







Model Curriculum

Desludging Operator

SECTOR: GREEN JOBS

SUB-SECTOR: WASTE MANAGEMENT

OCCUPATION: OPERATION & MAINTENANCE

REF ID: SGJ/Q6403, V 1.0

NSQF LEVEL: 4















Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

SKILL COUNCIL FOR GREEN JOBS

for the

MODEL CURRICULUM

Complying to National Occupational Standards of Job Role/ Qualification Pack: 'Desludging Operator' QP No. 'SGJ/Q6403 NSQF Level 4'

Date of Issuance:

November 30th, 2018

Valid up to:

November 29th, 2020

* Valid up to the next review date of the Qualification

Authorised Signatory (Skill Council for Green Jobs)









TABLE OF CONTENTS

| 1. Curriculum | 01 |
|----------------------------------|----|
| 2. Trainer Prerequisites | 06 |
| 3. Annexure: Assessment Criteria | 07 |









CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a "<u>Desludging Operator</u>", in the "<u>Green Jobs</u>" Sector/Industry and aims at building the following key competencies amongst the learner

| Program Name | Desludging Operato |)r | | |
|---|---|---|------------|--|
| Qualification Pack Name & Reference ID | SGJ/Q6403, V 1.0 | | | |
| Version No. | 1.0 | Version Update Date | 30.11.2018 | |
| Pre-requisites to Training | 5 th Pass | | | |
| Training Outcomes | Empty sludge f Demonstrate p Transport sludge sites Dispose sludge Set up venture Work effectively | Dispose sludge safely at the dedicated sludge disposal site Set up venture for emptying, transport and disposal of sludge Work effectively with co-workers Maintain health and safety while emptying, transporting and | | |









This course encompasses $\underline{5}$ out of $\underline{5}$ Compulsory National Occupational Standards (NOS) of "Desludging Operator" Qualification Pack issued by "Skill Council for Green Jobs".

| Sr. No. | Module | Key Learning Outcomes | Equipment Required |
|------------|---|---|--|
| 1 | Emptying of Septic Tank Theory Duration (hh:mm) 15:00 Practical Duration (hh:mm) 32:00 Corresponding NOS Code SGJ/N6411 | Identify the location of septic tank Identify size and location of septic tank Manage opening of the septic tank cover Inspect the consistency of sludge Install pipe in the septic tank connecting with sludge tank Schedule meter check on the septic tank before pumping out the sludge Manage to leave deep sludge left in the bottom of septic tank as per the industry standard and government norms Manage closing of the septic tank cover Practice to uninstall the suction pipes from the septic tank and clean surroundings and pipes before leaving the site Demonstrate that sludge vehicle is not leaking during the transit process Install suction pipe in the septic tank connecting with the sludge tank Empty sludge from the septic tank Uninstall suction pipe from the septic tank and close the access cover Identify hazardous leakage of septic tank and ensure proper cleaning | Vacuum tank with trucks, pumps, suction hoses, and other machinery/equipment to empty the septic tank, Hand gloves, helmet/cap, appropriate mask to cover face, reflective vest. (One for each candidate), gum boots |
| 2 | Preventive maintenance, transportation and safe disposal of sludge Theory Duration (hh:mm) 10:00 Practical Duration (hh:mm) 27:00 Corresponding NOS Code SGJ/N6412 | Carry out oil level check in the vacuum pump, oil-cooling tank, hydraulic tank and tanker engine Carry out tanker fuel level and water levels checks in the tanker engine, windscreen water bottle, wash tank and water tank Perform cooling radiator check for the hydraulic oil and pump oil Perform checks on desludging tank rear door opening Perform checks on tyre pressures, lights, indicators, horns of desludging tank | Engine Oil, Vacuum tank with trucks, pumps, suction hoses, and other machinery/equipment to empty the septic tank, Hand gloves, helmet/cap, appropriate mask to cover face, reflective vest. (One for each candidate), gum boots |









| Sr. No. | Module | Key Learning Outcomes | Equipment Required |
|------------|--|---|---|
| | | Prevent tank overflow Perform checks on contact between gaskets and seats Perform checks on steel balls Carryout leak check in hydraulic system and power take-off shafts Identify the dedicated route to the sludge disposal site Transport the sludge from source to sludge disposal site Maintain log book of disposal site visit Dispose sludge at the identified sludge disposal site Carry out cleaning of sludge vacuum tank after disposal | |
| 3 | Health & safety of workplace while doing desludging services Theory Duration (hh:mm) 8:00 Practical Duration (hh:mm) 18:00 Corresponding NOS Code SGJ/N6413 | Identify potential hazards such as atmospheric hazard, biological hazard and physical hazard Monitor workplace and identify potential risks and threats Report hazards and potential risks/ threats to authorized personnel Handle Personal Protective Equipment Follow health and safety protocols Administer First Aid Handle emergency situations like gas leakage, accident, etc. Follow organization procedures for evacuation when required Mitigate risks to people and property during emergencies Carry out periodic walk-through inspections to keep work area free from hazards and obstructions Maintain health and safety while emptying desludging tank Maintain health and safety while transporting sludge Maintain health and safety while disposing off sludge Demonstrate mock drills/ evacuation procedures at the workplace Demonstrate fire-fighting and emergency response | Hand sanitizer/soap, Hand gloves, helmet/ cap, appropriate mask to cover face, reflective vest. (One for each candidate), gum boots |









| Sr. No. | Module | Key Learning Outcomes | Equipment Required |
|------------|--|--|---|
| 4 | Working effectively with co-workers Theory Duration (hh:mm) 09:00 Practical Duration (hh:mm) 21:00 Corresponding NOS Code SGJ/N0120 | Identify ways to assist colleagues positively to maximize effectiveness and efficiency in carrying out tasks Discuss importance of work culture Demonstrate appropriate communication etiquette and dressing at work place Demonstrate responsible and disciplined behaviours at the workplace Identify ways to put up grievances and problems to appropriate authority Demonstrate collaboration and group participation to achieve common goals | Short-answer and fill-in- the-blank papers, rubrics and quizzes, internet connecting devices |
| 5 | Entrepreneurship skills for FSSM services Theory Duration (hh:mm) 18:00 Practical Duration (hh:mm) 42:00 Corresponding NOS Code SGJ/N6414 | Set up venture in desludging services Identify key activities of desludging services Explain licensing, certification and registration process Identify potential customers from residential commercial & institutional areas Identify size and configuration of key tools like sludge tank, truck and specific machinery / equipment required for desludging services business Identify methods of emptying, transporting and disposing off sludge Procure human resource and vehicle Fix rate of desludging services in residential, commercial and industrial areas. Identify and manage the technical challenges of desludging business Repair and maintain vehicle and sludge vacuum tank Maintain the log book of disposal site visit Carry out cleaning of sludge vacuum tank after disposal | Different types and sizes of vacuum tank with trucks, pumps, suction hoses, and other machinery/equipment to empty the septic tank, reference business registration documents |









| Sr. No. | Module | Key Learning Outcomes | Equipment Required |
|------------|--|---|--------------------|
| | | Identify avenues to recycle and reuse of sludge | |
| | Total Duration: 200:00 | Unique Equipment Required: | |
| | Theory Duration 60:00 Practical Duration 140:00 | Different types and sizes of vacuum tank with trucks, pumps, suction hoses, and other machinery/equipment to empty the sep tank, Hand sanitizer/soap, Hand gloves, helmet/ cap, appropriate mask to cover face, reflective vest. (One for each candidate), gu boots, Short-answer and fill-in-the-blank papers, rubrics and quizzes, internet connecting devices etc. | |

Grand Total Course Duration: 200 Hours, 0 Minutes

(This syllabus/ curriculum has been approved by Skill Council for Green Jobs)









Trainer Prerequisites for Job role: "Desludging Operator" mapped to Qualification Pack: "SGJ/Q6403"

| Sr. No. | Area | Details | | | | |
|------------|----------------|--|--|--|--|--|
| 1 | Description | To deliver accredited training service, mapping to the curriculum detailed | | | | |
| | | above, in accordance with the Qualification Pack "SGJ/Q6403, Version | | | | |
| | | <u>1.0"</u> . | | | | |
| 2 | Personal | Aptitude for conducting training, and pre/ post work to ensure competent, | | | | |
| | Attributes | employable candidates at the end of the training. Strong communication | | | | |
| | | skills, interpersonal skills, ability to work as part of a team; a passion for | | | | |
| | | quality and for developing others; well-organised and focused, eager to | | | | |
| | | learn and keep oneself updated with the latest in the mentioned field. | | | | |
| 3 | Minimum | 10th Pass | | | | |
| | Educational | | | | | |
| | Qualifications | | | | | |
| 4a | Domain | Certified for Job Role: "Desludging Operator" mapped to QP: "SGJ/Q6403, | | | | |
| | Certification | Version 1.0". Minimum accepted score as per SCGJ guidelines is 80% | | | | |
| 4b | Platform | Recommended that the Trainer is certified for the Job Role: "Trainer", | | | | |
| | Certification | mapped to the Qualification Pack: "MEP/Q0102" or equivalent. Minimum | | | | |
| | | accepted score as per SSC guidelines is 80% | | | | |
| 5 | Experience | Minimum 2 years of experience in faecal sludge and septage management | | | | |









CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role Desludging Operator

Qualification Pack SGJ/Q6403, V 1.0

Sector Skill Council Green Jobs

Guidelines for Assessment

- 1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
- 2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
- 3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
- 4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
- 5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criterion.
- 6. To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
- 7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack

| Compulsory NOS Total Marks: 270 | | Marks Allocation | | | |
|--|--|------------------|-----------|--------|---------------------|
| Assessment outcomes | Assessment Criteria for outcomes | Total Mark | Out Of | Theory | Skills Practical |
| SGJ/N6411: Emptying of septic tank | PC1. visit and Identify the location of septic tank | | 3 | 1 | 2 |
| | PC2. ensure the cover of the septic tank is left open for some time | | 3 | 1 | 2 |
| | PC3. visual inspect the consistency of sludge and breakdown the solid sludge with water in case it is solid in consistency | | 5 | 2 | 3 |
| | PC4. install pipe in the septic tank connecting with sludge tank | | 7 | 2 | 5 |
| | PC5. ensure health and safety while installing the pipe in the septic tank for pumping out the sludge | 50 | 5 | 2 | 3 |
| | PC6. check the meter on the septic tank before pumping out the sludge | | 3 | 1 | 2 |
| | PC7. ensure that deep sludge should be left in the bottom of septic tank as per the industry standard and government norms | | 5 | 2 | 3 |
| | PC8. uninstall the suction pipes from the septic tank | | 5 | 2 | 3 |









| | PC9. ensure that the septic tank is properly closed | | 4 | 1 | 3 |
|--|--|-------|----|----|----|
| | PC10. clean their surroundings and pipes before leaving the site | | 3 | 1 | 2 |
| | PC11. ensure that sludge vehicle is not leaking during the transit process | | 7 | 2 | 5 |
| | | TOTAL | 50 | 17 | 33 |
| SGJ/N6412: Preventive maintenance, transportation | PC1. check the oil levels in the vacuum pump, oil-cooling tank, hydraulic tank and tanker engine | | 5 | 2 | 3 |
| and safe disposal of sludge | PC2. check the tanker fuel level, water levels in the tanker engine, windscreen water bottle, wash tank and water tank for the vacuum pump | | 5 | 2 | 3 |
| | PC3. check the cooling radiator for the hydraulic oil and pump oil | | 5 | 2 | 3 |
| | PC4. check if rear door closed and secured | | 5 | 2 | 3 |
| | PC5. check tyre pressures, lights, indicators, horns | | 5 | 2 | 3 |
| | PC6. prevent the tank from being overfilled | | 5 | 2 | 3 |
| | PC7. check contacts between gaskets and seats and performance steel balls | | 5 | 2 | 3 |
| | PC8. check leaks in the hydraulic system and power take-off shafts | | 5 | 2 | 3 |
| | PC9. identify the dedicated route to the disposal site | | 5 | 2 | 3 |
| | PC10. transport the sludge from source of sludge to disposal site | | 5 | 2 | 3 |
| | PC11. maintain the log book of disposal site visit | | 5 | 2 | 3 |
| | PC12. ensure safe disposal of sludge at the disposal site | | 5 | 2 | 3 |
| | PC13. carry out cleaning of sludge vacuum tank after disposal | | 5 | 2 | 3 |
| | | TOTAL | 65 | 26 | 39 |
| SGJ/N6413: Health and safety of workplace while doing | PC1. acquire knowledge of ways and means to handle emergency situations like gas leakage, natural disasters etc. | 50 | 5 | 2 | 3 |









| desludging services | PC2. ensure health and safety Understand means to mitigate risks to people and property during emergencies | | 5 | 2 | 3 |
|--|--|-------|----|----|----|
| | PC3. minimize health and safety risks to self and others by following documented safety protocols | | 5 | 2 | 3 |
| | PC4. monitor the workplace and work processes for potential risks and threats | | 5 | 2 | 3 |
| | PC5. carry out periodic walk-through inspections to keep work area free from hazards and obstructions | | 5 | 2 | 3 |
| | PC6. report hazards and potential risks/ threats to supervisors or other authorized personnel | | 5 | 2 | 3 |
| | PC7. participate in mock drills/ evacuation procedures organized at the workplace | | 5 | 2 | 3 |
| | PC8. undertake first aid, fire-fighting and emergency response training | | 5 | 2 | 3 |
| | PC9. take action based on instructions in the event of emergencies or accidents | | 5 | 2 | 3 |
| | PC10. follow organization procedures for evacuation when required | | 5 | 2 | 3 |
| | | TOTAL | 50 | 20 | 30 |
| SGJ/N0120: Work effectively with co-worker | PC1. assist other colleagues in performing tasks in a positive manner where required and possible | | 5 | 2 | 3 |
| | PC2. consult and assist others to maximize effectiveness and efficiency in carrying out tasks | | 5 | 2 | 3 |
| | PC3. demonstrate appropriate communication etiquette while working | | 5 | 2 | 3 |
| | PC4. demonstrate active listening skills while interacting with others at work | 35 | 5 | 2 | 3 |
| | PC5. demonstrate responsible and disciplined behaviors at the workplace | | 5 | 2 | 3 |
| | PC6. escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict | | 5 | 2 | 3 |
| | PC7. ensure collaboration and group participation to achieve common goals | | 5 | 2 | 3 |









| | | TOTAL | 35 | 14 | 21 |
|---|--|-------|----|----|----|
| SGJ/N6414: Entrepreneurship skills for FSSM | PC1. identify potential customers from residential commercial & institutional areas | | 3 | 1 | 2 |
| services | PC2. conduct a market research for to set-up the FSSM business | | 5 | 2 | 3 |
| | PC3. recognize methods of emptying, transport and disposal of sludge and operational challenges | | 5 | 2 | 3 |
| | PC4. identify key activities of desludging services | | 5 | 2 | 3 |
| | PC5. identify size and configuration of key tools like sludge tank, truck and specific machinery / equipment's required for desludging services business | | 7 | 2 | 5 |
| | PC6. purchase key resources required for establishment of FSSM services business | 70 | 5 | 2 | 3 |
| | PC7. identify and manage the technical challenges of desludging business | | 5 | 2 | 3 |
| | PC8. establish tentative rate for desludging services in residential and commercial areas | | 7 | 2 | 5 |
| | PC9. registration of vehicle with ULBs for desludging services | | 4 | 2 | 2 |
| | PC10. repair and maintenance of vehicle and sludge vacuum tank | | 5 | 2 | 3 |
| | PC11. maintain the log book of disposal site visit | | 5 | 2 | 3 |
| | PC12. ensure safe disposal of sludge at the disposal site | | 4 | 2 | 2 |
| | PC13. carry out cleaning of sludge vacuum tank after disposal | | 5 | 2 | 3 |
| | PC14. identify avenues to recycle and reuse of sludge | | 5 | 2 | 3 |
| | | TOTAL | 70 | 27 | 43 |