

BIOGAS PLANT TECHNICIAN FLOATING DURM

Assesment Standards

National Vocational
Certificate Level 2

Version 1 - December 2014

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Government of Pakistan

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Document Version

December, 2014

Islamabad, Pakistan

BIOGAS PLANT TECHNICIAN FLOATING DURM

Assesment Standards

National Vocational
Certificate Level 2

Version 1 - December 2014



ASSESSMENT MATERIAL EVIDENCE GUIDE

Qualification

Biogas Plant
Technician Floating
Drum

CS Code:

Level: 2

Credit: 3

Version: 1

SELECTION OF SUITABLE TYPE AND APPROPRIATE SIZE OF FLOATING-DRUM BIO- DIGESTER AND CARRY OUT BASIC CALCULATIONS FOR BIOGAS PLANT

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 NAVTTC

NAVTTC OFFICE ONLY

1. DATE

FORM

RECEIVED:

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DD MM YYYY

2. DATE ENTERED INTO

DATABASE:

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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 COMPETENCY STANDARD: SELECTION OF SUITABLE TYPE AND APPROPRIATE SIZE OF FLOATING-DRUM BIO-DIGESTER AND CARRY OUT BASIC CALCULATIONS FOR BIOGAS PLANT	COMPETENT	NOT YET COMPETENT
Practical Skill Demonstration				✓	<ul style="list-style-type: none"> Select suitable type and appropriate size of floating-drum bio-digester and carry out basic calculations for biogas plant. 		
Knowledge Assessment	✓	✓			<ul style="list-style-type: none"> Answer all questions your Assessor may have during the practical assessment. 		
Other Requirements			✓		<ul style="list-style-type: none"> 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 **one hour** timeframe:

- Select the size and design of floating drum bio-digester for biogas plant.
- Carry out calculations for materials required for installation of floating drum bio-digester for biogas plant.

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 selecting suitable type and appropriate size of floating-drum bio-digester and carry out basic calculations for biogas plant under observation by an assessor	<p>During a practical assessment, under observation by an assessor, I will correctly :</p> <ul style="list-style-type: none"> • Select the size and design for floating drum bio-digester for biogas plant <ul style="list-style-type: none"> ✓ Select the size of floating type bio-digester for biogas plant to fulfil the requirements of 10 persons of the family ✓ Select the size of floating type bio-digester for biogas plant when there are 10 cattle for feeding purpose ✓ Select the design of floating drum bio-digester according to the locality of biogas plant • Carry out calculations for materials required for installation of floating drum bio-digester for biogas plant <ul style="list-style-type: none"> ✓ Calculate the quantity of feeding material (cattle dung) from 10 cattle for biogas plant ✓ Quantify the quantity of gas produced from feeding materials of 10 cattle for biogas plant ✓ Calculate the quantity of gas required for a family with 10 family members ✓ Calculate the quantity of gas required by the family on the basis of end-use applications of the gas ✓ Estimate the quantity of other materials (other than cattle dung) for installation of floating drum bio-digester for biogas plant ✓ Calculate the cast for installation of floating drum bio-digester depending upon the material required (other than cattle dung) ✓ Calculate the HRT for floating drum digester of biogas plant with 100 cubic feet volume of the digester and 2 cubic feet input • General Performance Criteria <ul style="list-style-type: none"> ✓ 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	<ul style="list-style-type: none"> • 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 selecting suitable type and appropriate size of floating-drum bio-digester and carry out basic calculations for biogas plant under observation by an assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out the following tasks:			
Select the size and design for floating drum bio-digester for biogas plant	Selected the size of floating type bio-digester for biogas plant to fulfil the requirements of 10 persons of the family			
	Selected the size of floating type bio-digester for biogas plant when there were 10 cattle for feeding purpose			
	Selected the design of floating drum bio-digester according to the locality of biogas plant			
Carry out calculations for materials required for installation of floating drum bio-digester for biogas plant	Calculated the quantity of feeding material (cattle dung) from 10 cattle for biogas plant			
	Quantified the quantity of gas produced from feeding materials of 10 cattle for biogas plant			
	Calculated the quantity of gas required for a family with 10 family members			
	Calculated the quantity of gas required by the family on the basis of end-use applications of the gas			
	Estimated the quantity of other materials (other than cattle dung) for installation of floating drum bio-digester for biogas plant			
	Calculated the cost for installation of floating drum bio-digester depending upon the material required (other than cattle dung)			
	Calculated the HRT for floating drum digester of biogas plant with 100 cubic feet volume of the digester and 2 cubic feet input			
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			

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

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

INSTRUCTIONS	<p>This section contains information regarding;</p> <ul style="list-style-type: none"> 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	Personal protective equipment (PPE)	05
2	Calculator	05

3. List of consumable items required (for five candidates)		
S. No	Items	Quantity
1	Plastic Gloves (Pairs)	05
2	Scale	05
3	Measuring Tape	05
4	Note Books	05
5	Pencils, Rubber, sharpener	05
6	Drafting Chart	05



ASSESSMENT MATERIAL EVIDENCE GUIDE

Qualification

Biogas Plant
Technician Floating
Drum

CS Code:

Level: 2

Credit: 3

Version: 1

SELECT CONSTRUCTION MATERIALS AND CONSTRUCTION SITE

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

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NAVTTTC OFFICE ONLY

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FORM

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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 COMPETENCY STANDARD: SELECT CONSTRUCTION MATERIALS AND CONSTRUCTION SITE	COMPETENT	NOT YET COMPETENT
Practical Skill Demonstration				✓	<ul style="list-style-type: none"> Select construction materials and construction site for the floating drum biogas plant. 		
Knowledge Assessment	✓	✓			<ul style="list-style-type: none"> Answer all questions your Assessor may have during the practical assessment. 		
Other Requirements			✓		<ul style="list-style-type: none"> 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 **thirty minutes** timeframe:

- Perform tests to check the quality of construction materials required for the construction of floating drum bio-digester of biogas plant

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 selecting construction materials and construction site under observation by an assessor	<p>During a practical assessment, under observation by an assessor, I will correctly :</p> <ul style="list-style-type: none"> • Perform tests to check the quality of construction materials required for the construction of floating drum bio-digester of biogas plant <ul style="list-style-type: none"> ✓ Perform test to check the quality of brick, gravel and stone used for the construction of floating drum bio-digester of the biogas plant ✓ Perform test to check the quality of cement and sand used for the construction of floating drum bio-digester of the biogas plant ✓ Perform test to check the quality of floating drum of bio-digester ✓ Select site for the construction of floating drum bio-digester for biogas plant • General Performance Criteria <ul style="list-style-type: none"> ✓ 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	<ul style="list-style-type: none"> • 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 selecting construction materials and construction site under observation by an assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out the following tasks:			
Perform tests to check the quality of construction materials required for the construction of floating drum bio-digester of biogas plant	Performed test to check the quality of brick, gravel and stone used for the construction of floating drum bio-digester of the biogas plant			
	Performed test to check the quality of cement and sand used for the construction of floating drum bio-digester of the biogas plant			
	Performed test to check the quality of floating drum of bio-digester			
	Selected site for the construction of floating drum bio-digester for biogas plant			
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			

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

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

INSTRUCTIONS	<p>This section contains information regarding;</p> <ul style="list-style-type: none"> 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	Personal protective equipment (PPE)	05
2	Bricks	As per requirement
3	Cement Pack	As per requirement
4	Sand pack	As per requirement
5	Stone pack	As per requirement
6	Gravel pack	As per requirement
7	Bottle for bottle test of sand	05
8	Vernier callipers	05

3. List of consumable items required (for five candidates)		
S. No	Items	Quantity
1	Plastic Gloves (Pairs)	05



ASSESSMENT MATERIAL EVIDENCE GUIDE

Qualification

Biogas Plant
Technician Floating
Drum

CS Code:

Level: 2

Credit: 11

Version: 1

CONSTRUCT STRUCTURAL COMPONENT OF A FLOATING DRUM BIO-DIGESTER

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

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NAVTTTC OFFICE ONLY

1. DATE

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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 COMPETENCY STANDARD: CONSTRUCT STRUCTURAL COMPONENT OF A FLOATING DRUM BIO-DIGESTER	COMPETENT	NOT YET COMPETENT
Practical Skill Demonstration				✓	<ul style="list-style-type: none"> Construct structural component of a floating drum bio-digester of biogas plant. 		
Knowledge Assessment	✓	✓			<ul style="list-style-type: none"> Answer all questions your Assessor may have during the practical assessment. 		
Other Requirements			✓		<ul style="list-style-type: none"> 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 **two hours** timeframe:

- Construct bio-digester and install floating drum of biogas plant
- Construct inlet, mixing tank, slurry collection and composting pit of the floating drum biogas plant

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 constructing structural component of a floating drum bio-digester under observation by an assessor	<p>During a practical assessment, under observation by an assessor, I will correctly :</p> <ul style="list-style-type: none"> • Construct bio-digester and install floating drum of biogas plant <ul style="list-style-type: none"> ✓ Select site for the construction of floating drum bio-digester of biogas plant ✓ Excavate pit and prepare mortar of floating drum bio-digester of biogas plant ✓ Prepare base of the floating drum bio-digester and construct foundation ✓ Construct digester (floating drum), baffles, plaster of walls and fix inlet and outlet pipes for the construction of floating drum bio-digester of the biogas plant ✓ Prepare scaffolding and formworks for erecting floating drum bio-digester of the biogas plant ✓ Install central, internal and external guide frame and support ledge for floating drum bio-digester of biogas plant ✓ Install floating drum for bio-digester of biogas plant and remove scaffolding and framework • Construct inlet, mixing tank and slurry collection and composting pit of the floating drum biogas plant <ul style="list-style-type: none"> ✓ Construct platform and walls of inlet tank for floating drum bio-digester of the biogas plant ✓ Prepare and plaster inlet tank and fix mixing devices for floating drum bio-digester of biogas plant ✓ Select location for slurry collection and composting pit for floating drum bio-digester of biogas plant ✓ Construct walls and roof of the slurry collection and composting pit for floating drum bio-digester of biogas plant • General Performance Criteria <ul style="list-style-type: none"> ✓ 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	<ul style="list-style-type: none"> • 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.
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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 constructing structural component of a floating drum bio-digester under observation by an assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out the following tasks:			
Construct bio-digester and install floating drum of biogas plant	Selected site for the construction of floating drum biodigester of biogas plant			
	Excavated pit and prepared mortar of floating drum biodigester of biogas plant			
	Prepared base of the floating drum biodigester and constructed foundation			
	Constructed digester (floating drum), baffles, plaster of walls and fixed inlet and outlet pipes for the construction of floating drum biodigester of the biogas plant			
	Prepared scaffolding and formworks for erecting floating drum biodigester of the biogas plant			
	Installed central, internal and external guide frame and support ledge for floating drum biodigester of biogas plant			
	Installed floating drum for biodigester of biogas plant and removed scaffolding and framework			
Construct inlet, mixing tank and slurry collection and composting pit of the floating drum biogas plant	Constructed platform and walls of inlet tank for floating drum biodigester of the biogas plant			
	Prepared and plastered inlet tank and fixed mixing devices for floating drum biodigester of biogas plant			
	Selected location for slurry collection and composting pit for floating drum biodigester of biogas plant			
	Constructed walls and roof of the slurry collection and composting pit for floating drum biodigester of biogas plant			
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			

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

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

INSTRUCTIONS	<p>This section contains information regarding;</p> <ul style="list-style-type: none"> Context of the assessment List of required tools and equipment. List of consumable items required during the service
1. Context of Assessment	<p>This task will be performed in real time environment.</p>

2. List of tools and equipment required (for five candidates)		
S. No	Items	Quantity
1	Personal protective equipment (PPE)	05
2	Measuring tap	05
3	Plumb- bob	05
4	Water level	05
5	Mason's Trowel	05
6	Plastering trowel	05
7	Pointing trowel	05
8	Pick axe with handle	05
9	Wheel barrow	05
10	Chisel sets 9" and 12"	05
11	Mason's hammer	05
12	Templates	05
13	Straight edge	05
14	Thread roll	05
15	Lime powder for layout chalking	5kg
16	Iron trough/mortar pan	05
17	Spirit level	05
18	Brushes (wire brush, painting brush)	05
19	Shovel with handle	05
20	Builders square	05
21	Lines and pins	05
22	Striker for horizontal and vertical joints	05
23	Steel float – small, medium and large	05
24	Wooden float – small, medium and large	05
25	Mason's Tool bag	05
26	Helmet	05
27	Dungaree (Working uniform)	05
28	Safety belt	05
29	Boots	05
30	Gloves	05
31	Rain coats	05

3. List of consumable items required (for five candidates)		
S. No	Items	Quantity
1	Plastic Gloves (Pairs)	05



ASSESSMENT MATERIAL EVIDENCE GUIDE

Qualification

Biogas Plant
Technician Floating
Drum

CS Code:

Level: 2

Credit: 3

Version: 1

INSTALL PIPELINE AND ELECTRO-MECHANICAL COMPONENTS

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

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1

ASSESSMENT SUMMARY & RECORD

ACTIVITY	METHOD				DESIRED OUTCOMES	RESULT	
NATURE OF ACTIVITY	WRITTEN	ORAL	PORTFOLIO	OBSERVATION	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF COMPETENCY STANDARD: INSTALL PIPELINE AND ELECTRO-MECHANICAL COMPONENTS	COMPETENT	NOT YET COMPETENT
Practical Skill Demonstration				✓	<ul style="list-style-type: none"> Install pipeline and electro-mechanical components for floating drum bio-digester of biogas plant. 		
Knowledge Assessment	✓	✓			<ul style="list-style-type: none"> Answer all questions your Assessor may have during the practical assessment. 		
Other Requirements			✓		<ul style="list-style-type: none"> 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 **one hour** timeframe:

- Install pipe lines and accessories for construction of floating drum bio-digester of biogas plant.
- Install purification system and pump for construction of floating drum bio-digester of biogas plant.

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 installing pipeline and electro-mechanical components under observation by an assessor	<p>During a practical assessment, under observation by an assessor, I will correctly :</p> <ul style="list-style-type: none"> • Install pipe lines and accessories for construction of floating drum bio-digester of biogas plant <ul style="list-style-type: none"> ✓ Join pipes for installation of floating type bio-digester for biogas plant by using fitter and sealing agent ✓ Fix biogas stove, heater, rice-cooker, generator and lamp as per user requirements while installation of floating type bio-digester for biogas plant ✓ Install pressure gauge, gas-flow meter and temperature gauge for floating type bio-digester for biogas plant • Install purification system and pump for construction of floating drum bio-digester of biogas plant <ul style="list-style-type: none"> ✓ Install CO2 scrubber, H2S and moisture remover for purification of gas in floating drum bio-digester of biogas plant ✓ Select the size of pump/generator for floating drum bio-digester on the basis of gas demand ✓ Install pump/generator and control system for floating drum bio-digester • General Performance Criteria <ul style="list-style-type: none"> ✓ 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	<ul style="list-style-type: none"> • 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.

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 installing pipeline and electro-mechanical components under observation by an assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out the following tasks:			
Install pipe lines and accessories for construction of floating drum bio-digester of biogas plant	Joined pipes for installation of floating type bio-digester for biogas plant by using fitter and sealing agent			
	Fixed biogas stove, heater, rice-cooker, generator and lamp as per user requirements while installation of floating type bio-digester for biogas plant			
	Installed pressure gauge, gas-flow meter and temperature gauge for floating type bio-digester for biogas plant			
Install purification system and pump for construction of floating drum bio-digester of biogas plant	Installed CO ₂ scrubber, H ₂ S and moisture remover for purification of gas in floating drum bio-digester of biogas plant			
	Selected the size of pump/generator for floating drum bio-digester on the basis of gas demand			
	Installed pump/generator and control system for floating drum bio-digester			
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			

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

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

INSTRUCTIONS	<p>This section contains information regarding;</p> <ul style="list-style-type: none"> Context of the assessment List of required tools and equipment. List of consumable items required during the service
1. Context of Assessment	<p>This task will be performed in real time environment.</p>

2. List of tools and equipment required (for five candidates)		
S. No	Items	Quantity
1	Personal protective equipment (PPE)	05
2	Prototype biogas digester	01
3	Construction video	01
4	Calculators	05
5	Measuring tap	05
6	Plumb- bob	05
7	Water level	05
8	Mason's Trowel	05
9	Hexa-frame and blade sets	05
10	Pipe wrench – 9" and 12"	05
11	Plier/slide wrench	05
12	Spanners	05

3. List of consumable items required (for five candidates)		
S. No	Items	Quantity
1	Plastic Gloves (Pairs)	05



ASSESSMENT MATERIAL EVIDENCE GUIDE

Qualification

Biogas Plant
Technician Floating
Drum

CS Code:

Level: 2

Credit: 3

Version: 1

PERFORM ROUTINE OPERATION AND MINOR MAINTENANCE TASKS

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 NAVTTC

NAVTTC OFFICE ONLY

1. DATE

FORM

RECEIVED:

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DD MM YYYY

2. DATE ENTERED INTO

DATABASE:

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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 COMPETENCY STANDARD: PERFORM ROUTINE OPERATION AND MINOR MAINTENANCE TASKS	COMPETENT	NOT YET COMPETENT
Practical Skill Demonstration				✓	<ul style="list-style-type: none"> Perform routine operation and minor maintenance tasks of a floating drum biogas plant. 		
Knowledge Assessment	✓	✓			<ul style="list-style-type: none"> Answer all questions your Assessor may have during the practical assessment. 		
Other Requirements			✓		<ul style="list-style-type: none"> 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 **one hour** timeframe:

- Perform operation activity of floating drum bio-digester biogas plant.

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 performing routine operation and minor maintenance tasks under observation by an assessor	<p>During a practical assessment, under observation by an assessor, I will correctly :</p> <ul style="list-style-type: none"> • Perform operation activity of floating drum bio-digester biogas plant. <ul style="list-style-type: none"> ✓ Perform the process of dung feeding to floating drum bio-digester ✓ Perform pressure testing and gas leakage test for floating drum bio-digester of biogas plant ✓ Perform greasing/oiling of moveable parts of the biogas plant having floating drum type bio-digester • General Performance Criteria <ul style="list-style-type: none"> ✓ 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	<ul style="list-style-type: none"> • 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.

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 performing routine operation and minor maintenance tasks under observation by an assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out the following tasks:			
Perform operation activity of floating drum bio-digester biogas plant.	Performed the process of dung feeding to floating drum bio-digester			
	Performed pressure testing and gas leakage test for floating drum bio-digester of biogas plant			
	Performed greasing/oiling of moveable parts of the biogas plant having floating drum type bio-digester			
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			

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

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT


INSTRUCTIONS	<p>This section contains information regarding;</p> <ul style="list-style-type: none"> Context of the assessment List of required tools and equipment. List of consumable items required during the service
1. Context of Assessment	<p>This task will be performed in real time environment.</p>


2. List of tools and equipment required (for five candidates)		
S. No	Items	Quantity
1	Personal protective equipment (PPE)	05
2	Wheel barrow	05
3	Pressure meter	05
4	pH meter	05
5	Shovel	05
6	Grease Packet	05
7	Lubricant oil bottle	05


3. List of consumable items required (for five candidates)		
S. No	Items	Quantity
1	Plastic Gloves (Pairs)	05

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