


	<b>Standard Operating Procedure</b>  <b>PRG</b> <small>pollution research group</small>	<b>Effective Date:</b> 20 June 2013	<b>Version: 003</b>
		<b>Reviewed:</b> 14 Nov 2017	
<b>SOP_Admin_04_ Sampling of Faecal Sludge and Community/Site Visits</b>			<b>Page #: 1 of 11</b>

## Co-ordination of Sampling Process

- Student/Researcher sends out an email to lab technician and copy to Tina, Santiago, Edie to request sampling. All specifications are included.
  - Ethical approval in place
  - Gatekeeper letter
  - Acceptance from EWS
  - Specify type of sludge? VIP/UD/pour flush?
  - Specify quantity of sludge. E.g 3x 25L/5x 1L
  - Composite sample?
  - Once off or do you require sampling in stages? If so specify month.
  - Specify date samples are required. We will arrange to the closest possible date if your specified date is not possible.
  - Check with Lungi if EWS has a sampling campaign running and make arrangements accordingly.
- Edie books the EWS vehicle.
- Sampler contacts Dumisani (0735115376) and makes arrangements.
- PRG sampler could either join Dumisani's sampling or schedule a session specific for PRG.
- Dumisani confirms sampling area and date. All done through telephonic conversation.
- PRG sampler to meet Dumisani at Bridge City Mall (offramp after Ethekekwini heart hospital).
- Store on vehicle GPS.
- Follow Dumisani to the sampling site.
- At PRG-keys and Sampling form are handed over to Edie.
- For specific sampling areas requested by PRG-Dumasani is contacted and given the details
- Arrangements are made and once sampling is completed, he submits an invoice and payment is made by Kerry/Edie.
- Cost per pit is R1800.00

## Preparation for Field Sampling

- Prior to the collection of samples, the collection team should prepare the equipment for use.

<input type="checkbox"/> Long length elbow gloves	
<input type="checkbox"/> Respirator	
<input type="checkbox"/> Mask (safety goggles)	
<input type="checkbox"/> Overall	
<input type="checkbox"/> 70% ethanol	
<input type="checkbox"/> Paper towels	
<input type="checkbox"/> Black refuse bags	

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<b>SOP_Admin_04_ Sampling of Faecal Sludge and Community/Site Visits</b>			<b>Page #: 1 of 11</b>

○ Latex powder free gloves	
○ Sample storage box	
○ Lab coats	
○ Rubber boots	

### Travel to field location

- Roadworthy, appropriately insured vehicles with seatbelts for all occupants to be used.
- Driver to have appropriate license.
- Inform person at office of intended destination and estimated return time.(see form attached)

### Personnel safety

- Liaise with relevant officials at municipality
- Arrange introductions to caretaker and/or householder in charge of facility before starting sampling, ensure they are kept informed about activities taking place
- Use local facilitators where advised to do so by municipality

### Sampling Procedure

- PRG members meet the pit emptying contractors on site with the sample containers.
- **Pit Emptying Contractor: Dumisani Majozi: 0735115376**
- The base concrete cover is removed by the contractors exposing the pit contents.

### School Pit toilets

- The pit contents are scooped out with a long handled spade and put into the sample containers.
- The containers are sealed tightly and packed into the vehicle.



Ventilated Latrine School pits



Urine Diversion toilets



Ventilated Latrine School pits



Urine Diversion toilets

The base concrete cover is removed by the contractors exposing the pit contents.



Samplers to wear full PPE



Prepare sampling containers.



Ventilated Latrine School pits

Contractors empty the pits/toilets.



Urine Diversion toilets

Pit contents are transferred to 1L containers.



Pit contents are transferred to bigger containers.



Remaining waste is taken by the contractors.



Sample containers are sealed and contained properly.



Disinfection step when sampling is completed.

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<b>SOP_Admin_04_ Sampling of Faecal Sludge and Community/Site Visits</b>			<b>Page #:</b> 1 of 11

### **Transport of sample from field location to lab**

- Tight-fitting lids to be fitted to sample containers before being removed from the facility
- Full sample containers to be placed inside bags or another tub inside vehicle.

### **Storage of sample in lab**

- Samples to be labeled appropriately whilst in the field.
- Full sample containers to be taken from vehicle, through basement access door to lab and placed immediately into cold-room
- Fill in the cold room inventory list.
- Samples must be placed in allocated project /student areas.
- All samples must be labeled with: Name of project, name of student, sample type, date and any other useful information.

### **Sample Handling Safety Precautions**

- Cover any small open wounds with waterproof dressings – if large open wounds then do not carry out laboratory work.
- Always use gloves, laboratory coat and closed shoes while working in the laboratory.
- Wear a face-shield when disposing of samples down the sluice (risk of splashback).
- Dispose of samples as specified by the Faeces Sample Disposal SOP.
- Clean all soiled equipment thoroughly after use.
- Any equipment that will be taken out of the laboratory into a 'clean' environment should be handled only with clean gloves and disinfected using 70% ethanol spray after use.
- Dispose of the used gloves in the appropriate waste bin after sample handling and disposal and cleaning of equipment is complete.
- Clean hands using antiseptic soap.
- Disinfect hands after washing with soap.

	<b>Standard Operating Procedure</b> 	<b>Effective Date:</b> 20 June 2013	<b>Version:</b> 003
		<b>Reviewed:</b> 14 Nov 2017	
<b>SOP_Admin_04_ Sampling of Faecal Sludge and Community/Site Visits</b>			<b>Page #:</b> 1 of 11

Where mixed samples are being handled (i.e. those from field location sources such as community ablution blocks), additional care must be taken as sharps may be present in the faecal matter. Samples should not be handled directly with gloved hands, but rather with a spoon or spatula.

Maintain 'clean' and 'dirty' work areas

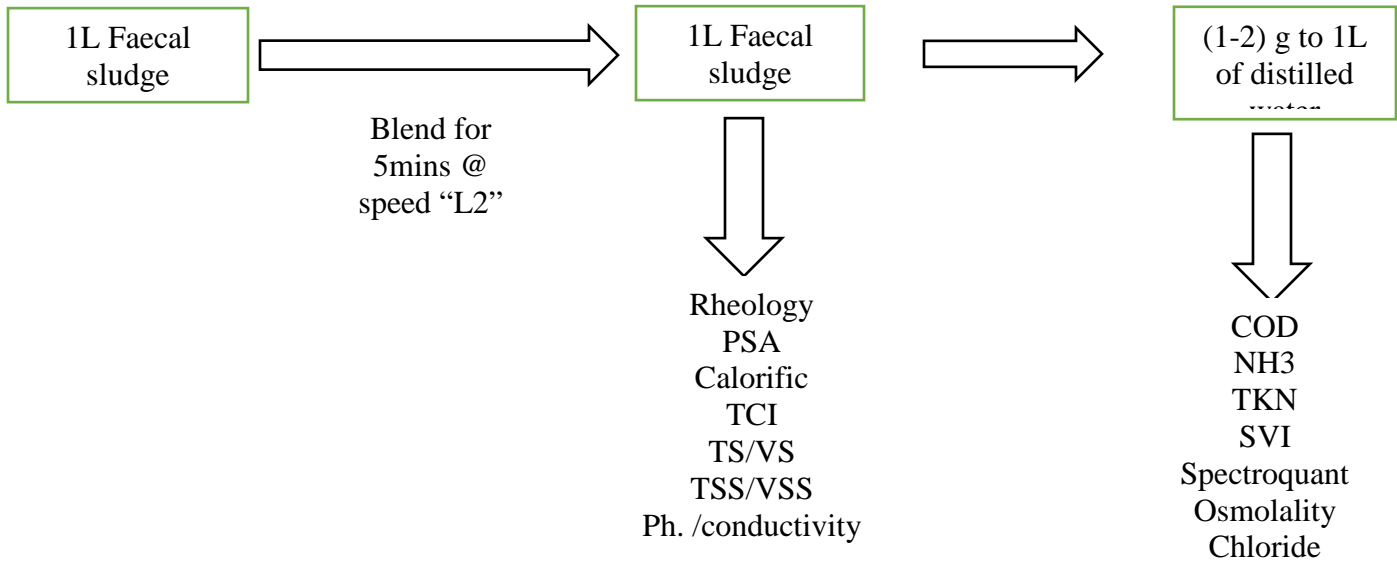
The basement laboratory where excreta samples are processed should be considered in its entirety a 'dirty' area, however within this 'clean zones' should be designated for any items that will later be taken out of the laboratory:

- Sample boxes and equipment used to handle samples should only be placed on wipe-clean surfaces - plastic or metal top workbenches or trays.
- Any 'clean' items that will be taken out of the laboratory – e.g. camera and paper forms used to record results – should be kept on a clean tray or segregated clean area of the workbench.
- 'Clean' items should only be handled whilst wearing clean gloves.

### **Preparation of samples**

- Mix 1L fecal sludge samples in the blender for 5 min at speed level 5.
- Put back into the resident bucket and store until required.
- Weigh out between 1.8g and 2g of the well mixed fecal sludge sample.
- Place the weighed out sample into a blender with 250ml of distilled water.
- Blend for 30 seconds.
- Transfer the blended mixture into a volumetric flask and top up to 1L with distilled water.
- Transfer the 1L solution to a labelled plastic bottle and store in the cold room at 4 °C until required.
- The blended solid samples are required for mechanical property tests and the diluted samples are required for the analytical tests.
- Samples for the rheology tests should not be blended.

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<b>SOP_Admin_04_ Sampling of Faecal Sludge and Community/Site Visits</b>			<b>Page #:</b> 1 of 11



### Disposal of samples

- All faeces must be disposed into the sluice. The procedure for the disposal follows:
- Pour unwanted faeces samples into the sluice, and scrape all excess sample from the sample container if necessary
- Flush the sluice once all sample has been disposed of into the sluice
- Clean the sluice of any unflushed faeces
- Clean all containers and equipment used with water and dishwashing detergent, and disinfect with 70% ethanol



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		Reviewed: 14 Nov 2017	
SOP_Admin_04_ Sampling of Faecal Sludge and Community/Site Visits			Page #: 1 of 11

## POLLUTION RESEARCH GROUP

- |  |                         |
|--|-------------------------|
| 1. Konstantina Velkushanova (Project Engineer) | 0763565380 / 0312601122 |
| 2. Merlien Reddy(lab)                          | 0837574682 / 0312601360 |
| 3. Susan Mercer(Project Coordinator)           | 0823759104 / 0312603131 |
| 4. Kerry Philp(Coordinator)                    | 0724252741 / 0312603375 |
| 5. Chris Buckley(HOD)                          | 0828067251 / 0312603131 |

## EMERGENCY CONTACT NUMBERS

- |                                   |                     |
|-----------------------------------|---------------------|
| 1. POLICE                         | 10111               |
| 2. AMBULANCE(PROVINCIAL HOSPITAL) | 10177               |
| 3. AMBULANCE                      | 082911 / 084124/112 |

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SOP_Admin_04_ Sampling of Faecal Sludge and Community/Site Visits			Page #: 1 of 11

1. Inform EWS site contact of intended site visit including:
  - Time, date and expected duration of visit
  - Reason for visit
  - Number of people going to site
2. Get permission from EWS site contact for visit. N.B.: No site visits can take place without permission and EWS site contact has final say on whether a site visit is allowed. This is for the safety of the researchers.
3. Arrange transport to site. Record driver name and vehicle registration on form.
4. Check that at least one person visiting site has a charged mobile phone, phone number of Project Lead and Lab Manager saved and a minimum of R25 phone credit. Record contact name and telephone number on form.
5. Check that you have sufficient water and weather appropriate gear for all people going to site e.g. hats, sunscreen, waterproof clothing
6. Leave form with Lab Manager.

Date:		Driver:		Phone:	
Student no.:		Name1:		Phone1:	
Vehicle Reg.:		Name2:		Phone2:	
No. of kms:		Name3:		Phone3:	
Physical address:					
Project Lead:					
Project Lead phone:					
Purpose of visit:					
EWS contact:					
EWS contact phone:					
Date of pre-authorisation:					
Departure time:					
Estimated return time:					



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**SOP\_Admin\_04\_ Sampling of Faecal Sludge and Community/Site Visits**

**Page #:** 1 of 11

Comments (e.g. others on site, medication, etc):

## Daily Diary – Sampling and travel

Name:

Sheet number:

Date	Destination	Distance (km)	Duration (hr)	Reason / notes