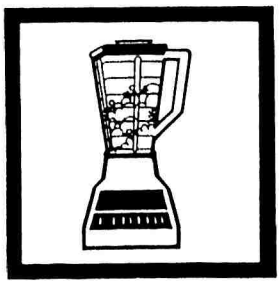
* If particular accuracy is required, it may be desirable with any BOD value of over 700 mg/l to work with a diluted sample instead of selecting a volume of 56 ml.

OXYGEN DEMAND, CHEMICAL

For water, wastewater and seawater

Reactor Digestion Method*; USEPA approved for reporting wastewater analysis**
(0-150 and 0-1500 ranges)

DIGESTION



1. Homogenize 500 mL of sample for 2 minutes in a blender.

0 to 15,000 mg/L Note: Homogenize 100 mL of sample. Pour the homogenized sample into a 250–mL beaker and stir with a magnetic stirrer.

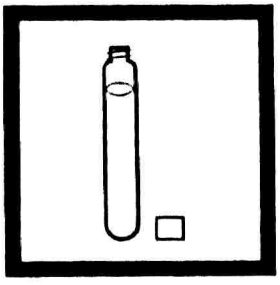
Note: Blending ensures distribution of solids and improves accuracy and reproducibility.

Note: If samples cannot be analyzed immediately, see Sampling and Storage *following these procedures.*

Caution: Some of the chemicals and apparatus used in this procedure may be hazardous to the health and safety of the user if inappropriately handled or accidently misused. Please read all warnings and the safety section of this manual. Appropriate eye protection and clothing should be used for adequate user protection. If contact occurs, flush the affected area with running water. Follow instructions carefully.

2. Turn on the COD Reactor. Preheat to 150 °C. Place the plastic shield in front of the reactor.

Caution: Ensure safety devices are in place to protect analyst from splattering should reagent leaking occur.

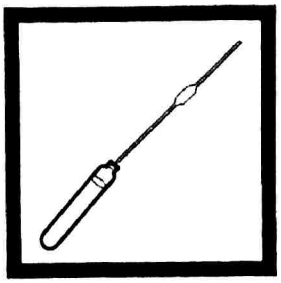


3. Remove the cap of a COD Digestion Reagent Vial for the appropriate range:

Sample Concentration Range (mg/L)	COD Digestion Reagent Vial Type
0 to 150	Low Range
0 to 1,500	High Range
0 to 15,000	High Range Plus

Use the cap tool provided to loosen the High Range Plus vials caps.

Note: The reagent mixture is light–sensitive. Keep unused vials in the opaque shipping container, in a refrigerator if possible. The amount of light striking the vials during the test will not affect results.



4. Hold the vial at a 45–degree angle. Pipet 2.00 mL (0.2 mL for the 0 to 15,000 mg/L range) of sample into the vial.

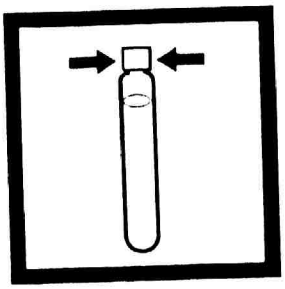
0 to 15,000 mg/L Note: Pipet only 0.20 mL of sample, not 2.00 mL, using a TenSette Pipet. For greater accuracy a minimum of three replicates should be analyzed and the results averaged.

Note: Spilled reagent will affect test accuracy and is hazardous to skin and other materials. Do not run tests with vials which have been spilled. If contact occurs, wash with running water.

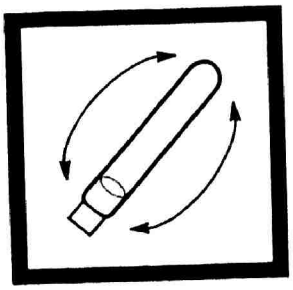
Note: For proof of accuracy, use COD standard solutions (preparation given in the Accuracy Check*) in place of the sample.*

*Jirka, A.M.; Carter, M.J. *Analytical Chemistry*, 1975, 47(8), 1397

**Federal Register*, April 21, 1980, 45(78), 26811–26812

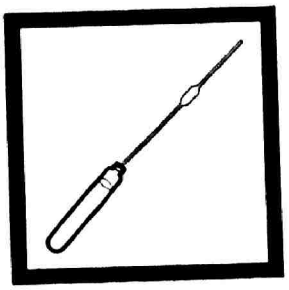


5. Replace the vial cap tightly. Use the cap tool provided, if necessary. Rinse the COD vial with demineralized water and wipe the vial clean with a paper towel.



6. Hold the vial by the cap and over a sink. Invert gently several times to mix the contents. Place the vial in the preheated COD Reactor.

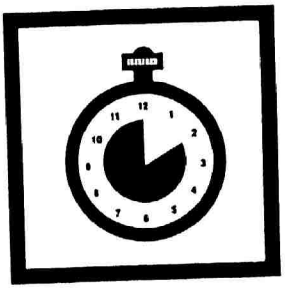
Note: The vial will become very hot during mixing.



7. Prepare a blank by repeating Steps 3 to 6, substituting 2.00 mL (0.2 mL for the 0 to 15,000 mg/L range) demineralized water for the sample.

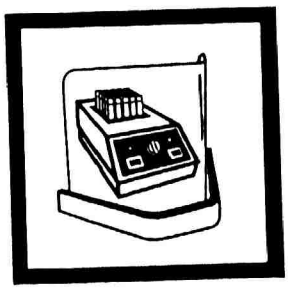
Note: Be sure the pipet is well rinsed, or use a clean pipet.

Note: One blank must be run with each set of samples. All tests (samples and blank) should be run with the same lot of vials. The lot number appears on the container label.

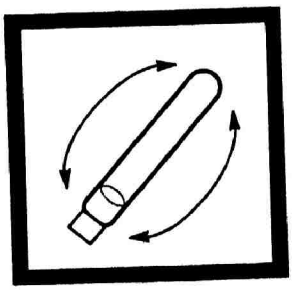


8. Heat the vials for 2 hours.

Note: Many wastewater samples containing easily oxidized materials are digested completely in less than two hours. If desired, measure the concentration (while still hot) at 15 minute intervals until it remains unchanged. At this point, the sample is completely digested. Cool the vials to room temperature for final measurement.

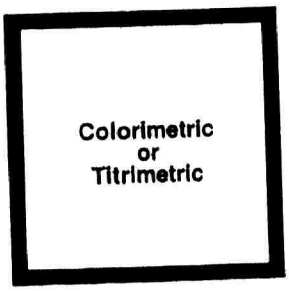


9. Turn the reactor off. Wait about 20 minutes for the vials to cool to 120 °C or less.



10. Invert each vial several times while still warm. Place the vials into a rack. Wait until the vials have cooled to room temperature.

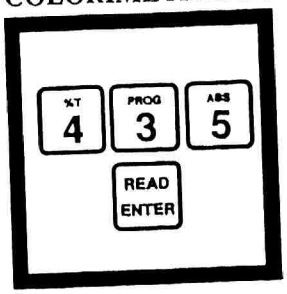
Note: If a pure green color appears in the reacted sample, the reagent capacity may have been exceeded. Measure the COD and, if necessary, repeat the test with a diluted sample.



11. Use one of the following analytical techniques to determine the sample concentration:

Colorimetric determination, 0 to 150 mg/L COD
Colorimetric determination, 0 to 1,500 mg/L COD
Colorimetric determination, 0 to 15,000 mg/L COD
Buret titration

COLORIMETRIC DETERMINATION, 0 to 1,500 and 0 to 15,000 mg/L COD



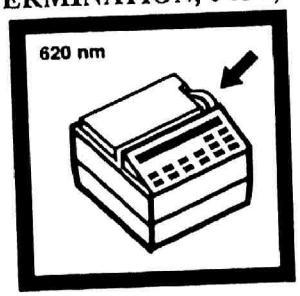
1. Enter the stored program number for chemical oxygen demand, high range.

Press: **4 3 5 READ/ENTER**

The display will show:
DIAL nm TO 620

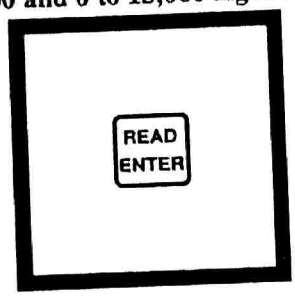
Note: DR/2000s with software versions 3.0 and greater will display "P" and the program number.

Note: Instruments with software versions 3.0 and greater will not display "DIAL nm TO" message if the wavelength is already set correctly. The display will show the message in Step 3. Proceed with Step 4.



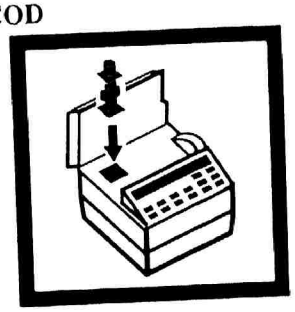
2. Rotate the wavelength dial until the small display shows:

620 nm

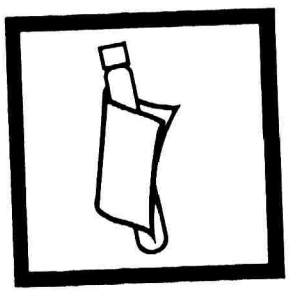


3. Press: **READ/ENTER**

The display will show:
mg/l COD H

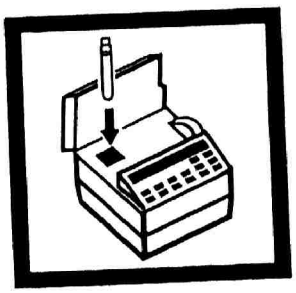


4. Place the COD Vial Adapter into the cell holder with the marker to the right.



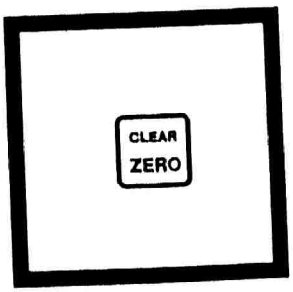
5. Clean the outside of the blank with a towel.

Note: Wiping with a damp towel followed by a dry one will remove fingerprints or other marks.



6. Place the blank into the adapter with the Hach logo facing the front of the instrument. Place the cover on the adapter.

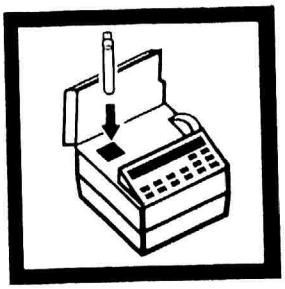
Note: The blank is stable when stored in the dark. See Blanks for Colorimetric Determination *following these procedures.*



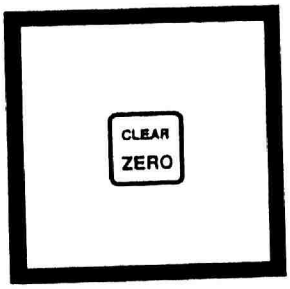
7. Press: **ZERO**

The display will show:
WAIT
then:
0. mg/l COD H

8. Clean the outside of the sample vial with a towel.



9. Place the sample vial in the adapter with the Hach logo facing the front of the instrument. Place the cover on the adapter.



10. Press: **READ/ENTER**

The display will show:
WAIT
then the result in mg/L COD will be displayed.

0 to 15,000 mg/L Note: *When High Range Plus COD Digestion Reagent Vials are used, multiply the displayed value by ten.*

Note: *In the constant–on mode, pressing READ/ENTER is not required. WAIT will not appear. When the display stabilizes, read the result.*

Note: *For most accurate results with samples near 1,500 or 15,000 mg/L COD, repeat the analysis with a diluted sample.*

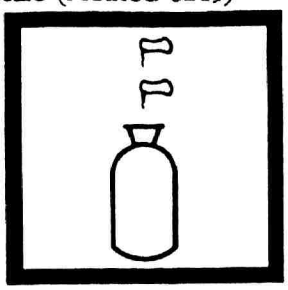
OXYGEN, DISSOLVED (1 to 10+ mg/L DO)For water, wastewater and seawater

Azide Modification of Winkler Method with Digital Titrator Using 300-mL BOD Bottle (Method 8215)

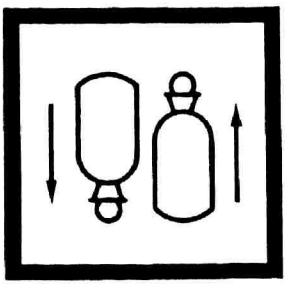
1. Collect a water sample in a clean, 300-mL glass-stoppered BOD bottle.

Note: Allow the sample to overflow the bottle for 2-3 minutes to remove any trapped air bubbles.

Note: If samples cannot be analyzed immediately, see Sampling and Storage following these steps.

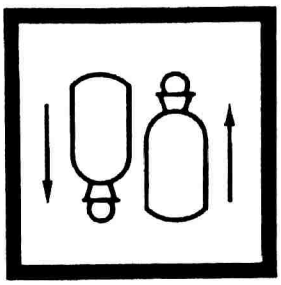


2. Add the contents of one Manganous Sulfate Powder Pillow and one Alkaline Iodide-Azide Reagent Powder Pillow.



3. Immediately insert the stopper so that no air is trapped in the bottle. Invert several times to mix.

Note: A flocculent precipitate will form (orange-brown if oxygen is present; white if oxygen is absent). The floc settles slowly in salt water and normally requires 5 additional minutes before proceeding to Step 5.

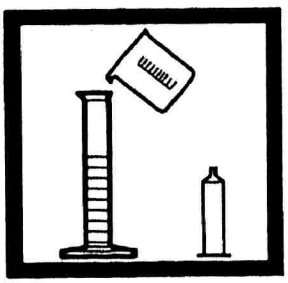


4. Wait until the floc has settled. Invert the bottle again several times and wait until the floc settles.

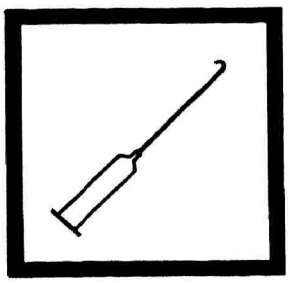
Note: Waiting until the floc settles assures complete reaction of the sample and reagents.

5. Remove the stopper and add the contents of one Sulfamic Acid Powder Pillow. Replace the stopper without trapping air in the bottle. Invert several times (the prepared sample).

Note: The floc will dissolve and leave a yellow color if oxygen is present.



6. Select a sample volume and Sodium Thiosulfate Titration Cartridge corresponding to the expected dissolved oxygen (DO) concentration from Table 1.



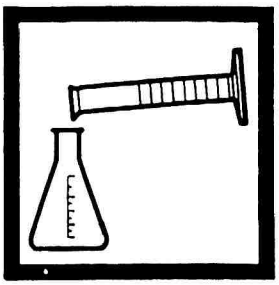
7. Insert a clean delivery tube into the Titration Cartridge. Attach the cartridge to the titrator body. See the Digital Titrator manual for assembly instructions.

8. Hold the Digital Titrator with the cartridge tip pointing up. Turn the delivery knob to eject air and a few drops of titrant. Reset the counter to zero and wipe the tip.

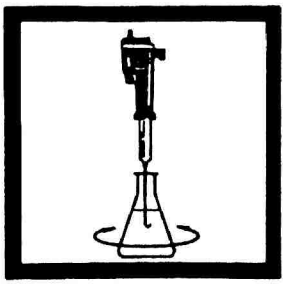
Note: For added convenience, see TitraStir Modification following these steps.

Table 1

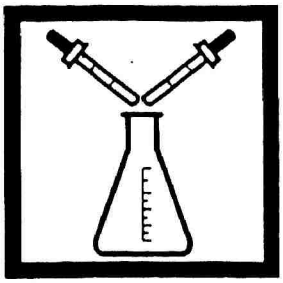
Range (mg/L DO)	Sample Volume (mL)	Titration Cartridge (N $Na_2S_2O_3$)	Catalog Number	Digit Multiplier
1-5	200	0.200	22675-01	0.01
2-10	100	0.200	22675-01	0.02
10+	200	2.000	14401-01	0.1



9. Use a graduated cylinder to measure the sample volume from Table 1. Transfer the sample into a 250–mL erlenmeyer flask.

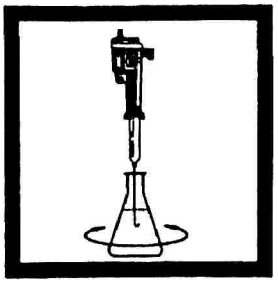


10. Place the delivery tube tip into the solution. While titrating, swirl the flask until a light yellow color develops.

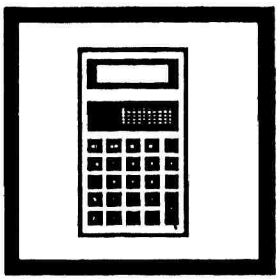


11. Add 2 dropperfuls of Starch Indicator Solution and swirl to mix.

***Note:** A dark blue color will form.*



12. Continue titrating until the solution changes from dark blue to colorless. Record the number of digits required.



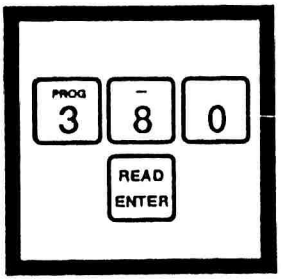
13. Calculate:

Digits Required X Digit Multiplier

= mg/L Dissolved Oxygen

NITROGEN, AMMONIA (0 to 2.50 mg/L NH_3–N) For water, wastewater* and seawater*

Nessler Method, USEPA accepted for reporting (distillation is required)*****



1. Enter the stored program number for ammonia nitrogen (NH_3–N).

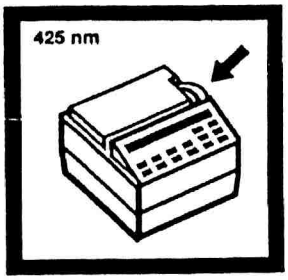
Press: **3 8 0 READ/ENTER**

The display will show:
DIAL nm TO 425

Note: DR/2000s with software versions 3.0 and greater will display "P" and the program number.

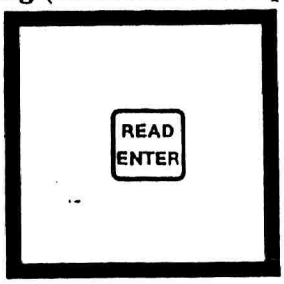
Note: Instruments with software versions 3.0 and greater will not display "DIAL nm TO" message if the wavelength is already set correctly. The display will show the message in Step 3. Proceed with Step 4.

Note: If samples cannot be analyzed immediately, see Sampling and Storage following these steps. Adjust pH of stored samples before analysis.



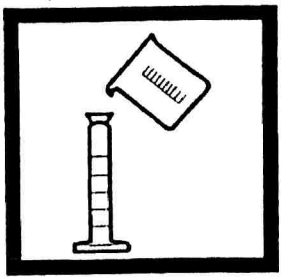
2. Rotate the wavelength dial until the small display shows:
425 nm

Note: This test is sensitive to the wavelength setting. To assure accuracy, run the test using a 1.0 mg/L standard solution and deionized water blank. Repeat Steps 9 to 12 at slightly different wavelengths, setting the dial from higher to lower values, until the correct result is obtained. The wavelength should be 425 ±2 nm. Always set this wavelength by approaching from high to low values.



3. Press: **READ/ENTER**

The display will show:
mg/l N NH_3 Ness



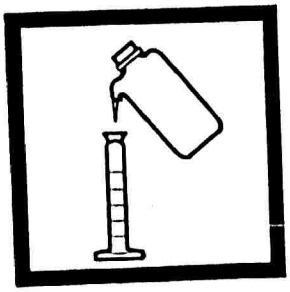
4. Fill a 25-mL graduated mixing cylinder to the 25-mL mark with sample (the prepared sample).

Note: For proof of accuracy, use a 1.0-mg/L Ammonia Nitrogen Standard Solution (listed under Optional Reagents) in place of the sample.

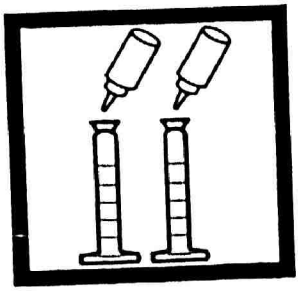
*Requires distillation

** Adapted from *Standard Methods for the Examination of Water and Wastewater.*

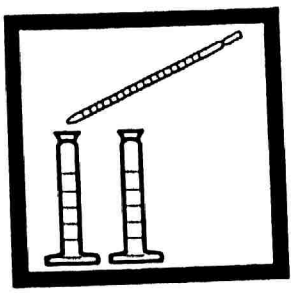
***Procedure is equivalent to USEPA method 350.2 and Standard Method 4500-NH_3 B and C for wastewater.



5. Fill another 25–mL mixing graduated cylinder with deionized water (the blank).



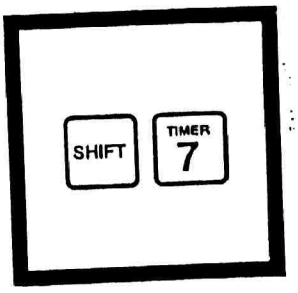
6. Add three drops of Mineral Stabilizer to each cylinder. Invert several times to mix. Add three drops of Polyvinyl Alcohol Dispersing Agent to each cylinder (hold the dropping bottle exactly vertical). Invert several times to mix.



7. Pipet 1.0 mL of Nessler Reagent into each cylinder. Stopper. Invert several times to mix.

Note: *Nessler Reagent is toxic and corrosive. Pipet carefully and use a pipet filler.*

Note: *A yellow color will develop if ammonia is present. (The reagent will cause a faint yellow color in the blank.)*



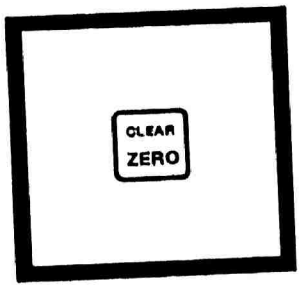
8. Press: **SHIFT TIMER**

A 1–minute reaction period will begin.

Note: *Continue with Step 9 while timer is running.*

9. Pour each solution into a respective blank and prepared sample cells.

Note: *The Pour-Thru Cell can be used with this procedure. If the Pour-Thru Cell Assembly Kit is used, periodically clean the cell by pouring a few sodium thiosulfate pentahydrate crystals into the cell funnel. Flush it through the funnel and cell with enough deionized water to dissolve. Rinse out the crystals.*



10. When the timer beeps, the display will show:

mg/l N NH_3 Ness

Place the blank into the cell holder. Close the light shield.

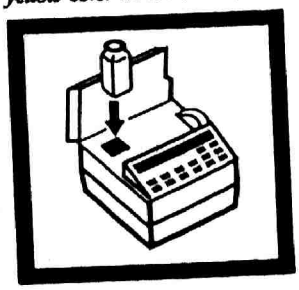
Press: **ZERO**

The display will show:

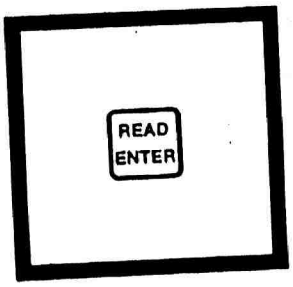
WAIT

then:

0.00 mg/l N NH_3 Ness



11. Place the prepared sample into the cell holder. Close the light shield.



12. Press: **READ/ENTER**

The display will show:

WAIT

then the result in mg/L ammonia expressed as nitrogen (NH_3–N) will be displayed.

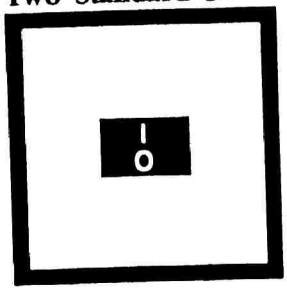
Note: *Do not wait more than five minutes after reagent addition (Step 7) before performing Step 12.*

Note: *The results may be expressed as mg/L ammonia (NH_3) or mg/L ammonium (NH_4^+) by multiplying the result by 1.22 or 1.29 respectively.*

Note: *In the constant–on mode, pressing READ/ENTER is not required. WAIT will not appear. When the display stabilizes, read the result.*

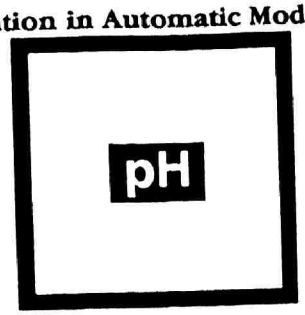
pH

Electrode Method With a Portable Hach One Meter; USEPA accepted for reporting*
Two-Standard Calibration in Automatic Mode with Temperature Probe



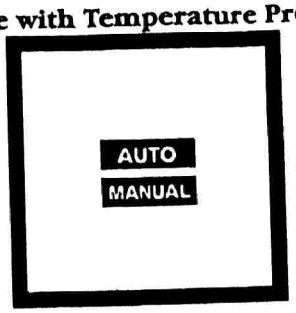
1. Press: I / O

The display will light.



2. Press: **pH**

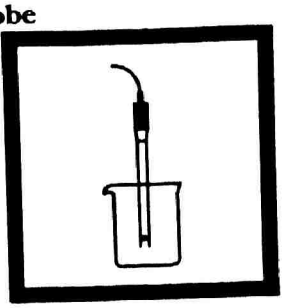
Note: Be sure no air bubbles are trapped inside the tip of the electrode or dispenser tubing.



3. Press: **AUTO/MANUAL**

The AUTO indicator will light. The S1 and pH indicators will flash. Zeros will appear in the display.

Note: Hach buffers are available as powders or solutions. They are color-coded for added convenience.

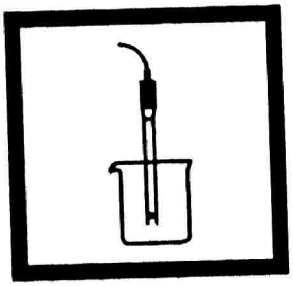


4. Place the electrode into a pH 4.01 buffer solution and press the Dispenser Button. The temperature will show the actual solution temperature if the temperature probe is connected.

Note: In the Automatic Buffer Mode, buffer solutions (pH 4.01, 7 and 10.00) may be used in any order.

5. Press **STANDARD** and wait until the pH indicator stops flashing. The S2 indicator will begin flashing. The actual pH value will appear on the display and is based on the default or last calibration. Disregard the value.

6. Rinse the electrode with deionized water and blot dry with a paper towel.



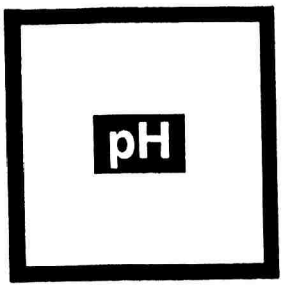
7. Place the electrode in the pH 7.00 buffer and press the Dispenser Button.

8. Press: **STANDARD**

S2 will stop flashing. Wait until the pH indicator stops flashing. The actual pH value will be displayed and is based on the default or last calibration. Disregard the value.

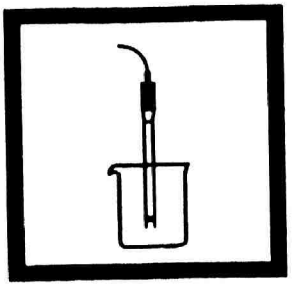
Note: Pressing any key other than the pH key at this point will cancel the calibration values entered and the meter will revert to the previous calibration.

*Procedure is equivalent to USEPA method 150.1 and Standard Method 4500-H⁺ for water and wastewater



9. Press: **pH**

Rinse the electrode with deionized water or a portion of the sample to be measured. Blot dry with a paper towel.

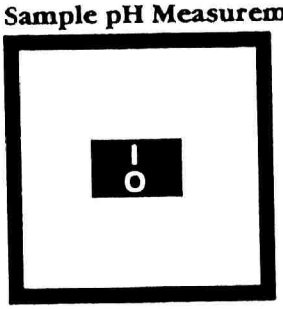


10. Place the electrode into the sample. Press the Dispenser Button. The meter will measure the sample pH.

11. To review, press **REVIEW** to show the offset voltage and the electrode slope in the lower display. Press REVIEW again to return to measurement mode.

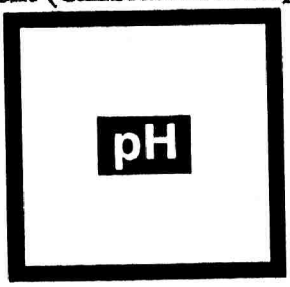
Note: *For other calibrations or more complete operation instructions, refer to the instrument manual.*

Sample pH Measurement (Calibration is required)



1. Press: I/O

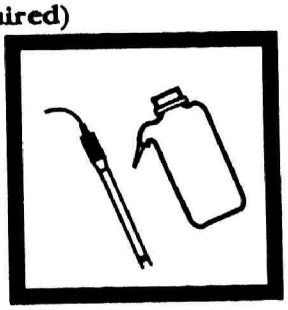
to turn the meter on.



2. Press: **pH**

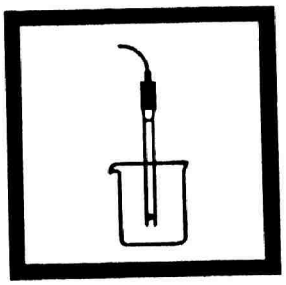
The pH indicator will light.

Note: *Be sure no air bubbles are trapped inside the tip of the electrode or dispenser tubing.*



3. Rinse the electrode thoroughly with deionized water or a portion of the sample to be measured. Blot dry with a paper towel. Place the electrode in the sample.

Note: *If the sample cannot be analyzed shortly after sampling, see Sampling and Storage following these steps.*

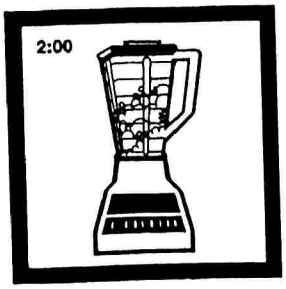


4. Press the Dispenser Button. Stir at a moderate rate either with a magnetic stirrer or with the electrode. When the Probe Indicator stops flashing (indicates stability), read the sample pH.

SUSPENDED SOLIDS (0 to 750 mg/L)

For water and wastewater

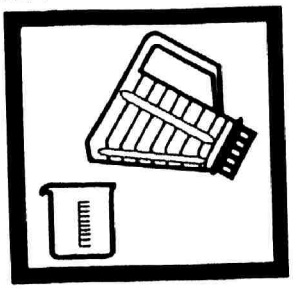
Photometric Method*(Also called Nonfilterable Residue)



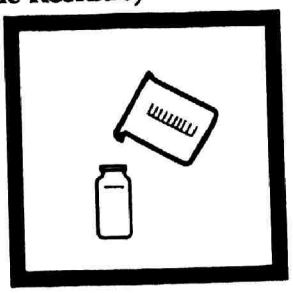
1. Blend 500 mL of sample in a blender at high speed for exactly 2 minutes.

Note: If samples cannot be analyzed immediately, see Sampling and Storage following these steps.

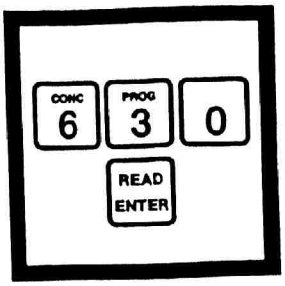
Note: Obtain blender locally. All other apparatus is available from Hach.



2. Pour the blended sample into a 600-mL beaker.



3. Stir the sample and immediately pour 25 mL of the blended sample into a sample cell (the prepared sample).



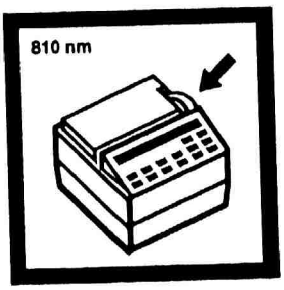
4. Enter the stored program number for suspended solids.

Press: **6 3 0 READ/ENTER**

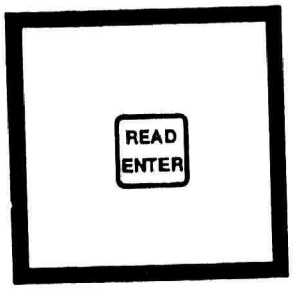
The display will show:
DIAL nm to 810

Note: DR/2000s with software versions 3.0 and greater will display "P" and the program number.

Note: Instruments with software versions 3.0 and greater will not display "DIAL nm TO" message if the wavelength is already set correctly. The display will show the message in Step 6. Proceed with Step 7.



5. Rotate the wavelength dial until the small display shows:
810 nm

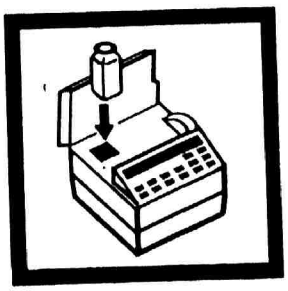


6. Press: **READ/ENTER**

The display will show:
mg/l SUSP.SOLIDS

7. Fill a sample cell with 25 mL of tap or deionized water (the blank).

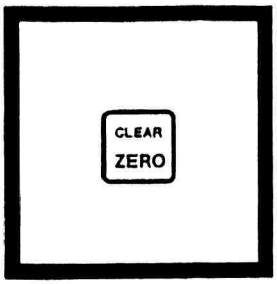
Note: Remove gas bubbles in the tap water by swirling or tapping the bottom of the cell on a table.



8. Place the blank in the cell holder. Close the light shield.

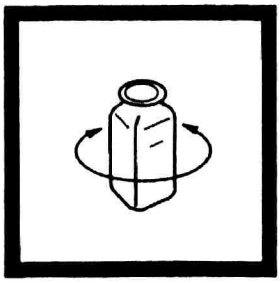
Note: The Pour-Thru Cell cannot be used with this procedure.

* Adapted from *Sewage and Industrial Wastes*, 31, 1159 (1959)

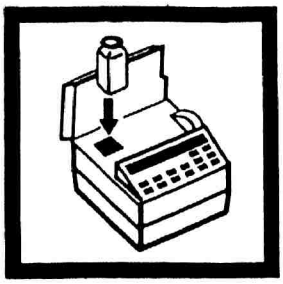


9. Press: **ZERO**

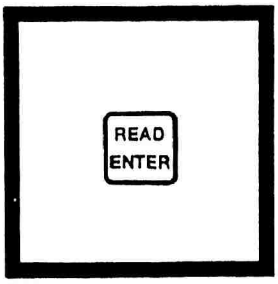
The display will show
WAIT
then:
0. mg/l SUSP.SOLIDS



10. Swirl the prepared sample cell to remove any gas bubbles and uniformly suspend any residue.



11. Place the prepared sample into the cell holder. Close the light shield.



12. Press: **READ/ENTER**

The display will show:
WAIT
then the result in mg/l suspended solids will be displayed.

Note: In the constant-on mode, pressing READ/ENTER is not required. WAIT will not appear. When the display stabilizes, read the result.

SAMPLING AND STORAGE

Collect samples in clean plastic or glass bottles. Analyze samples as soon as possible after collection. The sample may be stored seven days by cooling to 4 °C (39 °F).

INTERFERENCES

Calibration for this test is based on parallel samples using gravimetric technique on sewage samples from a municipal sewage plant. For most samples, this calibration will provide satisfactory results. When higher accuracy is required, run parallel spectrophotometric and gravimetric determinations with portions of the same sample. The new calibration should be made on your particular sample using a gravimetric technique as a basis.

SUMMARY OF METHOD

This method of determining suspended solids is a simple, direct measurement which does not require the filtration or ignition and weighing steps that gravimetric procedures do. The EPA specifies the gravimetric method for solids determinations, while this method is often used for checking in-plant processes.

REQUIRED APPARATUS

Description	Quantity Required Per Test	Units	Cat. No.
Beaker, 600 mL, poly	1	each	1080-52
Blender	1	each	purchase locally
Cylinder, graduated, 500 mL, poly	1	each	1081-49
Pipet, serological, 25 mL	1	each	2066-40
Pipet, Filler, safety bulb	1	each	14651-00

OPTIONAL APPARATUS

Stirring Rod, glass		3/pkg	1770-01

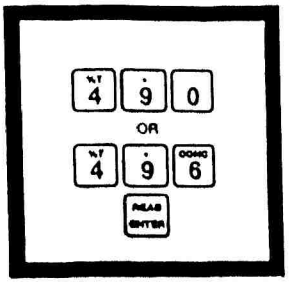
For additional ordering information, see final section.
In the U.S.A. call 800-227-4224 to place an order.

PHOSPHORUS, REACTIVE (0 to 2.50 mg/L PO_4^{3-})

For water, wastewater and seawater

(also called Orthophosphate) PhosVer 3 (Ascorbic Acid) Method* (Powder Pillows or AccuVac Ampuls), USEPA accepted for reporting**

USING POWDER PILLOWS



1. Enter a stored program number for reactive phosphorus powder pillows.

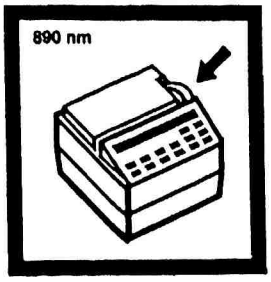
Press: **4 9 0 READ/ENTER** for units of mg/L PO_4^{3-}
OR
Press: **4 9 6 READ/ENTER** for units of mg/L P

The display will show:
DIAL nm TO 890

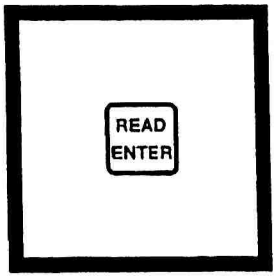
Note: DR/2000s with software versions 3.0 and greater will display "P" and the program number.

Note: Instruments with software versions 3.0 and greater will not display "DIAL nm TO" message if the wavelength is already set correctly. The display will show the message in Step 3. Proceed with Step 4.

Note: For instruments with software versions that do not have stored program method 496, refer to Instrument Setup following these steps.

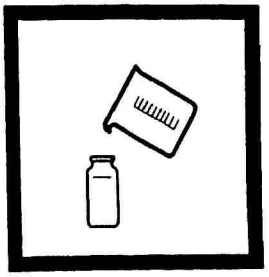


2. Rotate the wavelength dial until the small display shows:
890 nm



3. Press: **READ/ENTER**

The display will show:
mg/l PO_4^{3-} PV
OR
mg/l P PV



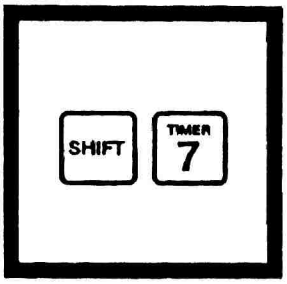
4. Fill a sample cell with 25 mL of sample.

Note: For proof of accuracy, use a 1.0 mg/L Phosphate (0.33 mg/L P) Standard Solution listed under Optional Reagents in place of the sample.

*Adapted from *Standard Methods for the Examination of Water and Wastewater*
** Procedure is equivalent to USEPA method 365.2 for wastewater and Standard Method 4500–P–E for drinking water.

5. Add the contents of one PhosVer 3 phosphate Powder Pillow to the sample cell (the prepared sample). Swirl immediately to mix.

Note: A blue color will form if phosphate is present.

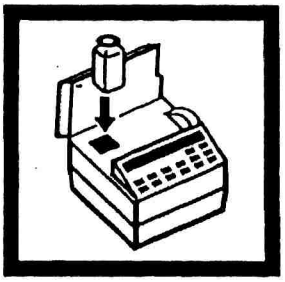


6. Press: **SHIFT TIMER**

A 2-minute reaction period will begin.

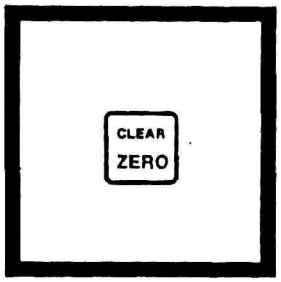
Note: An 8-10 minute reaction period should be used if determining total phosphate following the acid-persulfate digestion.

Note: If the sample temperature is less than 15 °C (55 °F), allow 4 minutes of reaction time.



7. Fill another sample cell (the blank) with 25 mL of sample. Place it into the cell holder.

Note: The Pour-Thru Cell can be used with this procedure.



8. When the timer beeps, the display will show:

mg/l P PV

Press: **ZERO**

The display will show:

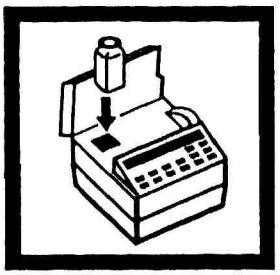
WAIT

then:

0.00 mg/l PO_4^{3-} PV

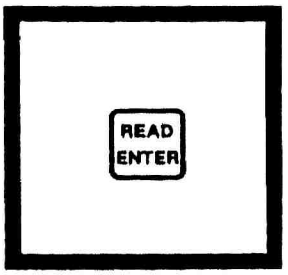
OR

0.00 mg/l P PV



9. Place the prepared sample into the cell holder. Close the light shield.

Note: Run a reagent blank for this test. Use deionized water in place of the sample in Step 4. Subtract this result from all test results run with this lot of PhosVer 3.



10. Press: **READ/ENTER**

The display will show:

WAIT

then the results in mg/L PO_4^{3-} or mg/L P will be displayed.

Note: mg/L PO_4^{3-} results can be expressed as mg/L phosphorus by dividing by 3 or as mg/L phosphorus pentoxide (P_2O_5) by multiplying by 0.75.

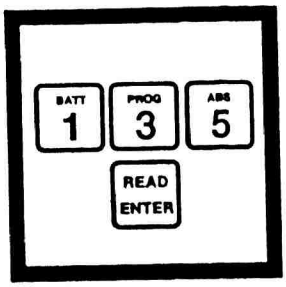
Note: In the constant-on mode, pressing READ/ENTER is not required. WAIT will not appear. When the display stabilizes, read the result.

COPPER (0 to 5.00 mg/L)

For water, wastewater and seawater **

Bicinchoninate Method* (Powder Pillows or AccuVac Ampuls); USEPA approved for reporting* - (digestion required; See Section I)**

USING POWDER PILLOWS



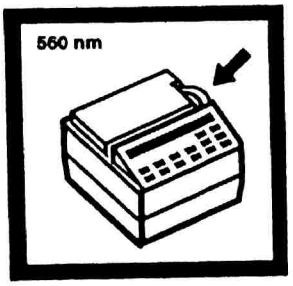
1. Enter the stored program number for copper (Cu), bicinchoninate–powder pillows

Press: **1 3 5 READ/ENTER**

The display will show:
DIAL nm TO 560

Note: DR/2000s with software versions 3.0 and greater will display "P" and the program number.

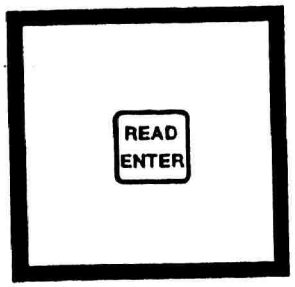
Note: Instruments with software versions 3.0 and greater will not display "DIAL nm TO" message if the wavelength is already set correctly. The display will show the message in Step 3. Proceed with Step 4.



2. Rotate the wavelength dial until the small display shows:
560 nm

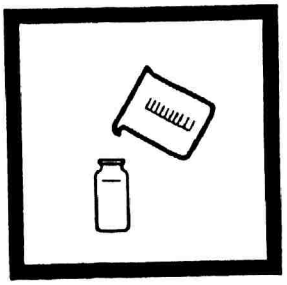
Note: Determination of total copper needs a prior digestion.

Note: If samples cannot be analyzed immediately, see Sampling and Storage, following these steps. Adjust pH of stored samples before analysis.



3. Press: **READ/ENTER**

The display will show:
mg/l Cu Bicn



4. Fill a sample cell with 25 mL of sample.

Note: The Pour-Thru Cell can be used with this procedure.

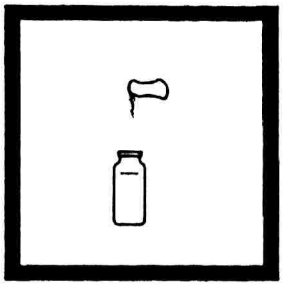
Note: For proof of accuracy, use a 1.00 mg/L copper standard solution (preparation given in the Accuracy Check) in place of the sample.

Note: Determine a reagent blank for each new lot of reagent. Repeat Steps 4 to 10, using deionized water as the sample. Subtract this value from each result obtained with this lot of reagent.

*Adapted from Nakano, S., Yakugaku Zasshi, 82 486–491 (1962) [*Chemical Abstracts*, 58 3390c (1963)]

**Pretreatment required; see Interferences (Using Powder Pillows)

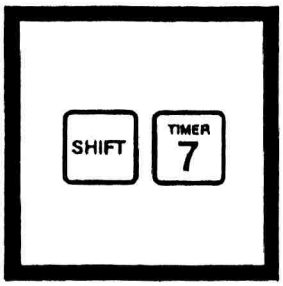
***Powder Pillows only: *Federal Register*, 45 (105) 36166 (May 29, 1980)



5. Add the contents of one CuVer 1 Copper Reagent Powder Pillow to the sample cell (the prepared sample). Swirl to mix.

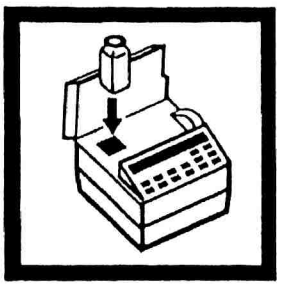
Note: A purple color will develop if copper is present.

Note: Accuracy is not affected by undissolved powder.



6. Press: **SHIFT TIMER**

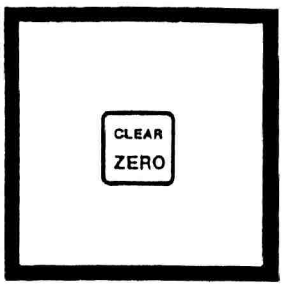
A 2-minute reaction period will begin.



7. When the timer beeps, the display will show:

mg/l Cu Bicn

Fill the second sample cell (the blank) with 25 mL of sample. Place the blank into the cell holder.



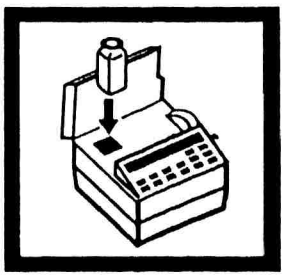
8. Press: **ZERO**

The display will show

WAIT

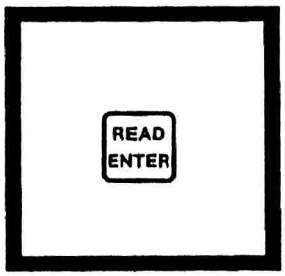
then:

0.00 mg/l Cu Bicn



9. Within thirty minutes after the timer beeps, place the prepared sample into the cell holder. Close the light shield.

Note: If more than five minutes elapse after the timer beeps, ZERO SAMPLE may appear. If so, remove the prepared sample. Insert the blank. Press: ZERO. Insert the prepared sample.



10. Press: **READ/ENTER**

The display will show:

WAIT

then the result in mg/L copper will be displayed.

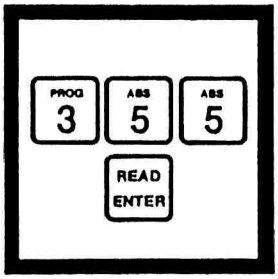
Note: In the constant-on mode, pressing READ/ENTER is not required. WAIT will not appear. When the display stabilizes, read the result.

NITRATE, HR (0 to 30.0 mg/L NO_3^- –N)

For water, wastewater and seawater*

Cadmium Reduction Method (Powder Pillows or AccuVac Ampuls)

USING POWDER PILLOWS



1. Enter the stored program number for high range nitrate nitrogen (NO_3^-–N)–powder pillows.

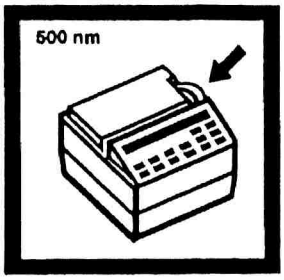
Press: **3 5 5 READ/ENTER**

The display will show:
DIAL nm TO 500

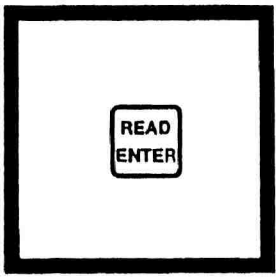
Note: DR/2000s with software versions 3.0 and greater will display "P" and the program number.

Note: Instruments with software versions 3.0 and greater will not display "DIAL nm TO" message if the wavelength is already set correctly. The display will show the message in Step 3. Proceed with Step 4.

Note: If sample cannot be analyzed immediately, see Sampling and Storage following these steps. Adjust the pH of stored samples before analysis.

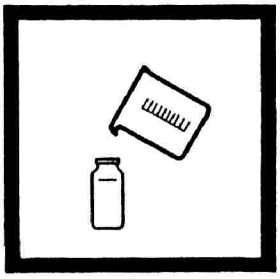


2. Rotate the wavelength dial until the small display shows:
500 nm



3. Press: **READ/ENTER**

The display will show:
mg/l N NO_3^- H

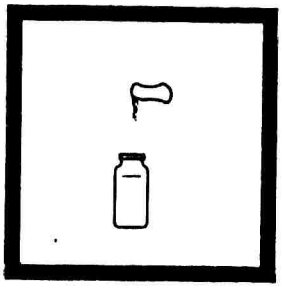


4. Fill a sample cell with 25 mL of sample.

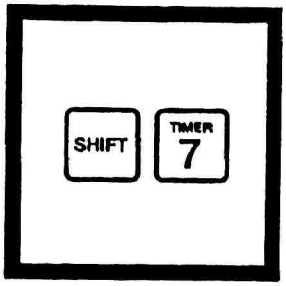
Note: For proof of accuracy, use a 10 mg/L Nitrate Nitrogen Standard Solution (listed under Optional Reagents) in place of the sample.

Note: A reagent blank must be determined on each new lot of NitraVer 5. Perform Steps 4 to 12 using deionized water as the sample. Subtract this value from each result obtained with this lot of reagent.

*For seawater, a manual calibration is required; see Interferences.



5. Add the contents of one NitraVer 5 Nitrate Reagent Powder Pillow to the cell (the prepared sample). Stopper.

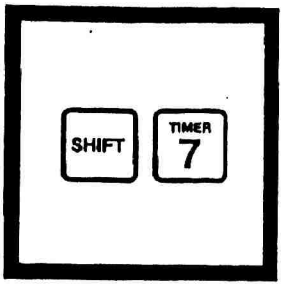


6. Press: **SHIFT TIMER**

Shake the cell vigorously until the timer beeps in one minute.

Note: *A deposit of unoxidized metal will remain after the NitraVer 5 Nitrate Reagent Powder dissolves. This deposit will have no effect on test results.*

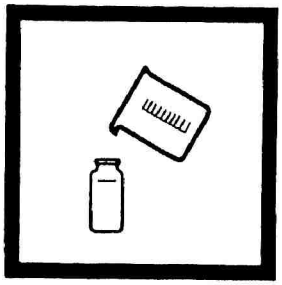
Note: *Shaking time and technique influence color development. For most accurate results, make successive tests on a 10 mg/L Nitrate Nitrogen Standard Solution listed under Optional Reagents. Adjust the shaking time to obtain the correct result.*



7. When the timer beeps, press: **SHIFT TIMER**

A 5-minute reaction period will begin.

Note: *An amber color will develop if nitrate nitrogen is present.*



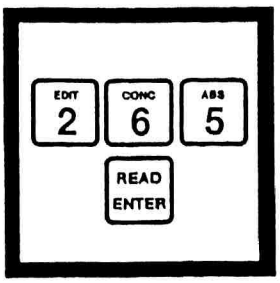
8. Fill another sample cell with 25 mL of sample (the blank).

IRON, TOTAL (0 to 3.00 mg/L)

For water, wastewater and seawater

FerroVer Method* (Powder Pillows or AccuVac Ampuls); USEPA approved for reporting (digestion is required; see Section I)**

USING POWDER PILLOWS



1. Enter the stored program number for iron (Fe), FerroVer, powder pillows.

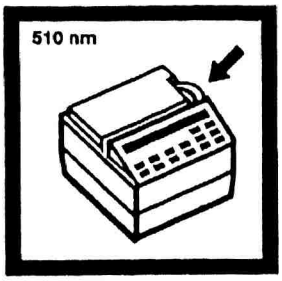
Press: **2 6 5 READ/ENTER**

The display will show:
DIAL nm TO 510

Note: DR/2000s with software versions 3.0 and greater will display "P" and the program number.

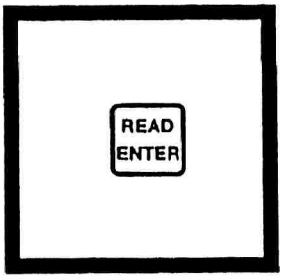
Note: Instruments with software versions 3.0 and greater will not display "DIAL nm TO" message if the wavelength is already set correctly. The display will show the message in Step 3. Proceed with Step 4.

Note: If samples cannot be analyzed immediately, see Sampling and Storage following these steps. Adjust pH of stored samples before analysis.



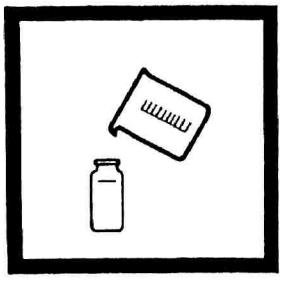
2. Rotate the wavelength dial until the small display shows:
510 nm

Note: Determination of total iron needs a prior digestion; use the mild, vigorous or Digesdahl digestion (Section I of the DR/2000 Procedures Manual).



3. Press: **READ/ENTER**

The display will show:
.. mg/l Fe FV



4. Fill a cell with 25 mL of sample.

Note: For proof of accuracy, use a 1.0 mg/L iron standard solution (preparation given in the Accuracy Check) in place of the sample.

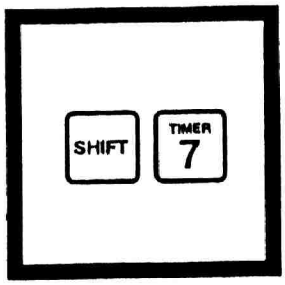
*Adapted from *Standard Methods for the Examination of Water and Wastewater*

**Federal Register*, 45 (126) 43459 (June 27, 1980)

5. Add the contents of one FerroVer Iron Reagent Powder Pillow to the sample cell (the prepared sample). Swirl to mix.

Note: An orange color will form if iron is present.

Note: Accuracy is not affected by undissolved powder.



6. Press: **SHIFT TIMER**

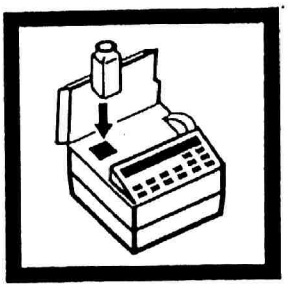
A 3-minute reaction period will begin.

Note: Samples containing visible rust should be allowed to react at least five minutes.

7. When the timer beeps, the display will show:

mg/l Fe FV

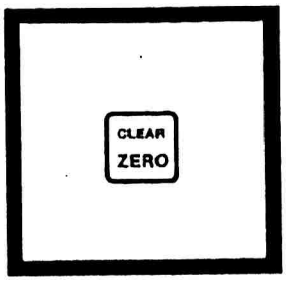
Fill another sample cell (the blank) with 25 mL of sample.



8. Place the blank into the cell holder. Close the light shield.

Note: For turbid samples, treat the blank with one 0.2-gram scoop of RoVer Rust Remover. Swirl to mix.

Note: The Pour-Thru Cell can be used with this procedure.



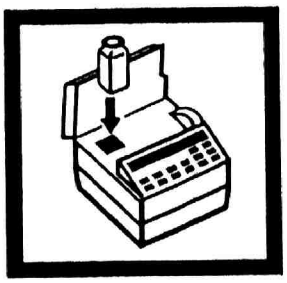
9. Press: **ZERO**

The display will show:

WAIT

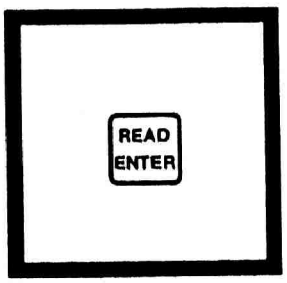
then:

0.00 mg/l Fe FV



10. Within thirty minutes after the timer beeps, place the prepared sample into the cell holder. Close the light shield.

Note: If more than five minutes elapse after the timer beeps, ZERO SAMPLE may appear. If so, remove the prepared sample. Insert the blank. Press: ZERO. Insert the prepared sample.



11. Press: **READ/ENTER**

The display will show:

WAIT

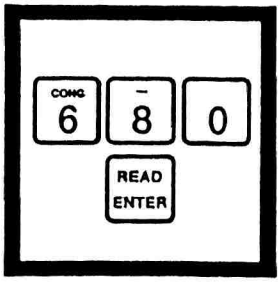
then the result in mg/L iron will be displayed.

Note: In the constant-on mode, pressing READ/ENTER is not required. WAIT will not appear. When the display stabilizes, read the result.

SULFATE (0 to 70 mg/L)

SulfaVer 4 Method*, USEPA accepted for reporting**

USING POWDER PILLOWS



1. Enter the stored program for sulfate (SO_4^{2-}).

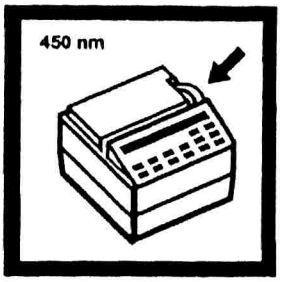
Press: **6 8 0 READ/ENTER**

The display will show:
DIAL nm to 450

Note: DR/2000s with software versions 3.0 and greater will display "P" and the program number.

Note: Instruments with software versions 3.0 and greater will not display "DIAL nm TO" message if the wavelength is already set correctly. The display will show the message in Step 3. Proceed with Step 4.

Note: If samples cannot be analyzed immediately, see Sampling and Storage following these steps.

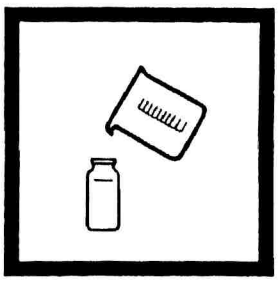


2. Rotate the wavelength dial until the small display shows:
450 nm

Note: For greater accuracy, prepare an instrument calibration for each new lot of SulfaVer 4 Sulfate Reagent Powder Pillows; see Calibration following these steps.

3. Press: **READ/ENTER**

The display will show:
mg/l SO_4^{2-}

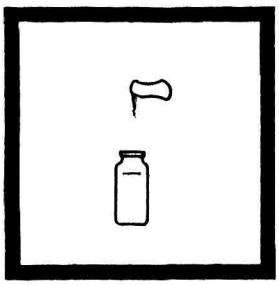


4. Fill a clean sample cell with 25 mL of sample.

Note: Filter highly turbid or colored samples. Use filtered sample in this step and Step 6. Use labware listed under Optional Apparatus.

Note: For proof of accuracy, use a 50 mg/L sulfate standard solution (see Accuracy Check) in place of the sample.

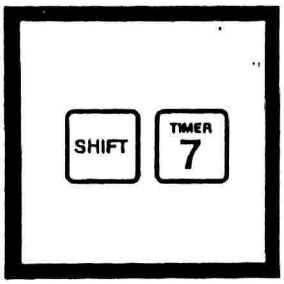
*Adapted from *Standard Methods for the Examination of Water and Wastewater*
**Procedure is equivalent to USEPA method 375.4 for wastewater.



5. Add the contents of one SulfaVer 4 Reagent Powder Pillow to the sample cell (the prepared sample). Swirl to dissolve.

Note: A white turbidity will develop if sulfate is present.

Note: Accuracy is not affected by undissolved powder.



6. Press: **SHIFT TIMER**

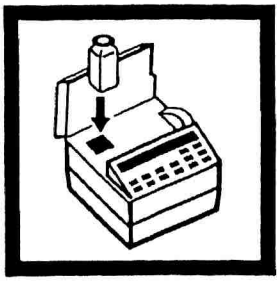
A 5-minute reaction period will begin.

Note: Allow the cell to stand undisturbed.

7. When the timer beeps, the display will show:

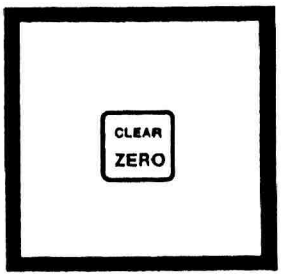
mg/l SO_4^{2-}

Fill a second sample cell with 25 mL of sample (the blank).



8. Place the blank into the cell holder. Close the light shield.

Note: The Pour-Thru Cell cannot be used with this procedure.



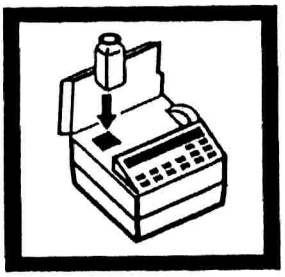
9. Press: **ZERO**

The display will show:

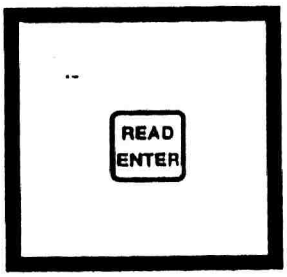
WAIT

then:

0. mg/l SO_4^{2-}



10. Within five minutes after the timer beeps, place the prepared sample in the cell holder. Close the light shield.



11. Press: **READ/ENTER**

The display will show:

WAIT

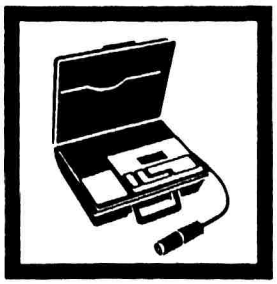
then the results in mg/L SO_4^{2-} will be displayed.

Note: In the constant on mode, pressing READ/ENTER is not required. WAIT will not appear. When the display stabilizes, read the result.

Note: Clean the sample cells with soap and a brush.

CONDUCTIVITY (0–199.9 µS/cm, 0–1.99 mS/cm, 0–19.9 mS/cm) For water and wastewater

Direct Measurement Method; USEPA accepted for reporting*



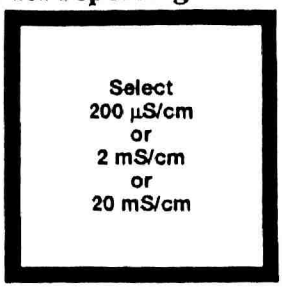
1. Prepare the Conductivity Meter for operation as directed in the instrument manual. Set the RANGE switch to the highest range.

Note: If the probe has been in storage, soaking before use may be necessary to ensure the probe is thoroughly wetted.

2. Immerse the probe in a beaker containing the sample solution. Move the probe up and down and tap it on the beaker to free any bubbles from the electrode area.

Note: The probe must be immersed beyond the vent holes.

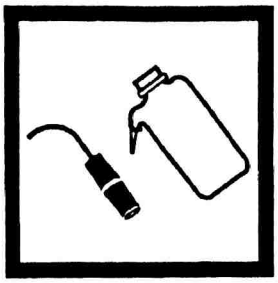
Note: The Hach Model 44600 Portable Conductivity/TDS meter automatically compensates for sample temperature deviations from 25 °C. If the instrument used does not compensate for temperature, measure the sample temperature and set the instrument's temperature control set accordingly.



3. Select the appropriate range, beginning with the highest range and working down. Read the conductivity of the sample.

Note: For proof of accuracy, use a Sodium Chloride Standard Solution in place of the sample (see Accuracy Check).

Note: If the reading is in the lower 10% of the range, switch to the next lower range. If the conductivity of the sample exceeds the range of the instrument, dilute the sample and calculate the conductivity. Dilution instructions are included in the instrument manual (this is not a simple volumetric dilution).



4. Rinse the probe thoroughly with deionized water after each measurement.

Note: It is necessary to immerse the probe in several beakers of deionized water to rinse the probe internally.

Note: To display units as TDS, press the TDS button. To convert from microSiemens/cm, mg/L sodium chloride, or mg/L as calcium carbonate, see Figure 1.

SAMPLING AND STORAGE

Collect samples in clean plastic or glass bottles. Analyze samples as soon as possible after collection. However, samples may be stored at least 24 hours by cooling to 4 °C (39 °F) or below. The conductivity meter will compensate for any variation of temperature from 25 °C.

Water sample containing oils, greases, or fats will coat the electrode and affect the accuracy of the readings. If this occurs, clean the probe with a strong detergent solution, then thoroughly rinse with demineralized water. Mineral buildup on the probe can be removed with 1:1 Hydrochloric Acid Solution.

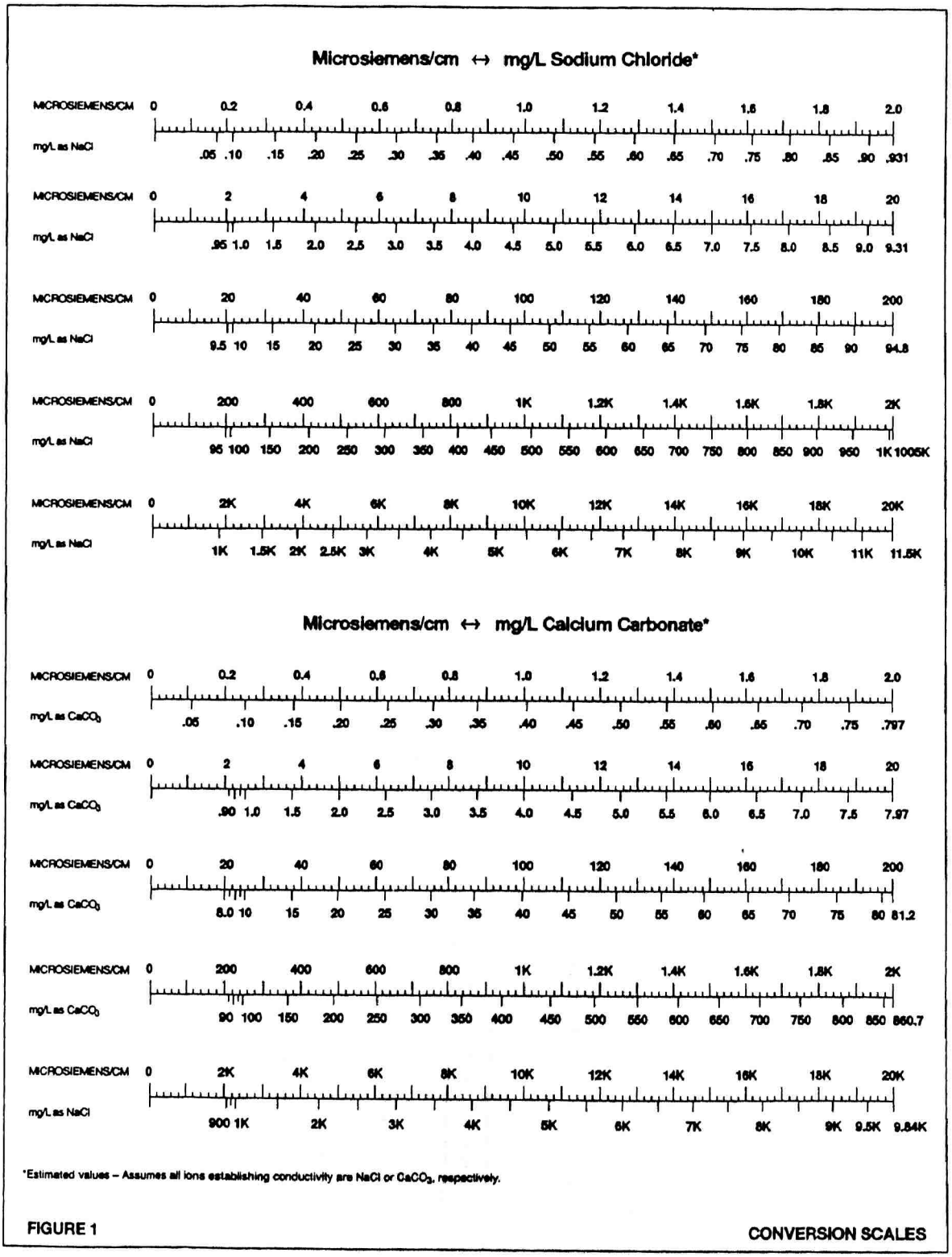
CONVERSIONS

The following table provides equations for converting the conductivity readings to other units of measure.

Table 1. Conversions

To Convert: From	To	Use this equation
mS/cm	µS/cm	mS/cm x 1000
µS/cm	mS/cm	µS/cm x 0.001
µS/cm	µmhos/cm	µS/cm x 1
mS/cm	mmhos/cm	mS/cm x 1
µS/cm	mg/L TDS	µS/cm x 0.5
g/L TDS	mg/L TDS	g/L TDS x 1000
mS/cm	g/L TDS	mS/cm x 0.5
mg/L TDS	g/L TDS	mg/L TDS x 0.001
mg/L TDS	gpg TDS	mg/L TDS x 0.05842
g/L TDS	gpg TDS	g/L TDS x 58.42
µS/cm	ohms cm	1,000,000 ÷ µS/cm
mS/cm	ohms cm	1,000 ÷ mS/cm

*Procedure is equivalent to USEPA Method 120.1 and Standard Method 2510-B for wastewater.



*Estimated values – Assumes all ions establishing conductivity are NaCl or $CaCO_3$, respectively.

FIGURE 1

CONVERSION SCALES

LAMPIRAN B

SENARAI KILANG DI KAWASAN KAJIAN

9878	35303	TAMBAHAN TANGKI MINYAK PORT DICKSON	-	PORT DICKSON	PORT DICKSON	N.SEMBILAN
7290	41023	MALAYSIAN OXYGEN BERHAD	-	PORT DICKSON	PORT DICKSON	N.SEMBILAN
5556	35123	CIBA GEIGY (M) SDN BHD	-		REMBAU	N.SEMBILAN
3395	37111	SIM FATT SAWMILL	-	BATU HAMPAR	REMBAU	N.SEMBILAN
904	31193	NILAI OIL MILL SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
1094	31193	RAFINA OIL PRODUCTS S/B.BUMI GARUDA	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
787	31190	NESTLE ASEAN (MALAYSIA) SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
788	31193	KILANG MILO & KIT KAT	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
721	31214	MESRAYA FOOD MANUFACTURE (M) SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
1421	31140	MESRA FOOD MANUFACTURER (M) SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
2234	31910	FOOK HENG DISTILLERY (PTE) LTD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
2227	32119	DONGMEI INDUSTRIES (M) SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
4020	33112	CEMBOARD (MALAYSIA) SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
4289	33200	FEDERAL FURNITURE (M) SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
4570	33202	LUM BROS. WOODCRAFT SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
5155	34120	SIME PACKAGING (M) SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
5811	35121	SPREAD INDUSTRIES SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
5839	35132	POLYSTYRENE SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
5931	35179	YUNKU FIBREGLASS INDUSTRIES SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
5860	4023.	MAZUMI INDUSTRY SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
5995	35219	CITRA BUDI SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
6024	35599	PERUSAHAAN GALIMA SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
6162	35599	KILANG PENGELUARAN HASIL GETAH	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
6192	35599	COMPLEX (M) SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
6395	35599	KOMINEX SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
7425	36200	YUNKU FIBREGLASS INDUSTRY SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
7487	36200	TETUAN HARMY DEVELOPMENT SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
7741	36910	CATHAY ROOFING TILES SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
7236	36991	CEMENT BOARD (M) SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
7287	36991	CHEMBOARD (M) SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
7364	36991	HUME CHEMBOARD (M) SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
8131	37101	GRAND STEEL MANUFACTURES SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
8753	38130	FAR EAST METAL WORKS BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
8519	38192	IRON NAIL,KILANG	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
8684	38199	HAROM LPG INDUSTRIES SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
9557	38441	UNIPONENT INDUSTRIES SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
9561	38441	MALAYSIA ROLLER MFG SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
9829	35300	SUN OIL COMPANY SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
9876	35300	TETUAN HAROM LPG INDUSTRIES SDN BHD	CHEMBONG	CHEMBONG	REMBAU	N.SEMBILAN
784	31190	FOOD SPECIALITIES (M) SDN BHD	CHEMBONG II	CHEMBONG	REMBAU	N.SEMBILAN
6174	35599	EQUATRIAL LATEX IND SDN BHD	CHEMBONG II	CHEMBONG	REMBAU	N.SEMBILAN
6534	35599	GBM INDUSTRIES SDN BHD	CHEMBONG II	CHEMBONG	REMBAU	N.SEMBILAN
3405	33111	KOTA SDN BHD,KLG PAPAN	-	CHENGKAU	REMBAU	N.SEMBILAN
567	31190	MALAYSIA MFG SDN BHD	-	AMPANGAN	SEREMBAN	N.SEMBILAN
2328	32400	BATA (MALAYSIA) BERHAD	-	AMPANGAN	SEREMBAN	N.SEMBILAN
3390	33111	YOONG LEOK KEE CORP SDN BHD	-	AMPANGAN	SEREMBAN	N.SEMBILAN
3402	33111	SAM LIM SAWMILL SDN BHD	-	AMPANGAN	SEREMBAN	N.SEMBILAN
3588	33111	MAH FAH SAWMILL	-	AMPANGAN	SEREMBAN	N.SEMBILAN
3675	33111	FIRAMA JAYA SDN BHD	-	AMPANGAN	SEREMBAN	N.SEMBILAN
4834	32117	LEN PARQUET FLOORING (M) SDN BHD	-	AMPANGAN	SEREMBAN	N.SEMBILAN
5195	34200	ALLIED DEVICES (M) SDN BHD	-	AMPANGAN	SEREMBAN	N.SEMBILAN

[illegible] NO	[illegible] NO	NAME OF PREMISE	[illegible] ESTATE	[illegible]	DISTRICT	STATE
5551	35170	APPERT TRADING	-	AMPANGAN	SEREMBAN	N.SEMBILAN
6191	35599	KILANG MEMBUAT SPONGE	-	AMPANGAN	SEREMBAN	N.SEMBILAN
7692	36910	WEERANAZ SDN BHD	-	AMPANGAN	SEREMBAN	N.SEMBILAN
7711	36991	WAH HUP CEMENT DRAIN.PIPE WORKS	-	AMPANGAN	SEREMBAN	N.SEMBILAN
9349	38329	SAMSUNG CORNING (M) SDN BHD	-	AMPANGAN	SEREMBAN	N.SEMBILAN
9471	38431	CHUAN ELECTRICAL INDUSTRIES SDN BHD	-	AMPANGAN	SEREMBAN	N.SEMBILAN
5859	35231	COSPAC SDN BHD	MPC RINGAN	AMPANGAN	SEREMBAN	N.SEMBILAN
8955	38791	HAILA (MALAYSIA) SDN BHD	NAKLAND	AMPANGAN	SEREMBAN	N.SEMBILAN
9068	38310	CORPORATE ALLIANCE (M) SDN BHD	NAKLAND	AMPANGAN	SEREMBAN	N.SEMBILAN
966	31130	POULTRY PROCESSING (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
1095	31159	SENAWANG FOIRLE OIL SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
1536	31220	PERTANIAN CHAROEN POKPHAND (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
1618	31220	FAR EAST PROCESSING BY PRODUCTS SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
1752	31142	GAS-TIGHT RICE WARE HOUSE	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
2021	31142	PEMBINAAN DEHUMIDIFICATION PLANT	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
2556	32112	SABA INDUSTRIAL TEXTILE SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
2570	32112	CHEONGSON INDUSTRY SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
2683	32119	TEGO HT MULTIFILAMENT SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
2807	32130	KIM FASHION KNITWEAR (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
3542	33111	MODERN WOOD PRODUCTS SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
3577	33111	JOHOR SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
3590	33111	SIN HUP SENG SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
3591	33111	SRI PAHANG	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
3592	33111	WAN CHONG IND	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
3952	33111	SIN YEON LEE.SYKT PERNIAGAAN	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
4541	33200	KEN CHEONG FURNITURE SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
4667	33200	INTAN WOODCRAFT SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
4879	33190	PUSAKAJAYA SDN BHD (PERABOT)	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
4926	33112	SPPIM KAYU NILAI SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
4983	33112	SENG LEE PLYWOOD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
5309	34110	SEREMBAN FIBRE CONTAINER SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
5159	34170	CFG PACKAGING SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
5525	35119	PREMIUM RESINS & CHEMICALS SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
5667	35119	OMEGA PLUS SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
5914	35130	UNION POLYMERS SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
5934	35130	CFG PACKAGING SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
5936	35130	DYNOCHEM (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
5408	35290	CHEMFAB MALAYSIA SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
5995	35599	SUN ORGANIZATION SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
5996	35599	SPECIALISED PROJECTS (S.E. ASIA) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6035	35599	SUNRICH SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6165	35599	ATARO INDUSTRY (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6166	35599	PER. PERLINDUNGAN GETAH (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6169	35599	QUALITTHREAD (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6171	35599	AMMATEX MANUFACTURING (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6180	35599	SIME HEALTHCARE SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6186	35599	PROFESSIONAL GOLF COMPANY SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6187	35599	DAN CORPORATION RESOURSES (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6188	35599	PRIME THREADS (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6193	35599	APEX MEDICAL PRODUCTS (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6278	35599	RAHANG RUBBER WORKS SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6296	35599	DUNLOP (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6347	35599	SHAMKOR RUBBER PRODUCTS SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6397	35599	U.S. UNI-GLOVES SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN

RECORD INC NO	CODE	NAME OF PREMISE	INC STATUS EST= E	SUB-DISTRICT	DISTRICT	STATE
6448	35599	SDN CORPORATION RESOURCES (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6454	35599	PERUSAHAAN PELINDUNG GETAH (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6474	35599	KATARUB SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6798	35600	SUNPLAS INDUSTRIES SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6723	35600	BESTRUDER ENTERPRISE SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6847	35600	SABH INDUSTRIAL TEXTILES SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
6891	35601	TECKO TRADING CO	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
7594	36100	H & R JOHNSON (MALAYSIA) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
7500	36200	MCIS SAFETY GLASS SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
7509	36200	MCIS SAFELY GLASS SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
7512	36200	SENAWANG GLASS SDN BHD.SYKT	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
8167	37101	MUDAING STEEL MILL SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
7849	37102	PERUMAHAN BESI SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
8520	38192	RAMSET MANUFACTURING (MALAYSIA) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
8298	38193	UNITED MECHANICAL & ELEC ENG (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
8594	38193	ACE HATOME (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
8279	38199	KITAKO ELECTRONICS (MALAYSIA) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
8463	38199	OORF (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
8837	38230	SEREMBAN ENGINEERING SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
8932	38291	GAI HING MFG SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
9273	38321	3M ASIA PACIFIC PTE LTD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
9333	38321	KITAKO ELECTRONICS MALAYSIA SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
9342	38329	SIGNAL TECHNOLOGY (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
9346	38329	NAITO ELECTRONICS (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
9353	38329	PK ELECTRONIC IND SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
9363	38329	NATIONAL SEMICONDUCTOR ELECTRONICS S.B.	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
9371	38329	3M ASIA PACIFIC PTE LTD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
9445	38329	MOTOROLA SEMI CONDUCTOR SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
9448	38329	KITSUDA (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
9159	38330	PERFECT ELECTRIC MFG SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
8995	38391	LIM KIM HAI ELECTRIC INDUSTRIES SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
9672	38431	YAP SIEW SANG,BUS & LORRY WORKS,SYKT	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
9649	38439	N.S. AUTO PARTS INDUSTRIES SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
9558	38441	FOR HUAT INDUSTRIES (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
9744	31400	TETUAN GUDANG GARAM (M) SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
9758	38530	MASYHUR INDUSTRIES CORPORATION SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
9709	39099	SABH INDUSTRIES TEXTILES SDN BHD	SENAWANG	AMPANGAN	SEREMBAN	N.SEMBILAN
576	31190	MALAYSIAN COCOA MANUFACTURING SDN BHD	SEPEMBAN	AMPANGAN	SEREMBAN	N.SEMBILAN
2708	32111	CENTRAL TEXTILES (HONG KONG) LTD	TUANKU JAAFAR	AMPANGAN	SEREMBAN	N.SEMBILAN
5858	35231	FOODTOWN SDN BHD	TUANKU JAAFAR	AMPANGAN	SEREMBAN	N.SEMBILAN
5426	35290	BAERLOCHER (M) SDN BHD	TUANKU JAAFAR	AMPANGAN	SEREMBAN	N.SEMBILAN
7227	36991	SUPERMIX CONCRETE (M) SDN BHD	TUANKU JAAFAR	AMPANGAN	SEREMBAN	N.SEMBILAN
7411	36992	ROLMIC CERAMIC SDN BHD	TUANKU JAAFAR	AMPANGAN	SEREMBAN	N.SEMBILAN
8444	38199	YANO ELECTRONICS (M) SDN BHD	TUANKU JAAFAR	AMPANGAN	SEREMBAN	N.SEMBILAN
9064	38310	YUTAKA ELECTRIC MFG (M) SDN BHD	TUANKU JAAFAR	AMPANGAN	SEREMBAN	N.SEMBILAN
9066	38310	THYE AIK TRADING	TUANKU JAAFAR	AMPANGAN	SEREMBAN	N.SEMBILAN
9524	38329	IWATSU (M) SDN BHD	TUANKU JAAFAR	AMPANGAN	SEREMBAN	N.SEMBILAN
7226	36991	LEE TUI FONG KHO TIONG SIN	-	BANDAR SEREMBAN	SEREMBAN	N.SEMBILAN
61	35591	LEE RUBBER CO (PTE) LTD	-	BANDAR SEREMBAN	SEREMBAN	N.SEMBILAN
1053	31180	JOO HUAT SOON FOOD FACTORY	-	BANDAR SEREMBAN	SEREMBAN	N.SEMBILAN
1498	31220	AYAM NEGRI SEMBILAN SDN BHD	-	BANDAR SEREMBAN	SEREMBAN	N.SEMBILAN
1636	31220	PERTANIAN K.L SDN BHD,SYKT	-	BANDAR SEREMBAN	SEREMBAN	N.SEMBILAN
2571	32112	PINEHURST INDUSTRIES (M) SDN BHD	-	BANDAR SEREMBAN	SEREMBAN	N.SEMBILAN
2478	32201	UP-CENTRAL GARMENTS (SEREMBAN) SDN BHD	-	BANDAR SEREMBAN	SEREMBAN	N.SEMBILAN

RECORD NO	SSIC CODE	NAME OF PREMISE	MK STATE/ ESTATE	SUB DISTRICT	DISTRICT	STATE
3394	33111	KIM LEE SAWMILL & SONS SDN BHD	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
3397	33111	KIAN SENG TRADING SDN BHD	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
3399	33111	BAN HUAT SAWMILL	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
3589	33111	SEREMBAN ELECT SAWMILL SDN BHD	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
3594	33111	NESTIN SDN BHD	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
3682	33111	TONG KWEE KILANG PAPAN	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
3799	33111	SEONG FATT SAWMILL SDN BHD	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
3897	33111	PAROI RUBBER WOOD PRODUCTS SDN BHD	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
4514	33200	KEONG FATT ELECTRICAL WOOD WORK FACTORY	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
4867	33117	UNITED PLYWOOD & SAWMILLS SDN BHD	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
5547	35120	CHEMISTRY & TECHNOLOGY,GUTHRIE RESEARCH	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
6544	35510	SIME LATEX PRODUCTS SDN BHD	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
6577	35599	OMIR HEALTHCARE SDN BHD	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
7730	36910	P D MANAGEMENT SDN BHD	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
7709	36991	CHOP BAHANG CEMENT PRODUCTS	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
7719	36991	CHOP CEMENT PRODUCTS	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
7774	36991	SIM MOH & CO	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
7777	36991	KILANG TARIK TERAZZO INDUSTRY SDN BHD	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
8711	37209	SNP PRECISION INDUSTRIAL (M) SDN BHD	-	BANDAR SEREMBAN	SEREMBAN	N SEMBILAN
2537	32150	JUTE INDUSTRIES (M) SDN BHD	PANTAI	PANTAI	SEREMBAN	N SEMBILAN
41	35591	GAN TENG SIEW REALTY SDN BHD	-	RANTAU	SEREMBAN	N SEMBILAN
68	35591	LADANG SEREMBAN	-	RANTAU	SEREMBAN	N SEMBILAN
93	35591	ARTHENTON ESTATE	-	RANTAU	SEREMBAN	N SEMBILAN
98	35591	GUTHRIE RUBBER PROCESSING SDN BHD	-	RANTAU	SEREMBAN	N SEMBILAN
161	35591	SILIAU CREPE FACTORY	-	RANTAU	SEREMBAN	N SEMBILAN
254	31157	RANTAU PALM OIL FACTORY	-	RANTAU	SEREMBAN	N SEMBILAN
328	31157	GAN TENG SIEW REALTY SDN BHD	-	RANTAU	SEREMBAN	N SEMBILAN
417	31157	JEMINA & SG SENDAYAN EST.CHIN TECK PLTN.	-	RANTAU	SEREMBAN	N SEMBILAN
9777	38321	YANG ELEKTRONIK SDN BHD	-	RANTAU	SEREMBAN	N SEMBILAN
3196	33111	NAM FAH TIMBER INDUSTRIES SDN BHD	SUNGAI GADUT	RANTAU	SEREMBAN	N SEMBILAN
5004	33112	KAW PERUSAHAAN KAYU	SUNGAI GADUT	RANTAU	SEREMBAN	N SEMBILAN
7729	36991	KUMAGAI GUMI CO LTD	SUNGAI GADUT	RANTAU	SEREMBAN	N SEMBILAN
6340	35599	MIDLAND LATEX (M) SDN BHD	-	RASAH	SEREMBAN	N SEMBILAN
6341	35599	MARDEC INDUSTRIAL LATEX SDN BHD	-	RASAH	SEREMBAN	N SEMBILAN
7307	36991	KUMAGAI GUMI CO LTD	-	RASAH	SEREMBAN	N SEMBILAN
2751	31310	BAN JOO LEE SDN BHD	-	SEREMBAN	SEREMBAN	N SEMBILAN
5997	35599	LAM SENG MANUFACTURING SDN BHD	-	SEREMBAN	SEREMBAN	N SEMBILAN
8567	38111	LAIDAH GAS SALES & SERVICE SDN BHD	-	SEREMBAN	SEREMBAN	N SEMBILAN
8339	38192	UNITED BOLT & NUT SDN BHD	-	SEREMBAN	SEREMBAN	N SEMBILAN
9274	38321	TAKANF (M) SDN BHD	-	SEREMBAN	SEREMBAN	N SEMBILAN
9039	38392	ABE HATOME (M) SDN BHD	-	SEREMBAN	SEREMBAN	N SEMBILAN
110	35591	H & C LATEX SDN BHD	-	SETUL	SEREMBAN	N SEMBILAN
7866	37310	CHAI WATANA (M) SDN BHD	-	SETUL	SEREMBAN	N SEMBILAN
3401	33111	KIM ONN TIMBER,SYKT	-	SETUL	SEREMBAN	N SEMBILAN
3404	33111	WEE KIM SAWMILL SDN BHD	-	SETUL	SEREMBAN	N SEMBILAN
3583	33111	KWONG ONN SAWMILL	-	SETUL	SEREMBAN	N SEMBILAN
4047	12107	M T INDUSTRIAL FUEL SDN BHD	-	SETUL	SEREMBAN	N SEMBILAN
7495	36700	MASTRACK SDN BHD	-	SETUL	SEREMBAN	N SEMBILAN
8935	38791	HIROSHIGE (M) SDN BHD	-	SETUL	SEREMBAN	N SEMBILAN
550	31139	LEVER BROTHERS (MALAYSIA) SDN BHD	NILAI	SETUL	SEREMBAN	N SEMBILAN
551	31139	WAYWOOD INDUSTRIES	NILAI	SETUL	SEREMBAN	N SEMBILAN
7698	32209	GOODSMOOTH INDUSTRIES (M) SDN BHD	NILAI	SETUL	SEREMBAN	N SEMBILAN
4870	33119	WAYWOOD INDUSTRIES (M) SDN BHD	NILAI	SETUL	SEREMBAN	N SEMBILAN
5091	34120	LISTO, INDUSTRY SDN BHD	NILAI	SETUL	SEREMBAN	N SEMBILAN

LAMPIRAN C

Jadual 1 : **DATA KUALITI AIR SG. LINGGI 1985**

SNO	SUNGAI	TARIKH	SUHU	BOD	COD	DO	NH_3-N	SS	PH	COND	TDS	TS	NO_3	PO_4	Cu	Fe
2719610	BATANG PENAR	23/1/85	23.0	1.3	3.8	8.9	-	13.0	7.2	30.0	51.0	64.0	-	0.2	-	0.2
	BATANG PENAR	20/5/85	27.0	1.3	6.2	8.5	0.2	7.0	6.8	30.0	52.0	59.0	-	8.1	-	0.2
21001	BATANG PENAR	45/5/85	19.0	0.9	4.1	9.0	-	12.0	5.7	35.0	28.0	40.0	-	0.1	-	0.6
	BATANG PENAR	45/7/85	-	0.7	3.0	-	-	9.0	-	-	48.0	57.0	-	-	-	-
	BATANG PENAR	9/9/85	25.0	0.8	7.2	7.5	0.1	4.0	6.9	30.0	37.0	41.0	-	0.2	-	-
	BATANG PENAR	18/11/85	25.0	1.2	8.5	8.0	0.1	13.0	7.1	30.0	29.0	42.0	-	0.1	-	-
2719622	BATANG PENAR	23/1/85	25.0	1.8	10.0	6.3	0.3	71.0	6.1	55.0	53.0	124.0	-	0.1	-	2.2
	BATANG PENAR	20/5/85	25.0	3.6	18.9	6.6	0.5	130.0	6.6	70.0	63.0	193.0	-	0.3	-	3.7
21002	BATANG PENAR	45/5/85	21.0	1.8	14.0	6.3	0.3	189.0	5.7	50.0	58.0	247.0	-	0.2	-	-
	BATANG PENAR	45/7/85	-	4.7	151.0	-	1.0	227.0	-	-	65.0	292.0	-	0.3	-	-
	BATANG PENAR	9/9/85	27.0	3.0	35.0	4.5	2.3	489.0	6.7	90.0	93.0	582.0	-	0.6	-	-
	BATANG PENAR	18/11/85	26.0	1.4	15.0	6.0	0.4	139.0	6.8	60.0	68.0	207.0	-	-	-	-
2619607	LINGGI	23/1/85	28.0	4.4	30.0	5.8	1.2	104.0	7.1	80.0	69.0	173.0	-	0.4	-	3.5
	LINGGI	20/5/85	23.0	3.4	21.4	5.4	0.8	135.0	6.2	80.0	60.0	195.0	-	0.2	-	3.2
21005	LINGGI	45/5/85	21.0	3.2	24.0	5.5	1.0	228.0	6.5	75.0	66.0	294.0	-	0.4	-	4.7
	LINGGI	45/7/85	-	5.0	37.0	-	3.6	334.0	-	-	85.0	419.0	-	0.5	-	4.8
	LINGGI	9/9/85	28.0	3.3	56.0	0.3	4.9	506.0	6.6	150.0	106.0	612.0	-	0.2	-	9.5
	LINGGI	18/11/85	29.0	2.7	19.0	4.5	0.7	161.0	6.8	80.0	63.0	224.0	-	0.2	-	5.0
2519604	LINGGI	23/1/85	25.0	2.1	15.0	5.9	0.7	49.0	2.7	100.0	65.0	114.0	-	0.3	-	-
	LINGGI	20/5/85	24.0	1.7	15.7	6.9	0.4	125.0	6.1	80.0	80.0	205.0	-	0.1	-	-
21007	LINGGI	45/5/85	21.0	3.1	34.0	6.0	0.4	1400.0	5.6	60.0	76.0	1480.0	-	0.6	-	-
	LINGGI	45/7/85	-	4.7	30.0	-	1.0	628.0	-	-	73.0	701.0	-	0.1	-	-
	LINGGI	9/9/85	27.0	6.0	30.0	4.8	3.5	123.0	5.8	140.0	95.0	218.0	-	0.5	-	-
	LINGGI	18/11/85	-	3.5	74.0	4.0	0.5	975.0	6.9	80.0	96.0	1071.0	-	0.2	-	-
2519621	LINGGI	23/1/85	26.0	1.9	16.0	5.0	1.1	106.0	6.6	90.0	44.0	150.0	-	0.3	0.01	2.8
	LINGGI	20/5/85	26.0	2.0	19.6	3.8	0.4	142.0	5.9	90.0	79.0	221.0	-	0.1	0.01	6.7
21008	LINGGI	45/5/85	22.0	3.0	23.0	5.0	0.9	317.0	6.3	90.0	48.0	365.0	-	0.3	7.02	7.5
	LINGGI	45/7/85	-	5.0	39.0	-	1.4	457.0	-	-	107.0	564.0	-	0.2	0.02	1.9
	LINGGI	9/9/85	28.0	5.0	27.0	2.4	4.0	133.0	5.2	150.0	125.0	258.0	-	0.1	0.01	5.6
	LINGGI	18/11/85	27.0	2.2	18.0	3.1	0.5	151.0	6.8	70.0	44.0	195.0	-	0.1	0.01	4.4
2420602	LINGGI	23/1/85	28.0	0.1	16.0	5.2	0.4	75.0	2.4	80.0	722.0	-	-	0.4	-	3.3
	LINGGI	20/5/85	25.0	1.0	17.8	4.8	0.2	126.0	6.1	70.0	82.0	208.0	-	0.1	-	5.5
21009	LINGGI	45/5/85	22.0	2.2	20.0	5.0	0.4	206.0	5.5	70.0	104.0	310.0	-	0.4	-	-
	LINGGI	45/7/85	-	4.8	6.3	-	1.9	4660.0	-	-	81.0	4741.0	-	0.1	-	1.2
	LINGGI	9/9/85	29.0	6.0	19.0	3.9	2.4	92.0	6.5	140.0	161.0	253.0	-	0.4	-	4.8
	LINGGI	18/11/85	27.0	1.8	17.0	2.9	0.2	106.0	6.7	70.0	151.0	257.0	-	0.1	-	4.3
2421601	LINGGI	23/1/85	27.0	1.2	13.0	6.1	0.1	25.0	6.5	40.0	58.0	83.0	-	0.2	-	-
	LINGGI	20/5/85	25.0	1.1	11.4	6.6	0.1	40.0	6.2	40.0	54.0	94.0	-	0.1	-	-
21010	LINGGI	45/5/85	22.0	1.0	14.0	6.5	0.2	68.0	5.2	70.0	66.0	134.0	-	0.2	-	-
	LINGGI	45/7/85	-	3.6	20.0	-	0.5	128.0	-	-	35.0	163.0	-	0.1	-	-
	LINGGI	9/9/85	28.0	2.7	17.0	5.5	0.2	46.0	5.6	50.0	59.0	105.0	-	0.3	-	-
	LINGGI	18/11/85	27.0	1.2	15.0	4.1	0.1	66.0	6.8	30.0	44.0	110.0	-	-	-	-
	MAX		**29.0**	**6.0**	**151.0**	**9.0**	**4.9**	**4660.0**	**7.2**	**150.0**	**722.0**	**4741.0**	-	**8.1**	**7.02**	**9.5**
	MIN		**19.0**	**0.1**	**3.0**	**0.3**	**0.1**	**4.0**	**2.4**	**30.0**	**28.0**	**40.0**	-	**0.1**	**0.01**	**0.2**
	PURATA		**25.3**	**2.7**	**26.6**	**5.5**	**1.1**	**411.0**	**6.1**	**75.1**	**101.5**	**490.6**	-	**0.6**	**2.01**	**4.1**
	MEDIAN		**25.5**	**2.2**	**17.9**	**5.5**	**0.5**	**127.0**	**6.5**	**70.0**	**65.5**	**207.0**	-	**0.2**	**0.01**	**4.0**

Jadual 2 : **DATA KUALITI AIR SG. LINGGI 1990**

SNO	SUNGAI	TARIKH	MASA	SUHU	BOD	COD	DO	NH3-N	SS	PH	COND	TDS	TS	NO3	PO4	Cu	Fe
2719610	BTG. PENAR	17/1/90	915	26.0	8.9	15.5	4.5	2.2	92.0	6.9	80.0	86.0	178.0	-	-	-	-
	BTG. PENAR	15/2/90	930	28.0	2.6	20.2	6.3	3.1	25.0	6.9	90.0	63.0	88.0	-	-	-	-
21001	BTG. PENAR	13/3/90	900	30.0	3.9	61.2	4.5	2.9	51.0	0.0	130.0	50.0	101.0	-	-	-	-
	BTG. PENAR	19/4/90	900	28.0	3.6	28.2	4.0	3.2	52.0	6.5	110.0	77.0	129.0	-	-	-	-
	BTG. PENAR	23/5/90	935	28.0	6.7	22.1	2.3	4.9	130.0	6.8	190.0	103.0	233.0	-	-	-	-
	BTG. PENAR	19/6/90	900	28.0	2.2	17.2	3.7	1.9	60.0	6.9	-	131.0	191.0	-	-	-	-
	BTG. PENAR	17/7/90	900	28.0	2.5	15.6	4.2	4.7	68.0	6.0	140.0	74.0	142.0	-	-	-	-
	BTG. PENAR	16/8/90	900	28.0	5.4	30.5	3.2	3.6	39.0	6.5	120.0	129.0	168.0	-	-	-	-
	BTG. PENAR	23/10/90	900	25.0	2.7	18.8	5.6	1.0	87.0	6.8	70.0	65.0	152.0	-	-	-	-
	BTG. PENAR	13/12/90	900	26.0	2.7	26.0	4.5	2.9	62.0	6.8	70.0	106.0	168.0	-	-	-	-
2719622	BTG. PENAR	17/1/90	1020	27.0	3.7	39.9	4.5	1.1	71.0	6.9	70.0	42.0	113.0	-	-	-	-
	BTG. PENAR	15/2/90	1030	29.0	3.3	28.9	1.2	2.2	66.0	6.5	100.0	65.0	131.0	-	-	-	-
21002	BTG. PENAR	13/3/90	1000	29.0	6.8	1.8	4.5	4.0	212.0	6.9	120.0	102.0	314.0	-	-	-	-
	BTG. PENAR	19/4/90	1000	28.0	0.6	39.3	4.0	2.1	62.0	6.4	110.0	71.0	133.0	-	-	-	-
	BTG. PENAR	23/5/90	1035	28.0	2.5	48.5	4.2	2.2	113.0	6.9	110.0	50.0	163.0	-	-	-	-
	BTG. PENAR	19/6/90	1000	27.0	2.9	22.0	4.3	1.6	55.0	6.7	-	72.0	127.0	-	-	-	-
	BTG. PENAR	17/7/90	1000	27.0	4.0	31.2	4.1	2.3	56.0	6.0	120.0	63.0	119.0	-	-	-	-
	BTG. PENAR	16/8/90	1010	27.0	4.8	39.8	1.7	4.2	84.0	6.9	210.0	98.0	182.0	-	-	-	-
	BTG. PENAR	23/10/90	1000	26.0	3.5	24.6	4.6	0.8	112.0	6.5	80.0	78.0	190.0	-	-	-	-
	BTG. PENAR	13/12/90	1000	26.0	3.0	27.9	4.1	1.8	70.0	6.7	110.0	73.0	143.0	-	-	-	-
2619607	LINGGI	17/1/90	1200	27.0	4.2	22.1	4.8	1.5	97.0	5.9	100.0	59.0	156.0	-	-	-	-
	LINGGI	15/2/90	1140	29.0	4.1	28.5	4.5	6.6	60.0	6.9	180.0	83.0	143.0	-	-	-	-
21005	LINGGI	13/3/90	1100	28.0	2.2	27.0	4.0	3.9	84.0	6.5	160.0	110.0	194.0	-	-	-	-
	LINGGI	19/4/90	1140	28.0	2.9	19.5	5.0	2.6	105.0	6.6	180.0	137.0	242.0	-	-	-	-
	LINGGI	23/5/90	1200	27.0	2.1	23.2	3.2	4.4	64.0	6.6	-	60.0	124.0	-	-	-	-
	LINGGI	19/6/90	1100	27.0	3.5	22.4	3.1	3.9	160.0	6.0	180.0	90.0	250.0	-	-	-	-
	LINGGI	16/8/90	1145	28.0	2.2	35.1	3.6	8.1	85.0	6.0	210.0	157.0	242.0	-	-	-	-
	LINGGI	23/10/90	1230	26.0	4.0	21.1	4.6	1.4	109.0	6.9	100.0	83.0	192.0	-	-	-	-
	LINGGI	13/12/90	1145	26.0	3.4	31.3	4.2	2.1	134.0	6.7	110.0	92.0	226.0	-	-	-	-
2519604	LINGGI	17/1/90	1030	27.0	4.5	19.4	5.8	1.1	109.0	6.2	100.0	109.0	218.0	-	-	-	-
	LINGGI	15/2/90	1100	27.0	8.3	32.7	5.1	2.2	56.0	6.9	140.0	77.0	133.0	-	-	-	-
21007	LINGGI	13/3/90	1100	29.0	7.3	27.7	4.0	3.0	93.0	6.1	250.0	123.0	216.0	-	-	-	-
	LINGGI	19/4/90	1045	28.0	2.8	29.0	5.8	1.9	91.0	6.7	180.0	115.0	206.0	-	-	-	-
	LINGGI	23/5/90	1100	29.0	3.2	20.6	5.0	1.3	115.0	6.9	120.0	87.0	202.0	-	-	-	-
	LINGGI	19/6/90	1100	29.0	2.4	31.2	2.8	2.1	62.0	6.9	-	98.0	160.0	-	-	-	-
	LINGGI	17/7/90	1130	28.0	3.5	17.5	4.6	2.8	83.0	6.0	170.0	120.0	203.0	-	-	-	-
	LINGGI	16/8/90	1100	28.0	1.8	31.3	6.0	3.4	116.0	6.9	300.0	142.0	258.0	-	-	-	-
	LINGGI	23/10/90	1050	25.0	2.8	21.5	6.0	1.0	170.0	6.3	90.0	93.0	263.0	-	-	-	-
	LINGGI	13/12/90	1100	26.0	2.2	28.2	4.7	2.2	121.0	7.1	130.0	95.0	216.0	-	-	-	-
2519621	LINGGI	17/1/90	1115	27.0	4.9	28.3	2.8	0.8	161.0	5.8	80.0	76.0	237.0	-	-	-	-
	LINGGI	15/2/90	1130	28.0	2.9	10.8	5.0	1.7	32.0	7.1	120.0	69.0	101.0	-	-	-	-
21008	LINGGI	13/3/90	1135	29.0	3.3	18.5	2.8	2.5	54.0	6.9	170.0	104.0	158.0	-	-	-	-
	LINGGI	19/4/90	1145	28.0	2.2	32.9	1.8	1.7	67.0	6.5	350.0	85.0	152.0	-	-	-	-
	LINGGI	23/5/90	1150	29.0	2.5	24.0	1.9	0.7	102.0	-	90.0	67.0	169.0	-	-	-	-
	LINGGI	16/8/90	1145	28.0	3.1	25.9	3.7	0.3	62.0	6.1	170.0	129.0	191.0	-	-	-	-
	LINGGI	23/10/90	1150	26.0	2.5	22.7	5.4	0.8	211.0	6.9	70.0	84.0	295.0	-	-	-	-
	LINGGI	13/12/90	1140	25.0	1.3	24.2	2.2	1.9	67.0	6.3	120.0	95.0	162.0	-	-	-	-
2420602	LINGGI	17/1/90	1415	27.0	3.2	15.1	5.2	0.4	137.0	6.2	60.0	61.0	198.0	-	-	-	-
	LINGGI	15/2/90	1230	29.0	1.9	11.9	2.9	0.1	21.0	7.2	170.0	84.0	105.0	-	-	-	-
21009	LINGGI	13/3/90	1250	29.0	3.1	17.3	2.7	2.1	20.0	6.9	110.0	99.0	119.0	-	-	-	-
	LINGGI	19/4/90	1400	29.0	1.2	22.2	5.0	1.3	63.0	6.8	120.0	74.0	149.0	-	-	-	-
	LINGGI	23/5/90	1415	29.0	2.4	21.0	2.5	0.7	107.0	6.9	90.0	99.0	206.0	-	-	-	-
	LINGGI	19/6/90	1430	29.0	1.4	12.8	2.8	0.9	28.0	6.9	-	86.0	114.0	-	-	-	-
	LINGGI	17/7/90	1430	28.0	2.5	15.2	3.8	0.9	11.0	6.9	150.0	83.0	94.0	-	-	-	-
	LINGGI	16/8/90	0	28.0	3.2	20.5	3.7	1.9	42.0	6.8	120.0	95.0	137.0	-	-	-	-
	LINGGI	23/10/90	1400	29.0	2.8	28.1	3.6	0.6	389.0	6.3	60.0	132.0	521.0	-	-	-	-
	LINGGI	13/12/90	1400	27.0	2.4	19.4	3.0	1.2	68.0	6.0	100.0	69.0	137.0	-	-	-	-
2319601	LINGGI	17/1/90	1530	28.0	1.3	83.0	5.4	0.1	48.0	7.6	40000.0	24158.0	24206.0	-	-	-	-
	LINGGI	15/2/90	1530	29.0	1.0	209.5	6.2	0.1	39.0	7.3	45000.0	32497.0	32536.0	-	-	-	-
21010	LINGGI	13/3/90	1440	30.0	5.5	255.0	4.7	0.2	66.0	7.3	4500.0	32784.0	32850.0	-	-	-	-
	LINGGI	19/4/90	1500	29.0	1.0	77.4	4.9	0.6	13.0	7.2	10000.0	11317.0	11330.0	-	-	-	-
	LINGGI	23/5/90	1530	28.0	0.5	72.1	2.2	0.6	67.0	7.2	2700.0	14817.0	14884.0	-	-	-	-
	LINGGI	19/6/90	1530	31.0	0.6	86.4	5.2	0.6	30.0	7.1	-	15674.0	15704.0	-	-	-	-
	LINGGI	17/7/90	1545	29.0	2.0	220.1	6.0	0.3	18.0	7.1	29000.0	24834.0	24852.0	-	-	-	-
	LINGGI	16/8/90	1450	30.0	1.5	40.2	6.3	0.3	13.0	7.2	251000.0	11682.0	11695.0	-	-	-	-
	LINGGI	23/10/90	1630	29.0	0.8	60.4	4.2	0.9	34.0	7.1	10000.0	17170.0	17204.0	-	-	-	-
	LINGGI	13/12/90	1530	28.0	0.4	67.9	3.7	0.4	28.0	6.0	10000.0	15030.0	15058.0	-	-	-	-
		MAX		**31.0**	**8.9**	**255.0**	**6.3**	**8.1**	**389.0**	**7.6**	**251000.0**	**32784.0**	**32850.0**	-	-	-	-
		MIN		**25.0**	**0.4**	**1.8**	**1.2**	**0.1**	**11.0**	**0.0**	**60.0**	**42.0**	**88.0**	-	-	-	-
		MEDIAN		**27.9**	**3.1**	**38.7**	**4.1**	**2.0**	**81.8**	**6.6**	**6706.2**	**3060.9**	**3142.9**	-	-	-	-
		PURATA		**28.0**	**2.8**	**26.0**	**4.2**	**1.8**	**67.0**	**6.8**	**120.0**	**93.0**	**190.0**	-	-	-	-

Jadual 3 : **DATA KUALITI AIR SG. LINGGI 1995**

SNO	SUNGAI	TARIKH	MASA	SUHU	BOD	COD	DO	NH3-N	SS	PH	COND	TDS	TS	NO3	PO4	Cu	Fe
2719610	BATANG PENAR	30/3/95	1310	27.0	2.4	33.1	8.5	0.5	292.0	6.6	70.0	85.0	377.0	-	-	-	-
	BATANG PENAR	15/6/95	1120	25.0	6.5	21.7	7.0	1.2	73.0	6.4	100.0	76.0	149.0	-	-	-	-
21001	BATANG PENAR	22/8/95	1035	27.0	8.4	28.5	6.5	5.2	870.0	6.4	120.0	960.0	1830.0	-	-	-	-
	BATANG PENAR	31/10/95	1105	28.0	3.2	26.6	5.5	2.7	65.0	6.2	130.0	89.0	154.0	-	-	-	-
2719622	BATANG PENAR	30/3/95	1240	27.0	3.3	38.6	8.9	0.9	360.0	6.8	60.0	76.0	436.0	-	-	-	-
	BATANG PENAR	15/6/95	1000	28.0	5.3	51.4	7.4	1.7	1074.0	7.6	110.0	127.0	1201.0	-	-	-	-
21002	BATANG BENAR	22/8/95	1015	28.0	6.7	41.8	6.3	5.7	45.0	6.5	110.0	94.0	139.0	-	-	-	-
	BATANG PENAR	31/10/95	1220	28.0	5.4	31.5	7.2	3.7	72.0	6.5	110.0	73.0	145.0	-	-	-	-
2619607	LINGGI	3/30/95	1425	29.0	4.4	28.7	8.5	0.7	292.0	6.5	90.0	64.0	356.0	-	-	-	7.2
	LINGGI	6/13/95	1340	31.0	6.5	27.7	6.3	1.8	150.0	7.0	130.0	79.0	229.0	-	-	-	0.6
21005	LINGGI	8/24/95	1140	28.0	8.1	18.2	7.8	6.8	1260.0	6.0	140.0	950.0	2210.0	-	-	-	2.7
	LINGGI	10/31/95	915	27.0	6.6	37.1	6.0	2.0	286.0	6.3	115.0	70.0	356.0	-	-	-	3.2
2519604	LINGGI	3/30/95	1505	28.0	1.8	20.9	8.7	0.4	250.0	6.5	90.0	71.0	321.0	-	-	-	-
	LINGGI	6/13/95	1500	30.0	6.4	32.9	8.3	2.4	217.0	6.9	200.0	101.0	318.0	-	-	-	-
21007	LINGGI	8/21/95	1340	-	7.3	22.1	-	2.9	73.0	-	-	101.0	174.0	-	-	-	-
	LINGGI	10/31/95	950	28.0	2.6	19.8	6.0	1.2	49.0	6.2	120.0	90.0	139.0	-	-	-	-
2519621	LINGGI	3/30/95	1530	28.0	3.5	45.7	6.9	0.5	792.0	6.4	80.0	484.0	1276.0	-	-	-	0.4
	LINGGI	6/13/95	1540	30.0	6.1	55.4	4.8	6.0	215.0	6.9	200.0	101.0	316.0	-	-	-	0.7
21008	LINGGI	8/23/95	1125	28.0	7.8	34.4	5.0	2.9	131.0	5.7	150.0	93.0	224.0	-	-	-	0.3
	LINGGI	10/30/95	1150	28.0	3.0	30.7	4.2	1.3	638.0	6.1	130.0	117.0	755.0	-	-	-	2.2
2420602	LINGGI	3/31/95	1010	29.0	0.6	20.9	4.2	0.2	171.0	6.4	140.0	123.0	294.0	-	-	-	0.2
	LINGGI	6/14/95	1015	30.0	4.9	18.5	4.0	0.8	158.0	7.2	200.0	106.0	264.0	-	-	-	1.8
21009	LINGGI	8/23/95	1325	29.0	4.9	27.3	4.8	0.8	1830.0	6.5	120.0	690.0	2520.0	-	-	-	2.1
	LINGGI	10/30/95	1330	28.0	2.9	29.8	5.5	1.3	414.0	6.2	120.0	131.0	545.0	-	-	-	0.1
2319601	LINGGI	3/31/95	935	29.0	0.9	31.5	5.0	0.1	47.0	7.6	36000.0	31942.0	31989.0	-	-	-	0.0
	LINGGI	6/14/95	940	30.0	0.6	353.0	6.4	0.1	65.0	7.8	42000.0	29310.0	29375.0	-	-	-	0.1
21010	LINGGI	8/23/95	1240	29.0	1.3	7.1	5.8	4.6	25.0	6.2	12000.0	6405.0	6430.0	-	-	-	1.7
	LINGGI	10/30/95	1300	29.0	1.0	92.7	5.3	0.8	32.0	6.6	17000.0	10769.0	10801.0	-	-	-	0.1
		MAX		**31.0**	**8.4**	**353.0**	**8.9**	**6.8**	**1830.0**	**7.8**	**42000.0**	**31942.0**	**31989.0**	-	-	-	**7.2**
		MIN		**25.0**	**0.6**	**7.1**	**4.0**	**0.1**	**25.0**	**5.7**	**60.0**	**64.0**	**139.0**	-	-	-	**0.0**
		PURATA		**28.4**	**4.4**	**43.8**	**6.3**	**2.1**	**355.2**	**6.6**	**4068.0**	**2977.8**	**3333.0**	-	-	-	**1.4**
		MEDIAN		**28.0**	**4.7**	**30.3**	**6.3**	**1.3**	**193.0**	**6.5**	**120.0**	**101.0**	**356.0**	-	-	-	**0.7**

Jadual 4 : **DATA KUALITI AIR SG. LINGGI 1997/98**

SNO	SUNGAI	TARIKH	SUHU	BOD	COD	DO	NH_3-N	SS	PH	COND	TDS	TS	NO_3	PO_4	Cu	Fe
2719610	BATANG PENAR	22/3/97	28.7	11.3	31	4.9	0.8	225.0	6.8	128.0	39.0	264.0	14.35	0.55	-	1.63
21001		10/6/97	27.8	16.4	25	5.5	1.9	250.0	6.8	108.0	62.7	312.7	1.61	0.55	-	2.41
		13/8/97	27.8	17.6	30	4.2	0.3	19.0	6.6	158.0	63.1	82.1	2.24	0.55	-	2.24
		25/10/97	27.3	1.0	3	5.5	1.1	25.0	6.3	152.0	41.0	66.0	3.42	0.01	-	-
		11/2/98	34.6	2.0	-	6.1	2.8	42.0	7.0	375.0	150.0	192.0	0.02	2.11	0.40	-
		13/4/98	29.9	2.9	-	6.8	2.6	14.5	6.3	35.7	17.0	31.5	2.50	0.14	0.17	3.00
		6/6/98	28.4	6.7	-	4.9	2.8	61.0	6.4	96.0	45.0	106.0	2.70	1.40	0.60	3.00
2719622	BATANG PENAR	22/3/97	29.0	12.1	34	7.7	2.5	126.0	7.3	242.0	91.2	217.2	20.56	0.55	-	2.96
21002		10/6/97	28.8	28.8	57	0.3	11.2	280.0	6.9	220.0	126.6	406.6	0.14	0.55	-	3.04
		13/8/97	27.4	8.5	18	4.4	1.9	25.0	6.8	174.0	66.1	91.1	3.10	0.55	-	-
		25/10/97	27.1	3.5	40	4.6	7.9	87.0	6.6	266.0	118.0	205.0	3.95	2.56	-	0.01
		11/2/98	35.6	2.9	-	2.8	17.2	26.0	6.7	167.0	90.0	116.0	6.61	0.01	0.53	-
		13/4/98	33.5	5.6	-	5.6	2.8	250.0	7.4	129.0	136.0	223.0	7.70	2.75	0.62	3.30
		6/6/98	30.0	15.3	-	4.8	2.8	136.0	6.3	200.0	189.0	325.0	2.40	2.10	0.89	2.80
21003	LINGGI	11/2/98	31.4	13.6	-	7.8	2.8	215.0	6.7	214.0	105.0	320.0	11.40	2.12	0.94	3.30
		13/4/98	30.8	9.1	-	8.3	2.8	431.0	7.1	178.0	148.0	579.0	10.90	1.76	0.18	2.50
		6/6/98	28.6	18.7	-	5.8	2.8	120.0	6.3	96.8	45.0	165.0	5.70	1.24	0.58	3.30
21004	LINGGI	11/2/98	29.6	11.6	-	8.3	2.7	103.0	6.8	184.3	87.0	190.0	2.50	1.34	0.28	3.30
		13/4/98	30.3	6.4	-	7.1	2.8	321.0	7.1	196.0	109.1	430.1	4.70	1.23	0.27	2.50
		6/6/98	28.7	10.9	-	5.9	2.8	81.0	6.3	111.3	52.0	133.0	4.60	1.13	0.65	3.08
2619607	LINGGI	22/3/97	26.4	8.8	17	5.9	2.0	190.0	7.2	131.0	54.8	244.8	11.87	0.55	-	2.47
21005		10/6/97	26.0	14.8	26	5.5	1.7	330.0	7.0	120.0	57.1	387.1	3.55	0.55	-	0.20
		13/8/97	28.4	6.8	16	5.5	1.2	46.0	7.0	208.0	88.4	134.4	2.30	0.55	-	1.69
		25/10/97	28.3	3.0	5	5.6	1.5	17.0	6.7	160.0	118.0	135.0	3.35	0.01	-	-
		11/2/98	36.1	2.0	-	4.7	2.3	30.0	7.2	179.0	100.0	130.0	2.17	0.01	0.38	0.01
		13/4/98	28.7	4.6	-	6.8	2.8	78.0	6.5	134.0	63.0	141.0	3.30	1.13	0.21	3.30
		6/6/98	29.1	6.5	-	5.9	2.8	51.3	6.9	109.0	83.5	160.3	3.01	0.86	0.16	3.20
21006	LINGGI	11/2/98	29.0	14.3	-	4.8	2.8	84.0	6.6	133.1	63.0	147.0	4.90	1.08	0.40	2.96
		13/4/98	30.1	9.6	-	5.2	2.8	441.3	6.9	128.4	257.1	698.4	5.40	2.20	0.82	3.30
		6/6/98	31.8	6.4	-	6.4	2.8	188.0	6.2	50.0	62.6	250.6	6.40	1.00	0.47	3.22
2519604	LINGGI	22/3/97	27.8	7.2	19	5.5	2.0	163.0	6.9	203.0	145.0	308.0	13.26	0.55	-	0.01
21007		10/6/97	27.4	10.9	19	5.3	1.9	196.0	6.8	144.0	87.9	283.9	4.20	0.55	-	2.92
		13/8/97	31.0	4.9	19	5.3	1.2	99.0	6.9	269.0	107.3	206.3	5.13	0.55	-	3.83
		25/10/97	29.6	2.5	6	5.4	1.2	37.0	6.6	211.0	84.0	121.0	4.90	0.01	-	0.01
		11/2/98	35.5	2.0	-	5.9	1.3	41.0	7.0	214.0	130.0	171.0	7.91	0.01	0.35	0.01
		13/4/98	31.2	4.3	-	6.1	2.8	87.0	6.4	202.0	95.0	182.0	5.40	1.38	0.40	2.79
		6/6/98	29.5	5.1	-	6.8	2.6	61.6	6.9	132.0	116.0	177.6	5.80	1.69	0.39	1.86
2519621	LINGGI	22/3/97	27.6	7.0	23	4.0	1.4	187.0	6.8	144.0	140.0	327.0	12.34	0.55	-	2.72
21008		10/6/97	27.6	14.6	30	2.9	1.7	290.0	6.6	106.0	63.7	353.7	4.90	0.55	-	2.60
		13/8/97	30.4	9.1	13	3.8	0.7	84.0	6.7	240.0	97.4	181.4	4.87	0.55	-	2.86
		25/10/97	29.8	1.8	4	3.0	1.0	224.0	6.2	168.0	84.0	308.0	3.55	0.01	-	-
		11/2/98	31.8	2.0	-	2.6	1.3	1130.0	6.5	184.0	130.0	1260.0	9.43	0.01	0.39	0.01
		13/4/98	28.3	5.1	-	5.9	2.8	117.0	6.1	203.0	96.0	213.0	5.20	1.38	0.53	3.33
		6/6/98	29.1	6.2	-	6.6	2.8	164.3	6.5	109.0	108.0	272.3	6.40	1.65	0.32	2.66
2420602	LINGGI	22/3/97	27.8	7.5	21	3.0	2.0	253.0	6.7	124.0	125.0	378.0	10.32	0.55	-	2.13
21009		10/6/97	27.4	6.4	17	2.8	1.1	282.0	6.4	101.0	54.0	336.0	5.19	0.55	-	2.58
		13/8/97	31.0	6.2	14	3.2	1.4	47.0	6.7	221.0	90.1	137.1	6.26	0.55	-	1.84
		25/10/97	29.7	1.4	7	2.2	0.7	330.0	6.1	152.0	51.0	381.0	3.40	0.01	-	-
		11/2/98	32.5	2.0	-	2.7	0.9	494.0	6.5	171.0	240.0	734.0	27.50	0.01	-	0.01
		13/4/98	29.7	4.5	-	6.0	2.8	297.0	6.0	123.8	57.0	354.0	11.60	0.69	1.08	3.30
		6/6/98	29.5	5.1	-	6.4	2.7	164.0	6.9	152.0	63.0	227.0	8.60	1.60	1.52	3.30
2319601	LINGGI	22/3/97	28.8	19.2	45	5.0	1.9	15.0	6.9	12580.0	7417.0	7432.0	2.68	1.60	-	0.06
21010		10/6/97	29.2	20.2	70	4.4	1.0	34.0	7.1	23510.0	14522.0	14556.0	3.88	1.60	-	-
		13/8/97	33.6	32.5	65	7.1	0.3	57.0	7.4	14110.0	15659.1	15716.1	4.49	1.60	-	-
		25/10/97	30.9	2.5	6	5.2	1.2	37.0	6.7	9010.0	84.0	121.0	4.89	0.01	-	-
		11/2/98	33.3	2.0	-	5.3	0.9	14.0	6.9	25540.0	27200.0	27214.0	1.64	0.01	-	-
		13/4/98	29.9	4.6	-	4.3	2.1	21.3	7.1	11830.0	3310.0	3317.0	1.40	0.07	0.35	0.05
		6/6/98	28.7	4.5	-	6.1	1.2	28.1	6.8	25131.0	2534.0	2552.1	2.40	0.50	1.01	0.03
		MAX	**36.1**	**32.5**	**70.0**	**8.3**	**17.2**	**1130.0**	**7.4**	**25540.0**	**27200.0**	**27214.0**	**27.50**	**2.75**	**1.5**	**3.83**
		MIN	**26.0**	**1.0**	**4.0**	**0.3**	**0.3**	**14.0**	**6.0**	**35.7**	**17.0**	**31.5**	**0.02**	**0.01**	**0.2**	**0.01**
		PURATA	**29.8**	**8.4**	**24.3**	**5.2**	**2.5**	**161.7**	**6.7**	**1841.0**	**1282.2**	**1441.3**	**6.01**	**0.87**	**0.5**	**2.21**
		MEDIAN	**29.4**	**6.4**	**19.0**	**5.4**	**2.0**	**101.0**	**6.7**	**169.5**	**93.1**	**235.9**	**4.9**	**0.6**	**0.4**	**2.7**

Jadual 5 : **DATA KUALITI AIR SG. LINGGI 1985 (STESYEN SEPANJANG SG. LINGGI)**

SNO	SUNGAI	TARIKH	SUHU	BOD_5	COD	DO	NH_3-N	SS	PH	COND	TDS	TS	NO_3	PO_4	Cu	Fe
2719610	BATANG PENAR	23/1/85	23.0	1.3	3.8	8.9	-	13.0	7.2	30.0	51.0	64.0	-	0.2	-	0.2
	BATANG PENAR	20/5/85	27.0	1.3	6.2	8.5	0.2	7.0	6.8	30.0	52.0	59.0	-	8.1	-	0.2
21001	BATANG PENAR	45/5/85	19.0	0.9	4.1	9.0	-	12.0	5.7	35.0	28.0	40.0	-	0.1	-	0.6
	BATANG PENAR	45/7/85	-	0.7	3.0	-	-	9.0	-	-	48.0	57.0	-	-	-	-
	BATANG PENAR	9/9/85	25.0	0.8	7.2	7.5	0.1	4.0	6.9	30.0	37.0	41.0	-	0.2	-	-
	BATANG PENAR	18/11/85	25.0	1.2	8.5	8.0	0.1	13.0	7.1	30.0	29.0	42.0	-	0.1	-	-
	MAX		**27.0**	**1.3**	**8.5**	**9.0**	**0.2**	**13.0**	**7.2**	**35.0**	**52.0**	**64.0**	-	**8.1**	-	**0.6**
	MIN		**19.0**	**0.7**	**3.0**	**7.5**	**0.1**	**4.0**	**5.7**	**30.0**	**28.0**	**40.0**	-	**0.1**	-	**0.2**
	PURATA		**23.8**	**1.0**	**5.5**	**8.4**	**0.1**	**9.7**	**6.7**	**31.0**	**40.8**	**50.5**	-	**1.7**	-	**0.3**
2719622	BATANG PENAR	23/1/85	25.0	1.8	10.0	6.3	0.3	71.0	6.1	55.0	53.0	124.0	-	0.1	-	2.2
	BATANG PENAR	20/5/85	25.0	3.6	18.9	6.6	0.5	130.0	6.6	70.0	63.0	193.0	-	0.3	-	3.7
21002	BATANG PENAR	45/5/85	21.0	1.8	14.0	6.3	0.3	189.0	5.7	50.0	58.0	247.0	-	0.2	-	-
	BATANG PENAR	45/7/85	-	4.7	151.0	-	1.0	227.0	-	-	65.0	292.0	-	0.3	-	-
	BATANG PENAR	9/9/85	27.0	3.0	35.0	4.5	2.3	489.0	6.7	90.0	93.0	582.0	-	0.6	-	-
	BATANG PENAR	18/11/85	26.0	1.4	15.0	6.0	0.4	139.0	6.8	60.0	68.0	207.0	-	-	-	-
	MAX		**27.0**	**4.7**	**151.0**	**6.6**	**2.3**	**489.0**	**6.8**	**90.0**	**93.0**	**582.0**	-	**0.6**	-	**3.7**
	MIN		**21.0**	**1.4**	**10.0**	**4.5**	**0.3**	**71.0**	**5.7**	**50.0**	**53.0**	**124.0**	-	**0.1**	-	**2.2**
	PURATA		**24.8**	**2.7**	**40.7**	**5.9**	**0.8**	**207.5**	**6.4**	**65.0**	**66.7**	**274.2**	-	**0.3**	-	**3.0**
2619607	LINGGI	23/1/85	28.0	4.4	30.0	5.8	1.2	104.0	7.1	80.0	69.0	173.0	-	0.4	-	3.5
	LINGGI	20/5/85	23.0	3.4	21.4	5.4	0.8	135.0	6.2	80.0	60.0	195.0	-	0.2	-	3.2
21005	LINGGI	45/5/85	21.0	3.2	24.0	5.5	1.0	228.0	6.5	75.0	66.0	294.0	-	0.4	-	4.7
	LINGGI	45/7/85	-	5.0	37.0	-	3.6	334.0	-	-	85.0	419.0	-	0.5	-	4.8
	LINGGI	9/9/85	28.0	3.3	56.0	0.3	4.9	506.0	6.6	150.0	106.0	612.0	-	0.2	-	9.5
	LINGGI	18/11/85	29.0	2.7	19.0	4.5	0.7	161.0	6.8	80.0	63.0	224.0	-	0.2	-	5.0
	MAX		**29.0**	**5.0**	**56.0**	**5.8**	**4.9**	**506.0**	**7.1**	**150.0**	**106.0**	**612.0**	-	**0.5**	-	**9.5**
	MIN		**21.0**	**2.7**	**19.0**	**0.3**	**0.7**	**104.0**	**6.2**	**75.0**	**60.0**	**173.0**	-	**0.2**	-	**3.2**
	PURATA		**25.8**	**3.7**	**31.2**	**4.3**	**2.0**	**244.7**	**6.6**	**93.0**	**74.8**	**319.5**	-	**0.3**	-	**5.1**
2519604	LINGGI	23/1/85	25.0	2.1	15.0	5.9	0.7	49.0	2.7	100.0	65.0	114.0	-	0.3	-	-
	LINGGI	20/5/85	24.0	1.7	15.7	6.9	0.4	125.0	6.1	80.0	80.0	205.0	-	0.1	-	-
21007	LINGGI	45/5/85	21.0	3.1	34.0	6.0	0.4	1400.0	5.6	60.0	76.0	1480.0	-	0.6	-	-
	LINGGI	45/7/85	-	4.7	30.0	-	1.0	628.0	-	-	73.0	701.0	-	0.1	-	-
	LINGGI	9/9/85	27.0	6.0	30.0	4.8	3.5	123.0	5.8	140.0	95.0	218.0	-	0.5	-	-
	LINGGI	18/11/85	-	3.5	74.0	4.0	0.5	975.0	6.9	80.0	96.0	1071.0	-	0.2	-	-
	MAX		**27.0**	**6.0**	**74.0**	**6.9**	**3.5**	**1400.0**	**6.9**	**140.0**	**96.0**	**1480.0**	-	**0.6**	-	-
	MIN		**21.0**	**1.7**	**15.0**	**4.0**	**0.4**	**49.0**	**2.7**	**60.0**	**65.0**	**114.0**	-	**0.1**	-	-
	PURATA		**24.3**	**3.5**	**33.1**	**5.5**	**1.1**	**550.0**	**5.4**	**92.0**	**80.8**	**631.5**	-	**0.3**	-	-

SNO	SUNGAI	TARIKH	SUHU	BOD_5	COD	DO	NH_3-N	SS	PH	COND	TDS	TS	NO_3	PO_4	Cu	Fe
2519621	LINGGI	23/1/85	26.0	1.9	16.0	5.0	1.1	106.0	6.6	90.0	44.0	150.0	-	0.3	0.0	2.8
	LINGGI	20/5/85	26.0	2.0	19.6	3.8	0.4	142.0	5.9	90.0	79.0	221.0	-	0.1	0.0	6.7
21008	LINGGI	45/5/85	22.0	3.0	23.0	5.0	0.9	317.0	6.3	90.0	48.0	365.0	-	0.3	7.0	7.5
	LINGGI	45/7/85	-	5.0	39.0	-	1.4	457.0	-	-	107.0	564.0	-	0.2	0.0	1.9
	LINGGI	9/9/85	28.0	5.0	27.0	2.4	4.0	133.0	5.2	150.0	125.0	258.0	-	0.1	0.0	5.6
	LINGGI	18/11/85	27.0	2.2	18.0	3.1	0.5	151.0	6.8	70.0	44.0	195.0	-	0.1	0.0	4.4
	MAX		**28.0**	**5.0**	**39.0**	**5.0**	**4.0**	**457.0**	**6.8**	**150.0**	**125.0**	**564.0**	-	**0.3**	**7.0**	**7.5**
	MIN		**22.0**	**1.9**	**16.0**	**2.4**	**0.4**	**106.0**	**5.2**	**70.0**	**44.0**	**150.0**	-	**0.1**	**0.0**	**1.9**
	PURATA		**25.8**	**3.2**	**23.8**	**3.9**	**1.4**	**217.7**	**6.2**	**98.0**	**74.5**	**292.2**	-	**0.2**	**1.2**	**4.8**
2420602	LINGGI	23/1/85	28.0	0.1	16.0	5.2	0.4	75.0	2.4	80.0	722.0	-	-	0.4	-	3.3
	LINGGI	20/5/85	25.0	1.0	17.8	4.8	0.2	126.0	6.1	70.0	82.0	208.0	-	0.1	-	5.5
21009	LINGGI	45/5/85	22.0	2.2	20.0	5.0	0.4	206.0	5.5	70.0	104.0	310.0	-	0.4	-	-
	LINGGI	45/7/85	-	4.8	6.3	-	1.9	4660.0	-	-	81.0	4741.0	-	0.1	-	1.2
	LINGGI	9/9/85	29.0	6.0	19.0	3.9	2.4	92.0	6.5	140.0	161.0	253.0	-	0.4	-	4.8
	LINGGI	18/11/85	27.0	1.8	17.0	2.9	0.2	106.0	6.7	70.0	151.0	257.0	-	0.1	-	4.3
	MAX		**29.0**	**6.0**	**20.0**	**5.2**	**2.4**	**4660.0**	**6.7**	**140.0**	**722.0**	**4741.0**	-	**0.4**	-	**5.5**
	MIN		**22.0**	**0.1**	**6.3**	**2.9**	**0.2**	**75.0**	**2.4**	**70.0**	**81.0**	**208.0**	-	**0.1**	-	**1.2**
	PURATA		**26.2**	**2.7**	**16.0**	**4.4**	**0.9**	**877.5**	**5.4**	**86.0**	**216.8**	**1153.8**	-	**0.2**	-	**3.8**
2421601	LINGGI	23/1/85	27.0	1.2	13.0	6.1	0.1	25.0	6.5	40.0	58.0	83.0	-	0.2	-	-
	LINGGI	20/5/85	25.0	1.1	11.4	6.6	0.1	40.0	6.2	40.0	54.0	94.0	-	0.1	-	-
21010	LINGGI	45/5/85	22.0	1.0	14.0	6.5	0.2	68.0	5.2	70.0	66.0	134.0	-	0.2	-	-
	LINGGI	45/7/85	-	3.6	20.0	-	0.5	128.0	-	-	35.0	163.0	-	0.1	-	-
	LINGGI	9/9/85	28.0	2.7	17.0	5.5	0.2	46.0	5.6	50.0	59.0	105.0	-	0.3	-	-
	LINGGI	18/11/85	27.0	1.2	15.0	4.1	0.1	66.0	6.8	30.0	44.0	110.0	-	-	-	-
	MAX		**28.0**	**3.6**	**20.0**	**6.6**	**0.5**	**128.0**	**6.8**	**70.0**	**66.0**	**163.0**	-	**0.3**	-	-
	MIN		**22.0**	**1.0**	**11.4**	**4.1**	**0.1**	**25.0**	**5.2**	**30.0**	**35.0**	**83.0**	-	**0.1**	-	-
	PURATA		**25.8**	**1.8**	**15.1**	**5.8**	**0.2**	**62.2**	**6.1**	**46.0**	**52.7**	**114.8**	-	**0.2**	-	-

Jadual 6 : **DATA KUALITI AIR SG. LINGGI 1990 (STESYEN SEPANJANG SG. LINGGI)**

SNO	SUNGAI	TARIKH	MASA	SUHU	BOD_5	COD	DO	NH_3-N	SS	PH	COND	TDS	TS	NO_3	PO_4	Cu	Fe
2719610	BTG. PENAR	17/1/90	915	26.0	8.9	15.5	4.5	2.2	92.0	6.9	80.0	86.0	178.0	-	-	-	-
	BTG. PENAR	15/2/90	930	28.0	2.6	20.2	6.3	3.1	25.0	6.9	90.0	63.0	88.0	-	-	-	-
21001	BTG. PENAR	13/3/90	900	30.0	3.9	61.2	4.5	2.9	51.0	0.0	130.0	50.0	101.0	-	-	-	-
	BTG. PENAR	19/4/90	900	28.0	3.6	28.2	4.0	3.2	52.0	6.5	110.0	77.0	129.0	-	-	-	-
	BTG. PENAR	23/5/90	935	28.0	6.7	22.1	2.3	4.9	130.0	6.8	190.0	103.0	233.0	-	-	-	-
	BTG. PENAR	19/6/90	900	28.0	2.2	17.2	3.7	1.9	60.0	6.9	-	131.0	191.0	-	-	-	-
	BTG. PENAR	17/7/90	900	28.0	2.5	15.6	4.2	4.7	68.0	6.0	140.0	74.0	142.0	-	-	-	-
	BTG. PENAR	16/8/90	900	28.0	5.4	30.5	3.2	3.6	39.0	6.5	120.0	129.0	168.0	-	-	-	-
	BTG. PENAR	23/10/90	900	25.0	2.7	18.8	5.6	1.0	87.0	6.8	70.0	65.0	152.0	-	-	-	-
	BTG. PENAR	13/12/90	900	26.0	2.7	26.0	4.5	2.9	62.0	6.8	70.0	106.0	168.0	-	-	-	-
		MAX		**30.0**	**8.9**	**61.2**	**6.3**	**4.9**	**130.0**	**6.9**	**190.0**	**131.0**	**233.0**	-	-	-	-
		MIN		**25.0**	**2.2**	**15.5**	**2.3**	**1.0**	**25.0**	**0.0**	**70.0**	**50.0**	**88.0**	-	-	-	-
		PURATA		**27.5**	**4.1**	**25.5**	**4.3**	**3.0**	**66.6**	**6.0**	**111.1**	**88.4**	**155.0**	-	-	-	-
2719622	BTG. PENAR	17/1/90	1020	27.0	3.7	39.9	4.5	1.1	71.0	6.9	70.0	42.0	113.0	-	-	-	-
	BTG. PENAR	15/2/90	1030	29.0	3.3	28.9	1.2	2.2	66.0	6.5	100.0	65.0	131.0	-	-	-	-
21002	BTG. PENAR	13/3/90	1000	29.0	6.8	1.8	4.5	4.0	212.0	6.9	120.0	102.0	314.0	-	-	-	-
	BTG. PENAR	19/4/90	1000	28.0	0.6	39.3	4.0	2.1	62.0	6.4	110.0	71.0	133.0	-	-	-	-
	BTG. PENAR	23/5/90	1035	28.0	2.5	48.5	4.2	2.2	113.0	6.9	110.0	50.0	163.0	-	-	-	-
	BTG. PENAR	19/6/90	1000	27.0	2.9	22.0	4.3	1.6	55.0	6.7	-	72.0	127.0	-	-	-	-
	BTG. PENAR	17/7/90	1000	27.0	4.0	31.2	4.1	2.3	56.0	6.0	120.0	63.0	119.0	-	-	-	-
	BTG. PENAR	16/8/90	1010	27.0	4.8	39.8	1.7	4.2	84.0	6.9	210.0	98.0	182.0	-	-	-	-
	BTG. PENAR	23/10/90	1000	26.0	3.5	24.6	4.6	0.8	112.0	6.5	80.0	78.0	190.0	-	-	-	-
	BTG. PENAR	13/12/90	1000	26.0	3.0	27.9	4.1	1.8	70.0	6.7	110.0	73.0	143.0	-	-	-	-
		MAX		**29.0**	**6.8**	**48.5**	**4.6**	**4.2**	**212.0**	**6.9**	**210.0**	**102.0**	**314.0**	-	-	-	-
		MIN		**26.0**	**0.6**	**1.8**	**1.2**	**0.8**	**55.0**	**6.0**	**70.0**	**42.0**	**113.0**	-	-	-	-
		PURATA		**27.4**	**3.5**	**30.4**	**3.7**	**2.2**	**90.1**	**6.6**	**114.4**	**71.4**	**161.5**	-	-	-	-
2619607	LINGGI	17/1/90	1200	27.0	4.2	22.1	4.8	1.5	97.0	5.9	100.0	59.0	156.0	-	-	-	-
	LINGGI	15/2/90	1140	29.0	4.1	28.5	4.5	6.6	60.0	6.9	180.0	83.0	143.0	-	-	-	-
21005	LINGGI	13/3/90	1100	28.0	2.2	27.0	4.0	3.9	84.0	6.5	160.0	110.0	194.0	-	-	-	-
	LINGGI	19/4/90	1140	28.0	2.9	19.5	5.0	2.6	105.0	6.6	180.0	137.0	242.0	-	-	-	-
	LINGGI	23/5/90	1200	27.0	2.1	23.2	3.2	4.4	64.0	6.6	-	60.0	124.0	-	-	-	-
	LINGGI	19/6/90	1100	27.0	3.5	22.4	3.1	3.9	160.0	6.0	180.0	90.0	250.0	-	-	-	-
	LINGGI	16/8/90	1145	28.0	2.2	35.1	3.6	8.1	85.0	6.0	210.0	157.0	242.0	-	-	-	-
	LINGGI	23/10/90	1230	26.0	4.0	21.1	4.6	1.4	109.0	6.9	100.0	83.0	192.0	-	-	-	-
	LINGGI	13/12/90	1145	26.0	3.4	31.3	4.2	2.1	134.0	6.7	110.0	92.0	226.0	-	-	-	-
		MAX		**29.0**	**4.2**	**35.1**	**5.0**	**8.1**	**160.0**	**6.9**	**210.0**	**157.0**	**250.0**	-	-	-	-
		MIN		**26.0**	**2.1**	**19.5**	**3.1**	**1.4**	**60.0**	**5.9**	**100.0**	**59.0**	**124.0**	-	-	-	-
		PURATA		**27.3**	**3.2**	**26.5**	**4.1**	**3.8**	**99.8**	**6.5**	**152.5**	**96.8**	**196.6**	-	-	-	-

SNO	SUNGAI	TARIKH	MASA	SUHU	BOD_5	COD	DO	NH_3-N	SS	PH	COND	TDS	TS	NO_3	PO_4	Cu	Fe
2519604	LINGGI	17/1/90	1030	27.0	4.5	19.4	5.8	1.1	109.0	6.2	100.0	109.0	218.0	-	-	-	-
	LINGGI	15/2/90	1100	27.0	8.3	32.7	5.1	2.2	56.0	6.9	140.0	77.0	133.0	-	-	-	-
21007	LINGGI	13/3/90	1100	29.0	7.3	27.7	4.0	3.0	93.0	6.1	250.0	123.0	216.0	-	-	-	-
	LINGGI	19/4/90	1045	28.0	2.8	29.0	5.8	1.9	91.0	6.7	180.0	115.0	206.0	-	-	-	-
	LINGGI	23/5/90	1100	29.0	3.2	20.6	5.0	1.3	115.0	6.9	120.0	87.0	202.0	-	-	-	-
	LINGGI	19/6/90	1100	29.0	2.4	31.2	2.8	2.1	62.0	6.9	-	98.0	160.0	-	-	-	-
	LINGGI	17/7/90	1130	28.0	3.5	17.5	4.6	2.8	83.0	6.0	170.0	120.0	203.0	-	-	-	-
	LINGGI	16/8/90	1100	28.0	1.8	31.3	6.0	3.4	116.0	6.9	300.0	142.0	258.0	-	-	-	-
	LINGGI	23/10/90	1050	25.0	2.8	21.5	6.0	1.0	170.0	6.3	90.0	93.0	263.0	-	-	-	-
	LINGGI	13/12/90	1100	26.0	2.2	28.2	4.7	2.2	121.0	7.1	130.0	95.0	216.0	-	-	-	-
		MAX		**29.0**	**8.3**	**32.7**	**6.0**	**3.4**	**170.0**	**7.1**	**300.0**	**142.0**	**263.0**	-	-	-	-
		MIN		**25.0**	**1.8**	**17.5**	**2.8**	**1.0**	**56.0**	**6.0**	**90.0**	**77.0**	**133.0**	-	-	-	-
		PURATA		**27.6**	**3.9**	**25.9**	**5.0**	**2.1**	**101.6**	**6.6**	**164.4**	**105.9**	**207.5**	-	-	-	-
2519621	LINGGI	17/1/90	1115	27.0	4.9	28.3	2.8	0.8	161.0	5.8	80.0	76.0	237.0	-	-	-	-
	LINGGI	15/2/90	1130	28.0	2.9	10.8	5.0	1.7	32.0	7.1	120.0	69.0	101.0	-	-	-	-
21008	LINGGI	13/3/90	1135	29.0	3.3	18.5	2.8	2.5	54.0	6.9	170.0	104.0	158.0	-	-	-	-
	LINGGI	19/4/90	1145	28.0	2.2	32.9	1.8	1.7	67.0	6.5	350.0	85.0	152.0	-	-	-	-
	LINGGI	23/5/90	1150	29.0	2.5	24.0	1.9	0.7	102.0	-	90.0	67.0	169.0	-	-	-	-
	LINGGI	16/8/90	1145	28.0	3.1	25.9	3.7	0.3	62.0	6.1	170.0	129.0	191.0	-	-	-	-
	LINGGI	23/10/90	1150	26.0	2.5	22.7	5.4	0.8	211.0	6.9	70.0	84.0	295.0	-	-	-	-
	LINGGI	13/12/90	1140	25.0	1.3	24.2	2.2	1.9	67.0	6.3	120.0	95.0	162.0	-	-	-	-
		MAX		**29.0**	**8.3**	**32.9**	**6.0**	**3.4**	**211.0**	**7.1**	**350.0**	**142.0**	**295.0**	-	-	-	-
		MIN		**25.0**	**1.3**	**10.8**	**1.8**	**0.3**	**32.0**	**5.8**	**70.0**	**67.0**	**101.0**	-	-	-	-
		PURATA		**27.5**	**2.8**	**23.4**	**3.2**	**1.3**	**94.5**	**6.5**	**146.3**	**88.6**	**183.1**	-	-	-	-
2420602	LINGGI	17/1/90	1415	27.0	3.2	15.1	5.2	0.4	137.0	6.2	60.0	61.0	198.0	-	-	-	-
	LINGGI	15/2/90	1230	29.0	1.9	11.9	2.9	0.1	21.0	7.2	170.0	84.0	105.0	-	-	-	-
21009	LINGGI	13/3/90	1250	29.0	3.1	17.3	2.7	2.1	20.0	6.9	110.0	99.0	119.0	-	-	-	-
	LINGGI	19/4/90	1400	29.0	1.2	22.2	5.0	1.3	63.0	6.8	120.0	74.0	149.0	-	-	-	-
	LINGGI	23/5/90	1415	29.0	2.4	21.0	2.5	0.7	107.0	6.9	90.0	99.0	206.0	-	-	-	-
	LINGGI	19/6/90	1430	29.0	1.4	12.8	2.8	0.9	28.0	6.9	-	86.0	114.0	-	-	-	-
	LINGGI	17/7/90	1430	28.0	2.5	15.2	3.8	0.9	11.0	6.9	150.0	83.0	94.0	-	-	-	-
	LINGGI	16/8/90	0	28.0	3.2	20.5	3.7	1.9	42.0	6.8	120.0	95.0	137.0	-	-	-	-
	LINGGI	23/10/90	1400	29.0	2.8	28.1	3.6	0.6	389.0	6.3	60.0	132.0	521.0	-	-	-	-
	LINGGI	13/12/90	1400	27.0	2.4	19.4	3.0	1.2	68.0	6.0	100.0	69.0	137.0	-	-	-	-
		MAX		**29.0**	**3.2**	**28.1**	**5.2**	**2.1**	**389.0**	**7.2**	**170.0**	**132.0**	**521.0**	-	-	-	-
		MIN		**27.0**	**1.2**	**11.9**	**2.5**	**0.1**	**11.0**	**6.0**	**60.0**	**61.0**	**94.0**	-	-	-	-
		PURATA		**28.4**	**2.4**	**18.4**	**3.5**	**1.0**	**88.6**	**6.7**	**108.9**	**88.2**	**178.0**	-	-	-	-

SNO	SUNGAI	TARIKH	MASA	SUHU	BOD_5	COD	DO	NH_3-N	SS	PH	COND	TDS	TS	NO_3	PO_4	Cu	Fe
2319601	LINGGI	17/1/90	1530	28.0	1.3	83.0	5.4	0.1	48.0	7.6	40000.0	24158.0	24206.0	-	-	-	-
	LINGGI	15/2/90	1530	29.0	1.0	209.5	6.2	0.1	39.0	7.3	45000.0	32497.0	32536.0	-	-	-	-
21010	LINGGI	13/3/90	1440	30.0	5.5	255.0	4.7	0.2	66.0	7.3	4500.0	32784.0	32850.0	-	-	-	-
	LINGGI	19/4/90	1500	29.0	1.0	77.4	4.9	0.6	13.0	7.2	10000.0	11317.0	11330.0	-	-	-	-
	LINGGI	23/5/90	1530	28.0	0.5	72.1	2.2	0.6	67.0	7.2	2700.0	14817.0	14884.0	-	-	-	-
	LINGGI	19/6/90	1530	31.0	0.6	86.4	5.2	0.6	30.0	7.1	-	15674.0	15704.0	-	-	-	-
	LINGGI	17/7/90	1545	29.0	2.0	220.1	6.0	0.3	18.0	7.1	29000.0	24834.0	24852.0	-	-	-	-
	LINGGI	16/8/90	1450	30.0	1.5	40.2	6.3	0.3	13.0	7.2	251000.0	11682.0	11695.0	-	-	-	-
	LINGGI	23/10/90	1630	29.0	0.8	60.4	4.2	0.9	34.0	7.1	10000.0	17170.0	17204.0	-	-	-	-
	LINGGI	13/12/90	1530	28.0	0.4	67.9	3.7	0.4	28.0	6.0	10000.0	15030.0	15058.0	-	-	-	-
		MAX		**31.0**	**5.5**	**255.0**	**6.3**	**0.9**	**67.0**	**7.6**	**251000.0**	**32784.0**	**32850.0**	-	-	-	-
		MIN		**28.0**	**0.4**	**40.2**	**2.2**	**0.1**	**13.0**	**6.0**	**2700.0**	**11317.0**	**11330.0**	-	-	-	-
		PURATA		**29.1**	**1.5**	**117.2**	**4.9**	**0.4**	**35.6**	**7.1**	**44688.9**	**19996.3**	**20031.9**	-	-	-	-

Jadual 7 : **DATA KUALITI AIR SG. LINGGI 1995 (STESYEN SEPANJANG SG. LINGGI)**

SNO	SUNGAI	TARIKH	MASA	SUHU	BOD_5	COD	DO	NH_3-N	SS	PH	COND	TDS	TS	NO_3	PO_4	Cu	Fe
2719610	BATANG PENAR	30/3/95	1310	27.0	2.4	33.1	8.5	0.5	292.0	6.6	70.0	85.0	377.0	-	-	-	-
	BATANG PENAR	15/6/95	1120	25.0	6.5	21.7	7.0	1.2	73.0	6.4	100.0	76.0	149.0	-	-	-	-
21001	BATANG PENAR	22/8/95	1035	27.0	8.4	28.5	6.5	5.2	870.0	6.4	120.0	960.0	1830.0	-	-	-	-
	BATANG PENAR	31/10/95	1105	28.0	3.2	26.6	5.5	2.7	65.0	6.2	130.0	89.0	154.0	-	-	-	-
		MAX		**28.0**	**8.4**	**33.1**	**8.5**	**5.2**	**870.0**	**6.6**	**130.0**	**960.0**	**1830.0**	-	-	-	-
		MIN		**25.0**	**2.4**	**21.7**	**5.5**	**0.5**	**65.0**	**6.2**	**70.0**	**76.0**	**149.0**	-	-	-	-
		PURATA		**26.8**	**5.1**	**27.5**	**6.9**	**2.4**	**325.0**	**6.4**	**105.0**	**302.5**	**627.5**	-	-	-	-
2719622	BATANG PENAR	30/3/95	1240	27.0	3.3	38.6	8.9	0.9	360.0	6.8	60.0	76.0	436.0	-	-	-	-
	BATANG PENAR	15/6/95	1000	28.0	5.3	51.4	7.4	1.7	1074.0	7.6	110.0	127.0	1201.0	-	-	-	-
21002	BATANG BENAR	22/8/95	1015	28.0	6.7	41.8	6.3	5.7	45.0	6.5	110.0	94.0	139.0	-	-	-	-
	BATANG PENAR	31/10/95	1220	28.0	5.4	31.5	7.2	3.7	72.0	6.5	110.0	73.0	145.0	-	-	-	-
		MAX		**28.0**	**6.7**	**51.4**	**8.9**	**5.7**	**1074.0**	**7.6**	**110.0**	**127.0**	**1201.0**	-	-	-	-
		MIN		**27.0**	**3.3**	**31.5**	**6.3**	**0.9**	**45.0**	**6.5**	**60.0**	**73.0**	**139.0**	-	-	-	-
		PURATA		**27.8**	**5.2**	**40.8**	**7.5**	**3.0**	**387.8**	**6.8**	**97.5**	**92.5**	**480.3**	-	-	-	-
2619607	LINGGI	3/30/95	1425	29.0	4.4	28.7	8.5	0.7	292.0	6.5	90.0	64.0	356.0	-	-	-	7.2
	LINGGI	6/13/95	1340	31.0	6.5	27.7	6.3	1.8	150.0	7.0	130.0	79.0	229.0	-	-	-	0.6
21005	LINGGI	8/24/95	1140	28.0	8.1	18.2	7.8	6.8	1260.0	6.0	140.0	950.0	2210.0	-	-	-	2.7
	LINGGI	10/31/95	915	27.0	6.6	37.1	6.0	2.0	286.0	6.3	115.0	70.0	356.0	-	-	-	3.2
		MAX		**31.0**	**8.1**	**37.1**	**8.5**	**6.8**	**1260.0**	**7.0**	**140.0**	**950.0**	**2210.0**	-	-	-	**7.2**
		MIN		**27.0**	**4.4**	**18.2**	**6.0**	**0.7**	**150.0**	**6.0**	**90.0**	**64.0**	**229.0**	-	-	-	**0.6**
		PURATA		**28.8**	**6.4**	**27.9**	**7.2**	**2.8**	**497.0**	**6.5**	**118.8**	**290.8**	**787.8**	-	-	-	**3.4**
2519604	LINGGI	3/30/95	1505	28.0	1.8	20.9	8.7	0.4	250.0	6.5	90.0	71.0	321.0	-	-	-	-
	LINGGI	6/13/95	1500	30.0	6.4	32.9	8.3	2.4	217.0	6.9	200.0	101.0	318.0	-	-	-	-
21007	LINGGI	8/21/95	1340	-	7.3	22.1	-	2.9	73.0	-	-	101.0	174.0	-	-	-	-
	LINGGI	10/31/95	950	28.0	2.6	19.8	6.0	1.2	49.0	6.2	120.0	90.0	139.0	-	-	-	-
		MAX		**30.0**	**7.3**	**32.9**	**8.7**	**2.9**	**250.0**	**6.9**	**200.0**	**101.0**	**321.0**	-	-	-	-
		MIN		**28.0**	**1.8**	**19.8**	**6.0**	**0.4**	**49.0**	**6.2**	**90.0**	**71.0**	**139.0**	-	-	-	-
		PURATA		**28.7**	**4.5**	**23.9**	**7.7**	**1.7**	**147.3**	**6.5**	**136.7**	**90.8**	**238.0**	-	-	-	-
2519621	LINGGI	3/30/95	1530	28.0	3.5	45.7	6.9	0.5	792.0	6.4	80.0	484.0	1276.0	-	-	-	0.4
	LINGGI	6/13/95	1540	30.0	6.1	55.4	4.8	6.0	215.0	6.9	200.0	101.0	316.0	-	-	-	0.7
21008	LINGGI	8/23/95	1125	28.0	7.8	34.4	5.0	2.9	131.0	5.7	150.0	93.0	224.0	-	-	-	0.3
	LINGGI	10/30/95	1150	28.0	3.0	30.7	4.2	1.3	638.0	6.1	130.0	117.0	755.0	-	-	-	2.2
		MAX		**30.0**	**7.8**	**55.4**	**6.9**	**6.0**	**792.0**	**6.9**	**200.0**	**484.0**	**1276.0**	-	-	-	**2.2**
		MIN		**28.0**	**3.0**	**30.7**	**4.2**	**0.5**	**131.0**	**5.7**	**80.0**	**93.0**	**224.0**	-	-	-	**0.3**
		PURATA		**28.5**	**5.1**	**41.6**	**5.2**	**2.7**	**444.0**	**6.3**	**140.0**	**198.8**	**642.8**	-	-	-	0.9

SNO	SUNGAI	TARIKH	MASA	SUHU	BOD_5	COD	DO	NH_3-N	SS	PH	COND	TDS	TS	NO_3	PO_4	Cu	Fe
2420602	LINGGI	3/31/95	1010	29.0	0.6	20.9	4.2	0.2	171.0	6.4	140.0	123.0	294.0	-	-	-	0.2
	LINGGI	6/14/95	1015	30.0	4.9	18.5	4.0	0.8	158.0	7.2	200.0	106.0	264.0	-	-	-	1.8
21009	LINGGI	8/23/95	1325	29.0	4.9	27.3	4.8	0.8	1830.0	6.5	120.0	690.0	2520.0	-	-	-	2.1
	LINGGI	10/30/95	1330	28.0	2.9	29.8	5.5	1.3	414.0	6.2	120.0	131.0	545.0	-	-	-	0.1
		MAX		**30.0**	**4.9**	**29.8**	**5.5**	**1.3**	**1830.0**	**7.2**	**200.0**	**690.0**	**2520.0**	-	-	-	**2.1**
		MIN		**28.0**	**0.6**	**18.5**	**4.0**	**0.2**	**158.0**	**6.2**	**120.0**	**106.0**	**264.0**	-	-	-	**0.1**
		PURATA		**29.0**	**3.3**	**24.1**	**4.6**	**0.8**	**643.3**	**6.6**	**145.0**	**262.5**	**905.8**	-	-	-	**1.0**
2319601	LINGGI	3/31/95	935	29.0	0.9	31.5	5.0	0.1	47.0	7.6	36000.0	31942.0	31989.0	-	-	-	0.0
	LINGGI	6/14/95	940	30.0	0.6	353.0	6.4	0.1	65.0	7.8	42000.0	29310.0	29375.0	-	-	-	0.1
21010	LINGGI	8/23/95	1240	29.0	1.3	7.1	5.8	4.6	25.0	6.2	12000.0	6405.0	6430.0	-	-	-	1.7
	LINGGI	10/30/95	1300	29.0	1.0	92.7	5.3	0.8	32.0	6.6	17000.0	10769.0	10801.0	-	-	-	0.1
		MAX		**30.0**	**1.3**	**353.0**	**6.4**	**4.6**	**65.0**	**7.8**	**42000.0**	**31942.0**	**31989.0**	-	-	-	**1.7**
		MIN		**29.0**	**0.6**	**7.1**	**5.0**	**0.1**	**25.0**	**6.2**	**12000.0**	**6405.0**	**6430.0**	-	-	-	**0.0**
		PURATA		**29.3**	**1.0**	**121.1**	**5.6**	**1.4**	**42.3**	**7.0**	**26750.0**	**19606.5**	**19648.8**	-	-	-	**0.5**

Jadual 8 : **DATA KUALITI AIR SG. LINGGI 1997/98 (STESYEN SEPANJANG SG. LINGGI)**

SNO	SUNGAI	TARIKH	SUHU	BOD_5	COD	DO	NH_3-N	SS	PH	COND	TDS	TS	NO_3	PO_4	Cu	Fe
2719610	BATANG PENAR	22/3/97	28.7	11.3	31	4.9	0.8	225.0	6.8	128.0	39.0	264.0	14.35	0.55	-	1.63
21001		10/6/97	27.8	16.4	25	5.5	1.9	250.0	6.8	108.0	62.7	312.7	1.61	0.55	-	2.41
		13/8/97	27.8	17.6	30	4.2	0.3	19.0	6.6	158.0	63.1	82.1	2.24	0.55	-	2.24
		25/10/97	27.3	1.0	3	5.5	1.1	25.0	6.3	152.0	41.0	66.0	3.42	0.01	-	-
		11/2/98	34.6	2.0	-	6.1	2.8	42.0	7.0	375.0	150.0	192.0	0.02	2.11	0.40	-
		13/4/98	29.9	2.9	-	6.8	2.6	14.5	6.3	35.7	17.0	31.5	2.50	0.14	0.17	3.00
		6/6/98	28.4	6.7	-	4.9	2.8	61.0	6.4	96.0	45.0	106.0	2.70	1.40	0.60	3.00
		MAX	**34.6**	**17.6**	**31.0**	**6.8**	**2.8**	**250.0**	**7.0**	**375.0**	**150.0**	**312.7**	**14.35**	**2.11**	**0.60**	**3.00**
		MIN	**27.3**	**1.0**	**3.0**	**4.2**	**0.3**	**14.5**	**6.3**	**35.7**	**17.0**	**31.5**	**0.02**	**0.01**	**0.17**	**1.63**
		PURATA	**29.2**	**8.3**	**22.3**	**5.4**	**1.8**	**90.9**	**6.6**	**150.4**	**59.7**	**150.6**	**3.83**	**0.76**	**0.39**	**2.45**
2719622	BATANG PENAR	22/3/97	29.0	12.1	34	7.7	2.5	126.0	7.3	242.0	91.2	217.2	20.56	0.55	-	2.96
21002		10/6/97	28.8	28.8	57	0.3	11.2	280.0	6.9	220.0	126.6	406.6	0.14	0.55	-	3.04
		13/8/97	27.4	8.5	18	4.4	1.9	25.0	6.8	174.0	66.1	91.1	3.10	0.55	-	-
		25/10/97	27.1	3.5	40	4.6	7.9	87.0	6.6	266.0	118.0	205.0	3.95	2.56	-	0.01
		11/2/98	35.6	2.9	-	2.8	17.2	26.0	6.7	167.0	90.0	116.0	6.61	0.01	0.53	-
		13/4/98	33.5	5.6	-	5.6	2.8	250.0	7.4	129.0	136.0	223.0	7.70	2.75	0.62	3.30
		6/6/98	30.0	15.3	-	4.8	2.8	136.0	6.3	200.0	189.0	325.0	2.40	2.10	0.89	2.80
		MAX	**35.6**	**28.8**	**57.0**	**7.7**	**17.2**	**280.0**	**7.4**	**266.0**	**189.0**	**406.6**	**20.56**	**2.75**	**0.89**	**3.30**
		MIN	**27.1**	**2.9**	**18.0**	**0.3**	**1.9**	**25.0**	**6.3**	**129.0**	**66.1**	**91.1**	**0.14**	**0.01**	**0.53**	**0.01**
		PURATA	**30.2**	**10.9**	**37.3**	**4.3**	**6.6**	**132.9**	**6.9**	**199.7**	**116.7**	**226.3**	**6.35**	**1.30**	**0.68**	**2.42**
21003	LINGGI	11/2/98	31.4	13.6	-	7.8	2.8	215.0	6.7	214.0	105.0	320.0	11.40	2.12	0.94	3.30
		13/4/98	30.8	9.1	-	8.3	2.8	431.0	7.1	178.0	148.0	579.0	10.90	1.76	0.18	2.50
		6/6/98	28.6	18.7	-	5.8	2.8	120.0	6.3	96.8	45.0	165.0	5.70	1.24	0.58	3.30
		MAX	**31.4**	**18.7**	-	**8.3**	**2.8**	**431.0**	**7.1**	**214.0**	**148.0**	**579.0**	**11.4**	**2.1**	**0.9**	**3.3**
		MIN	**28.6**	**9.1**	-	**5.8**	**2.8**	**120.0**	**6.3**	**96.8**	**45.0**	**165.0**	**5.7**	**1.2**	**0.2**	**2.5**
		PURATA	**30.3**	**13.8**	-	**7.3**	**2.8**	**255.3**	**6.7**	**162.9**	**99.3**	**354.7**	**9.3**	**1.7**	**0.6**	**3.0**
21004	LINGGI	11/2/98	29.6	11.6	-	8.3	2.7	103.0	6.8	184.3	87.0	190.0	2.50	1.34	0.28	3.30
		13/4/98	30.3	6.4	-	7.1	2.8	321.0	7.1	196.0	109.1	430.1	4.70	1.23	0.27	2.50
		6/6/98	28.7	10.9	-	5.9	2.8	81.0	6.3	111.3	52.0	133.0	4.60	1.13	0.65	3.08
		MAX	**30.3**	**11.6**	-	**8.3**	**2.8**	**321.0**	**7.1**	**196.0**	**109.1**	**430.1**	**4.7**	**1.3**	**0.7**	**3.3**
		MIN	**28.7**	**6.4**	-	**5.9**	**2.7**	**81.0**	**6.3**	**111.3**	**52.0**	**133.0**	**2.5**	**1.1**	**0.3**	**2.5**
		PURATA	**29.5**	**9.6**	-	**7.1**	**2.7**	**168.3**	**6.7**	**163.9**	**82.7**	**251.0**	**3.9**	**1.2**	**0.4**	**3.0**
2619607	LINGGI	22/3/97	26.4	8.8	17	5.9	2.0	190.0	7.2	131.0	54.8	244.8	11.87	0.55	-	2.47
21005		10/6/97	26.0	14.8	26	5.5	1.7	330.0	7.0	120.0	57.1	387.1	3.55	0.55	-	0.20
		13/8/97	28.4	6.8	16	5.5	1.2	46.0	7.0	208.0	88.4	134.4	2.30	0.55	-	1.69
		25/10/97	28.3	3.0	5	5.6	1.5	17.0	6.7	160.0	118.0	135.0	3.35	0.01	-	-
		11/2/98	36.1	2.0	-	4.7	2.3	30.0	7.2	179.0	100.0	130.0	2.17	0.01	0.38	0.01
		13/4/98	28.7	4.6	-	6.8	2.8	78.0	6.5	134.0	63.0	141.0	3.30	1.13	0.21	3.30
		6/6/98	29.1	6.5	-	5.9	2.8	51.3	6.9	109.0	83.5	160.3	3.01	0.86	0.16	3.20
		MAX	**36.1**	**14.8**	**26.0**	**6.8**	**2.8**	**330.0**	**7.2**	**208.0**	**118.0**	**387.1**	**11.87**	**1.13**	**0.38**	**3.30**
		MIN	**26.0**	**2.0**	**5.0**	**4.7**	**1.2**	**17.0**	**6.5**	**109.0**	**54.8**	**130.0**	**2.17**	**0.01**	**0.16**	**0.01**
		PURATA	**29.0**	**6.6**	**16.0**	**5.7**	**2.0**	**106.0**	**6.9**	**148.7**	**80.7**	**190.4**	**4.22**	**0.52**	**0.25**	**1.81**

SNO	SUNGAI	TARIKH	SUHU	BOD_5	COD	DO	NH_3-N	SS	PH	COND	TDS	TS	NO_3	PO_4	Cu	Fe
21006	LINGGI	11/2/98	29.0	14.3	-	4.8	2.8	84.0	6.6	133.1	63.0	147.0	4.90	1.08	0.40	2.96
		13/4/98	30.1	9.6	-	5.2	2.8	441.3	6.9	128.4	257.1	698.4	5.40	2.20	0.82	3.30
		6/6/98	31.8	6.4	-	6.4	2.8	188.0	6.2	50.0	62.6	250.6	6.40	1.00	0.47	3.22
		MAX	**31.8**	**14.3**	-	**6.4**	**2.8**	**441.3**	**6.9**	**133.1**	**257.1**	**698.4**	**6.4**	**2.2**	**0.8**	**3.3**
		MIN	**29.0**	**6.4**	-	**4.8**	**2.8**	**84.0**	**6.2**	**50.0**	**62.6**	**147.0**	**4.9**	**1.0**	**0.4**	**3.0**
		PURATA	**30.3**	**10.1**	-	**5.5**	**2.8**	**237.8**	**6.6**	**103.8**	**127.6**	**365.3**	**5.6**	**1.4**	**0.6**	**3.2**
2519604	LINGGI	22/3/97	27.8	7.2	19	5.5	2.0	163.0	6.9	203.0	145.0	308.0	13.26	0.55	-	0.01
21007		10/6/97	27.4	10.9	19	5.3	1.9	196.0	6.8	144.0	87.9	283.9	4.20	0.55	-	2.92
		13/8/97	31.0	4.9	19	5.3	1.2	99.0	6.9	269.0	107.3	206.3	5.13	0.55	-	3.83
		25/10/97	29.6	2.5	6	5.4	1.2	37.0	6.6	211.0	84.0	121.0	4.90	0.01	-	0.01
		11/2/98	35.5	2.0	-	5.9	1.3	41.0	7.0	214.0	130.0	171.0	7.91	0.01	0.35	0.01
		13/4/98	31.2	4.3	-	6.1	2.8	87.0	6.4	202.0	95.0	182.0	5.40	1.38	0.40	2.79
		6/6/98	29.5	5.1	-	6.8	2.6	61.6	6.9	132.0	116.0	177.6	5.80	1.69	0.39	1.86
		MAX	**35.5**	**10.9**	**19.0**	**6.8**	**2.8**	**196.0**	**7.0**	**269.0**	**145.0**	**308.0**	**13.26**	**1.69**	**0.40**	**3.83**
		MIN	**27.4**	**2.0**	**6.0**	**5.3**	**1.2**	**37.0**	**6.4**	**132.0**	**84.0**	**121.0**	**4.20**	**0.01**	**0.35**	**0.01**
		PURATA	**30.3**	**5.3**	**15.8**	**5.7**	**1.9**	**97.8**	**6.8**	**196.4**	**109.3**	**207.1**	**6.66**	**0.68**	**0.38**	**1.63**
2519621	LINGGI	22/3/97	27.6	7.0	23	4.0	1.4	187.0	6.8	144.0	140.0	327.0	12.34	0.55	-	2.72
21008		10/6/97	27.6	14.6	30	2.9	1.7	290.0	6.6	106.0	63.7	353.7	4.90	0.55	-	2.60
		13/8/97	30.4	9.1	13	3.8	0.7	84.0	6.7	240.0	97.4	181.4	4.87	0.55	-	2.86
		25/10/97	29.8	1.8	4	3.0	1.0	224.0	6.2	168.0	84.0	308.0	3.55	0.01	-	-
		11/2/98	31.8	2.0	-	2.6	1.3	1130.0	6.5	184.0	130.0	1260.0	9.43	0.01	0.39	0.01
		13/4/98	28.3	5.1	-	5.9	2.8	117.0	6.1	203.0	96.0	213.0	5.20	1.38	0.53	3.33
		6/6/98	29.1	6.2	-	6.6	2.8	164.3	6.5	109.0	108.0	272.3	6.40	1.65	0.32	2.66
		MAX	**31.8**	**14.6**	**30.0**	**6.6**	**2.8**	**1130.0**	**6.8**	**240.0**	**140.0**	**1260.0**	**12.34**	**1.65**	**0.53**	**3.33**
		MIN	**27.6**	**1.8**	**4.0**	**2.6**	**0.7**	**84.0**	**6.1**	**106.0**	**63.7**	**181.4**	**3.55**	**0.01**	**0.32**	**0.01**
		PURATA	**29.2**	**6.5**	**17.5**	**4.1**	**1.7**	**313.8**	**6.5**	**164.9**	**102.7**	**416.5**	**6.67**	**0.67**	**0.41**	**2.36**
2420602	LINGGI	22/3/97	27.8	7.5	21	3.0	2.0	253.0	6.7	124.0	125.0	378.0	10.32	0.55	-	2.13
21009		10/6/97	27.4	6.4	17	2.8	1.1	282.0	6.4	101.0	54.0	336.0	5.19	0.55	-	2.58
		13/8/97	31.0	6.2	14	3.2	1.4	47.0	6.7	221.0	90.1	137.1	6.26	0.55	-	1.84
		25/10/97	29.7	1.4	7	2.2	0.7	330.0	6.1	152.0	51.0	381.0	3.40	0.01	-	-
		11/2/98	32.5	2.0	-	2.7	0.9	494.0	6.5	171.0	240.0	734.0	27.50	0.01	0.41	0.01
		13/4/98	29.7	4.5	-	6.0	2.8	297.0	6.0	123.8	57.0	354.0	11.60	0.69	1.08	3.30
		6/6/98	29.5	5.1	-	6.4	2.7	164.0	6.9	152.0	63.0	227.0	8.60	1.60	1.52	3.30
		MAX	**32.5**	**7.5**	**21.0**	**6.4**	**2.8**	**494.0**	**6.9**	**221.0**	**240.0**	**734.0**	**27.50**	**1.60**	**1.52**	**3.30**
		MIN	**27.4**	**1.4**	**7.0**	**2.2**	**0.7**	**47.0**	**6.0**	**101.0**	**51.0**	**137.1**	**3.40**	**0.01**	**0.41**	**0.01**
		PURATA	**29.7**	**4.7**	**14.8**	**3.8**	**1.6**	**266.7**	**6.5**	**149.3**	**97.2**	**363.9**	**10.41**	**0.57**	**1.00**	**2.19**
2319601	LINGGI	22/3/97	28.8	19.2	45	5.0	1.9	15.0	6.9	12580.0	7417.0	7432.0	2.68	1.60	-	0.06
21010		10/6/97	29.2	20.2	70	4.4	1.0	34.0	7.1	23510.0	14522.0	14556.0	3.88	1.60	-	-
		13/8/97	33.6	32.5	65	7.1	0.3	57.0	7.4	14110.0	15659.1	15716.1	4.49	1.60	-	-
		25/10/97	30.9	2.5	6	5.2	1.2	37.0	6.7	9010.0	84.0	121.0	4.89	0.01	-	-
		11/2/98	33.3	2.0	-	5.3	0.9	14.0	6.9	25540.0	27200.0	27214.0	1.64	0.01	0.41	-
		13/4/98	29.9	4.6	-	4.3	2.1	21.3	7.1	11830.0	3310.0	3317.0	1.40	0.07	0.35	0.05
		6/6/98	28.7	4.5	-	6.1	1.2	28.1	6.8	25131.0	2534.0	2552.1	2.40	0.50	1.01	0.03
		MAX	**33.6**	**32.5**	**70.0**	**7.1**	**2.1**	**57.0**	**7.4**	**25540.0**	**27200.0**	**27214.0**	**4.89**	**1.60**	**1.01**	**0.06**
		MIN	**28.7**	**2.0**	**6.0**	**4.3**	**0.3**	**14.0**	**6.7**	**9010.0**	**84.0**	**121.0**	**1.40**	**0.01**	**0.35**	**0.03**
		PURATA	**30.6**	**12.2**	**46.5**	**5.3**	**1.2**	**29.5**	**7.0**	**17387.3**	**10103.7**	**10129.7**	**3.05**	**0.77**	**0.59**	**0.05**

Jadual 9 : **DATA KUALITI AIR SG. LINGGI 1985 (4 SUB-LEMBANGAN)**

LEMBANGAN	SUNGAI	TARIKH	SUHU	BOD_5	COD	DO	NH_3-N	SS	PH	COND	TDS	TS	NO_3	PO_4	Cu	Fe
L1	BATANG PENAR	23/1/85	23.0	1.3	3.8	8.9	-	13.0	7.2	30.0	51.0	64.0	-	0.17	-	0.2
	BATANG PENAR	20/5/85	27.0	1.3	6.2	8.5	0.2	7.0	6.8	30.0	52.0	59.0	-	8.13	-	0.2
	BATANG PENAR	45/5/85	19.0	0.9	4.1	9.0	-	12.0	5.7	35.0	28.0	40.0	-	0.08	-	0.6
	BATANG PENAR	45/7/85	-	0.7	3.0	-	-	9.0	-	-	48.0	57.0	-	0.01	-	-
	BATANG PENAR	9/9/85	25.0	0.8	7.2	7.5	0.1	4.0	6.9	30.0	37.0	41.0	-	0.20	-	-
	BATANG PENAR	18/11/85	25.0	1.2	8.5	8.0	0.1	13.0	7.1	30.0	29.0	42.0	-	0.05	-	-
	MAX		**27.0**	**1.3**	**8.5**	**9.0**	**0.2**	**13.0**	**7.2**	**35.0**	**52.0**	**64.0**	-	**8.13**	-	**0.6**
	MIN		**19.0**	**0.7**	**3.0**	**7.5**	**0.1**	**4.0**	**5.7**	**30.0**	**28.0**	**40.0**	-	**0.01**	-	**0.2**
	PURATA		**23.8**	**1.0**	**5.5**	**8.4**	**0.1**	**9.7**	**6.7**	**31.0**	**40.8**	**50.5**	-	**1.44**	-	**0.3**
	MEDIAN		**25.0**	**1.1**	**5.2**	**8.5**	**0.1**	**10.5**	**6.9**	**30.0**	**42.5**	**49.5**	-	**0.1**	-	**0.2**
L2	BATANG PENAR	23/1/85	25.0	1.8	10.0	6.3	0.3	71.0	6.1	55.0	53.0	124.0	-	0.13	-	2.2
	BATANG PENAR	20/5/85	25.0	3.6	18.9	6.6	0.5	130.0	6.6	70.0	63.0	193.0	-	0.25	-	3.7
	BATANG PENAR	45/5/85	21.0	1.8	14.0	6.3	0.3	189.0	5.7	50.0	58.0	247.0	-	0.20	-	-
	BATANG PENAR	45/7/85	-	4.7	151.0	-	1.0	227.0	-	-	65.0	292.0	-	0.28	-	-
	BATANG PENAR	9/9/85	27.0	3.0	35.0	4.5	2.3	489.0	6.7	90.0	93.0	582.0	-	0.59	-	-
	BATANG PENAR	18/11/85	26.0	1.4	15.0	6.0	0.4	139.0	6.8	60.0	68.0	207.0	-	0.03	-	-
	MAX		**27.0**	**4.7**	**151.0**	**6.6**	**2.3**	**489.0**	**6.8**	**90.0**	**93.0**	**582.0**	-	**0.59**	-	**3.7**
	MIN		**21.0**	**1.4**	**10.0**	**4.5**	**0.3**	**71.0**	**5.7**	**50.0**	**53.0**	**124.0**	-	**0.03**	-	**2.2**
	PURATA		**24.8**	**2.7**	**40.7**	**5.9**	**0.8**	**207.5**	**6.4**	**65.0**	**66.7**	**274.2**	-	**0.25**	-	**3.0**
	MEDIAN		**25.0**	**2.4**	**17.0**	**6.3**	**0.5**	**164.0**	**6.6**	**60.0**	**64.0**	**227.0**	-	**0.2**	-	**3.0**
L3	LINGGI	23/1/85	28.0	4.4	30.0	5.8	1.2	104.0	7.1	80.0	69.0	173.0	-	0.41	-	3.5
		20/5/85	23.0	3.4	21.4	5.4	0.8	135.0	6.2	80.0	60.0	195.0	-	0.18	-	3.2
		45/5/85	21.0	3.2	24.0	5.5	1.0	228.0	6.5	75.0	66.0	294.0	-	0.41	-	4.7
		45/7/85	-	5.0	37.0	-	3.6	334.0	-	-	85.0	419.0	-	0.52	-	4.8
		9/9/85	28.0	3.3	56.0	0.3	4.9	506.0	6.6	150.0	106.0	612.0	-	0.19	-	9.5
		18/11/85	29.0	2.7	19.0	4.5	0.7	161.0	6.8	80.0	63.0	224.0	-	0.15	-	5.0
		23/1/85	25.0	2.1	15.0	5.9	0.7	49.0	2.7	100.0	65.0	114.0	-	0.29	-	-
		20/5/85	24.0	1.7	15.7	6.9	0.4	125.0	6.1	80.0	80.0	205.0	-	0.13	-	-
		45/5/85	21.0	3.1	34.0	6.0	0.4	1400.0	5.6	60.0	76.0	1480.0	-	0.57	-	-
		45/7/85	-	4.7	30.0	-	1.0	628.0	-	-	73.0	701.0	-	0.09	-	-
		9/9/85	27.0	6.0	30.0	4.8	3.5	123.0	5.8	140.0	95.0	218.0	-	0.48	-	-
		18/11/85	-	3.5	74.0	4.0	0.5	975.0	6.9	80.0	96.0	1071.0	-	0.15	-	-
		23/1/85	26.0	1.9	16.0	5.0	1.1	106.0	6.6	90.0	44.0	150.0	-	0.27	-	2.8
		20/5/85	26.0	2.0	19.6	3.8	0.4	142.0	5.9	90.0	79.0	221.0	-	0.14	-	6.7
		45/5/85	22.0	3.0	23.0	5.0	0.9	317.0	6.3	90.0	48.0	365.0	-	0.30	7.0	7.5

LEMBANGAN	SUNGAI	TARIKH	SUHU	BOD_5	COD	DO	NH_3-N	SS	PH	COND	TDS	TS	NO_3	PO_4	Cu	Fe
L3	LINGGI	45/7/85	-	5.0	39.0	-	1.4	457.0	-	-	107.0	564.0	-	0.24	-	1.9
		9/9/85	28.0	5.0	27.0	2.4	4.0	133.0	5.2	150.0	125.0	258.0	-	0.10	-	5.6
		18/11/85	27.0	2.2	18.0	3.1	0.5	151.0	6.8	70.0	44.0	195.0	-	0.09	-	4.4
	MAX		**29.0**	**6.0**	**74.0**	**6.9**	**4.9**	**1400.0**	**7.1**	**150.0**	**125.0**	**1480.0**	-	**0.57**	**7.0**	**9.5**
	MIN		**21.0**	**1.7**	**15.0**	**0.3**	**0.4**	**49.0**	**2.7**	**60.0**	**44.0**	**114.0**	-	**0.09**	**7.0**	**1.9**
	PURATA		**25.4**	**3.5**	**29.4**	**4.6**	**1.5**	**337.4**	**6.1**	**94.3**	**76.7**	**414.4**	-	**0.26**	**7.0**	**5.0**
	MEDIAN		**26.0**	**3.3**	**25.5**	**5.0**	**0.9**	**156.0**	**6.3**	**80.0**	**74.5**	**241.0**		**0.2**	**7.0**	**4.8**
L4		23/1/85	28.0	0.1	16.0	5.2	0.4	75.0	2.4	80.0	722.0	-	-	0.37	-	3.3
		20/5/85	25.0	1.0	17.8	4.8	0.2	126.0	6.1	70.0	82.0	208.0	-	0.13	-	5.5
		45/5/85	22.0	2.2	20.0	5.0	0.4	206.0	5.5	70.0	104.0	310.0	-	0.36	-	-
		45/7/85	-	4.8	6.3	-	1.9	4660.0	-	-	81.0	4741.0	-	0.11	-	1.2
		9/9/85	29.0	6.0	19.0	3.9	2.4	92.0	6.5	140.0	161.0	253.0	-	0.44	-	4.8
		18/11/85	27.0	1.8	17.0	2.9	0.2	106.0	6.7	70.0	151.0	257.0	-	0.08	-	4.3
		23/1/85	27.0	1.2	13.0	6.1	0.1	25.0	6.5	40.0	58.0	83.0	-	0.21	-	-
		20/5/85	25.0	1.1	11.4	6.6	0.1	40.0	6.2	40.0	54.0	94.0	-	0.07	-	-
		45/5/85	22.0	1.0	14.0	6.5	0.2	68.0	5.2	70.0	66.0	134.0	-	0.20	-	-
		45/7/85	-	3.6	20.0	-	0.5	128.0	-	-	35.0	163.0	-	0.12	-	-
		9/9/85	28.0	2.7	17.0	5.5	0.2	46.0	5.6	50.0	59.0	105.0	-	0.30	-	-
		18/11/85	27.0	1.2	15.0	4.1	0.1	66.0	6.8	30.0	44.0	110.0	-	0.04	-	-
	MAX		**29.0**	**6.0**	**20.0**	**6.6**	**2.4**	**4660.0**	**6.8**	**140.0**	**722.0**	**4741.0**	-	**0.44**	-	**5.5**
	MIN		**22.0**	**0.1**	**6.3**	**2.9**	**0.1**	**25.0**	**2.4**	**30.0**	**35.0**	**83.0**	-	**0.04**	-	**1.2**
	PURATA		**26.0**	**2.2**	**15.5**	**5.1**	**0.6**	**469.8**	**5.7**	**66.0**	**134.8**	**587.1**	-	**0.20**	-	**3.8**
	MEDIAN		**27.0**	**1.5**	**16.5**	**5.1**	**0.2**	**83.5**	**6.2**	**70.0**	**73.5**	**163.0**		**0.2**		**4.3**

Jadual 10 : **DATA KUALITI AIR SG. LINGGI 1990 (4 SUB-LEMBANGAN)**

LEMBANGAN	SUNGAI	TARIKH	MASA	SUHU	BOD_5	COD	DO	NH_3-N	SS	PH	COND	TDS	TS	NO_3	PO_4	Cu	Fe
L1	BTG. PENAR	17/1/90	915	26.0	8.9	15.5	4.5	2.2	92.0	6.9	80.0	86.0	178.0	-	-	-	-
		15/2/90	930	28.0	2.6	20.2	6.3	3.1	25.0	6.9	90.0	63.0	88.0	-	-	-	-
		13/3/90	900	30.0	3.9	61.2	4.5	2.9	51.0	-	130.0	50.0	101.0	-	-	-	-
		19/4/90	900	28.0	3.6	28.2	4.0	3.2	52.0	6.5	110.0	77.0	129.0	-	-	-	-
		23/5/90	935	28.0	6.7	22.1	2.3	4.9	130.0	6.8	190.0	103.0	233.0	-	-	-	-
		19/6/90	900	28.0	2.2	17.2	3.7	1.9	60.0	6.9	-	131.0	191.0	-	-	-	-
		17/7/90	900	28.0	2.5	15.6	4.2	4.7	68.0	6.0	140.0	74.0	142.0	-	-	-	-
		16/8/90	900	28.0	5.4	30.5	3.2	3.6	39.0	6.5	120.0	129.0	168.0	-	-	-	-
		23/10/90	900	25.0	2.7	18.8	5.6	1.0	87.0	6.8	70.0	65.0	152.0	-	-	-	-
		13/12/90	900	26.0	2.7	26.0	4.5	2.9	62.0	6.8	70.0	106.0	168.0	-	-	-	-
		MAX		**30.0**	**8.9**	**61.2**	**6.3**	**4.9**	**130.0**	**6.9**	**190.0**	**131.0**	**233.0**	-	-	-	-
		MIN		**25.0**	**2.2**	**15.5**	**2.3**	**1.0**	**25.0**	**6.0**	**70.0**	**50.0**	**88.0**	-	-	-	-
		PURATA		**27.5**	**4.1**	**25.5**	**4.3**	**3.0**	**66.6**	**6.0**	**100.0**	**88.4**	**155.0**	-	-	-	-
		MEDIAN		**28.0**	**3.2**	**21.2**	**4.4**	**3.0**	**61.0**	**6.8**	**110.0**	**81.5**	**160.0**	-	-	-	-
L2	BTG. PENAR	17/1/90	1020	27.0	3.7	39.9	4.5	1.1	71.0	6.9	70.0	42.0	113.0	-	-	-	-
		15/2/90	1030	29.0	3.3	28.9	1.2	2.2	66.0	6.5	100.0	65.0	131.0	-	-	-	-
		13/3/90	1000	29.0	6.8	1.8	4.5	4.0	212.0	6.9	120.0	102.0	314.0	-	-	-	-
		19/4/90	1000	28.0	0.6	39.3	4.0	2.1	62.0	6.4	110.0	71.0	133.0	-	-	-	-
		23/5/90	1035	28.0	2.5	48.5	4.2	2.2	113.0	6.9	110.0	50.0	163.0	-	-	-	-
		19/6/90	1000	27.0	2.9	22.0	4.3	1.6	55.0	6.7	-	72.0	127.0	-	-	-	-
		17/7/90	1000	27.0	4.0	31.2	4.1	2.3	56.0	6.0	120.0	63.0	119.0	-	-	-	-
		16/8/90	1010	27.0	4.8	39.8	1.7	4.2	84.0	6.9	210.0	98.0	182.0	-	-	-	-
		23/10/90	1000	26.0	3.5	24.6	4.6	0.8	112.0	6.5	80.0	78.0	190.0	-	-	-	-
		13/12/90	1000	26.0	3.0	27.9	4.1	1.8	70.0	6.7	110.0	73.0	143.0	-	-	-	-
		MAX		**29.0**	**6.8**	**48.5**	**4.6**	**4.2**	**212.0**	**6.9**	**210.0**	**102.0**	**314.0**	-	-	-	-
		MIN		**26.0**	**0.6**	**1.8**	**1.2**	**0.8**	**55.0**	**6.0**	**70.0**	**42.0**	**113.0**	-	-	-	-
		PURATA		**27.4**	**3.5**	**30.4**	**3.7**	**2.2**	**90.1**	**6.6**	**114.4**	**71.4**	**161.5**	-	-	-	-
		MEDIAN		**27.0**	**3.4**	**30.1**	**4.2**	**2.1**	**70.5**	**6.7**	**110.0**	**71.5**	**138.0**	-	-	-	-
L3	LINGGI	17/1/90	1200	27.0	4.2	22.1	4.8	1.5	97.0	5.9	100.0	59.0	156.0	-	-	-	-
		15/2/90	1140	29.0	4.1	28.5	4.5	6.6	60.0	6.9	180.0	83.0	143.0	-	-	-	-
		13/3/90	1100	28.0	2.2	27.0	4.0	3.9	84.0	6.5	160.0	110.0	194.0	-	-	-	-
		19/4/90	1140	28.0	2.9	19.5	5.0	2.6	105.0	6.6	180.0	137.0	242.0	-	-	-	-
		23/5/90	1200	27.0	2.1	23.2	3.2	4.4	64.0	6.6	-	60.0	124.0	-	-	-	-
		19/6/90	1100	27.0	3.5	22.4	3.1	3.9	160.0	6.0	180.0	90.0	250.0	-	-	-	-
		16/8/90	1145	28.0	2.2	35.1	3.6	8.1	85.0	6.0	210.0	157.0	242.0	-	-	-	-
		23/10/90	1230	26.0	4.0	21.1	4.6	1.4	109.0	6.9	100.0	83.0	192.0	-	-	-	-
		13/12/90	1145	26.0	3.4	31.3	4.2	2.1	134.0	6.7	110.0	92.0	226.0	-	-	-	-
		17/1/90	1030	27.0	4.5	19.4	5.8	1.1	109.0	6.2	100.0	109.0	218.0	-	-	-	-
		15/2/90	1100	27.0	8.3	32.7	5.1	2.2	56.0	6.9	140.0	77.0	133.0	-	-	-	-
		13/3/90	1100	29.0	7.3	27.7	4.0	3.0	93.0	6.1	250.0	123.0	216.0	-	-	-	-
		19/4/90	1045	28.0	2.8	29.0	5.8	1.9	91.0	6.7	180.0	115.0	206.0	-	-	-	-
		23/5/90	1100	29.0	3.2	20.6	5.0	1.3	115.0	6.9	120.0	87.0	202.0	-	-	-	-
		19/6/90	1100	29.0	2.4	31.2	2.8	2.1	62.0	6.9	-	98.0	160.0	-	-	-	-

Jadual 10 : **DATA KUALITI AIR SG. LINGGI 1990 (4 SUB-LEMBANGAN)**

LEMBANGAN	SUNGAI	TARIKH	MASA	SUHU	BOD_5	COD	DO	NH_3-N	SS	PH	COND	TDS	TS	NO_3	PO_4	Cu	Fe
L1	BTG. PENAR	17/1/90	915	26.0	8.9	15.5	4.5	2.2	92.0	6.9	80.0	86.0	178.0	-	-	-	-
		15/2/90	930	28.0	2.6	20.2	6.3	3.1	25.0	6.9	90.0	63.0	88.0	-	-	-	-
		13/3/90	900	30.0	3.9	61.2	4.5	2.9	51.0	-	130.0	50.0	101.0	-	-	-	-
		19/4/90	900	28.0	3.6	28.2	4.0	3.2	52.0	6.5	110.0	77.0	129.0	-	-	-	-
		23/5/90	935	28.0	6.7	22.1	2.3	4.9	130.0	6.8	190.0	103.0	233.0	-	-	-	-
		19/6/90	900	28.0	2.2	17.2	3.7	1.9	60.0	6.9	-	131.0	191.0	-	-	-	-
		17/7/90	900	28.0	2.5	15.6	4.2	4.7	68.0	6.0	140.0	74.0	142.0	-	-	-	-
		16/8/90	900	28.0	5.4	30.5	3.2	3.6	39.0	6.5	120.0	129.0	168.0	-	-	-	-
		23/10/90	900	25.0	2.7	18.8	5.6	1.0	87.0	6.8	70.0	65.0	152.0	-	-	-	-
		13/12/90	900	26.0	2.7	26.0	4.5	2.9	62.0	6.8	70.0	106.0	168.0	-	-	-	-
		MAX		**30.0**	**8.9**	**61.2**	**6.3**	**4.9**	**130.0**	**6.9**	**190.0**	**131.0**	**233.0**	-	-	-	-
		MIN		**25.0**	**2.2**	**15.5**	**2.3**	**1.0**	**25.0**	**6.0**	**70.0**	**50.0**	**88.0**	-	-	-	-
		PURATA		**27.5**	**4.1**	**25.5**	**4.3**	**3.0**	**66.6**	**6.0**	**100.0**	**88.4**	**155.0**	-	-	-	-
		MEDIAN		**28.0**	**3.2**	**21.2**	**4.4**	**3.0**	**61.0**	**6.8**	**110.0**	**81.5**	**160.0**	-	-	-	-
L2	BTG. PENAR	17/1/90	1020	27.0	3.7	39.9	4.5	1.1	71.0	6.9	70.0	42.0	113.0	-	-	-	-
		15/2/90	1030	29.0	3.3	28.9	1.2	2.2	66.0	6.5	100.0	65.0	131.0	-	-	-	-
		13/3/90	1000	29.0	6.8	1.8	4.5	4.0	212.0	6.9	120.0	102.0	314.0	-	-	-	-
		19/4/90	1000	28.0	0.6	39.3	4.0	2.1	62.0	6.4	110.0	71.0	133.0	-	-	-	-
		23/5/90	1035	28.0	2.5	48.5	4.2	2.2	113.0	6.9	110.0	50.0	163.0	-	-	-	-
		19/6/90	1000	27.0	2.9	22.0	4.3	1.6	55.0	6.7	-	72.0	127.0	-	-	-	-
		17/7/90	1000	27.0	4.0	31.2	4.1	2.3	56.0	6.0	120.0	63.0	119.0	-	-	-	-
		16/8/90	1010	27.0	4.8	39.8	1.7	4.2	84.0	6.9	210.0	98.0	182.0	-	-	-	-
		23/10/90	1000	26.0	3.5	24.6	4.6	0.8	112.0	6.5	80.0	78.0	190.0	-	-	-	-
		13/12/90	1000	26.0	3.0	27.9	4.1	1.8	70.0	6.7	110.0	73.0	143.0	-	-	-	-
		MAX		**29.0**	**6.8**	**48.5**	**4.6**	**4.2**	**212.0**	**6.9**	**210.0**	**102.0**	**314.0**	-	-	-	-
		MIN		**26.0**	**0.6**	**1.8**	**1.2**	**0.8**	**55.0**	**6.0**	**70.0**	**42.0**	**113.0**	-	-	-	-
		PURATA		**27.4**	**3.5**	**30.4**	**3.7**	**2.2**	**90.1**	**6.6**	**114.4**	**71.4**	**161.5**	-	-	-	-
		MEDIAN		**27.0**	**3.4**	**30.1**	**4.2**	**2.1**	**70.5**	**6.7**	**110.0**	**71.5**	**138.0**	-	-	-	-
L3	LINGGI	17/1/90	1200	27.0	4.2	22.1	4.8	1.5	97.0	5.9	100.0	59.0	156.0	-	-	-	-
		15/2/90	1140	29.0	4.1	28.5	4.5	6.6	60.0	6.9	180.0	83.0	143.0	-	-	-	-
		13/3/90	1100	28.0	2.2	27.0	4.0	3.9	84.0	6.5	160.0	110.0	194.0	-	-	-	-
		19/4/90	1140	28.0	2.9	19.5	5.0	2.6	105.0	6.6	180.0	137.0	242.0	-	-	-	-
		23/5/90	1200	27.0	2.1	23.2	3.2	4.4	64.0	6.6	-	60.0	124.0	-	-	-	-
		19/6/90	1100	27.0	3.5	22.4	3.1	3.9	160.0	6.0	180.0	90.0	250.0	-	-	-	-
		16/8/90	1145	28.0	2.2	35.1	3.6	8.1	85.0	6.0	210.0	157.0	242.0	-	-	-	-
		23/10/90	1230	26.0	4.0	21.1	4.6	1.4	109.0	6.9	100.0	83.0	192.0	-	-	-	-
		13/12/90	1145	26.0	3.4	31.3	4.2	2.1	134.0	6.7	110.0	92.0	226.0	-	-	-	-
		17/1/90	1030	27.0	4.5	19.4	5.8	1.1	109.0	6.2	100.0	109.0	218.0	-	-	-	-
		15/2/90	1100	27.0	8.3	32.7	5.1	2.2	56.0	6.9	140.0	77.0	133.0	-	-	-	-
		13/3/90	1100	29.0	7.3	27.7	4.0	3.0	93.0	6.1	250.0	123.0	216.0	-	-	-	-
		19/4/90	1045	28.0	2.8	29.0	5.8	1.9	91.0	6.7	180.0	115.0	206.0	-	-	-	-
		23/5/90	1100	29.0	3.2	20.6	5.0	1.3	115.0	6.9	120.0	87.0	202.0	-	-	-	-
		19/6/90	1100	29.0	2.4	31.2	2.8	2.1	62.0	6.9	-	98.0	160.0	-	-	-	-

Jadual 12 : **DATA KUALITI AIR SG. LINGGI 97/98 (4 SUB-LEMBANGAN)**

LEMBANGAN	SUNGAI	TARIKH	SUHU	BOD_5	COD	DO	NH_3-N	SS	PH	COND	TDS	TS	NO_3	PO_4	Cu	Fe
L1	BATANG PENAR	22/3/97	28.7	11.3	31	4.9	0.8	225.0	6.8	128.0	39.0	264.0	14.35	0.55	-	1.63
		10/6/97	27.8	16.4	25	5.5	1.9	250.0	6.8	108.0	62.7	312.7	1.61	0.55	-	2.41
		13/8/97	27.8	17.6	30	4.2	0.3	19.0	6.6	158.0	63.1	82.1	2.24	0.55	-	2.24
		25/10/97	27.3	1.0	3	5.5	1.1	25.0	6.3	152.0	41.0	66.0	3.42	0.01	-	-
		11/2/98	35.6	2.9	-	2.8	2.3	26.0	6.7	167.0	90.0	116.0	6.61	0.01	0.53	-
		13/4/98	29.9	2.9	-	6.8	2.6	14.5	6.3	35.7	17.0	31.5	2.50	0.14	0.17	3.00
		6/6/98	28.4	6.7	-	4.9	2.8	61.0	6.4	96.0	45.0	106.0	2.70	1.40	0.60	3.00
		MAX	**35.6**	**17.6**	**31.0**	**6.8**	**2.8**	**250.0**	**6.8**	**167.0**	**90.0**	**312.7**	**14.4**	**1.4**	**0.6**	**3.0**
		MIN	**27.3**	**1.0**	**3.0**	**2.8**	**0.3**	**14.5**	**6.3**	**35.7**	**17.0**	**31.5**	**1.6**	**0.0**	**0.2**	**1.6**
		PURATA	**29.3**	**8.4**	**22.3**	**4.9**	**1.7**	**88.6**	**6.6**	**120.7**	**51.1**	**139.8**	**4.8**	**0.5**	**0.4**	**2.5**
		MEDIAN	**28.4**	**6.7**	**27.5**	**4.9**	**1.9**	**26.0**	**6.6**	**128.0**	**45.0**	**106.0**	**2.7**	**0.6**	**0.5**	**2.4**
L2	BATANG PENAR	22/3/97	29.0	12.1	34	7.7	2.5	126.0	7.3	242.0	91.2	217.2	20.56	0.55	-	2.96
		10/6/97	28.8	28.8	57	0.3	11.2	280.0	6.9	220.0	126.6	406.6	0.14	0.55	-	3.04
		13/8/97	27.4	8.5	18	4.4	1.9	25.0	6.8	174.0	66.1	91.1	3.10	0.55	-	-
		25/10/97	27.1	3.5	40	4.6	7.9	87.0	6.6	266.0	118.0	205.0	3.95	2.56	-	0.01
		11/2/98	34.6	2.0	-	6.1	17.2	42.0	7.0	375.0	150.0	192.0	0.02	2.11	0.40	-
		13/4/98	33.5	5.6	-	5.6	2.8	250.0	7.4	129.0	136.0	223.0	7.70	2.75	0.62	3.30
		6/6/98	30.0	15.3	-	4.8	2.8	136.0	6.3	200.0	189.0	325.0	2.40	2.10	0.89	2.80
		11/2/98	31.4	13.6	-	7.8	2.8	215.0	6.7	214.0	105.0	320.0	11.40	2.12	0.94	3.30
		13/4/98	30.8	9.1	-	8.3	2.8	431.0	7.1	178.0	148.0	579.0	10.90	1.76	0.18	2.50
		6/6/98	28.6	18.7	-	5.8	2.8	120.0	6.3	96.8	45.0	165.0	5.70	1.24	0.58	3.30
		MAX	**34.6**	**28.8**	**57.0**	**8.3**	**17.2**	**431.0**	**7.4**	**375.0**	**189.0**	**579.0**	**20.6**	**2.8**	**0.9**	**3.3**
		MIN	**27.1**	**2.0**	**18.0**	**0.3**	**1.9**	**25.0**	**6.3**	**96.8**	**45.0**	**91.1**	**0.0**	**0.6**	**0.2**	**0.0**
		PURATA	**30.1**	**11.7**	**37.3**	**5.5**	**5.5**	**171.2**	**6.8**	**209.5**	**117.5**	**272.4**	**6.6**	**1.6**	**0.6**	**2.7**
		MEDIAN	**29.5**	**10.6**	**37.0**	**5.7**	**2.8**	**131.0**	**6.8**	**207.0**	**122.3**	**220.1**	**4.8**	**1.9**	**0.6**	**3.0**
L3	LINGGI	11/2/98	29.6	11.6	-	8.3	2.7	103.0	6.8	184.3	87.0	190.0	2.50	1.34	0.28	3.30
		13/4/98	30.3	6.4	-	7.1	2.8	321.0	7.1	196.0	109.1	430.1	4.70	1.23	0.27	2.50
		6/6/98	28.7	10.9	-	5.9	2.8	81.0	6.3	111.3	52.0	133.0	4.60	1.13	0.65	3.08
		22/3/97	26.4	8.8	17	5.9	2.0	190.0	7.2	131.0	54.8	244.8	11.87	0.55	-	2.47
		10/6/97	26.0	14.8	26	5.5	1.7	330.0	7.0	120.0	57.1	387.1	3.55	0.55	-	0.20
		13/8/97	28.4	6.8	16	5.5	1.2	46.0	7.0	208.0	88.4	134.4	2.30	0.55	-	1.69
		25/10/97	28.3	3.0	5	5.6	1.5	17.0	6.7	160.0	118.0	135.0	3.35	0.01	-	-
		11/2/98	36.1	2.0	-	4.7	2.3	30.0	7.2	179.0	100.0	130.0	2.17	0.01	0.38	0.01
		13/4/98	28.7	4.6	-	6.8	2.8	78.0	6.5	134.0	63.0	141.0	3.30	1.13	0.21	3.30
		6/6/98	29.1	6.5	-	5.9	2.8	51.3	6.9	109.0	83.5	160.3	3.01	0.86	0.16	3.20
		11/2/98	29.0	14.3	-	4.8	2.8	84.0	6.6	133.1	63.0	147.0	4.90	1.08	0.40	2.96
		13/4/98	30.1	9.6	-	5.2	2.8	441.3	6.9	128.4	257.1	698.4	5.40	2.20	0.82	3.30

LEMBANGAN	SUNGAI	TARIKH	SUHU	BOD_5	COD	DO	NH_3-N	SS	PH	COND	TDS	TS	NO_3	PO_4	Cu	Fe
L3		22/3/97	27.8	7.2	19	5.5	2.0	163.0	6.9	203.0	145.0	308.0	13.26	0.55	-	0.01
		10/6/97	27.4	10.9	19	5.3	1.9	196.0	6.8	144.0	87.9	283.9	4.20	0.55	-	2.92
		13/8/97	31.0	4.9	19	5.3	1.2	99.0	6.9	269.0	107.3	206.3	5.13	0.55	-	3.83
		25/10/97	29.6	2.5	6	5.4	1.2	37.0	6.6	211.0	84.0	121.0	4.90	0.01	-	0.01
		11/2/98	35.5	2.0	-	5.9	1.3	41.0	7.0	214.0	130.0	171.0	7.91	0.01	0.35	0.01
		13/4/98	31.2	4.3	-	6.1	2.8	87.0	6.4	202.0	95.0	182.0	5.40	1.38	0.40	2.79
		6/6/98	29.5	5.1	-	6.8	2.6	61.6	6.9	132.0	116.0	177.6	5.80	1.69	0.39	1.86
		22/3/97	27.6	7.0	23	4.0	1.4	187.0	6.8	144.0	140.0	327.0	12.34	0.55	-	2.72
		10/6/97	27.6	14.6	30	2.9	1.7	290.0	6.6	106.0	63.7	353.7	4.90	0.55	-	2.60
		13/8/97	30.4	9.1	13	3.8	0.7	84.0	6.7	240.0	97.4	181.4	4.87	0.55	-	2.86
		25/10/97	29.8	1.8	4	3.0	1.0	224.0	6.2	168.0	84.0	308.0	3.55	0.01	-	-
		11/2/98	31.8	2.0	-	2.6	1.3	1130.0	6.5	184.0	130.0	1260.0	9.43	0.01	0.39	0.01
		13/4/98	28.3	5.1	-	5.9	2.8	117.0	6.1	203.0	96.0	213.0	5.20	1.38	0.53	3.33
		6/6/98	29.1	6.2	-	6.6	2.8	164.3	6.5	109.0	108.0	272.3	6.40	1.65	0.32	2.66
		MAX	**36.1**	**14.8**	**30.0**	**8.3**	**2.8**	**1130.0**	**7.2**	**269.0**	**257.1**	**1260.0**	**13.3**	**2.20**	**0.8**	**3.83**
		MIN	**26.0**	**1.8**	**4.0**	**2.6**	**0.7**	**17.0**	**6.1**	**106.0**	**52.0**	**121.0**	**2.2**	**0.01**	**0.2**	**0.01**
		PURATA	**29.5**	**7.0**	**16.4**	**5.4**	**2.0**	**179.0**	**6.7**	**166.3**	**100.7**	**280.6**	**5.6**	**0.77**	**0.4**	**2.15**
		MEDIAN	**29.1**	**6.5**	**18.0**	**5.5**	**2.0**	**101.0**	**6.8**	**164.0**	**95.5**	**198.2**	**4.9**	**0.6**	**0.4**	**2.7**
L4	LINGGI	22/3/97	27.8	7.5	7.5	3.0	2.0	253.0	6.7	124.0	125.0	378.0	10.32	0.55	-	2.13
		10/6/97	27.4	6.4	6.4	2.8	1.1	282.0	6.4	101.0	54.0	336.0	5.19	0.55	-	2.58
		13/8/97	31.0	6.2	6.2	3.2	1.4	47.0	6.7	221.0	90.1	137.1	6.26	0.55	-	1.84
		25/10/97	29.7	1.4	1.4	2.2	0.7	330.0	6.1	152.0	51.0	381.0	3.40	0.01	-	-
		11/2/98	32.5	2.0	2.0	2.7	0.9	494.0	6.5	171.0	240.0	734.0	27.50	0.01	0.40	0.01
		13/4/98	29.7	4.5	4.5	6.0	2.8	297.0	6.0	123.8	57.0	354.0	11.60	0.69	1.08	3.30
		6/6/98	29.5	5.1	5.1	6.4	2.7	164.0	6.9	152.0	63.0	227.0	8.60	1.60	1.52	3.30
		22/3/97	28.8	19.2	19.2	5.0	1.9	15.0	6.9	12580.0	7417.0	7432.0	2.68	1.60	-	0.06
		10/6/97	29.2	20.2	20.2	4.4	1.0	34.0	7.1	23510.0	14522.0	14556.0	3.88	1.60	-	-
		13/8/97	33.6	32.5	32.5	7.1	0.3	57.0	7.4	14110.0	15659.1	15716.1	4.49	1.60	-	-
		25/10/97	30.9	2.5	2.5	5.2	1.2	37.0	6.7	9010.0	84.0	121.0	4.89	0.01	-	-
		11/2/98	33.3	2.0	2.0	5.3	0.9	14.0	6.9	25540.0	27200.0	27214.0	1.64	0.01	0.41	-
		13/4/98	29.9	4.6	4.6	4.3	2.1	21.3	7.1	11830.0	3310.0	3317.0	1.40	0.07	0.35	0.05
		6/6/98	28.7	4.5	4.5	6.1	1.2	28.1	6.8	25131.0	2534.0	2552.1	2.40	0.50	1.01	0.03
		MAX	**33.6**	**32.5**	**32.5**	**7.1**	**2.1**	**57.0**	**7.4**	**25540.0**	**27200.0**	**27214.0**	**4.89**	**1.60**	**1.01**	**0.06**
		MIN	**27.4**	**2.0**	**1.4**	**4.3**	**0.3**	**14.0**	**6.7**	**9010.0**	**84.0**	**121.0**	**1.40**	**0.01**	**0.35**	**0.03**
		PURATA	**30.1**	**12.2**	**8.5**	**5.3**	**1.2**	**29.5**	**7.0**	**17387.3**	**10103.7**	**10129.7**	**3.05**	**0.77**	**0.59**	**0.05**
		MEDIAN	**29.7**	**4.9**	**4.9**	**4.7**	**1.2**	**52.0**	**6.7**	**4615.5**	**182.5**	**557.5**	**4.7**	**0.6**	**0.7**	**1.8**

LAMPIRAN D

METHOD PENGURUSAN DAN PEMBAWAAN SAMPEL

Determinand	Determination in			Sample Container	Preservation Method	Maximum Holding Time between Sampling & Analysis
	Ground water	Lakes	Rivers	Plastic or Glass		
CATEGORY III DETERMINANDS OF GLOBAL SIGNIFICANCE						
1. HEAVY METALS						
cadmium				P	HNO_3 to pH 2	6 months
mercury				C	" to pH 1	1 month in glass
					± .02	2 weeks in plastic
lead				P	HNO_3 to pH 2	6 months
2. ORGANOCHLORINE COMPOUNDS						
DDT				glass bottle with teflon lined lid	none	--
DDE				"	"	
DDD				"	"	
DIELDRIN				"	"	
ALDRIN				"	"	
HEXACHLORO-CYCLOHEXANE ISOMERS (BHC)				"	"	
PCBs				"	"	

Monitoring of all substances in category III includes:

(i) total content in water } during present phase
(ii) dissolved content in water } of the project.
(iii) content in bottom sediment } envisaged for subsequent
(iv) concentration in relevant biota } phases of the project.

Notes

1. P = polyethylene

   C = borosilicate glass

   Ga = soda glass (for boron)

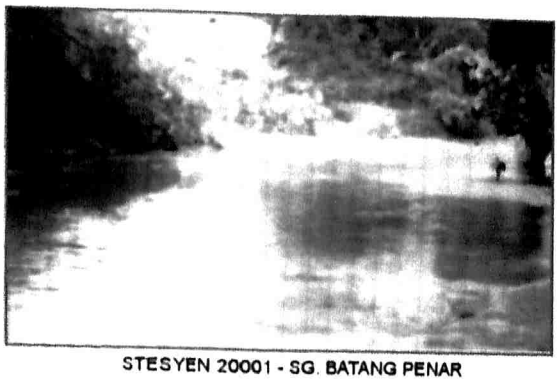
Determinand	Determination in			Sample Container	Preservation Method	Maximum Holding Time between Sampling & Analysis
	Ground water	Lakes	Rivers	Plastic or Glass		
	CATEGORY II OPTIONAL DETERMINANDS cont'd					
iron (total)	+	+	+	P or G	HNO_3 to pH 2	6 months
manganese	+	+	+	P or G	" "	6 "
potassium	+	+	+	P	" "	6 "
sodium	+	+	+	P	" "	6 "
phosphorous (total)	-	+	+	P or G	Hold at 4°C	24 hours
faecal streptococci	+	+	+	G	Hold at 4°C	6 - 24 hours
chlorophyll-a	-	+	-	P or G		
phytoplankton genus & species counts	-	+	-	P	Lugol's iodine acidified with glacial acetic acid	--
primary productivity	-	+	-	light and dark bottle DO method in situ		
dissolved carbon dioxide	+	+	-	P	Hold at 4°C	24 hours
permanganate value	+	-	+	G	Hold at 4°C	24 hours
selenium	+	+	+	P or G	HNO_3 to pH 2	6 months
hydrogen sulphide	+	+	+	G	2 ml/1M zinc acetate + 2 ml M NaOH/l	24 hours
barium	+	-	-	P or G	HNO_3 to pH 2	6 months
phenols	+	-	+	G only	+ 1.0g $CUSO_4$/l + H_3PO_4 to pH 4 Hold at 4°C	24 hours
lithium	+	+	+	P or G	HNO_3 to pH 2	6 months
polycyclic aromatic hydrocarbons	+	+	+			

Determinand	Determination in			Sample Container	Preservation Method	Maximum Holding Time between Sampling & Analysis
	Ground water	Lakes	Rivers	Plastic or Glass		
CATEGORY II OPTIONAL DETERMINANDS						
TOC	+	+	+	G	add H_2SO_4	7 days
COD	+	+	+	G	H_2SO_4 to pH 2	7 days
MBAS (anionic tensides)	+	+	+	G	add $HgCl_2$	24 hours
nonionic tensides	-	-	+	G	Hold at 4°C	24 hours
transparency	-	+	+	F I E L D D E T E R M I N A T I O N		
sulphate	+	+	+	P or G	Hold at 4°C	7 days
calcium	+	+	+	P	None	7 days
magnesium	+	+	+	P	"	7 days
volatile suspended solids	-	-	+	P or G	Hold at 4°C	7 days
nitrogen kjeldahl as N	-	+	+	P or G	add H_2SO_4 to pH2	24 hours
chromium total	-	-	+	P or G	HNO_3 to pH 2	6 months
chromium hexavalent	-	-	+	P or G	"	"
nickel	-	-	+	P or G	HNO_3 pH 2 (1 to 2 ml)	6 months
zinc	-	-	+	P or G	" "	6 months
copper	-	-	+	P or G	" "	6 months
arsenic	+	-	+	P or G	" "	6 months
boron	+	-	+	P or Gs	" "	6 months
cyanide	-	-	+	P or G	cool to 4°C NaOH to pH 12	24 hours
silica (reactive)	-	+	-	P only	Filter on site Hold at 4°C	7 days

Determinand	Determination in			Sample Container	Preservation Method	Maximum Holding Time between Sampling & Analysis
	Ground water	Lakes	Rivers	Plastic or Glass		
CATEGORY I BASIC DETERMINANDS						
temperature	+	+	+	F I E L D	D E T E R M I N A T I O N	
pH	+	+	+	"	"	
electrical conductivity	+	+	+	"	"	
dissolved oxygen	+	+	+	"	(instrument or wet chemistry)	
chloride	+	+	+	P or G	None	7 days
alkalinity (total)	+	+	+	G	Hold at 4°C	24 hours
suspended solids	-	-	+	P or G	Hold at 4°C	7 days
nitrogen ammonia as N	+	+	+	P or G	to pH 2	1-7 days
nitrogen nitrate + nitrite as N	+	+	+	P or G	to pH 2	1-7 days
5-day BOD at 20°C	-	-	+	G	Hold at 4°C	4-24 hours
fluoride (as F)	+	-	-	P	Hold at 4°C	7 days
orthophosphate (soluble reactive) as P	-	+	+	>100 µg/l.P <100 µg/l,G	Hold at 4°C	24 hours
Faecal coliform	+	+	+	G	Hold at 4°C	6 - 24 hours

LAMPIRAN E

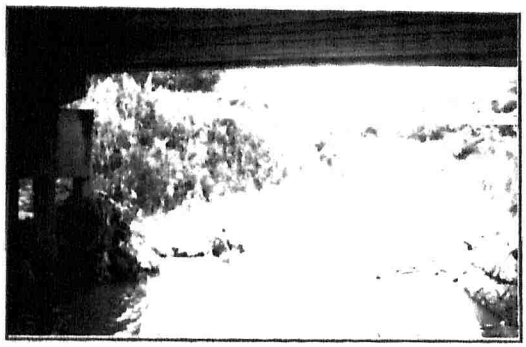
Gambar Yang Menunjukkan Kedudukan StesyenPersampelan
Di Kawasan Kajian (Sepanjang Sg. Linggi)



STESYEN 20001 - SG. BATANG PENAR

STESYEN 20002 - SG. BATANG PENAR

STESYEN 20003 - SG. LINGGI



STESYEN 20004 - SG. LINGGI

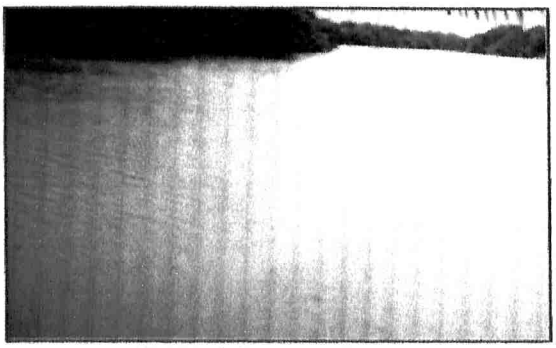
STESYEN 20005 - SG. LINGGI

STESYEN 20006 - SG. LINGGI

STESYEN 20007 - SG. LINGGI

STESYEN 20008 - SG. LINGGI

STESYEN 20009 - SG. LINGGI

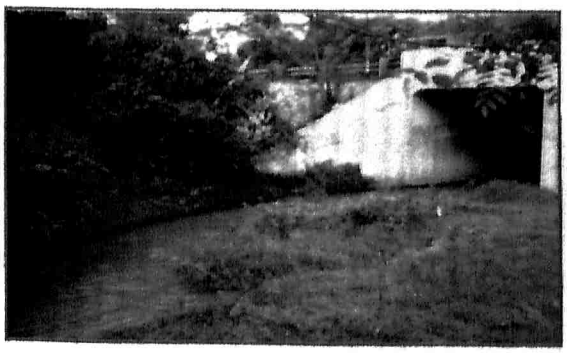


STESYEN 20010 - SG. LINGGI

Gambar Yang Menunjukkan Kedudukan Stesyen Persampelan
Di Kawasan Kajian (Cawangan Sg. Linggi)

STESYEN 1 - SG. JERALANG

STESYEN 2 - SG. BATANG PENAR



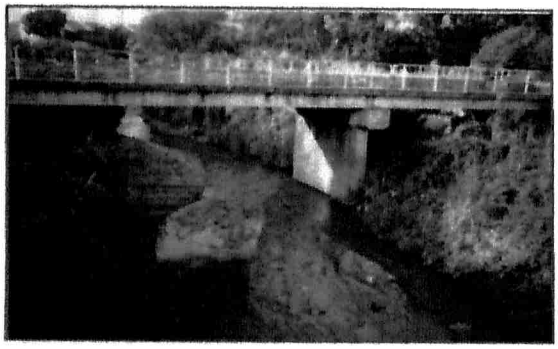
STESYEN 31 - SG. TERIP

STESYEN 4 - SG. SIKAMAT

STESYEN 5 - SG. PAROI

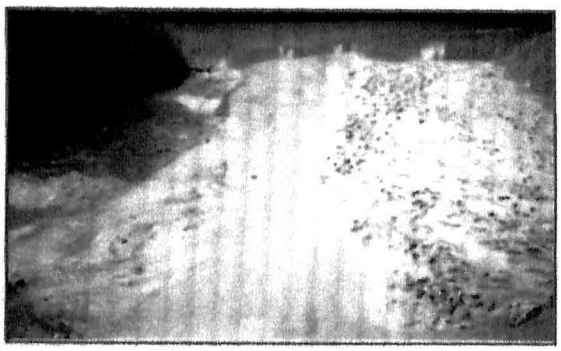
STESYEN 6 - SG. TEMIANG DIVERSION

STESYEN 7 - SG. TEMIANG



STESYEN 8 - SG. KEPAYANG

STESYEN 9 - SG. SENAWANG



STESYEN 10 - SG. MANTAU

STESYEN 11 - SG. KAYU ARA

STESYEN 12- SG. BEMBAN

STESYEN 13 - SG. BELANGKON

STESYEN 14 - SG. NYATOH

STESYEN 15 - SG. SIMIN

STESYEN 16 - SG. SEGA

STESYEN 17 - SG. SILIAU

STESYEN 18 - SG. SOLOK

STESYEN 19 - SG. AIR HITAM

STESYEN 20 - SG. REMBAU

LAMPIRAN F

Jadual 1

RECOMMENDED MALAYSIAN WATER QUALITY CRITERIA

PARAMETER	DOMESTIC WATER SUPPLY	AQUATIC LIFE AVG. (MAX.)	LIVESTOCK	RECREATION
INORGANIC (mg/L)				
Alkalinity	-	>20	-	-
Ammonia, total (as N)	0.1	0.20	-	-
free (as NH_3)	-	0.020	-	-
Aluminum	-	0.056	-	-
Arsenic	0.04	0.045(0.44)	0.5	-
Barium	1	-	-	-
Bicarbonate	-	-	-	-
Boron	0.4	3.4	-	-
Cadmium	0.005	0.0007(0.011*)	0.02	-
Calcium	-	-	-	-
Carbon Dioxide	-	-	-	-
Chloride	200	-	-	-
Chlorine(PRH 1)	-	0.0022	-	-
Chromium(VI)	0.05	0.054(1.45)	1	-
Chromium(III)	-	(2.53)	-	-
Cyanide	0.2	0.0023(0.058)	-	-
Copper	1	0.008(0.012*)	2	-
Fluoride	1	(11)	-	-
Hardness	100	-	-	-
Iron	0.1	1	-	-
Lead	0.05	0.0013(0.014*)	0.5	-
Manganese	0.05	0.1	-	-
Magnesium	-	-	-	-
Mercury	0.001	0.0001(0.004)	0.003	-
Nitrate / Nitrites	7 - 3	-	-	-
Nitrogen Kjeldahl (as N)	-	0.028(0.37)	-	-
Nickel	0.011	-	-	-
Phosphate (as P)	0.1	(0.9*)	-	-
Potassium	-	0.1	-	-
Selenium	0.01	-	-	-
Silver	0.05	0.037(0.25)	0.05	-
Silica, Reactive (as Si)	50	(0.0002)	-	-
Sulphate	200	-	-	-
Sulphide	0.05	-	-	-
Uranyl Ion	-	0.001	-	-
Zinc	5	-	-	-
Tin	-	(0.35*)	20	-
			0.05	-

* At hardness 50 mg/L $CaCO_3$

PARAMETER	DOMESTIC WATER SUPPLY	AQUATIC LIFE AVG. (MAX.)	LIVESTOCK	RECREATION
RADIOACTIVITY				
Gross-Alpha	0.1 Bq/L	-	-	-
Gross-Beta	1 Bq/L	-	-	-
Radium-226	<0.1 Bq/L	-	-	-
Strontium-90	<1 Bq/L	-	-	-
ORGANIC (µg/L)				
General				
CCE	-	-	-	-
MBAS/BAS	500	200	-	500
O&G (mineral)	n[b]	n[c]	-	n[d]
O&G(emulsified edible)	n[b]	n[c]	-	n[d]
PCB	0.03	0.044(6.1)	-	-
Phenol	1	(9900)	-	n[e]
Organochlorine Pesticides				
Aldrin/Dieldrin	0.02	0.008(0.2)	0.09	-
BHC	2	0.13(9.9)	0.6	-
Chlordane	0.08	0.02 (2.2)	0.3	-
t-DDT	0.1	0.004(1)	0.3	-
Endosulfan	10	(0.01)	12	-
Endrin	0.06	0.014(0.25)	0.09	-
Heptachlor/Epoxide	0.05	0.06(0.91)	0.06	-
Lindane	2	0.38(2.9)	0.6	-
Methoxychlor	100	0.05(0.45)	18	-
Toxaphene	0.3	(1.4)	1.5	-
Organophosphorus Pesticides				
Malathion	100	(0.32)	-	-
Parathion	20	(0.44)	-	-
Parathion-methyl	6	(3.7)	-	-
Carbamate Pesticides				
Carbaryl	60	(2.9)	-	-
Carbofuran	10	(0.01)	-	-
Propoxur	800	(8.9)	-	-

n[b] Free from visible film, sheen, discoloration and deposits; free from conc. affecting taste and odor
n[c] Free from visible layer, discoloration and deposits
n[d] No visible film, discoloration or deposit; no objectional odor
n[e] No objectional odor

PARAMETER	DOMESTIC WATER SUPPLY	AQUATIC LIFE AVG. (MAX.)	LIVESTOCK	RECREATION
Herbicides				
2,4-D	70	(450)	-	-
2,4,5-T	10	(160)	-	-
2,4,5-TP	4	(850)	-	-
Paraquat	6	(1800)	-	-
Other Insecticides				
Acephate	120	-	-	-
Aldicarb	7	-	-	-
Azinphos-methyl	10	-	-	-
Carbophenothion	1	-	-	-
Chlorfenvinphos	10	-	-	-
Chlorpyrifos	6	-	-	-
Diazinon	10	-	-	-
Dichlorvos	20	-	-	-
Dimethoate	100	-	-	-
Disulfoton	10	-	-	-
Ethion	30	-	-	-
Fenchlorphos	60	-	-	-
Fenitrothion	30	-	-	-
Fensulfothion	10	-	-	-
Fenthion	3	-	-	-
Methamidophos	10	-	-	-
Methidathion	30	-	-	-
Methomyl	60	-	-	-
Mevinphos	9	-	-	-
Monocrotophos	3	-	-	-
Omethoate	3	-	-	-
Phorate	0.6	-	-	-
Pirimiphos-methyl	60	-	-	-
Temephos	300	-	-	-
Trichlorfon	30	-	-	-
Other Herbicides				
Alachlor	10	-	-	-
Asulam	300	-	-	-
Atrazine	100	-	-	-
Bromacil	70	-	-	-
MCPA	7	-	-	-
Picloram	1000	-	-	-
Thiobencarb	50	-	-	-
Trifluralin	500	-	-	-
2,3,7,8-TCDD	0.00002	-	-	-

PARAMETER	DOMESTIC WATER SUPPLY	AQUATIC LIFE AVG. (MAX.)	LIVESTOCK	RECREATION
Chlorophenols				
Chlorophenols	0.1	(2200)	-	n[a]
2,4-Dichlorophenol	0.3	(3400)	-	n[a]
Dichlorophenols	0.04-0.5	23-84	-	n[a]
Trichlorophenols	1-2	(2500)	-	n[a]
Tetrachlorophenols	1	(18)	-	n[a]
PCP	30	(60)	-	-
PHYSICAL				
Colour (TCU)	-	-	-	-
Dissolved Oxygen (mg/L)	-	7 (daily mean) 2 (daily min.)	-	-
Electrical Conductivity	-	-	-	-
pH	-	6.5-9.0	-	-
Total Dissolved Solids	-	-	-	-
Suspended Solids	-	-	-	-
Floatables	Absent	-	-	Absent
Taste & Odor	n[a]	-	-	n[a]
Temperature	-	-	-	-
Turbidity (NTU)	1	-	-	-
Salinity	-	-	-	-
OTHERS				
BOD (mg/L)	1	-	-	-
COD (mg/L)	10	-	-	-
MICROBIOLOGICAL (counts/100mL)				
Faecal coliform	0	-	-	200**
Total coliform	0	-	-	-

n[a] Free from objectional taste and odor
** Geometric mean

PARAMETER (mg/L)	IRRIGATION WATER CRITERIA			
	Normal Use Sensitive	Semitolerant	Tolerant	Fine Texture Soils
Aluminium	0.5	0.5 to 5	-	20
Arsenic	0.1	-	-	2
Beryllium	0.1	-	-	0.5
Bicarbonate	142	142 to 355	>355	-
Boron	0.75	0.75 to 2	>2	-
Cadmium	0.01	-	-	0.05
Chloride	79	79 to 477	>477	-
Chromium	0.1	-	-	1
Cobalt (sandy)	0.05	-	-	q
Cobalt (normal)	1	-	-	5
Conductivity (in mmhos/cm)	0.75	0.75 to 3	>3	-
Copper	0.2	-	-	5
Faecal coliform # (in counts/100mL)	1000 (4000)@	-	-	-
Fluoride	1	-	-	15
Iron (leaf)	1	-	-	q
Iron (others)	5	-	-	-
Lead	5	-	-	10
Lithium (citrus)	0.1	-	-	q
Lithium (others)	2.5	-	-	q
Manganese	0.2	-	-	10
Mercury	0.002	-	-	q
Molybdenum	0.01	-	-	0.05
Nitrate + Nitrite (as N)	5	5 to 30	>30	-
Nickel	0.2	-	-	q
pH	4.5 to 9	4.5 to 9	4.5 to 9	-
Selenium	0.02	-	-	q
Sodium	3 SAR	3 to 9	>9	-
Total Dissolved Solids	480	480 to 1920	>1920	-
Vanadium	0.1	-	-	q
Zinc	2	-	-	10

\# = 200 (geometric mean) for crops eaten raw
q = qv normal use
@ = Maximum not to be exceeded

Jadual 2

PROPOSED INTERIM NATIONAL WATER QUALITY STANDARDS FOR MALAYSIA

PARAMETERS	(units)	CLASSES					
		I	IIA	IIB	III	IV	V
Ammoniacal Nitrogen	mg/L	0.1	0.3	0.3	0.9	2.7	>2.7
BOD	mg/L	1	3	3	6	12	>12
COD	mg/L	10	25	25	50	100	>100
DO	mg/L	7	5-7	5-7	3-5	<3	<1
pH		6.5-8.5	6-9	6-9	5-9	5-9	-
Colour	TCU	15	150	150	-	-	-
Elect. Cond.*	µmhos/cm	1000	1000	-	-	6000	-
Floatables		N	N	N	-	-	-
Odour		N	N	N	-	-	-
Salinity*	°/oo	0.5	1	-	-	2	-
Taste		N	N	N	-	-	-
Total Diss. Solid*	mg/L	500	1000	-	-	4000	-
Total Susp. Solids	mg/L	25	50	50	150	300	>300
Temperature	°C	-	Normal ±2	-	Normal ±2	-	-
Turbidity	NTU	5	50	50	-	-	-
F. Colif.**	counts/ 100mL	10	100	400	5000 (20000)[a]	5000 (20000)[a]	
Tot. Colif.	counts/ 100mL	100	5000	5000	50000	50000	>50000

N = No visible floatable materials/debris,
or No objectionable odour,
or No objectionable taste.

* = Related parameters, only one recommended for use

** = Geometric mean

a = Maximum not to be exceeded

PARAMETERS	(units)	CLASSES I	IIA/IIB	III#		IV	V
Al	mg/L		-	-	(0.06)	0.5	
As	mg/L		0.05	0.4	(0.05)	0.1	
Ba	mg/L		1	-		-	
Cd	mg/L		0.01	0.01*	(0.001)	0.01	
Cr(VI)	mg/L		0.05	1.4	(0.05)	0.1	
Cr(III)	mg/L		-	2.5		-	
Cu	mg/L		1	-		0.2	
Hardness	mg/L		250	-		-	
Ca	mg/L		-	-		-	
Mg	mg/L		-	-		-	
Na	mg/L		-	-		3 SAR	
K	mg/L		-	-		-	
Fe	mg/L		0.3	1		1 (leaf) 5 (others)	
Pb	mg/L	NATURAL LEVELS	0.05	0.02*	(0.01)	5	LEVELS ABOVE IV
Mn	mg/L		0.1	0.1		0.2	
Hg	mg/L		0.001	0.004	(0.0001)	0.002	
Ni	mg/L		0.05	0.9*		0.2	
Se	mg/L		0.01	0.25	(0.04)	0.02	
Ag	mg/L		0.05	0.0002		-	
Sn	mg/L		-	0.004		-	
U	mg/L		-	-		-	
Zn	mg/L		5	0.4*		2	
B	mg/L		1	-	(3.4)	0.8	
Cl	mg/L		200	-		80	
Cl_2	mg/L		-	-	(0.02)	-	
CN	mg/L		0.02	0.06	(0.02)	-	
F	mg/L		1.5	10		1	
NO_2	mg/L		0.4	0.4	(0.03)	-	
NO_3	mg/L		7	-		5	
P	mg/L		0.2	0.1		-	
Si	mg/L		50	-		-	
SO_4	mg/L		250	-		-	
S	mg/L		0.05	-	(0.001)	-	
CO_2	mg/L		-	-		-	
Gross-α	Bq/L		0.1	-		-	
Gross-β	Bq/L		1	-		-	
Ra-226	Bq/L		<0.1	-		-	
Sr-90	Bq/L		<1	-		-	

* = At hardness 50 mg/L $CaCO_3$

\# = Maximum (unbracketed) and 24-hr average (bracketed) concentrations

PARAMETERS	(units)	CLASSES I	IIA/IIB	III#	IV	V
CCE	µg/L	↑	500	-	-	-
MBAS/BAS	µg/L	N	500	5000 (200)	-	-
O&G (mineral)	µg/L	A	40;N	N	-	-
O&G(emulsified edible)	µg/L	T	7000;N	N	-	-
PCB	µg/L	L	0.1	6 (0.05)	-	-
Phenol	µg/L	E	10	-	-	-
		V				
Aldrin/ Dieldrin	µg/L	E	0.02	0.2 (0.01)	-	-
		L				
BHC	µg/L	S	2	9 (0.1)	-	-
Chlordane	µg/L		0.08	2 (0.02)	-	-
t-DDT	µg/L	O	0.1	1 (0.01)	-	-
Endosulfan	µg/L	R	10	-	-	-
Heptachlor/ Epoxide	µg/L		0.05	0.9 (0.06)	-	-
		A				
Lindane	µg/L	B	2	3 (0.4)	-	-
		S				
2,4-D	µg/L	E	70	450	-	-
2,4,5-T	µg/L	N	10	160	-	-
2,4,5-TP	µg/L	T	4	850	-	-
Paraquat	µg/L	↓	10	1800	-	-

N = Free from visible film, sheen, discoloration and deposits
\# = Maximum (unbracketed) and 24-hr average (bracketed) concentration

Sumber : Institute of Advance Study, 1986

LAMPIRAN G

KELUASAN MUKIM DALAM LEMBANGAN

STESYEN	NAMA LEMBANGAN	KELUASAN	MUKIM	LUAS	PERATUS
1	Sg Jeralang	3396.77	PANTAI	3240.27	95.4%
			LENGGENG	156.50	4.6%
				3396.77	
2	Sg Batang Penar	2766.20	PANTAI	**2766.20**	
3	Sg Terip	2877.89	PANTAI	2181.53	75.8%
			AMPANGAN	696.36	24.2%
				2877.89	
4	Sg Sikamat	2536.15	LENGGENG	101.11	4.0%
			PANTAI	1687.16	66.5%
			SETUL	303.69	12.0%
			SEREMBAN A	19.22	0.8%
			AMPANGAN	424.97	16.8%
				2536.15	
5	Sg Parol	3480.25	AMPANGAN	3454.66	99.3%
			PANTAI	16.24	0.5%
			SEREMBAN B	9.35	0.3%
				3480.25	
6	Sg Temiang Div.	3604.96	SETUL	135.90	3.8%
			PANTAI	195.21	5.4%
			SEREMBAN A	2155.11	59.8%
			LABU	29.62	0.8%
			AMPANGAN	740.48	20.5%
			SEREMBAN B	348.64	9.7%
				3604.96	
7	Sg. Temiang	1242.89	SEREMBAN A	389.77	31.4%
			SEREMBAN B	769.54	61.9%
			RASAH	83.58	6.7%
				1242.89	
8	Sg Kepayang	2418.84	LABU	878.48	36.3%
			SEREMBAN A	825.42	34.1%
			RASAH	391.69	16.2%
			SEREMBAN B	323.25	13.4%
				2418.84	
9	Sg Senewang	1395.08	AMPANGAN	682.27	48.9%
			SEREMBAN B	295.52	21.2%
			RASAH	337.41	24.2%
			RANTAU	79.88	5.7%
				1395.08	
10	Sg. Mantau	1754.00	LABU	328.05	18.7%
			RASAH	1356.95	77.4%
			SEREMBAN B	69.00	3.9%
				1754.00	
11	Sg. Kayu Ara	2006.54	LABU	68.08	3.4%
			RASAH	1749.93	87.2%
			RANTAU	188.53	9.4%
				2006.54	

STESYEN	NAMA LEMBANGAN	KELUASAN	MUKIM	LUAS	PERATUS
12	Sg. Bemban	2269.62	LABU	344.32	15.2%
			RASAH	114.28	5.0%
			RANTAU	1702.28	75.0%
			PORT DICKSON	108.74	4.8%
				2269.62	
13	Sg. Belangkon	1995.36	SEREMBAN B	17.58	0.9%
			RASAH	1223.92	61.3%
			RANTAU	753.86	37.8%
				1995.36	
14	Sg. Nyatoh	1796.43	RANTAU	**1798.43**	
15	Sg. Simin	9350.59	AMPANGAN	2833.84	30.3%
			RANTAU	6421.47	68.7%
			LINGGI	95.28	1.0%
				9350.59	
16	Sg. Sega	2439.68	RANTAU	1962.36	80.4%
			PORT DICKSON	449.66	18.4%
			LINGGI	27.66	1.1%
				2439.68	
17	Sg. Silliau	8328.97	PORT DICKSON	2290.75	27.5%
			RANTAU	545.76	6.6%
			LINGGI	5447.86	65.4%
			PASIR PANJANG	44.60	0.5%
				8328.97	
18	Sg. Solok	6628.72	RANTAU	309.21	4.7%
			LINGGI	6199.19	93.5%
			TITIAN BINTOGOR	120.32	1.8%
				6628.72	
19	Sg. Ayer Itam	4908.51	LINGGI	4099.57	83.5%
			PASIR PANJANG	808.94	16.5%
				4908.51	
20	Sg. Rembau	9107.07	TITIAN BINTOGOR	1495.88	16.4%
			LINGGI	207.59	2.3%
			KUALA LINGGI	2105.65	23.1%
			RAMUAN CHINA KECIL	1059.14	11.6%
			SUNGAI SIPUT	173.10	1.9%
			RAMUAN CHINA BESAR	1999.59	22.0%
			SUNGAI BARU HILIR	1283.48	14.1%
			KUALA SUNGAI BARU	782.64	8.6%
				9107.07	

KELUASAN GUNATANAH DALAM LEMBANGAN

LEMBANGAN	GUNATANAH	LUAS	%
Sg. Jeralang	HUTAN	2209.02	0.65
	SEMAK (BELUKAR)	103.58	0.03
	GETAH	712.96	0.21
	KELAPA SAWIT	29.58	0.09
	PADI	186.11	0.05
	PERKEBUNAN CAMPUR	155.52	0.05
		3396.77	
Sg. Batang Penar	HUTAN	2359.06	0.85
	GETAH	232.34	0.08
	KELAPA SAWIT	159.36	0.06
	PERKEBUNAN CAMPUR	15.44	0.01
		2766.20	
Sg. Terip	HUTAN	2393.83	0.83
	SEMAK (BELUKAR)	103.98	0.04
	GETAH	292.93	0.10
	PERKEBUNAN CAMPUR	1.02	0.00
	KAWASAN BAHARU DITERANG	86.13	0.03
		2877.89	
Sg. Sikamat	HUTAN	1289.65	0.51
	SEMAK (BELUKAR)	345.17	0.14
	GETAH	765.99	0.30
	PERKEBUNAN CAMPUR	36.84	0.01
	LOMBONG BIJIH TIMAH	98.50	0.04
		2536.15	
Sg. Paroi	HUTAN	1110.63	0.32
	SEMAK (BELUKAR)	72.85	0.02
	GETAH	1345.42	0.39
	KAWASAN PERBANDARAN	291.34	0.08
	PERKEBUNAN CAMPUR	181.12	0.05
	LOMBONG BIJIH TIMAH	200.11	0.06
	RUMPUT TERBIAR/LALANG	278.78	0.08
		3480.25	
Sg. Temiang Div.	HUTAN	581.68	0.16
	SEMAK (BELUKAR)	462.92	0.13
	GETAH	1551.36	0.43
	KAWASAN PERBANDARAN	652.03	0.18
	PERKEBUNAN CAMPUR	165.35	0.05
	LOMBONG BIJIH TIMAH	69.57	0.02
	RUMPUT TERBIAR/LALANG	122.05	0.03
		3604.96	
Sg. Temiang	GETAH	194.88	0.16
	KAWASAN PERBANDARAN	1048.01	0.84
		1242.89	
Sg. Kepayang	HUTAN	221.13	0.09
	SEMAK (BELUKAR)	52.51	0.02
	GETAH	1638.56	0.68
	KAWASAN PERBANDARAN	300.48	0.12
	PERKEBUNAN CAMPUR	206.16	0.09
		2418.84	

YEN	LEMBANGAN	GUNATANAH	LUAS
	Sg. Senawang	HUTAN	350.25
		SEMAK (BELUKAR)	0.90
		KAWASAN PERBANDARAN	725.81
		PERKEBUNAN CAMPUR	12.58
		RUMPUT TERBIAR/LALANG	305.54
			1395.08
0	Sg. Mantau	SEMAK (BELUKAR)	206.86
		GETAH	1460.73
		KAWASAN PERBANDARAN	45.07
		PERKEBUNAN CAMPUR	41.34
			1754.00
11	Sg. Kayu Ara	SEMAK (BELUKAR)	38.05
		GETAH	1855.89
		PERKEBUNAN CAMPUR	112.60
			2006.54
12	Sg. Bemban	HUTAN	126.54
		SEMAK (BELUKAR)	406.08
		HUTAN PAYA DAN BUYAU	14.97
		GETAH	1714.94
		PERKEBUNAN CAMPUR	5.48
		RUMPUT TERBIAR/LALANG	1.61
			2269.62
13	Sg. Belangkon	SEMAK (BELUKAR)	59.94
		GETAH	1344.97
		KELAPA SAWIT	12.95
		KAWASAN PERBANDARAN	490.11
		PERKEBUNAN CAMPUR	87.39
			1995.36
14	Sg. Nyatoh	HUTAN	0.67
		HUTAN PAYA DAN BUYAU	40.22
		GETAH	1150.23
		KELAPA SAWIT	294.59
		KAWASAN PERBANDARAN	94.27
		PERKEBUNAN CAMPUR	116.34
		KAWASAN BAHARU DITERANG	100.11
			1796.43
15	Sg. Simin	HUTAN	1814.92
		SEMAK (BELUKAR)	275.99
		HUTAN PAYA DAN BUYAU	158.60
		GETAH	4485.09
		KELAPA SAWIT	1734.43
		KAWASAN PERBANDARAN	264.76
		PERKEBUNAN CAMPUR	357.52
		KAWASAN BAHARU DITERANG	183.56
		LOMBONG BIJIH TIMAH	75.72
			9350.59
16	Sg. Sega	HUTAN PAYA DAN BUYAU	254.16
		GETAH	1843.60
		KELAPA SAWIT	244.73
		LOMBONG BIJIH TIMAH	97.19
			2439.68

STESYEN	LEMBANGAN	GUNATANAH	LUAS	%
17	Sg. Siliau	HUTAN PAYA DAN BUYAU	619.22	0.07
		GETAH	3996.55	0.48
		KELAPA SAWIT	3638.28	0.44
		LOMBONG BIJIH TIMAH	74.92	0.01
			8328.97	
18	Sg. Solok	HUTAN	128.04	0.02
		HUTAN PAYA DAN BUYAU	251.37	0.04
		GETAH	4918.97	0.74
		KELAPA SAWIT	1292.05	0.20
		LOMBONG BIJIH TIMAH	35.29	0.01
			6625.72	
19	Sg. Ayer Itam	HUTAN PAYA DAN BUYAU	1371.89	0.28
		GETAH	2497.69	0.51
		KELAPA SAWIT	946.38	0.19
		PERKEBUNAN CAMPUR	5.92	0.00
		PELBAGAI TANAMAN	86.63	0.02
			4908.51	
20	Sg. Rembau	HUTAN	98.29	0.01
		HUTAN PAYA DAN BUYAU	2259.95	0.25
		GETAH	4771.61	0.52
		KELAPA SAWIT	902.21	0.10
		PADI	691.34	0.08
		PERKEBUNAN CAMPUR	355.86	0.04
		RUMPUT TERBIAR/LALANG	27.25	0.00
		KAWASAN BAHARU DITERANG	0.56	0.00
			9107.07	

KELUASAN GUNA TANAH DALAM LEMBANGAN SG. LINGGI 1990

LUAS GUNATANAH BERDASRKAN 4 SUB LEMBANGAN

LE	GUNATANAH	LUAS	PERATUS
L1	GETAH	945.30	15.34%
	HUTAN	4568.06	74.12%
	KELAPA SAWIT	188.94	3.07%
	PADI	186.11	3.02%
	PERKEBUNAN CAMPUR	170.98	2.77%
	SEMAK (BELUKAR)	103.58	1.68%
		6162.97	**100.00%**

LE	GUNATANAH	LUAS	PERATUS
L2	GETAH	3955.70	31.65%
	HUTAN	5375.79	43.01%
	KAWASAN BAHARU DITERANG	86.16	0.69%
	KAWASAN PERBANDARAN	943.39	7.55%
	LOMBONG BIJIH TIMAH	368.18	2.95%
	PERKEBUNAN CAMPUR	384.31	3.07%
	RUMPUT TERBIAR/LALANG	400.80	3.21%
	SEMAK (BELUKAR)	984.92	7.88%
		12499.25	**100.00%**

LE	GUNATANAH	LUAS	PERATUS
L3	GETAH	15688.24	58.83%
	HUTAN	2513.53	9.42%
	HUTAN PAYA DAN BUYAU	468.12	1.76%
	KAWASAN BAHARU DITERANG	284.05	1.07%
	KAWASAN PERBANDARAN	2968.51	11.13%
	KELAPA SAWIT	2286.77	8.57%
	LOMBONG BIJIH TIMAH	172.91	0.65%
	PERKEBUNAN CAMPUR	939.42	3.52%
	RUMPUT TERBIAR/LALANG	307.15	1.15%
	SEMAK (BELUKAR)	1040.33	3.90%
		26669.03	**100.00%**

LE	GUNATANAH	LUAS	PERATUS
L4	GETAH	16181.59	55.85%
	HUTAN	226.33	0.78%
	HUTAN PAYA DAN BUYAU	4502.43	15.54%
	PERKEBUNAN CAMPUR	361.75	1.25%
	PELBAGAI TANAMAN	86.63	0.30%
	KAWASAN BAHARU DITERANG	6.87	0.02%
	LOMBONG BIJIH TIMAH	110.21	0.38%
	RUMPUT TERBIAR/LALANG	27.25	0.09%
	KELAPA SAWIT	6778.87	23.40%
	PADI	691.34	2.39%
		28973.27	**100.00%**

LUAS GUNATANAH BERDASRKAN 2 SUB LEMBANGAN

LE	GUNATANAH	LUAS	PERATUS
L1	GETAH	20589.24	45.42%
	HUTAN	12457.38	27.48%
	HUTAN PAYA DAN BUYAU	468.12	1.03%
	KAWASAN BAHARU DITERANG	370.21	0.82%
	KAWASAN PERBANDARAN	3911.90	8.63%
	KELAPA SAWIT	2475.71	5.46%
	LOMBONG BIJIH TIMAH	541.09	1.19%
	PADI	186.11	0.41%
	PERKEBUNAN CAMPUR	1494.71	3.30%
	RUMPUT TERBIAR/LALANG	707.95	1.56%
	SEMAK (BELUKAR)	2128.83	4.70%
		45331.25	**100.00%**

LE	GUNATANAH	LUAS	PERATUS
L2	GETAH	16181.59	55.85%
	HUTAN	226.33	0.78%
	HUTAN PAYA DAN BUYAU	4502.43	15.54%
	PERKEBUNAN CAMPUR	361.75	1.25%
	PELBAGAI TANAMAN	86.63	0.30%
	KAWASAN BAHARU DITERANG	6.87	0.02%
	LOMBONG BIJIH TIMAH	110.21	0.38%
	RUMPUT TERBIAR/LALANG	27.25	0.09%
	KELAPA SAWIT	6778.87	23.40%
	PADI	691.34	2.39%
		28973.27	**100.00%**

LUAS GUNATANAH DI KAWASAN LEMBANGAN

LE	GUNATANAH	LUAS	PERATUS
GUNATANAH LEMBANGAN SG. LINGGI	GETAH	36770.83	49.49%
	HUTAN	12683.71	17.07%
	HUTAN PAYA DAN BUYAU	4970.55	6.69%
	KAWASAN BAHARU DITERANG	377.08	0.51%
	KAWASAN PERBANDARAN	3911.90	5.26%
	KELAPA SAWIT	9254.58	12.45%
	LOMBONG BIJIH TIMAH	651.30	0.88%
	PADI	877.45	1.18%
	PELBAGAI TANAMAN	86.63	0.12%
	PERKEBUNAN CAMPUR	1856.46	2.50%
	RUMPUT TERBIAR/LALANG	735.20	0.99%
	SEMAK (BELUKAR)	2128.83	2.87%
		74304.62	**100.00%**

LAMPIRAN H

Table A.11 Critical Values of F in Snedecor's Variance Ratio Test

The computed value of F should exceed the following values in order to reject H_0. (df_1 refers to the degrees of freedom of the sample with the *larger* variance, and df_2 to the degrees of freedom of the sample with the *smaller* variance.)

$\alpha = 0.05$; $df_1 =$

df_2	1	2	3	4	5	6	7	8	10	12	24	∞
1	161.4	199.5	215.7	224.6	230.2	234.0	236.8	238.9	241.9	243.9	249.0	254.3
2	18.5	19.0	19.2	19.2	19.3	19.3	19.4	19.4	19.4	19.4	19.5	19.5
3	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.79	8.74	8.64	8.53
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	5.96	5.91	5.77	5.63
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.74	4.68	4.53	4.36
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.06	4.00	3.84	3.67
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.64	3.57	3.41	3.23
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.35	3.28	3.12	2.93
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.14	3.07	2.90	2.71
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	2.98	2.91	2.74	2.54
11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.85	2.79	2.61	2.40
12	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.75	2.69	2.51	2.30
13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.67	2.60	2.42	2.21
14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.60	2.53	2.35	2.13
15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.54	2.48	2.29	2.07
16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.49	2.42	2.24	2.01
17	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.45	2.38	2.19	1.96
18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.41	2.34	2.15	1.92
19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.38	2.31	2.11	1.88
20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.35	2.28	2.08	1.84
21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.32	2.25	2.05	1.81
22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.30	2.23	2.03	1.78
23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.27	2.20	2.00	1.76
24	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.25	2.18	1.98	1.73
25	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.24	2.16	1.96	1.71
26	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.22	2.15	1.95	1.69
27	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.31	2.20	2.13	1.93	1.67
28	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.19	2.12	1.91	1.65
29	4.18	3.33	2.93	2.70	2.55	2.43	2.35	2.28	2.18	2.10	1.90	1.64
30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.16	2.09	1.89	1.62
32	4.15	3.29	2.90	2.67	2.51	2.40	2.31	2.24	2.14	2.07	1.86	1.59
34	4.13	3.28	2.88	2.65	2.49	2.38	2.29	2.23	2.12	2.05	1.84	1.57
36	4.11	3.26	2.87	2.63	2.48	2.36	2.28	2.21	2.11	2.03	1.82	1.55
38	4.10	3.24	2.85	2.62	2.46	2.35	2.26	2.19	2.09	2.02	1.81	1.53
40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.08	2.00	1.79	1.51
60	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	1.99	1.92	1.70	1.39
120	3.92	3.07	2.68	2.45	2.29	2.18	2.09	2.02	1.91	1.83	1.61	1.25
∞	3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.83	1.75	1.52	1.00

$\alpha = 0.01$; $df_1 =$

df_2	1	2	3	4	5	6	7	8	10	12	24	∞
1	4052	5000	5403	5625	5764	5859	5928	5981	6056	6106	6235	6366
2	98.5	99.0	99.2	99.2	99.3	99.3	99.4	99.4	99.4	99.4	99.5	99.5
3	34.1	30.8	29.5	28.7	28.2	27.9	27.7	27.5	27.2	27.1	26.6	26.1
4	21.2	18.0	16.7	16.0	15.5	15.2	15.0	14.8	14.5	14.4	13.9	13.5
5	16.26	13.27	12.06	11.39	10.97	10.67	10.46	10.29	10.05	9.89	9.47	9.02
6	13.74	10.92	9.78	9.15	8.75	8.47	8.26	8.10	7.87	7.72	7.31	6.88
7	12.25	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.62	6.47	6.07	5.65
8	11.26	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.81	5.67	5.28	4.86
9	10.56	8.02	6.99	6.42	6.06	5.80	5.61	5.47	5.26	5.11	4.73	4.31
10	10.04	7.56	6.55	5.99	5.64	5.39	5.20	5.06	4.85	4.71	4.33	3.91
11	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.54	4.40	4.02	3.60
12	9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.50	4.30	4.16	3.78	3.36
13	9.07	6.70	5.74	5.21	4.86	4.62	4.44	4.30	4.10	3.96	3.59	3.17
14	8.86	6.51	5.56	5.04	4.70	4.46	4.28	4.14	3.94	3.80	3.43	3.00
15	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.80	3.67	3.29	2.87
16	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.69	3.55	3.18	2.75
17	8.40	6.11	5.18	4.67	4.34	4.10	3.93	3.79	3.59	3.46	3.08	2.65
18	8.29	6.01	5.09	4.58	4.25	4.01	3.84	3.71	3.51	3.37	3.00	2.57
19	8.18	5.93	5.01	4.50	4.17	3.94	3.77	3.63	3.43	3.30	2.92	2.49
20	8.10	5.85	4.94	4.43	4.10	3.87	3.70	3.56	3.37	3.23	2.86	2.42
21	8.02	5.78	4.87	4.37	4.04	3.81	3.64	3.51	3.31	3.17	2.80	2.36
22	7.95	5.72	4.82	4.31	3.99	3.76	3.59	3.45	3.26	3.12	2.75	2.31
23	7.88	5.66	4.76	4.26	3.94	3.71	3.54	3.41	3.21	3.07	2.70	2.26
24	7.82	5.61	4.72	4.22	3.90	3.67	3.50	3.36	3.17	3.03	2.66	2.21
25	7.77	5.57	4.68	4.18	3.86	3.63	3.46	3.32	3.13	2.99	2.62	2.17
26	7.72	5.53	4.64	4.14	3.82	3.59	3.42	3.29	3.09	2.96	2.58	2.13
27	7.68	5.49	4.60	4.11	3.78	3.56	3.39	3.26	3.06	2.93	2.55	2.10
28	7.64	5.45	4.57	4.07	3.75	3.53	3.36	3.23	3.03	2.90	2.52	2.06
29	7.60	5.42	4.54	4.04	3.73	3.50	3.33	3.20	3.00	2.87	2.49	2.03
30	7.56	5.39	4.51	4.02	3.70	3.47	3.30	3.17	2.98	2.84	2.47	2.01
32	7.50	5.34	4.46	3.97	3.65	3.43	3.26	3.13	2.93	2.80	2.42	1.96
34	7.45	5.29	4.42	3.93	3.61	3.39	3.22	3.09	2.90	2.76	2.38	1.91
36	7.40	5.25	4.38	3.89	3.58	3.35	3.18	3.05	2.86	2.72	2.35	1.87
38	7.35	5.21	4.34	3.86	3.54	3.32	3.15	3.02	2.83	2.69	2.32	1.84
40	7.31	5.18	4.31	3.83	3.51	3.29	3.12	2.99	2.80	2.66	2.29	1.80
60	7.08	4.98	4.13	3.65	3.34	3.12	2.95	2.82	2.63	2.50	2.12	1.60
120	6.85	4.79	3.95	3.48	3.17	2.96	2.79	2.66	2.47	2.34	1.95	1.38
∞	6.63	4.61	3.78	3.32	3.02	2.80	2.64	2.51	2.32	2.18	1.79	1.00

Source: Reproduced from D. V. Lindley and J. C. P. Miller. *Cambridge Elementary Statistical Tables*. London: Cambridge University Press, Table 7, pp. 8 and 10, 1971. (Table 7 is based on Biometrika tables and acknowledgment is made the Biometrika Trustees for permission to use them.)

AMPIRAN I

CONTOH DAN HASIL PENGIRAAN ANOVA BAGI ANALASIS REGRESI LINEAR MUDAH

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	BANDAR[a]		Enter

a. All requested variables entered.

b Dependent Variable: BOD

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.712[a]	.507	.437	4.4053

a Predictors: (Constant), BANDAR

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	139.823	1	139.823	7.205	.031[a]
	Residual	135.847	7	19.407		
	Total	275.669	8			

a. Predictors: (Constant), BANDAR

b Dependent Variable: BOD

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.974	2.547		1.953	.092
	BANDAR	1.285E-02	.005	.712	2.684	.031

a. Dependent Variable: BOD

LAMPIRAN J

CONTOH DAN HASIL PENGIRAAN ANALISIS REGRESI BERGANDA

BOD vs CIRI GUNA TANAH

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	LUAS, BANDAR, PENDUDUK, HUTAN, PERTANIA[a]		Enter
2		PENDUDUK	Backward (criterion: Probability of F-to-remove >= 100)

a. All requested variables entered.

b. Dependent Variable: BOD

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.995[a]	.990	.964	.7350
2	.995[b]	.989	.975	.6100

a. Predictors: (Constant), LUAS, BANDAR, PENDUDUK, HUTAN, PERTANIA

b. Predictors: (Constant), LUAS, BANDAR, HUTAN, PERTANIA

ANOVA[c]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	102.754	5	20.551	38.039	.026[a]
	Residual	1.081	2	.540		
	Total	103.835	7			
2	Regression	102.718	4	25.680	69.021	.003[b]
	Residual	1.116	3	.372		
	Total	103.835	7			

a. Predictors: (Constant), LUAS, BANDAR, PENDUDUK, HUTAN, PERTANIA

b. Predictors: (Constant), LUAS, BANDAR, HUTAN, PERTANIA

c. Dependent Variable: BOD

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.111	1.684		1.847	206
	BANDAR	-1.916E-02	.006	-1.223	-3.344	.079
	PENDUDUK	-1.640E-05	.000	-.047	-.257	.821
	PERTANIA	-2.636E-02	.005	-13.184	-5.642	.030
	HUTAN	-4.517E-02	.008	-9.018	-5.624	.030
	LUAS	3.008E-02	.005	20.330	5.594	.031
2	(Constant)	2.771	.867		3.195	.050
	BANDAR	-2.032E-02	.003	-1.297	-7.006	.006
	PERTANIA	-2.721E-02	.003	-13.609	-9.950	.002
	HUTAN	-4.673E-02	.004	-9.331	-10.791	.002
	LUAS	3.107E-02	.003	21.002	10.026	.002

a. Dependent Variable: BOD

Excluded Variables[b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
2	PENDUDUK	-.047[a]	-.257	.821	-.179	.154

a. Predictors in the Model: (Constant), LUAS, BANDAR, HUTAN, PERTANIA

b. Dependent Variable: BOD

COD vs CIRI GUNATANAH

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.755[a]	.570	-.506	10.4606
2	.726[b]	.526	-.105	8.9614
3	.612[c]	.374	-.095	8.9225
4	.597[d]	.356	.098	8.0947
5	.550[e]	.303	.187	7.6888
6	.000[f]	.000	.000	8.5252

a. Predictors: (Constant), LUAS, BANDAR, PENDUDUK, HUTAN, PERTANIA

b. Predictors: (Constant), LUAS, BANDAR, HUTAN, PERTANIA

c. Predictors: (Constant), LUAS, HUTAN, PERTANIA

d. Predictors: (Constant), LUAS, HUTAN

e. Predictors: (Constant), HUTAN

f. Predictor: (constant)

ANOVA[g]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	289.907	5	57.981	.530	.755[a]
	Residual	218.848	2	109.424		
	Total	508.755	7			
2	Regression	267.835	4	66.959	.834	.583[b]
	Residual	240.920	3	80.307		
	Total	508.755	7			
3	Regression	190.312	3	63.437	.797	.556[c]
	Residual	318.443	4	79.611		
	Total	508.755	7			
4	Regression	181.137	2	90.568	1.382	.333[d]
	Residual	327.618	5	65.524		
	Total	508.755	7			
5	Regression	154.048	1	154.048	2.606	.158[e]
	Residual	354.707	6	59.118		
	Total	508.755	7			
6	Regression	.000	0	.000	.	.
	Residual	508.755	7	72.679		
	Total	508.755	7			

a. Predictors: (Constant), LUAS, BANDAR, PENDUDUK, HUTAN, PERTANIA

b. Predictors: (Constant), LUAS, BANDAR, HUTAN, PERTANIA

c. Predictors: (Constant), LUAS, HUTAN, PERTANIA

d. Predictors: (Constant), LUAS, HUTAN

e. Predictors: (Constant), HUTAN

f. Predictor: (constant)

g. Dependent Variable: COD

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.698	23.970		.154	.892
	BANDAR	-7.088E-02	.082	-2.044	-.869	.476
	PENDUDUK	4.081E-04	.001	.531	.449	.697
	PERTANIA	-6.289E-02	.066	-14.210	-.946	.444
	HUTAN	-.116	.114	-10.501	-1.018	.416
	LUAS	7.397E-02	.077	22.589	.967	.436
2	(Constant)	12.140	12.743		.953	.411
	BANDAR	-4.187E-02	.043	-1.208	-.983	.398
	PERTANIA	-4.173E-02	.040	-9.427	-1.038	.375
	HUTAN	-7.739E-02	.064	-6.981	-1.216	.311
	LUAS	4.924E-02	.046	15.038	1.082	.359
3	(Constant)	17.612	11.411		1.543	.198
	PERTANIA	-4.836E-03	.014	-1.093	-.339	.751
	HUTAN	-2.249E-02	.030	-2.029	-.742	.499
	LUAS	8.236E-03	.018	2.515	.455	.673
4	(Constant)	20.917	5.400		3.873	.012
	HUTAN	-1.318E-02	.012	-1.189	-1.126	.311
	LUAS	2.225E-03	.003	.679	.643	.549
5	(Constant)	23.300	3.731		6.245	.001
	HUTAN	-6.100E-03	.004	-.550	-1.614	.158
6	(Constant)	19.175	3.014		6.362	.000

a. Dependent Variable: COD

Excluded Variables[f]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics: Tolerance
2	PENDUDUK	.531[a]	.449	.697	.303	.154
3	PENDUDUK	-.283[b]	-.410	.709	-.230	.413
	BANDAR	-1.208[b]	-.983	.398	-.493	.105
4	PENDUDUK	-.185[c]	-.319	.766	-.158	.466
	BANDAR	-.015[c]	-.034	.975	-.017	.824
	PERTANIA	-1.093[c]	-.339	.751	-.167	1.511E-02
5	PENDUDUK	-.284[d]	-.602	.573	-.260	.585
	BANDAR	-.109[d]	-.293	.781	-.130	.998
	PERTANIA	.338[d]	.544	.610	.236	.341
	LUAS	.679[d]	.643	.549	.276	.115
6	PENDUDUK	-.520[e]	-1.493	.186	-.520	1.000
	BANDAR	-.135[e]	-.334	.750	-.135	1.000
	PERTANIA	-.332[e]	-.861	.422	-.332	1.000
	LUAS	-.439[e]	-1.197	.276	-.439	1.000
	HUTAN	-.550[e]	-1.614	.158	-.550	1.000

a. Predictors in the Model: (Constant), LUAS, BANDAR, HUTAN, PERTANIA

b. Predictors in the Model: (Constant), LUAS, HUTAN, PERTANIA

c. Predictors in the Model: (Constant), LUAS, HUTAN

d. Predictors in the Model: (Constant), HUTAN

e. Predictor: (constant)

DO vs CIRI GUNATANAH

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.903[a]	.815	.352	1.3549
2	.653[b]	.427	-.338	1.9464
3	.620[c]	.385	-.077	1.7463
4	.506[d]	.256	-.042	1.7176
5	.201[e]	.040	-.120	1.7805
6	.000[f]	.000	.000	1.6827

a. Predictors: (Constant), LUAS, BANDAR, PENDUDUK, HUTAN, PERTANIA

b. Predictors: (Constant), LUAS, PENDUDUK, HUTAN, PERTANIA

c. Predictors: (Constant), LUAS, PENDUDUK, HUTAN

d. Predictors: (Constant), LUAS, HUTAN

e. Predictors: (Constant), HUTAN

f. Predictor: (constant)

ANOVA[g]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.148	5	3.230	1.759	.401[a]
	Residual	3.672	2	1.836		
	Total	19.820	7			
2	Regression	8.454	4	2.114	.558	.712[b]
	Residual	11.366	3	3.789		
	Total	19.820	7			
3	Regression	7.621	3	2.540	.833	.541[c]
	Residual	12.199	4	3.050		
	Total	19.820	7			
4	Regression	5.070	2	2.535	.859	.478[d]
	Residual	14.750	5	2.950		
	Total	19.820	7			
5	Regression	.799	1	.799	.252	.633[e]
	Residual	19.021	6	3.170		
	Total	19.820	7			
6	Regression	.000	0	.000	.	.[f]
	Residual	19.820	7	2.831		
	Total	19.820	7			

a. Predictors: (Constant), LUAS, BANDAR, PENDUDUK, HUTAN, PERTANIA

b. Predictors: (Constant), LUAS, PENDUDUK, HUTAN, PERTANIA

c. Predictors: (Constant), LUAS, PENDUDUK, HUTAN

d. Predictors: (Constant), LUAS, HUTAN

e. Predictors: (Constant), HUTAN

f. Predictor: (constant)

g. Dependent Variable: DO

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	13.447	3.105		4.331	.049
	BANDAR	2.162E-02	.011	3.159	2.047	.177
	PENDUDUK	-2.544E-04	.000	-1.677	-2.161	.163
	PERTANIA	1.854E-02	.009	21.224	2.153	.164
	HUTAN	3.650E-02	.015	16.682	2.466	.133
	LUAS	-2.253E-02	.010	-34.860	-2.273	.151
2	(Constant)	8.446	2.753		3.068	.055
	PENDUDUK	-6.346E-05	.000	-.418	-.615	.582
	PERTANIA	1.547E-03	.003	1.771	.469	.671
	HUTAN	7.697E-03	.007	3.517	1.164	.329
	LUAS	-3.082E-03	.004	-4.769	-.759	.503
3	(Constant)	7.694	2.007		3.833	.019
	PENDUDUK	-7.973E-05	.000	-.526	-.915	.412
	HUTAN	5.095E-03	.003	2.329	1.576	.190
	LUAS	-1.229E-03	.001	-1.902	-1.469	.216
4	(Constant)	6.199	1.146		5.410	.003
	HUTAN	3.252E-03	.002	1.486	1.308	.248
	LUAS	-8.834E-04	.001	-1.367	-1.203	.283
5	(Constant)	5.253	.864		6.080	.001
	HUTAN	4.394E-04	.001	.201	.502	.633
6	(Constant)	5.550	.595		9.329	.000

a. Dependent Variable: DO

Excluded Variables[f]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics: Tolerance
2	BANDAR	3.159[a]	2.047	.177	.823	3.891E-02
3	BANDAR	-.042[b]	-.069	.949	-.040	.547
	PERTANIA	1.771[b]	.469	.671	.261	1.340E-02
4	BANDAR	-.257[c]	-.563	.604	-.271	.824
	PERTANIA	2.553[c]	.781	.479	.364	1.511E-02
	PENDUDUK	-.526[c]	-.915	.412	-.416	.466
5	BANDAR	-.019[d]	-.043	.967	-.019	.998
	PERTANIA	-.664[d]	-.964	.379	-.396	.341
	PENDUDUK	-.144[d]	-.253	.810	-.113	.585
	LUAS	-1.367[d]	-1.203	.283	-.474	.115
6	BANDAR	-.009[e]	-.022	.983	-.009	1.000
	PERTANIA	-.063[e]	-.155	.882	-.063	1.000
	PENDUDUK	.045[e]	.110	.916	.045	1.000
	LUAS	.031[e]	.077	.941	.031	1.000
	HUTAN	.201[e]	.502	.633	.201	1.000

a. Predictors in the Model: (Constant), LUAS, PENDUDUK, HUTAN, PERTANIA

b. Predictors in the Model: (Constant), LUAS, PENDUDUK, HUTAN

c. Predictors in the Model: (Constant), LUAS, HUTAN

d. Predictors in the Model: (Constant), HUTAN

e. Predictor: (constant)

f. Dependent Variable: DO

NH_3N vs CIRI GUNATANAH

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.975[a]	.950	.827	.2594
2	.866[b]	.750	.416	.4764
3	.686[c]	.471	.074	.5996
4	.469[d]	.220	-.093	.6514
5	.089[e]	.008	-.157	.6705
6	.000[f]	.000	.000	.6232

a. Predictors: (Constant), LUAS, BANDAR, PENDUDUK, HUTAN, PERTANIA

b. Predictors: (Constant), LUAS, BANDAR, HUTAN, PERTANIA

c. Predictors: (Constant), LUAS, HUTAN, PERTANIA

d. Predictors: (Constant), LUAS, PERTANIA

e. Predictors: (Constant), PERTANIA

f. Predictor: (constant)

ANOVA[g]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.584	5	.517	7.679	.119[a]
	Residual	.135	2	6.730E-02		
	Total	2.719	7			
2	Regression	2.038	4	.510	2.245	.266[b]
	Residual	.681	3	.227		
	Total	2.719	7			
3	Regression	1.281	3	.427	1.187	.420[c]
	Residual	1.438	4	.360		
	Total	2.719	7			
4	Regression	.597	2	.298	.703	.538[d]
	Residual	2.122	5	.424		
	Total	2.719	7			
5	Regression	2.150E-02	1	2.150E-02	.048	.834[e]
	Residual	2.697	6	.450		
	Total	2.719	7			
6	Regression	.000	0	.000	.	.[f]
	Residual	2.719	7	.388		
	Total	2.719	7			

a. Predictors: (Constant), LUAS, BANDAR, PENDUDUK, HUTAN, PERTANIA

b. Predictors: (Constant), LUAS, BANDAR, HUTAN, PERTANIA

c. Predictors: (Constant), LUAS, HUTAN, PERTANIA

d. Predictors: (Constant), LUAS, PERTANIA

e. Predictors: (Constant), PERTANIA

f. Predictor: (constant)

g. Dependent Variable: NH3

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.933	.594		-1.569	.257
	BANDAR	-8.702E-03	.002	-3.433	-4.304	.050
	PENDUDUK	6.420E-05	.000	1.143	2.849	.104
	PERTANIA	-8.693E-03	.002	-26.869	-5.272	.034
	HUTAN	-1.437E-02	.003	-17.735	-5.070	.037
	LUAS	9.951E-03	.002	41.570	5.244	.034
2	(Constant)	.395	.677		.584	.600
	BANDAR	-4.139E-03	.002	-1.633	-1.827	.165
	PERTANIA	-5.364E-03	.002	-16.578	-2.511	.087
	HUTAN	-8.235E-03	.003	-10.161	-2.435	.093
	LUAS	6.061E-03	.002	25.322	2.505	.087
3	(Constant)	.936	.767		1.221	.289
	PERTANIA	-1.717E-03	.001	-5.307	-1.794	.147
	HUTAN	-2.808E-03	.002	-3.465	-1.379	.240
	LUAS	2.008E-03	.001	8.388	1.650	.174
4	(Constant)	1.864	.399		4.669	.005
	PERTANIA	-5.229E-04	.000	-1.616	-1.180	.291
	LUAS	3.818E-04	.000	1.595	1.164	.297
5	(Constant)	2.096	.356		5.880	.001
	PERTANIA	-2.877E-05	.000	-.089	-.219	.834
6	(Constant)	2.038	.220		9.247	.000

a. Dependent Variable: NH3

Excluded Variables[f]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
2	PENDUDUK	1.143[a]	2.849	.104	.896	.154
3	PENDUDUK	-.225[b]	-.352	.748	-.199	.413
	BANDAR	-1.633[b]	-1.827	.165	-.726	105
4	PENDUDUK	-.254[c]	-.377	.726	-.185	.414
	BANDAR	.278[c]	.435	.686	.213	.457
	HUTAN	-3.465[c]	-1.379	.240	-.568	2.095E-02
5	PENDUDUK	.241[d]	.530	.619	.231	.912
	BANDAR	.480[d]	1.157	.300	.459	.909
	HUTAN	.550[d]	.762	.480	.323	.341
	LUAS	1.595[d]	1.164	.297	.462	8.318E-02
6	PENDUDUK	.193[e]	.482	.647	.193	1.000
	BANDAR	.463[e]	1.280	.248	.463	1.000
	HUTAN	.115[e]	.284	.786	.115	1.000
	LUAS	.048[e]	.117	.911	.048	1.000
	PERTANIA	-.089[e]	-.219	.834	-.089	1.000

a. Predictors in the Model: (Constant), LUAS, BANDAR, HUTAN, PERTANIA

b. Predictors in the Model: (Constant), LUAS, HUTAN, PERTANIA

c. Predictors in the Model: (Constant), LUAS, PERTANIA

d. Predictors in the Model: (Constant), PERTANIA

e. Predictor: (constant)

f. Dependent Variable: NH3

SS vs CIRI GUNATANAH

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.872[a]	.760	.160	25.9988
2	.824[b]	.679	.250	24.5588
3	.810[c]	.656	.399	21.9931
4	.615[d]	.378	.129	26.4691
5	.236[e]	.056	-.102	29.7740
6	.000[f]	.000	.000	28.3655

a. Predictors: (Constant), LUAS, BANDAR, PENDUDUK, HUTAN, PERTANIA

b. Predictors: (Constant), LUAS, PENDUDUK, HUTAN, PERTANIA

c. Predictors: (Constant), LUAS, PENDUDUK, HUTAN

d. Predictors: (Constant), LUAS, HUTAN

e. Predictors: (Constant), HUTAN

f. Predictor: (constant)

ANOVA[g]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4280.337	5	856.067	1.266	.497[a]
	Residual	1351.872	2	675.936		
	Total	5632.209	7			
2	Regression	3822.808	4	955.702	1.585	.367[b]
	Residual	1809.401	3	603.134		
	Total	5632.209	7			
3	Regression	3697.426	3	1232.475	2.548	.194[c]
	Residual	1934.783	4	483.696		
	Total	5632.209	7			
4	Regression	2129.138	2	1064.569	1.519	.305[d]
	Residual	3503.071	5	700.614		
	Total	5632.209	7			
5	Regression	313.250	1	313.250	.353	.574[e]
	Residual	5318.959	6	886.493		
	Total	5632.209	7			
6	Regression	.000	0	.000	.	.[f]
	Residual	5632.209	7	804.601		
	Total	5632.209	7			

a. Predictors: (Constant), LUAS, BANDAR, PENDUDUK, HUTAN, PERTANIA

b. Predictors: (Constant), LUAS, PENDUDUK, HUTAN, PERTANIA

c. Predictors: (Constant), LUAS, PENDUDUK, HUTAN

d. Predictors: (Constant), LUAS, HUTAN

e. Predictors: (Constant), HUTAN

f. Predictor: (constant)

g. Dependent Variable: SS

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	160.194	59.575		2.689	.115
	BANDAR	.167	.203	1.445	.823	.497
	PENDUDUK	-3.249E-03	.002	-1.271	-1.439	.287
	PERTANIA	.150	.166	10.187	.908	.460
	HUTAN	.366	.284	9.934	1.290	.326
	LUAS	-.199	.190	-16.311	-1.049	.404
2	(Constant)	121.631	34.736		3.502	.039
	PENDUDUK	-1.777E-03	.001	-.695	-1.365	.266
	PERTANIA	1.898E-02	.042	1.289	.456	.679
	HUTAN	.144	.083	3.912	1.729	.182
	LUAS	-4.952E-02	.051	-4.545	-.967	.405
3	(Constant)	112.399	25.276		4.447	.011
	PENDUDUK	-1.977E-03	.001	-.773	-1.801	.146
	HUTAN	.112	.041	3.047	2.761	.051
	LUAS	-2.679E-02	.011	-2.459	-2.542	.064
4	(Constant)	75.340	17.659		4.266	.008
	HUTAN	6.670E-02	.038	1.808	1.741	.142
	LUAS	-1.822E-02	.011	-1.672	-1.610	.168
5	(Constant)	55.830	14.448		3.864	.008
	HUTAN	8.699E-03	.015	.236	.594	.574
6	(Constant)	61.713	10.029		6.154	.000

a. Dependent Variable: SS

Excluded Variables[f]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
2	BANDAR	1.445[a]	.823	.497	.503	3.891E-02
3	BANDAR	-.092[b]	-.202	.853	-.116	.547
	PERTANIA	1.289[b]	.456	.679	.255	1.340E-02
4	BANDAR	-.398[c]	-1.031	.361	-.458	.824
	PERTANIA	2.587[c]	.881	.428	.403	1.511E-02
	PENDUDUK	-.773[c]	-1.801	.146	-.669	.466
5	BANDAR	-.092[d]	-.212	.841	-.094	.998
	PERTANIA	-.836[d]	-1.299	.251	-.502	.341
	PENDUDUK	-.280[d]	-.505	.635	-.220	.585
	LUAS	-1.672[d]	-1.610	.168	-.584	.115
6	BANDAR	-.080[e]	-.197	.851	-.080	1.000
	PERTANIA	-.093[e]	-.230	.826	-.093	1.000
	PENDUDUK	-.012[e]	-.029	.978	-.012	1.000
	LUAS	.029[e]	.071	.946	.029	1.000
	HUTAN	.236[e]	.594	.574	.236	1.000

a. Predictors in the Model: (Constant), LUAS, PENDUDUK, HUTAN, PERTANIA

b. Predictors in the Model: (Constant), LUAS, PENDUDUK, HUTAN

c. Predictors in the Model: (Constant), LUAS, HUTAN

d. Predictors in the Model: (Constant), HUTAN

e. Predictor: (constant)

f. Dependent Variable: SS

NO_3 vs CIRI GUNATANAH

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.858[a]	.736	.075	.5367
2	.833[b]	.695	.287	.4711
3	.798[c]	.636	.363	.4454
4	.788[d]	.621	.470	.4062

a. Predictors: (Constant), LUAS, BANDAR, PENDUDUK, HUTAN, PERTANIA

b. Predictors: (Constant), LUAS, BANDAR, HUTAN, PERTANIA

c. Predictors: (Constant), BANDAR, HUTAN, PERTANIA

d. Predictors: (Constant), BANDAR, PERTANIA

ANOVA[e]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.604	5	.321	1.114	.536[a]
	Residual	.576	2	.288		
	Total	2.180	7			
2	Regression	1.514	4	.379	1.706	.345[b]
	Residual	.666	3	.222		
	Total	2.180	7			
3	Regression	1.387	3	.462	2.330	.216[c]
	Residual	.793	4	.198		
	Total	2.180	7			
4	Regression	1.355	2	.677	4.105	.088[d]
	Residual	.825	5	.165		
	Total	2.180	7			

a. Predictors: (Constant), LUAS, BANDAR, PENDUDUK, HUTAN, PERTANIA

b. Predictors: (Constant), LUAS, BANDAR, HUTAN, PERTANIA

c. Predictors: (Constant), BANDAR, HUTAN, PERTANIA

d. Predictors: (Constant), BANDAR, PERTANIA

e. Dependent Variable: NO3

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.826	1.230		2.298	.148
	BANDAR	4.561E-03	.004	2.009	1.090	.389
	PENDUDUK	-2.603E-05	.000	-.518	-.558	.633
	PERTANIA	3.093E-03	.003	10.676	.907	.460
	HUTAN	5.177E-03	.006	7.134	.883	.470
	LUAS	-3.392E-03	.004	-15.823	-.864	.479
2	(Constant)	2.287	.670		3.415	.042
	BANDAR	2.711E-03	.002	1.194	1.210	.313
	PERTANIA	1.743E-03	.002	6.016	.825	.470
	HUTAN	2.688E-03	.003	3.704	.804	.480
	LUAS	-1.815E-03	.002	-8.467	-.758	.503
3	(Constant)	1.918	.435		4.414	.012
	BANDAR	1.153E-03	.001	.508	1.363	.245
	PERTANIA	1.481E-04	.000	.511	.801	.468
	HUTAN	1.767E-04	.000	.244	.400	.710
4	(Constant)	1.843	.358		5.147	.004
	BANDAR	1.332E-03	.001	.587	2.034	.098
	PERTANIA	2.123E-04	.000	.733	2.539	.052

a. Dependent Variable: NO3

Excluded Variables[d]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
2	PENDUDUK	-.518[a]	-.558	.633	-.367	.154
3	PENDUDUK	.059[b]	.095	.930	.055	.319
	LUAS	-8.467[b]	-.758	.503	-.401	8.165E-04
4	PENDUDUK	.140[c]	.320	.765	.158	.482
	LUAS	.419[c]	.281	.792	.139	4.182E-02
	HUTAN	.244[c]	.400	.710	.196	.245

a. Predictors in the Model: (Constant), LUAS, BANDAR, HUTAN, PERTANIA

b. Predictors in the Model: (Constant), BANDAR, HUTAN, PERTANIA

c. Predictors in the Model: (Constant), BANDAR, PERTANIA

d. Dependent Variable: NO3

PO_4 vs CIRI GUNATANAH

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.807[a]	.651	-.221	.4602
2	.807[b]	.651	.185	.3761
3	.740[c]	.547	.207	.3708
4	.617[d]	.381	.134	.3877
5	.596[e]	.355	.248	.3612
6	.000[f]	.000	.000	.4165

a. Predictors: (Constant), LUAS, BANDAR, PENDUDUK, HUTAN, PERTANIA

b. Predictors: (Constant), LUAS, BANDAR, HUTAN, PERTANIA

c. Predictors: (Constant), LUAS, HUTAN, PERTANIA

d. Predictors: (Constant), LUAS, HUTAN

e. Predictors: (Constant), HUTAN

f. Predictor: (constant)

ANOVA[g]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.791	5	.158	.747	.658[a]
	Residual	.424	2	.212		
	Total	1.214	7			
2	Regression	.790	4	.197	1.396	.408[b]
	Residual	.424	3	.141		
	Total	1.214	7			
3	Regression	.664	3	.221	1.610	.321[c]
	Residual	.550	4	.138		
	Total	1.214	7			
4	Regression	.463	2	.231	1.539	.301[d]
	Residual	.752	5	.150		
	Total	1.214	7			
5	Regression	.431	1	.431	3.305	.119[e]
	Residual	.783	6	.130		
	Total	1.214	7			
6	Regression	.000	0	.000	.	.[f]
	Residual	1.214	7	.173		
	Total	1.214	7			

a. Predictors: (Constant), LUAS, BANDAR, PENDUDUK, HUTAN, PERTANIA

b. Predictors: (Constant), LUAS, BANDAR, HUTAN, PERTANIA

c. Predictors: (Constant), LUAS, HUTAN, PERTANIA

d. Predictors: (Constant), LUAS, HUTAN

e. Predictors: (Constant), HUTAN

f. Predictor: (constant)

g. Dependent Variable: PO4

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.501E-02	1.055		.062	.956
	BANDAR	-1.526E-03	.004	-.901	-.425	.712
	PENDUDUK	-2.261E-06	.000	-.060	-.057	.960
	PERTANIA	-2.085E-03	.003	-9.644	-.713	.550
	HUTAN	-3.938E-03	.005	-7.271	-.783	.516
	LUAS	2.481E-03	.003	15.510	.737	.538
2	(Constant)	1.825E-02	.535		.034	.975
	BANDAR	-1.687E-03	.002	-.996	-.943	.415
	PERTANIA	-2.202E-03	.002	-10.186	-1.306	.283
	HUTAN	-4.154E-03	.003	-7.670	-1.556	.218
	LUAS	2.618E-03	.002	16.366	1.370	.264
3	(Constant)	.239	.474		.503	.641
	PERTANIA	-7.166E-04	.001	-3.314	-1.210	.293
	HUTAN	-1.943E-03	.001	-3.587	-1.543	.198
	LUAS	9.665E-04	.001	6.041	1.284	.269
4	(Constant)	.728	.259		2.816	.037
	HUTAN	-5.640E-04	.001	-1.041	-1.005	.361
	LUAS	7.575E-05	.000	.474	.457	.667
5	(Constant)	.810	.175		4.618	.004
	HUTAN	-3.228E-04	.000	-.596	-1.818	.119
6	(Constant)	.591	.147		4.015	.005

a. Dependent Variable: PO4

Excluded Variables[f]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
2	PENDUDUK	-.060[a]	-.057	.960	-.040	.154
3	PENDUDUK	-.419[b]	-.756	.504	-.400	.413
	BANDAR	-.996[b]	-.943	.415	-.478	.105
4	PENDUDUK	-.171[c]	-.300	.779	-.148	.466
	BANDAR	.293[c]	.719	.512	.338	.824
	PERTANIA	-3.314[c]	-1.210	.293	-.518	1.511E-02
5	PENDUDUK	-.231[d]	-.505	.635	-.220	.585
	BANDAR	.175[d]	.499	.639	.218	.998
	PERTANIA	.122[d]	.200	.850	.089	.341
	LUAS	.474[d]	.457	.667	.200	.115
6	PENDUDUK	-.519[e]	-1.488	.187	-.519	1.000
	BANDAR	.146[e]	.360	.731	.146	1.000
	PERTANIA	-.442[e]	-1.208	.273	-.442	1.000
	LUAS	-.506[e]	-1.437	.201	-.506	1.000
	HUTAN	-.596[e]	-1.818	.119	-.596	1.000

a. Predictors in the Model: (Constant), LUAS, BANDAR, HUTAN, PERTANIA

b. Predictors in the Model: (Constant), LUAS, HUTAN, PERTANIA

c. Predictors in the Model: (Constant), LUAS, HUTAN

d. Predictors in the Model: (Constant), HUTAN

e. Predictor: (constant)

f. Dependent Variable: PO4

LAMPIRAN K

Table 5.1 Method of disposal of waste by industries in the Seremban Municipality, Linggi River Basin.

Type of Industry	Methods of Disposing (percentage of Total Firms)				
	Local Authority	**Selling**	**Dumping**	**Burning**	**Recycling**
Food Processing	9.8	4.4	10.0	4.7	16.7
Motor Works	19.6	13.0	18.3	2.3	0
Engineering	21.6	17.4	11.7	4.7	0
Timber-based	0	13.0	3.3	32.6	0
Construction	2.0	0	10.0	6.9	0
Metal Works	2.0	17.4	10.0	2.3	66.6
Electrical	7.8	4.4	5.0	4.7	16.7
Transport	2.0	0	5.0	2.3	0
Others	41.2	30.4	26.7	39.5	0
All Industries	24.6	22.2	29.0	20.8	3.4

Source : Seremban Structur Plan, 1980.

TABLE 5.2 Summary of the activities of industries, effluent generated and their disposal in the Linggi River Basin

FACTORY /LOCATION	MAJOR RAW MATERIAL INPUT	MATERIAL OUTPUT	WATER SOURCE	EFFLUENT TYPE	DISPOSAL METHOD	RECEIVING STREAM
TEXTILE/TEXTILE PRODUCT						
Chempaka Textile, Senawang	Viscose, cotton, polster, dyes	Yarn, spinning	—	Dye water with other chemicals	Chemically treated	Simin River
Kim Fashion, Senawang	Acrylic, cotton, wool, oxford, nylon, dyes	Socks, caps, pullovers, hand-gloves, yarn	—	Dye water	Chemically treated	Simin River
CHEMICAL INDUSTRIES						
Union polymers, Senawang	Vinyl aetate,vinyl acrylic,surfactant, polyvinly, alcohol	Synthetic resin emulsion	—	Waste water	Chemically treated	Simin River
ELECTRIC AND ELECTRONIC PRODUCT						
NAITO, Senawang	Paper cartons, acetone	Transistors, silicon diode	—	Waste chemicals acetone, etc	Untreated	Simin River
ABE HOTOME	Paper cartonss,iron, brass, copper thrichloro ethylene	Electronic casings, press buttons	—	Waste oil	Untreated	Simin River
METAL INDUSTRIES						
DORF, Senawang	Metal components, glue, lubricants	Taps, showers	—	Acid water	Untreated	Simin River
Seremban Metal, Senawang	Metal components	Wire nails	—	Waste water	Chemically treated	Simin River

TABLE 5.2 Summary of the activities of industries, effluent generated and their disposal in the Linggi River Basin

FACTORY /LOCATION	MAJOR RAW MATERIAL INPUT	MATERIAL OUTPUT	WATER SOURCE	EFFLUENT TYPE	DISPOSAL METHOD	RECEIVING STREAM
FOOD PROCESSING INDUSTRIES						
Chung Weng, Senawang	Caramel, salt, soya bean, wheat, flour, flavouring, saccharin	Soya souce bottoled chilles vinegar	—	Waste water	Untreated	Simin River
Senawang Edible Oil Sdn. Bhd., Senawang	Fuel oil	Edible oil		Waste water	Untreated	Simin River
POULTRY RELATED INDUSTRIES						
FAMA, Senawang	Chicken meat	Processed meat	—	Waste water	Untreated	Simin River
Far East Food Processing, Senawang.	Chicken feathers, dried fish	Poultry by products	—	Waste water	Untreated	Simin River
TIMBER PROCESSING INDUSTRIES						
United Plywood and Saw Mills Sdn. Bhd., Senawang	Wood, glues	Plywood	—	Waste water	Untreated	Senawang River
RUBBER BASED INDUSTRIES						
Dunlopillo Malaysia Sd. Bhd., Seremban	String frame, coconut fibres, plastics, wood slots rubber, chemicals	Foam rubber	—	Waste water with chemicals	Primary sedimentation pond	Linggi River
Dunlop Sports	Sulphur, zinc oxide, surlyn, latex cut, polybutadiene	Golf balls	—	Waste water	Untreated	Simin River
Industrial Rubber	P.V. latex, calcium nitrate, HCI	Rubber gloves	—	Waste water	—	Simin River

FACTORY /LOCATION	MAJOR RAW MATERIAL INPUT	MATERIAL OUTPUT	WATER SOURCE	EFFLUENT TYPE	DISPOSAL METHOD	RECEIVING STREAM
SLAUGHTER HOUSE						
Veterinary Dept.	Pig and cattle	Meat	—	Waste water	Untreated	Simin River
MISCELLANEOUS INDUSTRIES						
H & R Johnson	China clay, lime stone, silica sand, sodium trypoly-phosphate	Ceramic wall tiles	—	Waste water	Untreated	Simin River
Pantile	Cement, colour oxide, sand, zinc chip	Roof tiles and ridges	—	Waste water with colour oxide	Untreated	Simin River
Seremban Fibre Containers	Duraband glues, ink, laminar film	Corrugated paper cartons	—	Waste water	Untreated	Simin River
RUBBER FACTORIES						
Lam Seng Manufacturing Sdn. Bhd., Seremban	Cup lumps, rubber sheets	SMR 10 SMR 20	Batang Penar River	Waste water	Untreated	Batang Oenar River
Nam Hong Trading Sdn. Bhd., Seremban	Cup lumps. Tree laces, sheet, cuttings	SMR 20 SMR 5 SMR 10 SMR 50	Linggi River (s.s)	Waste water	Untreated	Linggi River (s.s0
Lee Rubber Co. Sdn. Bhd., Seremban	Cup lumps, tree laces	SMR USS	Linggi River (s.s)	Waste water	Anaerobic & facultative ponds. Half treated and recycled	Senawang River

FACTORY /LOCATION	MAJOR RAW MATERIAL INPUT	MATERIAL OUTPUT	WATER SOURCE	EFFLUENT TYPE	DISPOSAL METHOD	RECEIVING STREAM
RUBBER FACTORIES						
Seremban Estate factory, Gadut River	Cup lumps, tree laces, latex	SMR 10 SMR CV	Simin River	Waste water	Treated	Simin River
Malaysian Rubber Development Corporation (MARDEC), Ulu Ara	Field latex	Latex concentrate skim	Kayu Ara River	Waste water	Untreated	Kayu Ara River
Gan Teng Siew Realty Sdn. Bhd., Rantau	Field latex	SMR	Kundor Besar River	Waste water	Anaerobic pond	Kundor Besar River
Sua Grensing Estate Factory, Rantau	Field latex	RSS	—	Waste water	Untreated	Linggi River
Siliau Estate Factory, Siliau	Field latex	Crep	Siliau	Waste water	Untreated	Siliau River
Atherton Estate Factory, Siliau	Field latex	Latex concentrate	Pond and JKR water	Waste water	Treated	Siliau River
Tampin-Linggi estate Factory, Linggi	Field latex	RSS, SMR, USS	—	Waste water	Untreated	Linggi River
Kota Trading, Rembau	Field latex	Latex concentrate skim, SMR	Rembau River	Waste water	Recycled after treatment	Linggi River
PALM OIL MILLS						
Guthrie Palm Oil Processing Sdn. Bhd.	Fresh fruit Brunches	Crude palm oil and palm kernel	Siliau River	Waste water and sludge	Two stage anaerobic lagoons	Siliau River
Gan Teng Siew Realty Sd. Bhd., Rantau	Fresh fruit, brunches	Crude palm oil	Kundor Besar River	Waste water and sludge	Anaerobic and facultative ponds	Kundor Besar River

Table 5.3 Waste volume and pollution loads from rubber and palm oil mills in the Linggi River Basin.

Factory	Daily Production tonne/day	Volume m3/day	Pollution load kg/day BOD	COD	SS	TS	N
RUBBER							
Lam Seng Manufacturing Sdn. Bhd., Seremban	40 (SMR)*	292.84	7.03	49.20	31.63	66.48	2.14
Nan Hong trading Co. Sdn. Bhd., Seremban	40 (SMR)*	37086.00	2040.00 705.00	8233.00	2003.00	7417.00	
Lee Rubber Co. Sdn. Bhd., Seremban	24 (SMR)*	667.00	36.02	136.74	50.03	315.49	23.35
Seremban Estate Factory, Gadut River	10 (SMR)*	45.50	3.288	18.34	2.96	36.40	3.69
Malaysian Rubber Development Corporation (Mardec.), Ulu Ara	—	131.00	7.60	45.75	4.72	114.32	21.24
Gan Teng Siew Realty Sdn. Bhd., Rantau	5 (SMR)*	11.00	0.26	2.71	—	8.80	0.21
Siliau Estate Factory, Siliau	70 (CREP)*	383.00	5.75	35.62	—	153.20	14.55
Atherton Estate Factory, Siliau	17 (SMR)*	11.00	12.10	—	2.94	—	2.42
Kota Trading, Rembau	60 (SMR)* 830 (SMR)*	145.00 360.0	8.56 4.32	28.71 24.12	12.33 7.92	69.46 376.20	7.11 22.68
Total		39132.44	2124.90 802.68	8574.20	2115.53	8548.35	
PALM OIL							
Guthrie Palm Oil Processing Sdn. Bhd., Rantau	48	215.20	322.80 470.00	8608.00	8156.08	9468.80	
Gan Teng Seiw Realty Sdn. Bhd., Rantau	74	288.00	46.08 57.02	456.48	57.60	1584.00	
Total	122	503.20	368.88 527.02	9064.68	8213.68	11052.80	

* Figure from the 1983 DOE survey

Table 5.4

Estimated waste volume and pollution load from the major industrial sources in the Linggi River Basin.

Industry/location	Waste volume m^3/day	Pollution load kg/day			
		BOD	COD	SS	NH-N
Dunlopillo Malaysia Sdn. Bhd., Seremban	330	152	456	92	46
United Plywood and Saw mill Sdn. Bhd., Senawang (1)	180	134	2394	308	4
Senawang Edible Oil Sdn. Bhd., senawang (1)	230	920	1380	690	0.05
Kim Fashion, Senawang (1)	600	120	244	189	—
MCIS, Senawang (2)	223	—	244	—	3.4
Chempaka (2)	406	607	—	308	—
Majuternak Chicken Poultry (1)	30	15	37	15	1.5
National Livestock Development Authority (1)	180	1636	1836	173	21
TOTAL	2179	3584	6571	1775	75.95

Note : (1) calculated from the data given in Master Plan, 1982.
(2) calculated by using production figures (WHO 1982)

Table 5.5 **Waste volume and pollution loads generated from domestic sources in the Linggi River Basin (excluding Port Dickson town).**

Area	Population	Waste volume m³/day	Pollution load tonne/day BOD	COD	SS	N	P
Seremban Municipality	136,200	10,262 (1)	3.70	8.20	3.70	0.62	0.08
		672 (2)	1.00	2.4	3.00		
Rantau	2,641	199 (1)	0.07	0.16	0.07	0.01	0.002
		13 (2)	0.02	0.05	0.06		
Rembau	1,715	129 (1)	0.05	0.10	0.05	0.008	0.001
		9 (2)	0.01	0.03	0.04		
Remainder	165,253	12,451 (1)	4.50	10.00	4.50	0.75	0.09
		815 (2)	1.20	2.90	3.60		
Total	305,809	24,550	10.55	23.84	15.02	1.388	0.173

Note : (1) directly connected to sewer or water course
(2) not connected to sewer or water course directly

Sumber : Jabatan Alam Sekitar, 1989

LAMPIRAN L

JADUAL KETEPUAN OKSIGEN (*DO SATURATION*)

Temp. °C	Dissolved oxygen as mg/l									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0	14.65	14.61	14.57	14.53	14.49	14.45	14.41	14.37	14.33	14.29
1	14.25	14.21	14.17	14.13	14.09	14.05	14.02	13.98	13.94	13.90
2	13.86	13.82	13.79	13.75	13.71	13.68	13.64	13.60	13.56	13.53
3	13.49	13.46	13.42	13.38	13.35	13.31	13.28	13.24	13.20	13.17
4	13.13	13.10	13.06	13.03	13.00	12.96	12.93	12.89	12.86	12.82
5	12.79	12.76	12.72	12.69	12.66	12.62	12.59	12.56	12.53	12.49
6	12.46	12.43	12.40	12.36	12.33	12.30	12.27	12.24	12.21	12.18
7	12.14	12.11	12.08	12.05	12.02	11.99	11.96	11.93	11.90	11.87
8	11.84	11.81	11.78	11.75	11.72	11.70	11.67	11.64	11.61	11.58
9	11.55	11.52	11.49	11.47	11.44	11.41	11.38	11.35	11.33	11.30
10	11.27	11.24	11.22	11.19	11.16	11.14	11.11	11.08	11.06	11.03
11	11.00	10.98	10.95	10.93	10.90	10.87	10.85	10.82	10.80	10.77
12	10.75	10.72	10.70	10.67	10.65	10.62	10.60	10.57	10.55	10.52
13	10.50	10.48	10.45	10.43	10.40	10.38	10.36	10.33	10.31	10.28
14	10.26	10.24	10.22	10.19	10.17	10.15	10.12	10.10	10.08	10.06
15	10.03	10.01	9.99	9.97	9.95	9.92	9.90	9.88	9.86	9.84
16	9.82	9.79	9.77	9.75	9.73	9.71	9.69	9.67	9.65	9.63
17	9.61	9.58	9.56	9.54	9.52	9.50	9.48	9.46	9.44	9.42
18	9.40	9.38	9.36	9.34	9.32	9.30	9.29	9.27	9.25	9.23
19	9.21	9.19	9.17	9.15	9.13	9.12	9.10	9.08	9.06	9.04
20	9.02	9.00	8.98	8.97	8.95	8.93	8.91	8.90	8.88	8.86
21	8.84	8.82	8.81	8.79	8.77	8.75	8.74	8.72	8.70	8.68
22	8.67	8.65	8.63	8.62	8.60	8.58	8.56	8.55	8.53	8.52
23	8.50	8.48	8.46	8.45	8.43	8.42	8.40	8.38	8.37	8.35
24	8.33	8.32	8.30	8.29	8.27	8.25	8.24	8.22	8.21	8.19
25	8.18	8.16	8.14	8.13	8.11	8.10	8.08	8.07	8.05	8.04
26	8.02	8.01	7.99	7.98	7.96	7.95	7.93	7.92	7.90	7.89
27	7.87	7.86	7.84	7.83	7.81	7.80	7.78	7.77	7.75	7.74
28	7.72	7.71	7.69	7.68	7.66	7.65	7.64	7.62	7.61	7.59
29	7.58	7.56	7.55	7.54	7.52	7.51	7.49	7.48	7.47	7.45
30	7.44	7.42	7.41	7.40	7.38	7.37	7.35	7.34	7.32	7.31

Sumber : Nemerow, N.L., 1974, "Scientifik Stream Pollution Anaylisis, McGraw-Hall Book Comp., New York

LAMPIRAN M

DATA KUALITI AIR BAGI CAWANGAN SG. LINGGI 1998 (IKAN)

SNO	SUNGAI	TARIKH	SUHU	BOD_5	COD	%DO	DO	NH_3-N	SS	PH	NO_3	PO_4
1	SG. JERALANG	28/4/98	29.9	2.90	5.00	88	6.80	0.27	14.50	6.48	1.40	0.10
		5/5/98	28.6	5.40	14.00	100	7.20	0.60	39.00	6.80	2.50	0.14
		25/6/98	29.8	2.00	4.00	86	6.70	0.20	28.00	6.80	0.12	0.12
		PURATA	29.4	3.4	7.7	96	6.9	0.4	27.2	6.7	1.3	0.1
2	SG. BATANG PENAR	28/4/98	30.4	3.80	6.00	74	5.90	0.66	40.00	6.31	2.10	0.31
		5/5/98	29.8	8.80	18.00	73	6.10	0.80	62.00	6.60	5.20	0.28
		25/6/98	30.8	2.80	5.00	69	5.50	0.60	18.00	6.20	2.90	0.23
		PURATA	30.3	5.1	9.7	75	5.8	0.7	40.0	6.4	3.4	0.3
3	SG. TERIP	28/4/98	32.7	2.20	5.00	67	5.00	0.16	5.00	6.63	0.95	0.11
		5/5/98	30.9	1.80	4.00	86	6.80	0.21	9.00	6.39	1.10	0.13
		25/6/98	30.8	1.50	3.00	82	6.40	0.20	5.00	6.70	1.00	0.04
		PURATA	31.5	1.8	4.0	79	6.1	0.2	6.3	6.6	1.0	0.1
4	SG. SIKAMAT	28/4/98	34.0	6.90	83.00	51	3.80	1.27	68.70	7.30	5.30	2.40
		5/5/98	31.2	9.10	130.00	43	3.20	2.75	30.00	7.45	9.10	2.75
		25/6/98	31.7	45.00	104.00	35	2.60	2.80	30.00	6.90	6.20	2.75
		PURATA	32.3	20.3	105.7	43	3.2	2.3	42.9	7.2	6.9	2.6
5	SG. PAROI	28/4/98	29.9	4.20	10.00	100	7.30	2.04	16.00	6.93	1.90	0.36
		5/5/98	28.7	12.10	21.00	100	7.90	2.39	256.00	6.48	2.80	0.58
		25/6/98	30.8	6.80	8.00	100	7.80	2.80	66.00	7.10	4.10	0.48
		PURATA	29.8	7.7	13.0	100	7.7	2.4	112.7	6.8	2.9	0.5
6	SG. TEMIANG	28/4/98	32.2	8.55	62.00	28	2.30	2.55	676.00	6.98	3.50	2.40
		5/5/98	32.9	20.20	105.00	36	2.70	2.75	106.00	7.60	4.10	2.75
		25/6/98	32.5	40.00	130.00	28	2.10	2.75	70.00	7.16	6.90	2.67
		PURATA	32.5	22.9	99.0	28	2.4	2.7	284.0	7.2	4.8	2.6
7	TEMIANG DIV.	28/4/98	32.2	2.00	19.00	56	4.38	1.10	15.00	6.61	2.80	0.46
2719609		5/5/98	30.9	12.60	25.00	100	7.90	1.66	43.00	6.93	4.30	0.62
		25/6/98	29.3	3.10	8.00	74	6.10	2.80	202.00	6.40	3.40	0.53
		PURATA	30.8	5.9	17.3	74	6.1	1.9	86.7	6.6	3.5	0.5
8	KEPAYONG	28/4/98	32.5	6.04	17.00	28	2.40	1.80	17.00	6.61	1.98	0.56
2719608		5/5/98	31.4	6.40	28.00	36	2.70	2.75	29.00	6.87	2.70	0.89
		25/6/98	31.3	12.80	21.00	68	5.30	2.29	23.00	6.13	3.00	0.57
		PURATA	31.7	8.4	22.0	43	3.5	2.3	23.0	6.5	2.6	0.7
9	SG. SENAWANG	28/4/98	31.4	7.50	18.00	45	3.40	2.75	29.00	7.20	1.35	0.53
		5/5/98	29.2	20.30	29.00	46	4.60	2.75	43.00	7.30	2.90	0.72
		25/6/98	28.2	17.70	15.00	86	6.50	2.75	36.00	7.60	2.40	0.56
		PURATA	29.6	15.2	20.7	60	4.8	2.8	36.0	7.4	2.2	0.6
10	SG. MANTAU	28/4/98	30.1	2.50	12.00	100	8.50	0.39	11.50	6.52	1.60	0.02
		5/5/98	29.9	7.50	14.00	72	5.60	1.58	139.00	6.51	1.90	0.03
		25/6/98	31.7	9.00	11.00	100	8.40	0.20	27.00	6.23	2.90	0.05
		PURATA	30.6	6.3	12.3	100	7.5	0.7	59.2	6.4	2.1	0.0
11	SG. KAYU ARA	28/4/98	29.1	4.70	12.00	100	8.80	1.00	10.50	6.55	4.80	0.34
		5/5/98	30.1	30.10	39.00	81	6.40	2.75	499.00	6.90	6.00	0.78
		25/6/98	31.1	23.60	27.00	75	5.80	2.75	825.00	6.84	24.00	1.42
		PURATA	30.1	19.5	26.0	98	7.0	2.2	444.8	6.8	11.6	0.8
12	SG. BEMBAN	28/4/98	29.4	4.20	6.00	67	5.00	1.60	79.00	6.08	4.90	0.12
		5/5/98	28.6	5.80	10.30	84	6.80	1.89	139.00	6.51	6.00	0.53
		25/6/98	30.2	7.80	5.00	72	5.60	0.96	32.00	6.87	3.60	0.34
		PURATA	29.4	5.9	7.1	77	5.8	1.5	83.3	6.5	4.8	0.3
13	SG. BELANGKON	28/4/98	28.8	16.90	12.00	79	5.90	2.75	62.00	6.52	2.60	0.51
		5/5/98	31.4	12.30	19.00	81	6.40	2.06	106.00	6.15	4.90	2.44
		25/6/98	33.1	7.80	24.00	84	6.80	0.99	6.00	6.90	1.80	0.47
		PURATA	31.1	12.3	18.3	82	6.4	1.9	58.0	6.5	3.1	1.1

DATA KUALITI AIR BAGI CAWANGAN SG. LINGGI 1998 (IKAN)												
SNO	SUNGAI	TARIKH	SUHU	BOD_5	COD	%DO	DO	NH_3-N	SS	PH	NO_3	PO_4
14	SG. NYATOH	28/4/98	30.8	13.10	22.00	42	3.10	1.33	41.00	6.65	1.60	0.23
		5/5/98	31.1	16.40	56.00	56	4.50	2.75	92.00	7.30	2.00	0.65
		25/6/98	29.8	7.40	36.00	33	2.50	2.75	77.00	6.85	3.00	2.75
		PURATA	30.6	12.3	38.0	44	3.4	2.3	70.0	6.9	2.2	1.2
15	SIMIN	28/4/98	33.9	0.58	11.00	63	4.88	1.00	11.00	6.88	1.30	0.12
2519605		5/5/98	34.7	3.70	18.30	67	5.00	2.75	104.00	6.49	6.20	0.15
		25/6/98	32.5	7.70	6.00	72	5.60	2.70	30.00	7.00	2.60	0.16
		PURATA	33.7	4.0	11.8	64	5.2	2.2	48.3	6.8	3.4	0.1
16	SG. SEGA	28/4/98	31.2	6.10	4.00	100	7.10	0.78	82.00	4.77	2.30	0.12
		5/5/98	30.4	7.40	10.00	82	6.50	1.65	293.00	5.80	4.10	0.25
		25/6/98	30.8	4.30	3.00	91	6.90	1.10	30.50	6.10	1.10	0.07
		PURATA	30.8	5.9	5.7	92	6.8	1.2	135.2	5.6	2.5	0.1
17	SG. SILIAU	28/4/98	30.7	35.10	16.00	36	2.8	2.14	8.00	5.99	1.50	0.15
		5/5/98	29.8	4.70	29.00	84	6.80	2.53	112.00	6.10	2.20	0.44
		25/6/98	31.2	6.30	8.00	100	7.30	2.75	5.00	6.02	12.00	0.03
		PURATA	30.6	15.4	17.7	86	5.6	2.5	41.7	6.0	5.2	0.2
18	SG. SOLOK	28/4/98	31.8	4.30	19.00	73	5.80	1.00	34.00	6.10	2.20	0.02
		5/5/98	29.3	5.70	24.00	81	6.40	1.20	50.00	6.52	3.10	0.06
		25/6/98	30.1	3.20	33.00	86	6.60	0.70	12.00	6.80	6.40	0.35
		PURATA	30.4	4.4	25.3	78	6.3	1.0	32.0	6.5	3.9	0.1
19	SG. AYER ITAM	28/4/98	32.9	30.10	21.00	47	3.70	2.02	20.00	7.50	15.60	0.13
		5/5/98	30.5	25.20	18.00	52	4.10	1.92	321.00	6.80	17.90	0.29
		25/6/98	29.3	35.90	27.00	28	2.2	2.75	176.00	7.10	5.80	0.32
		PURATA	30.9	30.4	22.0	42	3.3	2.2	172.3	7.1	13.1	0.2
20	REMBAU	28/4/98	31.9	2.10	7.00	63	4.89	0.50	8.00	6.16	3.10	0.32
2421611		5/5/98	30.2	2.40	5.00	75	5.80	0.79	126.00	6.60	4.60	0.41
		25/6/98	32.2	8.00	4.00	68	5.20	0.80	49.00	6.30	3.90	0.06
		PURATA	31.4	4.2	5.3	70	5.3	0.7	61.0	6.4	3.9	0.3

INDEKS KUALITI AIR NEGARA (IKAN) SUB LEMBANGAN SG. LINGGI 1998

SNO	SUNGAI	TARIKH	SIBOD	SIPH	SIDO	SICOD	SIAN	SISS	IKA	STATUS	IKA-BOD	IKA-AN	IKA-SS
1	SG. JERALANG	28/4/98	88.1	96.8	95.6	92.5	72.2	89.1	89.3				
		5/5/98	79.7	99.0	100.0	80.5	59.7	76.9	83.1				
		25/6/98	91.9	99.0	94.3	93.8	79.5	82.1	90.1				
		PURATA	85.9	98.4	100.0	88.9	68.4	82.5	87.8	Bersih	Separuh Tercemar	Tercemar	Bersih
2	SG. BATANG PENAR	28/4/98	84.3	95.0	82.8	91.1	57.7	76.4	81.1				
		5/5/98	65.7	97.8	81.7	75.2	53.4	67.2	73.0				
		25/6/98	88.6	93.7	76.7	92.5	59.7	87.2	82.6				
		PURATA	80.9	95.7	84.0	86.2	56.9	76.4	79.9	Separuh Tercemar	Separuh Tercemar	Tercemar	Bersih
3	SG. TERIP	28/4/98	85.2	98.0	74.1	92.5	83.7	94.5	86.7				
		5/5/98	92.8	95.9	94.3	93.8	78.5	92.2	91.4				
		25/6/98	94.1	98.4	91.1	95.1	79.5	94.5	92.0				
		PURATA	90.7	97.6	88.2	93.8	80.6	93.7	90.4	Bersih	Bersih	Separuh Tercemar	Bersih
4	SG. SIKAMAT	28/4/98	73.2	98.1	51.1	24.7	41.8	64.7	57.5				
		5/5/98	64.6	97.1	39.2	8.2	15.7	81.1	49.2				
		25/6/98	4.6	99.4	27.8	16.0	14.9	81.1	36.7				
		PURATA	33.3	98.6	39.2	15.4	24.2	75.1	44.9	Tercemar	Tercemar	Tercemar	Separuh Tercemar
5	SG. PAROI	28/4/98	82.6	99.5	100.0	85.8	29.0	88.3	81.8				
		5/5/98	54.3	96.8	100.0	73.2	21.9	43.3	65.9				
		25/6/98	73.6	99.1	100.0	88.5	14.9	65.7	74.8				
		PURATA	69.9	99.1	100.0	81.8	21.6	57.6	72.7	Separuh Tercemar	Tercemar	Tercemar	Tercemar
6	TEMIANG DIV.	28/4/98	91.9	97.8	58.6	73.8	45.5	88.8	75.0				
2719609		5/5/98	52.7	99.5	100.0	68.6	34.6	75.1	72.1				
		25/6/98	87.3	96.0	82.8	88.5	14.9	48.4	70.5				
		PURATA	77.5	98.1	82.8	76.0	31.8	58.6	71.0	Separuh Tercemar	Tercemar	Tercemar	Tercemar
7	SG. TEMIANG	28/4/98	66.6	99.6	18.7	36.4	19.1	13.9	39.7				
		5/5/98	33.5	95.8	29.2	15.6	15.7	58.3	38.5				
		25/6/98	8.0	98.8	19.2	8.2	15.7	64.2	31.5				
		PURATA	28.3	98.4	18.7	17.8	16.8	40.8	33.2	Tercemar	Tercemar	Tercemar	Tercemar

SNO	SUNGAI	TARIKH	SIBOD$_5$	SIPH	SIDO	SICOD	SIAN	SISS	WQI	STATUS	IKA-BOD$_5$	IKA-AN	IKA-SS
8	KEPAYONG	28/4/98	76.9	97.8	18.7	76.5	32.5	87.8	61.6				
2719608		5/5/98	75.3	99.3	29.2	65.2	15.7	81.6	58.5				
		25/6/98	52.1	92.8	75.4	73.2	23.9	84.6	66.5				
		PURATA	67.2	97.3	39.2	72.0	24.1	84.6	61.7	Separuh Tercemar	Tercemar	Tercemar	Bersih
9	SG. SENAWANG	28/4/98	70.7	98.6	42.1	75.2	15.7	81.6	62.0				
		5/5/98	33.3	98.1	43.6	64.2	15.7	75.1	52.3				
		25/6/98	39.0	95.8	94.3	79.2	15.7	78.2	67.2				
		PURATA	45.4	97.7	64.4	73.6	15.7	78.2	61.2	Separuh Tercemar	Tercemar	Tercemar	Bersih
10	SG. MANTAU	28/4/98	89.8	97.1	100.0	83.1	67.1	90.8	88.6				
		5/5/98	70.7	97.0	80.5	80.5	35.9	54.8	69.8				
		25/6/98	64.9	94.1	100.0	84.5	79.5	82.6	84.3				
		PURATA	75.6	96.2	100.0	82.7	55.7	68.3	80.4	Separuh Tercemar	Tercemar	Tercemar	Tercemar
11	SG. KAYU ARA	28/4/98	80.5	97.4	100.0	83.1	48.0	91.3	84.1				
		5/5/98	17.6	99.4	90.1	54.3	15.7	24.5	50.1				
		25/6/98	27.1	99.2	84.0	66.3	15.7	6.6	49.6				
		PURATA	35.1	98.8	100.0	67.4	26.3	28.2	59.8	Separuh Tercemar	Tercemar	Tercemar	Tercemar
12	SG. BEMBAN	28/4/98	82.6	92.1	74.1	91.1	35.6	61.1	72.7				
		5/5/98	77.9	97.0	92.7	85.4	31.3	54.8	74.0				
		25/6/98	69.5	99.3	80.5	92.5	49.0	80.1	77.8				
		PURATA	77.3	96.8	86.2	89.7	37.6	59.7	74.8	Separuh Tercemar	Tercemar	Tercemar	Tercemar
13	SG. BELANGKON	28/4/98	40.9	97.1	88.2	83.1	15.7	67.2	65.3				
		5/5/98	53.7	93.0	90.1	73.8	28.6	58.3	66.6				
		25/6/98	69.5	99.4	92.7	69.7	48.3	93.9	79.0				
		PURATA	53.6	97.1	91.1	74.7	30.7	68.8	69.4	Separuh Tercemar	Tercemar	Tercemar	Tercemar
14	SG. NYATOH	28/4/98	51.2	98.1	37.7	72.0	40.5	75.9	59.6				
		5/5/98	42.2	98.1	58.6	40.5	15.7	56.9	50.6				
		25/6/98	71.1	99.2	25.1	57.1	15.7	61.8	52.3				
		PURATA	53.7	99.5	40.6	55.2	24.1	64.2	53.8	Tercemar	Tercemar	Tercemar	Tercemar
15	SIMIN	28/4/98	97.9	99.3	68.7	84.5	48.0	91.1	80.9				
2519605		5/5/98	84.7	96.9	74.1	74.8	15.7	58.6	67.7				
		25/6/98	69.9	99.4	80.5	91.1	16.5	81.1	72.9				
		PURATA	83.5	98.9	70.1	83.5	26.7	72.7	72.1	Separuh Tercemar	Separuh Tercemar	Tercemar	Separuh Tercemar

SNO	SUNGAI	TARIKH	SIBOD$_5$	SIPH	SIDO	SICOD	SIAN	SISS	WQI	STATUS	IKA-BOD$_5$	IKA-AN	IKA-SS
16	SG. SEGA	28/4/98	76.6	49.4	100.0	93.8	54.0	60.1	75.2				
		5/5/98	71.1	87.5	91.1	85.8	34.8	40.0	69.4				
		25/6/98	82.2	92.4	97.3	95.1	45.5	80.9	83.1				
		PURATA	77.3	82.7	100.0	91.6	43.8	55.2	76.7	Separuh Tercemar	Tercemar	Tercemar	Tercemar
17	SG. SILIAU	28/4/98	12.2	90.7	19.2	77.8	26.9	92.8	48.8				
		5/5/98	80.5	92.4	92.7	64.2	19.4	57.7	69.2				
		25/6/98	75.7	91.2	100.0	88.5	15.7	94.5	79.0				
		PURATA	44.8	91.4	94.3	75.6	20.4	75.6	67.5	Separuh Tercemar	Tercemar	Tercemar	Separuh Tercemar
18	SG. SOLOK	28/4/98	82.2	92.4	81.7	73.8	48.0	79.2	76.4				
		5/5/98	78.4	97.1	90.1	69.7	43.3	72.0	75.5				
		25/6/98	86.9	99.0	94.3	60.0	56.4	90.5	81.7				
		PURATA	81.8	96.7	87.2	68.2	48.9	80.1	77.4	Separuh Tercemar	Separuh Tercemar	Tercemar	Bersih
19	SG. AYER ITAM	28/4/98	17.6	96.7	45.1	73.2	29.4	86.2	54.8				
		5/5/98	24.5	99.0	52.6	75.2	30.9	37.7	50.8				
		25/6/98	11.4	99.1	19.2	66.3	15.7	50.9	39.4				
		PURATA	17.3	98.9	37.7	72.0	25.0	51.3	46.9	Tercemar	Tercemar	Tercemar	Tercemar
20	REMBAU	28/4/98	91.5	93.2	68.7	89.8	63.1	92.8	82.3				
2421611		5/5/98	90.2	97.8	84.0	92.5	53.7	56.1	79.2				
		25/6/98	68.8	94.9	75.4	93.8	53.4	72.5	75.7				
		PURATA	82.8	95.5	78.0	92.0	56.5	67.6	78.4	Separuh Tercemar	Separuh Tercemar	Tercemar	Tercemar

LAMPIRAN N

CARA PENGIRAAN UNTUK MENENTUKAN NILAI PEMBANGUNAN BERDASRKAN KUANTIFIKASI YANG TELAH DIBERIKAN DALAM BAB 5 (JADUAL 5.16)

1. Contoh Pengiraan Bagi Sub Lembangan Sg. Jeralang

GUNATANAH	LUAS	%	KUANTIFIKASI	NILAI PEMBANGUNAN
Hutan	2209.02	65.0	5	3.25
Semak Belukar	103.58	3.05	10	0.31
Getah	712.96	20.99	53	11.22
Kelapa Sawit	29.58	0.87	53	4.61
Padi	186.11	5.48	51	2.79
Perkebunan Campur	155.52	4.58	60	2.75

2. Justifikasi Peletakkan Nilai Kuantifikasi :-

   a. Nilai kuantifikasi Hutan = 5 diberikan berdasarkan ia Hutan Kurang Terganggu
   b. Nilai Kuantifikasi Semak Belukar = 10 kerana kawasan ini kawasan akhir Hutan yang telahpun banyak terganggu.
   c. Nilai Kuantifikasi Getah dan Kelapa Sawit Masing Masing = 53 sebagai nilai anggaran nilai tengah bagi Kuantifikasi Pertanian (50 – 60)
   d. Nilai Kuantifikasi Padi = 51 kerana ia dalam kategori pertanian yang jarang merosakkan kualiti air.
   e. Nilai Kuantifikasi Perkebunan Campur = 60 kerana proses pembajaan dan pembersihan kawasan tanaman kerap dilakukan. Keadaan ini menyumbangkan bahan cemar yang berterusan

3. Contoh Pengiraan Nilai Pembangunan:-

   Nilai Pembangunan Hutan =

   Peratus Keluasan Gunatanah X Nilai Kuantifikasi Yang diberikan

   = 65 % X 5

   = 3.25

NILAI PEMBANGUNAN BERDASARKAN KUANTIFIKASI GUNATANAH

'N	LEMBANGAN	GUNATANAH	LUAS	%	KUANTIFIKASI	NILAI PEMBANGUNAN
	Sg. Jeralang	HUTAN	2209.02	65.03%	5	3.25
		SEMAK (BELUKAR)	103.58	3.05%	10	0.31
		GETAH	712.96	20.99%	53	11.12
		KELAPA SAWIT	29.58	0.87%	53	4.61
		PADI	186.11	5.48%	51	2.79
		PERKEBUNAN CAMPUR	155.52	4.58%	60	2.75
			3396.77			24.84
2	Sg. Batang Penar	HUTAN	2359.06	85.28%	5	4.26
		GETAH	232.34	8.40%	53	4.45
		KELAPA SAWIT	159.36	5.76%	53	3.05
		PERKEBUNAN CAMPUR	15.44	0.56%	60	0.34
			2766.20			12.10
3	Sg. Terip	HUTAN	2393.83	83.18%	5	4.16
		SEMAK (BELUKAR)	103.98	3.61%	10	0.36
		GETAH	292.93	10.18%	53	5.41
		PERKEBUNAN CAMPUR	1.02	0.04%	60	0.02
		KAWASAN BAHARU DITERANG	86.13	2.99%	30	0.90
			2877.89			10.85
4	Sg. Sikamat	HUTAN	1289.65	50.85%	5	2.54
		SEMAK (BELUKAR)	345.17	13.61%	10	1.36
		GETAH	765.99	30.20%	53	16.01
		PERKEBUNAN CAMPUR	36.84	1.45%	60	0.87
		LOMBONG BIJIH TIMAH	98.50	3.88%	31	1.20
			2536.15			21.98
5	Sg. Paroi	HUTAN	1110.63	31.91%	5	1.60
		SEMAK (BELUKAR)	72.85	2.09%	10	0.21
		GETAH	1345.42	38.66%	53	20.49
		KAWASAN PERBANDARAN	291.34	8.37%	91	7.62
		PERKEBUNAN CAMPUR	181.12	5.20%	60	3.12
		LOMBONG BIJIH TIMAH	200.11	5.75%	31	1.78
		RUMPUT TERBIAR/LALANG	278.78	8.01%	21	1.68
			3480.25			36.50
6	Sg. Temiang Div.	HUTAN	581.68	16.14%	5	0.81
		SEMAK (BELUKAR)	462.92	12.84%	10	1.28
		GETAH	1551.36	43.03%	53	22.81
		KAWASAN PERBANDARAN	652.03	18.09%	93	16.82
		PERKEBUNAN CAMPUR	165.35	4.59%	60	2.75
		LOMBONG BIJIH TIMAH	69.57	1.93%	31	0.60
		RUMPUT TERBIAR/LALANG	122.05	3.39%	21	0.71
			3604.96			45.78
7	Sg. Temiang	GETAH	194.88	15.68%	53	8.31
		KAWASAN PERBANDARAN	1048.01	84.32%	95	80.10
			1242.89			88.41
8	Sg. Kepayang	HUTAN	221.13	9.14%	5	0.46
		SEMAK (BELUKAR)	52.51	2.17%	10	0.22
		GETAH	1638.56	67.74%	53	35.90
		KAWASAN PERBANDARAN	300.48	12.42%	93	11.55
		PERKEBUNAN CAMPUR	206.16	8.52%	60	5.11
			2418.84			53.24

	LEMBANGAN	GUNATANAH	LUAS	%	KUANTIFIKASI	NILAI PEMBANGUNAN
	Sg. Senawang	HUTAN	350.25	25.11%	5	1.26
		SEMAK (BELUKAR)	0.90	0.06%	10	0.01
		KAWASAN PERBANDARAN	725.81	52.03%	91	47.35
		PERKEBUNAN CAMPUR	12.58	0.90%	60	0.54
		RUMPUT TERBIAR/LALANG	305.54	21.90%	21	4.60
			1395.08			53.75
	Sg. Mantau	SEMAK (BELUKAR)	206.86	11.79%	10	1.18
		GETAH	1460.73	83.28%	53	44.14
		KAWASAN PERBANDARAN	45.07	2.57%	91	2.34
		PERKEBUNAN CAMPUR	41.34	2.36%	60	1.42
			1754.00			49.07
1	Sg. Kayu Ara	SEMAK (BELUKAR)	38.05	1.90%	10	0.19
		GETAH	1855.89	92.49%	53	49.02
		PERKEBUNAN CAMPUR	112.60	5.61%	60	3.37
			2006.54			52.58
12	Sg. Bemban	HUTAN	126.54	5.58%	5	0.28
		SEMAK (BELUKAR)	406.08	17.89%	10	1.79
		HUTAN PAYA DAN BUYAU	14.97	0.66%	10	0.07
		GETAH	1714.94	75.56%	53	40.05
		PERKEBUNAN CAMPUR	5.48	0.24%	60	0.14
		RUMPUT TERBIAR/LALANG	1.61	0.07%	21	0.01
			2269.62			42.34
13	Sg. Belangkon	SEMAK (BELUKAR)	59.94	3.00%	10	0.30
		GETAH	1344.97	67.40%	53	35.72
		KELAPA SAWIT	12.95	0.65%	53	0.34
		KAWASAN PERBANDARAN	490.11	24.56%	91	22.35
		PERKEBUNAN CAMPUR	87.39	4.38%	60	2.63
			1995.36			61.34
14	Sg. Nyatoh	HUTAN	0.67	0.04%	5	0.00
		HUTAN PAYA DAN BUYAU	40.22	2.24%	10	0.22
		GETAH	1150.23	64.03%	53	33.94
		KELAPA SAWIT	294.59	16.40%	53	8.69
		KAWASAN PERBANDARAN	94.27	5.25%	91	4.78
		PERKEBUNAN CAMPUR	116.34	6.48%	60	3.89
		KAWASAN BAHARU DITERANG	100.11	5.57%	30	1.67
			1796.43			53.19
15	Sg. Simin	HUTAN	1814.92	19.41%	5	0.97
		SEMAK (BELUKAR)	275.99	2.95%	10	0.30
		HUTAN PAYA DAN BUYAU	158.60	1.70%	10	0.17
		GETAH	4485.09	47.97%	53	25.42
		KELAPA SAWIT	1734.43	18.55%	53	9.83
		KAWASAN PERBANDARAN	264.76	2.83%	92	2.60
		PERKEBUNAN CAMPUR	357.52	3.82%	60	2.29
		KAWASAN BAHARU DITERANG	183.56	1.96%	30	0.59
		LOMBONG BIJIH TIMAH	75.72	0.81%	31	0.25
			9350.59			42.43
16	Sg. Sega	HUTAN PAYA DAN BUYAU	254.16	10.42%	10	1.04
		GETAH	1843.60	75.57%	53	40.05
		KELAPA SAWIT	244.73	10.03%	53	5.32
		LOMBONG BIJIH TIMAH	97.19	3.98%	31	1.23
			2439.68			47.64

N	LEMBANGAN	GUNATANAH	LUAS	%	KUANTIFIKASI	NILAI PEMBANGUNAN
	Sg. Siliau	HUTAN PAYA DAN BUYAU	619.22	7.43%	10	0.74
		GETAH	3996.55	47.98%	53	25.43
		KELAPA SAWIT	3638.28	43.68%	53	23.15
		LOMBONG BIJIH TIMAH	74.92	0.90%	31	0.28
			8328.97			49.60
3	Sg. Solok	HUTAN	128.04	1.93%	5	0.10
		HUTAN PAYA DAN BUYAU	251.37	3.79%	10	0.38
		GETAH	4918.97	74.24%	53	39.35
		KELAPA SAWIT	1292.05	19.50%	53	10.34
		LOMBONG BIJIH TIMAH	35.29	0.53%	31	0.16
			6625.72			50.32
9	Sg. Ayer Itam	HUTAN PAYA DAN BUYAU	1371.89	27.95%	10	2.80
		GETAH	2497.69	50.88%	53	26.97
		KELAPA SAWIT	946.38	19.28%	53	10.22
		PERKEBUNAN CAMPUR	5.92	0.12%	60	0.07
		PELBAGAI TANAMAN	86.63	1.76%	60	1.06
			4908.51			41.11
20	Sg. Rembau	HUTAN	98.29	1.08%	5	0.05
		HUTAN PAYA DAN BUYAU	2259.95	24.82%	10	2.48
		GETAH	4771.61	52.39%	53	27.77
		KELAPA SAWIT	902.21	9.91%	53	5.25
		PADI	691.34	7.59%	51	3.87
		PERKEBUNAN CAMPUR	355.86	3.91%	60	2.35
		RUMPUT TERBIAR/LALANG	27.25	0.30%	21	0.06
		KAWASAN BAHARU DITERANG	0.56	0.01%	30	0.00
			9107.07			41.84

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JADUAL POIN KRITIKAL STUDENT'S *t*

Degrees of freedom	*One-tailed test for* α = 0.100	0.050	0.025	0.01	0.005	0.001
	Confidence interval or two-tailed test for α = 0.200	0.100	0.050	0.020	0.010	0.002
1	3.078	6.314	12.706	31.821	63.657	318.31
2	1.886	2.920	4.303	6.945	9.925	22.326
3	1.638	2.353	3.182	4.541	5.841	10.213
4	1.533	2.132	2.776	3.747	4.604	7.173
5	1.476	2.015	2.571	3.365	4.032	5.893
6	1.440	1.943	2.447	3.143	3.707	5.208
7	1.415	1.895	2.365	2.998	3.499	4.785
8	1.397	1.860	2.306	2.896	3.355	4.501
9	1.383	1.833	2.262	2.821	3.250	4.297
10	1.372	1.812	2.228	2.764	3.169	4.144
11	1.363	1.796	2.201	2.718	3.106	4.025
12	1.356	1.782	2.179	2.681	3.055	3.930
13	1.350	1.771	2.160	2.650	3.012	3.852
14	1.345	1.761	2.145	2.624	2.977	3.787
15	1.341	1.753	2.131	2.602	2.947	3.733
16	1.337	1.746	2.120	2.583	2.921	3.686
17	1.333	1.740	2.110	2.567	2.898	3.646
18	1.330	1.734	2.101	2.552	2.878	3.610
19	1.328	1.729	2.093	2.539	2.861	3.579
20	1.325	1.725	2.086	2.528	2.845	3.552
21	1.323	1.721	2.080	2.518	2.831	3.527
22	1.321	1.717	2.074	2.508	2.819	3.505
23	1.319	1.714	2.069	2.500	2.807	3.485
24	1.318	1.711	2.064	2.492	2.797	3.467
25	1.316	1.708	2.060	2.485	2.787	3.450
26	1.315	1.706	2.056	2.479	2.779	3.43
27	1.314	1.703	2.052	2.473	2.771	3.421
28	1.313	1.701	2.048	2.467	2.763	3.408
29	1.311	1.699	2.045	2.462	2.756	3.396
60	1.296	1.671	2.000	2.390	2.660	3.232
∞	1.282	1.645	1.960	2.326	2.576	3.090

Table IV is taken from Table 12 of the *Biometrika Tables for Statisticians*, Volume I, Third Edition, by E. S. Pearson and H. O. Hartley. New York: Cambridge University Press, 146, 1966. Reprinted by permission of the Biometrika Trustees.