



ASSESSMENT MATERIAL EVIDENCE GUIDE

Qualification

Biogas Plant
Supervisor
Fixed Dome

CS Code:

Level: 3

Credit: 26

Version: 1

BIOGAS PLANT SUPERVISOR FIXED DOME

CONTENTS

1. Assessment Summary and Record
2. Candidate Assessment
3. Assessor Judgment Guide
4. List of required tools/equipment, material and context of assessment

ASSESSMENT AND ASSESSOR DETAILS

Competent

☐

Not Yet Competent

☐

Assessment

☐

Re-Assessment

☐

Assessor's Name

Assessor's Code

Assessor's Signature

Date

DD	MM							YYYY	

CANDIDATE DETAILS

Candidate's Name

First Name

Last Name

Father's Name

Institute Name and District

CNIC/BFORM #

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Registration Number issued by
Assessment Body

Gender

Male

☐

Female

☐

Transgender

☐

Candidate's Consent

I agree to the time and date of the assessment and am aware of the requirements of the assessment. I fully understand my rights of appeal.

Candidate's Signature

ASSESSMENT RESULTS SUMMARY FORM

You can use this coversheet as an *Assessment Results Summary Form*. Simply post a photocopy of this completed coversheet to **NAVTTTC**

NAVTTTC OFFICE ONLY

1. DATE
FORM

RECEIVED:

DD	MM							YYYY	

2. DATE ENTERED INTO
DATABASE:

DD	MM							YYYY	

1

ASSESSMENT SUMMARY & RECORD

ACTIVITY	METHOD				DESIRED OUTCOMES	RESULT	
NATURE OF ACTIVITY	WRITTEN	ORAL	PORTFOLIO	OBSERVATION	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF QUALIFICATION: BIOGAS PLANT SUPERVISOR FIXED DOME	COMPETENT	NOT YET COMPETENT
Practical Skill Demonstration				✓	Perform as a supervisor of fixed dome biogas plant.		
Knowledge Assessment	✓	✓			Answer all questions your Assessor may have during the practical assessment.		
Other Requirements			✓		N/A		

2

CANDIDATE ASSESSMENT

Candidate's Name..... Father's Name

ALL WORK ASSESSED IN THIS COMPETENCY STANDARD MUST BE YOUR OWN WORK.

GUIDANCE TO CANDIDATE

To meet this standard you are required to complete the following tasks within **five hours** timeframe:

- Calculate the size of fixed dome biogas plant at farm/house
- Check and calculate the quality and quantity of materials required for the construction of fixed dome biogas plant (size given by assessor)
- Supervise the construction of digester of fixed dome biogas plant at farm/house as per drawing
- Supervise the construction of gas holder and turret of fixed dome biogas plant at farm/house as per drawing
- Supervise the construction of main hole, hydraulic chamber and slurry outlet of fixed dome biogas plant at farm/house as per drawing
- Supervise the construction of feeding inlet, slurring collection and composting pit of fixed dome biogas plant at farm/house as per drawing
- Supervise the installation of pipeline and electromechanical components for fixed dome biogas plant at farm/house
- Supervise the operation activity of fixed dome biogas plant at farm/house

Important Note: The following general performance criteria will be followed and performed in all the tasks (where applicable by the candidate in order to meet this standard:

- Follow precautionary procedures as per requirements of the given tasks
- Select, use and maintain equipment/ tools as per requirement of the task
- Report to supervisor in case of any emergency after taking necessary actions
- Complete the work by following sequence of the operations
- Perform task(s) within standard timeframe

ACTIVITIES	CANDIDATE RESPONSE
1. Complete practical task of biogas plant supervisor fixed dome under observation by an assessor	During a practical assessment, under observation by an assessor, I will correctly : • Calculate the size of fixed dome biogas plant at farm/house ✓ Estimate the quantity of feeding material required for fixed dome biogas digester at farm/house ✓ Quantify the biogas produced by biogas plant at farm/house ✓ Calculate the size of fixed dome biogas plant at farm/house on the basis of feeding material, biogas quantity produced and retention time • Check and calculate the quality and quantity of materials required for the construction of fixed dome biogas plant (size given by assessor) ✓ Check and calculate the quality and quantity of bricks to be used for the construction of fixed dome biogas plant ✓ Calculate the quantity of cement bags to be used for the construction of fixed dome biogas plant ✓ Check and calculate the quality and quantity of sand to be used for the construction of fixed dome biogas plant ✓ Check and calculate the quality and quantity of gravel (crush) to be used for the construction of fixed dome biogas plant ✓ Calculate the quantity of iron rods to be used for the construction of fixed dome biogas plant ✓ Calculate the quantity of acrylic emulsion for the construction of fixed dome biogas plant • Supervise the construction of digester of fixed dome biogas plant at farm/house as per drawing ✓ Observe the marking the land for excavation of pit for construction of fixed dome biogas plant at farm/house ✓ Monitor the foundation preparation of digester of fixed dome biogas plant ✓ Check the construction walls of digester of fixed dome biogas plant as per drawing ✓ Observe the fixation inlet pipe in the digester wall of fixed dome biogas plant

	✓ Monitor plastering of walls of digester of fixed dome biogas plant as per predetermined sand-cement ratio • Supervise the construction of gas holder and turret of fixed dome biogas plant at farm/house as per drawing ✓ Monitor the preparation of scaffolding and frameworks for dome casting as per drawing of fixed dome biogas plant ✓ Monitor the use of template as per drawing before casting of dome of fixed dome biogas plant ✓ Ensure casting of the dome of as per drawing to ensure required thickness and strength ✓ Monitor the plastering with subsequent layers of acrylic emulsion inside the dome of fixed dome biogas plant to make it impermeable to air/gas. • Supervise the construction of main hole, hydraulic chamber and slurry outlet of fixed dome biogas plant at farm/house as per drawing ✓ Observe the construction of main hole of fixed dome biogas plant as per given drawing ✓ Monitor the construction of outlet of fixed dome biogas plant as per drawing ✓ Monitor the plumbing of walls of main hole and outlet during construction ✓ Observe the preparation and fixation of slabs on outlet chamber of fixed dome biogas plant • Supervise the construction of feeding inlet, slurring collection and composting pit of fixed dome biogas plant at farm/house as per drawing ✓ Monitor construction platform of feeding inlet of fixed dome biogas plant as per drawing ✓ Observe the construction of walls of inlet and fix mixing device in the inlet tank ✓ Monitor excavation of slurry collection pit of fixed dome biogas plant for slurry collection and composting ✓ Observe the checking of leakage of dome of fixed dome biogas plant at farm/house ✓ Monitor the curing time after each step of construction of fixed dome biogas plant at farm/house • Supervise the Installation of pipeline and electromechanical components for fixed dome biogas plant at farm/house ✓ Monitor the installation of pipeline for fixed dome biogas plant with provision of moisture removal at farm/house ✓ Check the pressure gauge, biogas flow meter in the gas pipeline of fixed dome biogas plant ✓ Observe the checking of leakage of pipeline of fixed dome biogas plant at farm/house ✓ Monitor the installation of temperature gauge in the digester chamber of the fixed dome biogas plant at farm/house ✓ Monitor the Installation of moisture trap and hydrogen sulphide scrubber in the pipe line of fixed dome biogas plant at farm/house ✓ Observe the installation of stove, lamps for using biogas from fixed dome biogas plant at farm/house ✓ Check the installation of compressor in the pipe line of fixed dome biogas plant to increase pressure if biogas is to be used for running generator at farm/house • Supervise the operation activity of fixed dome biogas plant at farm/house ✓ Check the process of dung and water feeding to fixed dome biogas plant ✓ Observe the pressure testing and gas leakage test for fixed dome biogas plant at farm/house ✓ Monitor the removal of water from moisture traps of fixed dome plant at farm/house • General Performance Criteria ✓ Follow precautionary procedures as per requirements of the given tasks ✓ Select, use and maintain equipment/ tools as per requirement of the task ✓ Report to supervisor in case of any emergency after taking necessary actions ✓ Complete the work by following sequence of the operations ✓ Perform task(s) within standard timeframe
2. Other requirements	• N/A
3. Answer any questions your assessor may have during the practical assessment	My answers to questions are correct and demonstrate my understanding of the topics and their application.

3

ASSESSOR JUDGEMENT GUIDE

Candidate's Name Father's Name.....

INSTRUCTIONS FOR ASSESSOR

This section contains minimum evidence requirements. Oral questioning may be used to clarify candidate understanding of the topic and its application.

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES	NO	ASSESSOR COMMENTS
1. Complete practical task of biogas plant supervisor fixed dome under observation by an assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out the following tasks:			
Calculate the size of fixed dome biogas plant at farm/house	Estimated the quantity of feeding material required for fixed dome biogas digester at farm/house			
	Quantified the biogas produced by biogas plant at farm/house			
	Calculated the size of fixed dome biogas plant at farm/house on the basis of feeding material, biogas quantity produced and retention time			
Check and calculate the quality and quantity of materials required for the construction of fixed dome biogas plant (size given by assessor)	Checked and calculated the quality and quantity of bricks to be used for the construction of fixed dome biogas plant			
	Calculated the quantity of cement bags to be used for the construction of fixed dome biogas plant			
	Checked and calculate the quality and quantity of sand to be used for the construction of fixed dome biogas plant			
	Checked and calculated the quality and quantity of gravel (crush) to be used for the construction of fixed dome biogas plant			
	Calculated the quantity of iron rods to be used for the construction of fixed dome biogas plant			
	Calculated the quantity of acrylic emulsion for the construction of fixed dome biogas plant			
Supervise the construction of digester of fixed dome biogas plant at farm/house as per drawing	Observed the marking the land for excavation of pit for construction of fixed dome biogas plant at farm/house			
	Monitored the foundation preparation of digester of fixed dome biogas plant			
	Checked the construction walls of digester of fixed dome biogas plant as per drawing			
	Observed the fixation inlet pipe in the digester wall of fixed dome biogas plant			
	Monitored plastering of walls of digester of fixed dome biogas plant as per predetermined sand-cement ratio			
Supervise the construction of gas holder and turret of fixed dome biogas plant at farm/house as per drawing	Monitored the preparation of scaffolding and frameworks for dome casting as per drawing of fixed dome biogas plant			
	Monitored the use of template as per drawing before casting of dome of fixed dome biogas plant			
	Ensured casting of the dome of as per drawing to ensure required thickness and strength			
	Monitored the plastering with subsequent layers of acrylic emulsion inside the dome of fixed dome biogas plant to make it impermeable to air/gas.			
Supervise the construction of main hole, hydraulic chamber and slurry outlet of fixed	Observed the construction of main hole of fixed dome biogas plant as per given drawing			
	Monitored the construction of outlet of fixed dome biogas plant as per drawing			

dome biogas plant at farm/house as per drawing	Monitored the plumbing of walls of main hole and outlet during construction			
	Observed the preparation and fixation of slabs on outlet chamber of fixed dome biogas plant			
Supervise the construction of feeding inlet, slurring collection and composting pit of fixed dome biogas plant at farm/house as per drawing	Monitored construction platform of feeding inlet of fixed dome biogas plant as per drawing			
	Observed the construction of walls of inlet and fix mixing device in the inlet tank			
	Monitored excavation of slurry collection pit of fixed dome biogas plant for slurry collection and composting			
	Observed the checking of leakage of dome of fixed dome biogas plant at farm/house			
	Monitored the curing time after each step of construction of fixed dome biogas plant at farm/house			
Supervise the installation of pipeline and electromechanical components for fixed dome biogas plant at farm/house	Monitored the installation of pipeline for fixed dome biogas plant with provision of moisture removal at farm/house			
	Checked the pressure gauge, biogas flow meter in the gas pipeline of fixed dome biogas plant			
	Observed the checking of leakage of pipeline of fixed dome biogas plant at farm/house			
	Monitored the installation of temperature gauge in the digester chamber of the fixed dome biogas plant at farm/house			
	Monitored the Installation of moisture trap and hydrogen sulphide scrubber in the pipe line of fixed dome biogas plant at farm/house			
	Observed the installation of stove, lamps for using biogas from fixed dome biogas plant at farm/house			
	Checked the installation of compressor in the pipe line of fixed dome biogas plant to increase pressure if biogas is to be used for running generator at farm/house			
Supervise the operation activity of fixed dome biogas plant at farm/house	Checked the process of dung and water feeding to fixed dome biogas plant			
	Observed the pressure testing and gas leakage test for fixed dome biogas plant at farm/house			
	Monitored the removal of water from moisture traps of fixed dome plant at farm/house			
General Performance Criteria	Followed precautionary procedures as per requirements of the given tasks			
	Selected, used and maintained equipment/ tools as per requirement of the task			
	Reported to supervisor in case of any emergency after taking necessary actions			
	Completed the work by following sequence of the operations			
	Performed task(s) within standard timeframe			
2. Other requirements	N/A			

3. Answer any questions the assessor may have during the practical assessment	Candidate's answers to questions are correct and demonstrate understanding of the topics and their application. Assessor to document below all questions asked and candidate answers. Use extra sheets if required and attach.			
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4

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

INSTRUCTIONS	This section contains information regarding; - Context of the assessment - List of required tools and equipment. - List of consumable items required during the service
1. Context of Assessment	This task will be performed in real time environment.

2. List of tools and equipment required (for five candidates)		
S. No	Items	Quantity
1	Computer	1
2	Multimedia	1
3	White board	1
4	Prototype biogas digester	1
5	Flip chart	1
6	Camera	1
7	Construction video	1
8	Calculators	5
9	Measuring tap	5
10	Plumb- bob	5
11	Water level	5
12	Mason's Trowel	5
13	Plastering trowel	5
14	Pointing trowel	5
15	Pick axe with handle	5
16	Wheel barrow	5
17	Chisel sets 9" and 12"	5
18	Mason's hammer	5
19	Templates (different sizes according to size of fixed dome biogas plant)	5
20	Straight edge	5
21	Thread roll	5
22	Lime powder for layout chalking	5kg
23	Iron trough/mortar pan	10
24	Spirit level	3
25	Brushes (wire brush, painting brush)	10
26	Shovel with handle	5
27	Builders square	5
28	Lines and pins	LS
29	Striker for horizontal and vertical joints	5
30	Steel float – small, medium and large	5
31	Wooden float – small, medium and large	5
32	Mason's Tool bag	25
33	Hexa-frame and blade sets	5
34	Pipe wrench – 9" and 12"	5
35	Plier/slide wrench	5
36	Spanners	5
37	Helmet	5
38	Dungaree (Working uniform)	5

39	Safety belt	5
40	Boots	5
41	Gloves	5
42	Rain coats	5
43	Pressure gauge	5
44	Biogas flow meter	5
45	Temperature gauge	5

3. List of consumable items required (for five candidates)		
S. No	Items	Quantity
1	Flip chart paper	5
2	Meta cards – different colours	5
3	Marker pens (Permanent and board marker)	10
4	Masking tape (rolls)	5
5	Cello tape	5
6	Biodigester drawing	5
7	Ball pen	5
8	Pencils	5
9	Erasers	5
10	Writing pad/note book	5
11	Glue stick	5
12	Cement	50
13	Bricks	7500
14	Sand	2500 cuft
15	Aggregates 20mm	2500 cu ft
16	Inlet pipes PVC 110 mm diameter 3 m long	5
17	MS Rod 10 mm diameter	25kg
18	Binding wire	1 kg
19	Scaffolding	5
20	PVC/GI pipe and fittings as per site condition	5 sets
21	Biogas filters (CO2 scrubber, H2S remover, moisture remover)	5 sets
22	Biogas appliances (as per sit condition and users' need)	5 sets
23	Control valves – as per site condition	5
24	Main gas pipe – GI 1.5" diameter, 1 m long with reducing elbow	5
25	Teflon tape	5