

PROTOCOL ON WATER QUALITY
FOR WATER SUPPLY FROM MCWD BULK WATER SUPPLIERS

General Protocol:

1. MCWD Water Quality Laboratory shall be the official laboratory to undertake the required tests as per MCWD Standards for Drinking Water. Expenses will be charged to the Bulk Water Supplier (BWS).
2. The BWS however, may hire an independent laboratory to conduct a separate water quality testing but the findings thereof shall be for its own consumption and interest only.
3. Should the BWS contest any test result performed by MCWD, the issue shall be resolved through a Third-party Laboratory (TPL) applying the specific protocol herewith elaborated per specific parameters.
4. The Third-party Laboratory (TPL) shall be chosen by both MCWD and the BWS. For this contract, the TPL shall be the USC Water Laboratory (USCWL) or Fastlab.
5. This protocol shall be supplementary to the provisions of the water supply contract between MCWD and the BWS. Provisions in the original contract specifically on the water quality shall remain in full force and effect.
6. Standard procedures stipulated in the MCWD Standards for Drinking Water for sample collection, handling, transport, storage and testing shall be observed and shall prevail should any provision in this protocol contradicts the same.
7. Specific protocols on certain parameters herewith elaborated may be applied to other parameters whenever practicable.
8. From a shutdown, acceptance of the water supply shall only be done after the same has been found compliant to the specific parameter/s it has failed. In addition, the residual chlorine, Chloride and turbidity requirements on the day of the acceptance must also be complied with.
9. MCWD shall not be made to pay for any loss of opportunity to supply water during the stoppage where results from MCWD and the TPL differ. In the same manner, for that period of stoppage, the BWS is considered having delivered the equivalent volume of supply for the contractual volume delivery per day computation.

Specific Protocol on Certain Parameters:

A. On Turbidity:

1. Turbidity tests are determined thru a real time monitoring instrument which should be compatible with the existing MCWD SCADA system.
2. In instances wherein the turbidity reading deviates from the standard, as determined by the SCADA system, MCWD shall immediately inform the BWS so by then, both parties shall immediately go to the injection point for onsite testing.
3. Testing shall be conducted by representatives of both MCWD and BWS and duly recorded and signed.
4. Water from a particular source subject to testing shall be collected first using a one-liter container. Water sample which shall undergo actual testing shall be taken from this container and not directly from the source.
5. If the test conducted by MCWD yields a result of more than 5 NTU, and the BWS contests such result, another sample shall be taken from the same container. Said sample shall be sealed, signed by both parties and endorsed to the BWS representative for testing at the USCWQL or Fastlab. The latter shall not accept sample with tampered or broken seal.
6. The result of the test conducted by the USCWQL or Fastlab shall be final.
7. However, pending the USCWQL or Fastlab test result, the BWS shall perform remedial measures to address the turbidity problem and shall request MCWD representative for another testing when the water quality improves.
8. No water supplied by WATER SUPPLIER shall be accepted until it possesses the standard set for turbidity
9. The MCWD representative will do the next testing on a best effort rule taking into consideration all workloads. The resampling shall observe the same protocol and procedures provided hereof.
10. Penalty shall be imposed for the period between the failed and passed water quality tests. If the USCWL or Fastlab yielded a similar failed result with MCWD, the penalty shall begin upon the time of the

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failed result conducted by MCWD. Otherwise, there is no penalty to be imposed.

11. When MCWD test shows a turbidity level of 20 NTU or more, MCWD may refuse the water supply and may order immediate stoppage thereof. MCWD shall inform verbally the BWS representative that the affected injection point shall be closed immediately. The BWS however, is given thirty (30) minutes to make the necessary adjustments to their operations after which, MCWD shall close its valve. MCWD shall not be held liable for damages incurred due to the closure of the valve, public safety being its primordial responsibility. Subsequent formal notice of closure shall be sent to the BWS within two (2) days after closure. This is the standard procedure for a shutdown.
12. In non-compliance cases where the turbidity reading is less than 20NTU and where a shutdown is not obligatory and a 100% penalty is to be imposed, the BWS may likely opt to voluntarily shutdown while addressing the problem. If so, the same should inform MCWD first for prior approval to shutdown but penalty for short delivery still applies.

B. On Residual Chlorine:

1. Residual chlorine tests are determined thru a real time monitoring instrument which should be compatible with the existing MCWD SCADA system.
2. Residual chlorine is 1.5 PPM minimum. If residual is below minimum then a shutdown of the facility shall be effected.
3. Only bacteriological test result above 2 MPN is considered positive provided it is not fecal or e-coli. If bacteriological tests fails for two (2) consecutive days, a shutdown of the facility shall be effected until negative results are attained.
4. In instances wherein the residual chlorine readings deviate from the standard, as determined by the SCADA system, MCWD shall inform the BWS within 30 minutes from the time the deviation is observed, so by then, the supplier can instantaneously correct their procedure to attain the desired results.
5. The next step will follow the procedures for Total Coliform.
6. Right after notifying in case where chlorine readings fall below the required test for the total coliform shall be conducted immediately after notifying the BWS.

C. On Total Coliform (Non-fecal):

1. Not more than 5% of the total samples per month per injection point shall fail in this parameter. Since Total Coliform testing is undertaken daily, 30 samples shall be collected per month per injection point. Since 5% of 30 samples is 1.5 samples, MCWD hereby specifies that not more than one sample shall fail per month per injection point. No penalties shall be imposed by reason of the first failed sample provided however, that for the two (2) days prior to the day the sample failed, the subject source pass both the residual chlorine and turbidity tests.
2. Penalties shall be imposed on succeeding failures/s within the same month.
3. Since test results on this parameter come out 18 hours to 5 days after, resampling therefore is not acceptable as the water samples by then will not be representative of the subject water supply volume. Simultaneous testing by the TPL, the USCWL or Fastlab, with that of the daily testing by MCWD is thus, recommended.
4. For clarification, resampling hereof means testing at a later time or date which is aimed at confirming / validating the findings of the original test. This is different from simultaneous testings which are acceptable as the tests will use the water samples obtain at the same time.
5. Testing therefore can either be by MCWD alone or simultaneously with the TPL, the USCWL or Fastlab.
6. Official tests shall be in the laboratory using water samples collected at the same time both by MCWD and BWS representatives and duly recorded, signed and sealed. Only one sample is to be collected if it is only MCWD to do the test. Otherwise, two samples are to be taken for both MCWD and the TPL.
7. Should the BWS opt not to avail the services of a TPL, then MCWD test result shall be final.
8. If the BWS opts to avail the services of the TPL, the sealed and signed 2nd sample will be endorsed to the BWS representative for testing at the USCWL or Fastlab. The latter shall not accept sample with tampered or broken seal.
9. The result of the test conducted by the USC Water Quality Laboratory or Fastlab shall prevail and settles the issue with finality.

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10. Successive sample failures for two (2) days allows MCWD to call for a shutdown following standard procedure.

D. On Coliform (Fecal):

1. There is no percentage of sample allowed to fail in any injection point. Penalties and shutdown are imposed immediately upon non-compliance.
2. When the MCWD test shows that the sample is positive of Fecal Coliform, MCWD shall refuse the water supply and shall order immediate stoppage thereof following standard procedure. If a corresponding TPL test reveals a result within the allowable limit, water supply will be allowed to resume immediately.
3. For critical parameters like this one, the 18-hour chromogenic substrate or the 24-hour membrane filter test is advisable.

E. On Nitrate:

1. Since test results on this parameter come out few hours or even days after, resampling therefore is not acceptable as the water samples by then will not be representative of the subject water supply volume. Simultaneous testing by the TPL, the USCWL or Fastlab, with that of the daily testing by MCWD is then recommended.
2. For clarification, resampling hereof means testing at a later time or date which is aimed at confirming / validating the findings of the original test. This is different from simultaneous testings which are acceptable as the tests will use the water samples obtained at the same time.
3. Testing therefore can either be by MCWD alone or simultaneously with the TPL, the USCWL or Fastlab in case of dispute.
4. Official tests shall be in the laboratory using water samples collected at the same time both by MCWD and BWS representatives and duly recorded, signed and sealed. Only one sample is to be collected if it is only MCWD to do the test. Otherwise, two samples are to be taken simultaneously for both MCWD and the TPL.
5. Since test results, if so desired, can actually be obtained within a few hours, another testing, if the first testing for the day fails, can be requested by the BWS within the same day after the same has conducted remedial measures to address the problem. Protocol on such re-testing as stipulated under turbidity shall be followed.

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6. Should the BWS opt not to avail the services of a TPL, MCWD test result shall be final.
7. If the BWS opts to avail the services of the TPL, the sealed and signed 2nd sample will be endorsed to the BWS representative for testing at the USC Quality Control Laboratory or Fastlab. The latter shall not accept sample with tampered or broken seal.
8. The result of the test conducted by the USC Water Laboratory or Fastlab shall prevail and settles the issue with finality.
9. When the MCWD test shows a nitrate reading higher than the allowable level of 50 mg/Li, MCWD may refuse the water supply and may order immediate stoppage thereof following standard procedure. If a corresponding TPL test reveals a result within the allowable limit, water supply will be allowed to resume immediately.
10. MCWD shall not be made to pay for any loss of opportunity to supply water during the stoppage where results from MCWD and TPL differ. Likewise, the BWS will not be penalized for under delivery for that particularly period.
11. Since test results, if so derived, can be actually be obtained within a few hours, another testing, if the first testing for the day fails, can be requested by the BWS within the same day after the same has conducted remedial measures to address the nitrate problem. Protocol on such re-testing as stipulated under turbidity shall be followed.

F. On Chloride:

1. In instances wherein the chloride reading deviates from the standard, as determined by the SCADA system, MCWD shall immediately inform the BWS so by then, both parties shall immediately go to the injection point for onsite testing.
2. Testing shall be conducted by representatives of both MCWD and BWS and duly recorded and signed.
3. Water from a particular source subject to testing shall be collected first using a 500 ml container. Water sample which shall undergo actual testing shall be taken from this container and not directly from the source.
4. If the test conducted by MCWD yields a result of more than 250 ppm, and the BWS contests such result, another sample shall be taken from the same container. Said sample shall be sealed, signed by both parties and endorsed to the BWS representative for testing at the

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USCWQL or Fastlab. The latter shall not accept sample with tampered or broken seal.

5. The result of the test conducted by the USCWQL or Fastlab shall be final.
6. However, pending the USCWQL or Fastlab test result, the BWS shall perform remedial measures to address the chloride problem and shall request MCWD representative for another testing when the water quality improves.
7. No water supplied by WATER SUPPLIER shall be accepted until it possesses the standard set for chloride.
8. The MCWD representative will do the next testing on a best effort rule taking into consideration all workloads. The resampling shall observe the same protocol and procedures provided hereof.
9. Penalty shall be imposed for the period between the failed and passed water quality tests. If the USCWL or Fastlab yielded a similar failed result with MCWD, the penalty shall begin upon the time of the failed result conducted by MCWD. Otherwise, there is no penalty to be imposed.

G. On Langelier Saturation Index (LSI)

1. Langelier Saturation Index acceptable range is **Negative One to Positive One**. This revises the Zero to Positive One range stipulated in Annex B: MCWD Standard for Water Quality.
2. For continuous non-compliance for 2 consecutive days, MCWD may opt for a shutdown.