# Project Assessment

**Assessment event 2 of 3**

## Criteria

### Unit code, name and release number

MSL972001 - Conduct routine site measurements (1)

### Qualification/Course code, name and release number

MSL30118 - Certificate III in Laboratory Skills (1)

## Student details

### Student number

### Student name

## Assessment Declaration

* This assessment is my original work and no part of it has been copied from any other source except where due acknowledgement is made.
* No part of this assessment has been written for me by any other person except where such collaboration has been authorised by the assessor concerned.
* I understand that plagiarism is the presentation of the work, idea or creation of another person as though it is my own. Plagiarism occurs when the origin of the material used is not appropriately cited. No part of this assessment is plagiarised.

### Student signature and Date

Version: 1.0

Date created: 15/06/2019

Date modified: 29/01/2020

For queries, please contact:

Innovative Manufacturing, Robotics and Science SkillsPoint

Hamilton Campus

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This assessment can be found in the: [Learning Bank](https://share.tafensw.edu.au/share/access/searching.do?doc=%3Cxml%2F%3E&in=P7ac4831b-430a-4b8d-8b56-f7b32ed5b9cf&q=&type=standard&sort=rank&dr=AFTER)

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## Assessment instructions

Table 1 Assessment instructions

| Assessment details | Instructions |
| --- | --- |
| **Assessment overview** | The objective of this assessment is to assess your knowledge and performance as would be required to:   * Prepare for measurements * Perform measurements * Finalise measurements * Maintain a safe work environment |
| **Assessment Event number** | 2 of 3 |
| **Instructions for this assessment** | This is a project based assessment and will be assessing you on your knowledge and performance of the unit.  This assessment is in 3 parts and includes an Assessment Feedback form:   1. Assignment 2. Assessment Checklist 3. Assessment Feedback |
| **Submission instructions** | On completion of this assessment, you are required to upload it or hand it to your assessor for marking.  Ensure you have written your name at the bottom of each page of this assessment.  It is important that you keep a copy of all electronic and hardcopy assessments submitted to TAFE and complete the assessment declaration when submitting the assessment. |
| **What do I need to do to achieve a satisfactory result?** | To achieve a satisfactory result for this assessment all questions must be answered correctly. |
| **What do I need to provide?** | Calculator, pens |
| **What the assessor will provide?** | The Assessment Task. |
| **Due date and time allowed** | Due three weeks prior to the commencement of the Skills Assessment |
| **Assessment feedback, review or appeals** | In accordance with the TAFE NSW policy *Manage Assessment Appeals,* all students have the right to appeal an assessment decision in relation to how the assessment was conducted and the outcome of the assessment. Appeals must be lodged within **14 working days** of the formal notification of the result of the assessment.  If you would like to request a review of your results or if you have any concerns about your results, contact your Teacher or Head Teacher. If they are unavailable, contact the Student Administration Officer.  Contact your Head Teacher for the assessment appeals procedures at your college/campus. |

## Specific task instructions

The instructions and the criteria in the tasks and activities below will be used by the assessor to determine if you have satisfactorily completed this assessment event. Use these instructions as a guide to ensure you demonstrate the required knowledge.

## Part 1: Assignment

To complete this part of the assessment, you will be required to respond to all the questions in this Assessment.

Read the questions carefully.

For the short answers, your responses can be up to 200 words for each question or part of a question.

1. Identify one typical onsite measurement you make and explain why any measurement is considered an estimate of the correct value.

1. Metrology is the study of measurement. A function of a laboratory is to make a measurement and then report a result. Use examples to explain how the following are relevant to onsite measurements you make and report (provide one example and explanation for each entity identified in the table).

Table 2 short answer

| Entity | Explanation |
| --- | --- |
| * 1. Sources of error |  |
| * 1. Uncertainty in reading |  |
| * 1. Repeatability |  |
| * 1. Precision |  |
| * 1. Accuracy |  |
| * 1. Significant figures |  |

1. A technician is required to measure the pH in a treated liquid waste pond. The requirement for discharge to the storm water system is that the pH is in the range pH 6 – 10. In this situation, does the pH need to be measured and reported to 2 decimal places? Explain:
2. There are four major safety aspects to onsite testing. These are:
3. identifying hazards
4. working safely
5. following rules
6. personal protective equipment

Explain how each of these are important when you are required to take site measurements:

Table 3 short answer

| Aspect | Importance |
| --- | --- |
| 1. Identifying hazards |  |
| 1. Working safely |  |
| 1. Following rules and procedures |  |
| 1. Personal protective equipment |  |

1. Sites can have a variety of hazards that may not be common and others that are specific to the measurements you are required to make. Below is a list of common hazards at measurement sites. Choose one from each column and explain:

* the PPE you would require
* what you would check to ensure the PPE has been well maintained

Table 4 short answer

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 |
| Water | Mud | Dust | Noise | Solar Radiation | Other Radiation |
| Snakes | Spiders | Insects | Domestic animals | Wild animal | Germs |
| Chemical residues | Heat | Cold | Vibration | Confined space | Height |
| Solvents | Poisons | Acids | Bases | Fumes | Gases |
| Steam | Manual handling | Slipping | Falling | Sharps | Crushing |
| Entanglement | Cuts | Moving machinery | Uneven surfaces | Falling objects | Slopes |
| Wet surfaces | Trenches | Vehicle handling in rough terrain | Vehicles | Pedestrian traffic | Wasps and bees |

Table 5 short answer

|  | Hazard | PPE | PPE Checks |
| --- | --- | --- | --- |
| **1** |  |  |  |
| **2** |  |  |  |
| **3** |  |  |  |
| **4** |  |  |  |
| **5** |  |  |  |
| **6** |  |  |  |

1. The following graph shows the:
   * historical average nitrate value of water discharged into a creek (5.9 mg/L)
   * daily nitrate values recorded over a two week period
   * quality control measurements for a 6 mg/L standard recorded at the same time as the daily measurements.

Explain how the measured daily sample value, the historical average value and the quality control value are useful for identifying readings that may be in error. On what day is there a suspect measurement and what corrective action should be taken?

1. For this question consider outlier measurements.
2. What is the laboratory procedure for dealing with onsite measurements that are deemed outliers?
3. Provide an example of an outlier you have experienced when making onsite measurements and how you dealt with it.
4. Why is it important, for onsite tasks, that outliers are identified and checked quickly?
5. A set of pH readings taken every 30 minutes for 12 hours on a production process were plotted on a run chart as shown below. Three operators, each with their own pH probe/meter were responsible for the readings over the 12 hour period:

* operator 1 12:00 – 15:30
* operator 2 16:00 – 19:30
* operator 3 20:00 – 23:30.

Historically the process has run consistently within ±1 pH unit of the control value of pH 8.5.

Provide a response in the following table for each of the following, after considering the run chart above and corrective actions that could be taken.

Table 6 short answer

| Entity | Corrective actions |
| --- | --- |
| 1. Error/atypical values |  |
| 1. Check of equipment set-up |  |
| 1. Check of calibration/zero error/drift |  |
| 1. Re-reading procedure |  |
| 1. Repeating measurements |  |
| 1. Seeking advice |  |

1. When undertaking onsite measurements, you would:
   1. Prepare for measurements
   2. Perform measurements
   3. Finalise measurements

The following table identifies these 3 stages.

Complete the table by providing a response to the questions under each stage.

Table 7 short answer

|  |  |
| --- | --- |
| Prepare for measurements: | |
| 1. How do you confirm the purpose, priority and nature of the required measurement? |  |
| 1. Identify the general PPE required for routine onsite measurements |  |
| 1. What calibration is required of instrumentation/ equipment for onsite measurements? |  |
| 1. Who do you liaise with to arrange site access/any induction/permits required? |  |
| 1. How are site hazards identified and controlled? |  |
| 1. How is transport of measurement equipment arranged to and from the site, if necessary? |  |
| **Perform measurements:** | |
| 1. How do you locate the measurement point and the services available? |  |
| 1. How can access be gained when there are covers, locks etc. in place? |  |
| 1. Who can you approach for advice if there are problems in taking the measurement? |  |
| 1. What typical problems may occur and how can these be minimised? |  |
| 1. How is the site secured when measurement is completed? |  |
| **Finalise measurements** | |
| 1. What are typical cleaning/decontamination procedures for equipment and vehicles? |  |
| 1. Why is it important to check all equipment against a checklist when leaving the site? |  |
| 1. Why should environmental/site conditions be recorded along with actual results? |  |
| 1. Who do you report to, to indicate testing is completed and normal processes can be restarted? |  |
| 1. What typical checks are made on equipment when it is returned? |  |
| 1. How can environmental impacts and generation of wastes be minimised? |  |
| 1. What are the requirements for waste management related to onsite measurements? |  |

1. For one site measurement you make, complete the following table:

Table 8 short answer

| Measurement |  |
| --- | --- |
| 1. Location |  |
| 1. Purpose of measurement |  |
| 1. Measuring equipment | Identity:  Maintenance requirements:  Storage requirements:  Transport requirements: |
| 1. Personal protective equipment required to obtain the required measurement |  |
| 1. Principle of operation of equipment identified |  |
| 1. Uncertainty of the measurement and controls in place to limit |  |
| 1. Hazards associated with taking the measurement, including controls in place |  |

1. Checklists are important to ensure all requirements are in place to conduct an onsite measurement. Prepare and submit a checklist containing general and specific requirements that could be used to prepare for, conduct and finalise onsite measurements for:

A. a field pH

B. a field electrical conductivity

C. wind speed using an anemometer

A suggested template is provided on the following page.

Your checklist should contain the following and a suggested template is provided:

**Date**

**Location**

**General items of equipment**

**Task Specific equipment**

**Logging out and back in of equipment**

Onsite Field Measurements Checklist

Table 9 Checklist

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
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| **Notes:** | | | | |

## Part 2: Assessment Checklist

The following checklist will be used by your assessor to mark your performance against the assessment criteria of your assignment. Use this checklist to understand what skills and/or knowledge you need to demonstrate in your submission. All the criteria described in the Assessment Checklist must be met.

| PART 1 | Instructions | S | U/S | Assessor Comments |
| --- | --- | --- | --- | --- |
| **1** | Complete the Assignment providing a response to every question |  |  |  |

## Part 3: Assessment Feedback

*NOTE: This section* ***must*** *have the assessor signature and student signature to complete the feedback.*

### Assessment outcome

Satisfactory

Unsatisfactory

### Assessor Feedback

Was the assessment event successfully completed?

If no, was the resubmission/re-assessment successfully completed?

Was reasonable adjustment in place for this assessment event?  
*If yes, ensure it is detailed on the assessment document.*

Comments:

### Assessor name, signature and date:

### Student acknowledgement of assessment outcome

Would you like to make any comments about this assessment?

### Student name, signature and date

***NOTE: Make sure you have written your name at the bottom of each page of your submission before attaching the cover sheet and submitting to your assessor for marking.***