



State of Ohio Environmental Protection Agency

**Northwest District Office**

347 North Dunbridge Rd.  
Bowling Green, OH 43402-9398

TELE: (419) 352-8461 FAX: (419) 352-8468  
www.epa.ohio.gov

Ted Strickland, Governor  
Lee Fisher, Lieutenant Governor  
Chris Korleski, Director

Re: Sandusky County  
City of Fremont WWTP  
Sludge Correspondence

June 30, 2010

Mr. Jim Johnson  
City of Fremont WWTP  
1019 Sand Street  
Fremont, Ohio 43420

Dear Mr. Johnson:

On June 24, 2010, Mr. Andrew Gall conducted an inspection at the City of Fremont Wastewater Treatment Plant (WWTP). The purpose of the inspection was to determine compliance with Ohio's Sewage Sludge Rules, Chapter 3745-40 of the Ohio Administrative Code. You and Mr. Jeff Lamson were present and provided information on operations and record keeping. The inspection included a walk through the plant and a review of the sewage sludge sampling records.

Sewage sludge is treated by anaerobic digestion. The sludge is thickened using a gravity thickener tank and sludge storage tanks prior to being land applied. It was indicated that the plant currently has a maximum liquid sludge storage capacity of 70 days. Additional storage capacity can be obtained by using the centrifuge to dewater the sludge which can be land applied or hauled to the landfill for disposal when weather conditions are not suitable for land application

Class B Pathogen Reduction Alternative 1, Fecal Coliform is being used to meet the pathogen reduction alternative requirement. Once per quarter seven sludge samples are taken and analyzed and the geometric mean of the seven samples is calculated and must be less than 2 million MPN per gram of total solids to meet the pathogen reduction requirements. Copies of lab results from A&L Great Lakes Lab are maintained to document compliance with this requirement.

Since the lid collapsed on the south digester in 2007, the City is no longer able to consistently meet the 38% volatile solids reduction requirements for Vector Attraction Reduction (VAR). Therefore, Fremont sewage sludge is required to be injected or incorporated per the requirements of VAR Options 9 or 10. In order to document compliance with this requirement a certification statement needs to be developed and signed by your land application contractor certifying that the sludge has been injected or incorporated in compliance with VAR option 9 or 10 each day Fremont sludge is land applied.

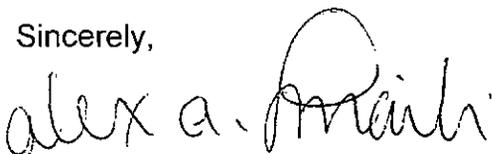
Mr. Jim Johnson  
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As part of a land application program, proper field records must be maintained and available for review at the WWTP, as outlined in Ohio Administrative Code (OAC) 3745-40-06. Proper field records include Ohio EPA sludge site authorization letters, signage posting dates, agronomic rate calculations and soil testing records. Soil tests for pH and phosphorous (Bray-Kurtz P1 extraction or Mehlich-3 extraction) need to be no more than two (2) years old when sludge is applied, please refer to OAC 3745-40-06(E). Most of these records were available at the time of the inspection, however we recommend you review the WWTP plant records to update soil sampling results for each authorized site currently being used for land application of Fremont sludge. In addition to the updated soil records the City should obtain copies of the signed land applier certification statements required by OAC 3745-40-06(J) certifying that Class B signage requirements, site restrictions, agronomic rate requirements have been met each day Fremont sewage sludge is land applied.

It was indicated that City of Fremont WPCC employees are responsible for ensuring the Class B signage requirements are met and that you randomly inspect your contractor when sludge is being land applied to ensure that they are complying with land application requirements. We suggest that you create a brief inspection checklist to document your site visits. An example field record and land application checklist was emailed to you and Mr. Lamson following the inspection.

We request that a written response to this letter be submitted to Mr. Gall's attention within 30 days. The response should indicate how the above noted concerns will be addressed so that compliance with Ohio Sewage Sludge Rules OAC 3475-40 (<http://www.epa.state.oh.us/dsw/rules/3745-40.html>) can be maintained. A copy of our inspection checklist has been included for your review. If you have any questions regarding this letter, please contact Mr. Andrew Gall at (419) 373-3003 or via email at [andrew.gall@epa.state.oh.us](mailto:andrew.gall@epa.state.oh.us)

Sincerely,



Alex A. Smaili, P.E.  
Water Quality Engineer II / Unit Supervisor  
Division of Surface Water

AG/lr

Enclosure

pc: Mr. Gene Windau, President  
DSW, NWDO file w/enclosure 3  
ec: Alex A. Smaili, Ohio EPA, NWDO  
Mary Beth Cohen, Ohio EPA, NWDO  
Chris Moody, Ohio EPA, DSW, NEDO  
Jacob Howdyshell, Ohio EPA, DSW, CO



# SEWAGE SLUDGE LAND APPLICATION INSPECTION

Date of Inspection: 6/24/2010  
Inspector Name: Andrew Gall

Facility Name: City of Fremont

Facility Address: 1019 Sand Road
City: Fremont, OH
Zip: 43420

Mailing Address: 1019 Sand Road
City: Fremont, OH
Zip: 43420

### Contacts Present

Name: Jim Johnson / Jeff Lunsen
Title: -
Phone: -
Fax: -

<u>Contractor</u>
Name: Midwest Compost
Title: Gene Window / Jan Steyer
Phone: -
Fax: -

## I. Facility Information

### Facility Background

Average Daily Flow (MGD)	6.5 MGD
Sewage Sludge Class	EQ (B) Unknown
Sewage Sludge Storage Capacity (Days)	40 days min and 70 days max
Contracted Alternative (if applicable)	- Can bring in portable press to dewater sludge for either land application or landfill

### Facility Sewage Sludge Treatment Process(es)

Treatment Process	# Units	Notes
Anaerobic Digesters	1/2	North Digester Online, South Lid Collapsed
Gravity Thickener	1	One Tank Designed
Sludge Holding Tanks	5	Dewater clear water off top of tanks

- Primary pumped directly to digester
- Waste Sludge pumped to thickener then to digester

All sludge run through North digester and then into south digester


## II. Management Practices

### General Facility Sewage Sludge Treatment

Yes No N/A	1. Are the sewage sludge treatment units being operated/maintained in accordance with the manufacturer's specifications?
Yes No N/A	2. Does the facility have adequate equipment redundancy (ie. back-up sewage sludge treatment units)?
Yes No N/A	3. Does the facility have any plans for upgrades to any of the sewage sludge treatment units? If so, explain: → Completing NFA as part of LTCP and compliance schedule → Sludge volume reduction either a press or centrifuge.
Yes No N/A	4. Does the facility have a contingency plan for sewage sludge disposal? → Portable Press
Yes No N/A	5. Is the sewage sludge handling operation adequate to manage the volume of sewage sludge generated?
Comments:	When conditions are good sludge is hauled 3-4 days/week from March to December;

### Drying Beds, Gravity Thickener, Centrifuge, and Dissolved Air Floatation □ N/A

Average percent (%) solids before thickening:	19%	Average percent (%) solids after thickening:	2.5%
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Yes <u>No</u> N/A	1. Is primary unstabilized sewage sludge fed to the drying beds, gravity thickener, or centrifuge?
<u>Yes</u> No N/A	2. Is the sewage sludge mixed with other materials, including coagulants, before or after thickening? → Add polymer at aeration building

Average percent (%) solids before mixing sewage sludge with other materials:	
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Comments:	
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**Aerobic Digestion**

~~N/A~~

	1. Sewage sludge fed to the aerobic digester includes: <input type="checkbox"/> Primary <input type="checkbox"/> Secondary <input type="checkbox"/> Combined
Yes No N/A	2. Aerobic digester is operated at proper temperature? <input type="checkbox"/> Cryophilic (<10° C = <50° F) <input type="checkbox"/> Mesophilic (10° to 42° C = 50° to 108° F) <input type="checkbox"/> Thermophilic (>42° C =>108° F)
Comments:	

**Anaerobic Digestion**

N/A

	1. Sewage sludge fed to the aerobic digester includes: <input type="checkbox"/> Primary <input type="checkbox"/> Secondary <input checked="" type="checkbox"/> Combined
	2. Anaerobic digester operating mode: <input checked="" type="checkbox"/> High Rate* <input type="checkbox"/> Low Rate <small>*Utilize a combination of active mixing and elevated temperatures.</small>
Yes No N/A	4. Anaerobic digester is operated at proper temperature? <input type="checkbox"/> Cryophilic (<10° C = <50° F) <input checked="" type="checkbox"/> Mesophilic (10° to 42° C = 50° to 108° F)      100 to 105°F <input type="checkbox"/> Thermophilic (>42° C =>108° F)
Comments:	Temperature checked each night when sludge is transferred to south digester

- Mixing and heating lid floats on sludge

**Composting**

~~N/A~~

	1. Type of sewage sludge composting performed: <input type="checkbox"/> In Vessel <input type="checkbox"/> Static Piles <input type="checkbox"/> Windrows
	2. Type of sewage sludge composted includes: <input type="checkbox"/> Primary <input type="checkbox"/> Secondary <input type="checkbox"/> Combined
Yes No N/A	3. Is the moisture content of the composting operation monitored?
Yes No N/A	4. Is the compost mixed? If so, number of turnings: <input type="text"/>
Yes No N/A	5. Is the oxygen content of the compost monitored?
Yes No N/A	6. Is the temperature of the compost monitored?
Yes No N/A	7. Are total and total volatile solids of the compost monitored?
Yes No N/A	8. Active Phase (days): <input type="text"/> Curing Phase (days): <input type="text"/>
<b>Comments:</b>	

**Land Application**

N/A

	1. Sewage sludge is applied to: <input checked="" type="checkbox"/> Authorized Sewage Sludge Site → Visit the sites to check and verify that signs are in place <input type="checkbox"/> Unauthorized Sewage Sludge Site <input type="checkbox"/> Forest <input type="checkbox"/> Reclamation Site <input type="checkbox"/> Lawn or Garden <input type="checkbox"/> Public Contact Site (ie. park, etc.)
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Yes No N/A

2. Are Class A pathogen reduction requirements met (indicate method being performed)?

- Alt. 1 - Fecal Coliform <1,000 MPN/g total solids, or Salmonella <3 MPN/4 g total solids, and time/temperature:
  - >7% solids at >50° C (>122°F) for >20 minutes (no warmed gases or immiscible liquid).
  - >7% solids at >50° C (>122°F) for >15 seconds (warmed gases or immiscible liquid).
  - <7% solids at X° C for >15 seconds to <30 minutes.
  - <7% solids at >50° C (>122°F) for >30 minutes.
  
- Alt. 2 - Fecal Coliform <1,000 MPN/g total solids, or Salmonella <3 MPN/4 g total solids, and pH > 12 for 72 hours.
  
- Alt. 3 - Fecal Coliform <1,000 MPN/g total solids, or Salmonella <3 MPN/4 g total solids, and other processes:
  - Enteric virus is <1 plaque forming unit (PFU) per 4 grams of total solids (TS) **PRIOR** to pathogen treatment (PT).
  - Enteric virus is >1 PFU per 4 grams of TS prior to PT but is <1 per 4 grams of TS **AFTER** PT.
  - Helminth ova is <1 per 4 grams of TS **PRIOR** to PT.
  - Enteric virus >1 PFU per 4 grams of TS prior to PT, but is <1 per 4 grams of TS **AFTER** PT.
  
- Alt. 4 - Fecal Coliform <1,000 MPN/g total solids, or Salmonella <3 MPN/4 g total solids, and unknown processes:
  - Enteric virus is <1 PFU per 4 grams of TS at disposal.
  - Helminth ova is <1 per 4 grams of TS at disposal.
  
- Alt. 5 - Fecal Coliform <1,000 MPN/g total solids, or Salmonella <3 MPN/4 g total solids, and PFRP:
  - 1. Composting.
  - 2. Heat drying.
  - 3. Heat treatment.
  - 4. Thermophilic aerobic digestion.
  - 5. Beta ray irradiation.
  - 6. Gamma ray irradiation.
  - 7. Pasteurization.
  
- Alt. 6 - Equivalent process.

Samples run by  
A+L Great Lakes  
- 6/2010 Result  
5840 MPN/gram

Yes No N/A

3. Are Class B pathogen reduction requirements met (indicate method being performed)?

Alt. 1 - Geometric mean of seven Fecal Coliform samples with  $< 2,000,000$  MPN/g total dry solids or  $< 2,000,000$  Colony Forming Units/g total dry solids.

Alt. 2 - PSRP 1 aerobic digestion. Mean cell residence time and temperature shall be between 40 days at  $20^{\circ}\text{C}$  ( $68^{\circ}\text{F}$ ) and 60 days at  $15^{\circ}\text{C}$  ( $59^{\circ}\text{F}$ ).

Average mean cell residence time (days):

Average temperature ( $^{\circ}\text{C}$ ):

PSRP 2 air drying. Sewage sludge dried on sand beds or basins for 3 months at an ambient average daily temperature  $> 0^{\circ}\text{C}$  ( $> 32^{\circ}\text{F}$ )

PSRP 3 anaerobic digestion. Mean cell residence time and temperature shall be between 15 days at  $35^{\circ}\text{C}$ - $55^{\circ}\text{C}$  ( $95^{\circ}\text{F}$ - $131^{\circ}\text{F}$ ) and 60 days at  $20^{\circ}\text{C}$  ( $68^{\circ}\text{F}$ ).

Average mean cell residence time (days):

Average temperature ( $^{\circ}\text{C}$ ):

PSRP 4 composting. Sewage sludge temperature is raised to  $> 40^{\circ}\text{C}$  ( $> 104^{\circ}\text{F}$ ) for 5 days. Temperature must exceed  $55^{\circ}\text{C}$  ( $> 131^{\circ}\text{F}$ ) for 4 hours during the 5 day period.

PSRP 5 lime treatment. Lime is added to sewage sludge to raise the pH to 12 after 2 hours of contact.

Yes No N/A

4. Are the Class B signage requirements being satisfied? -

$\rightarrow$  Taken to the field by WPCC employees

Yes No N/A	5. Are Class B site restrictions being practiced (indicate restrictions being performed)?
<p>Corn Wheat Bean</p> <p>Rotation</p>	<p><input checked="" type="checkbox"/> Food crops (above ground) are harvested &gt;14 months after sewage sludge application.</p> <p><input checked="" type="checkbox"/> Food crops (below ground) are harvested &gt;20 months after sewage sludge application when sewage sludge remains on ground &gt;4 months before soil incorporation.</p> <p><input checked="" type="checkbox"/> Food crops (below ground) are harvested &gt;38 months after sewage sludge application when sewage sludge remains on ground &lt;4 months before soil incorporation.</p> <p><input checked="" type="checkbox"/> Food crops, feed crops, and fiber crops are harvested &gt;30 days after sewage sludge application.</p> <p>NA <input type="checkbox"/> Animal grazing allowed on land only &gt;30 days after sewage sludge application.</p> <p>NA <input type="checkbox"/> Turf grown on land where sewage sludge was applied not harvested for &gt;1 year if placed on land with high potential for public exposure or lawn.</p> <p><input checked="" type="checkbox"/> Public access restricted to land with a high potential for public exposure for 1 year.</p> <p><input checked="" type="checkbox"/> Public access restricted to land with a low potential for public exposure for 30 days.</p>

<p>(Yes) No N/A</p> <p>- Midwest takes care of flagging fields and city checks up</p> <p>- Fremont send sample results to Midwest</p>	<p>6. Are bulk sewage sludge site restrictions being practiced (indicate restrictions being performed)?</p> <p><input checked="" type="checkbox"/> No threatened or endangered species present or critical habitat affected at the site where sewage sludge is applied.</p> <p><input checked="" type="checkbox"/> Bulk sewage sludge is not applied to frozen or snow covered ground unless applied &gt;100 feet from waters of the state and appropriate ground cover maintained.</p> <p><input checked="" type="checkbox"/> Bulk sewage sludge is not applied &lt;33 feet from waters of the state.</p> <p><input checked="" type="checkbox"/> Bulk sewage sludge is applied at a rate equal or less than the agronomic rate.</p> <p><input checked="" type="checkbox"/> Label affixed no bag or information sheet provided to user of sold and given away sludge indicating name of sludge preparer, application instruction, and maximum annual whole sludge application rate.</p>
<p>(Yes) No N/A</p>	<p>7. Are bulk sewage sludge general requirements being practiced (indicate restrictions being performed)?</p> <p>NA <input type="checkbox"/> Sewage sludge is not applied to a site where the cumulative pollutant loading or annual application rate has been reached..</p> <p><input checked="" type="checkbox"/> Notification given to the sludge applier regarding total nitrogen content of the sludge.</p> <p><input checked="" type="checkbox"/> Sufficient information required to comply with OAC 3745-40.</p> <p><input checked="" type="checkbox"/> Sewage sludge site authorization packet submitted to Ohio EPA regarding the location of land application sites, appropriate NPDES permit numbers.</p>

Yes No N/A	7. Is a vector attraction reduction method being met (indicate method being performed)?
<p>→ Hit and Miss to meet Volatile Solids reduction</p> <p>→ Test run on every days worth of samples</p>	<p><input checked="" type="checkbox"/> 38% Volatile Solids Reduction.</p> <p>VS Red. = ( VS In - VS Out ) / (( VS In ) - ( VS, In x VS, Out )) x 100%</p> <p><input type="checkbox"/> 40-day bench scale test. Volatile Solids reduced &lt;17% (anaerobic digestion only)</p> <p><input type="checkbox"/> 30-day test bench scale . Volatile Solids reduced &lt;15% (aerobic digestion only)</p> <p><input type="checkbox"/> Specific Oxygen Uptake Rate &lt;1.5 mg/hr/gm Total Solids at 20°C (68°F).</p> <p><input type="checkbox"/> Aerobic process for &gt;14 days at &gt;40°C (104°F) with average sewage sludge temperatures at 45°C (113°F).</p> <p><input type="checkbox"/> pH &gt;12 for 2 hours and pH &gt;11.5 for 22 hours.</p> <p><input type="checkbox"/> Sewage sludge with no unstabilized solids contains &gt;75% Total Solids prior to mixing with other materials.</p> <p><input type="checkbox"/> Sewage sludge with unstabilized solids contains &gt;90% Total Solids prior to mixing with other materials.</p> <p><input checked="" type="checkbox"/> Subsurface injection.</p> <p><input checked="" type="checkbox"/> Soil incorporation within 6 hours for Class B or within 8 hours for EQ. C</p>
<p>Comments: -</p>	<p>Sludge contractor required to inject or incorporate</p>

**Other Management Practices**

N/A

	<p>1. The facility performs another sewage sludge treatment process (indicate which other management practice is being performed)</p> <p><input type="checkbox"/> Surface Disposal.</p> <p><input type="checkbox"/> Landfilling.</p> <p><input type="checkbox"/> PPG Lime Lakes.</p>
<p><b>Comments:</b></p>	

**III. NPDES Permit Verification**

<p><input checked="" type="radio"/> Yes   No   N/A</p>	<p>1. Are OAC 3745-40 sewage sludge frequency and monitoring parameters contained in the facility's current NPDES permit? <i>Quarterly Sampling</i></p>
	<p>2. Sewage sludge disposal practice(s):</p> <p>A. Land Application <input checked="" type="checkbox"/></p> <p>    Bulk Sewage Sludge <input type="checkbox"/></p> <p>    Bulk Material Derived from <input type="checkbox"/></p> <p>    Sewage Sludge Sold or Given <input type="checkbox"/></p> <p>    Away in Bag or Other Container <input type="checkbox"/></p> <p>B. Surface Disposal <input type="checkbox"/></p> <p>C. Sewage Sludge Incineration <input type="checkbox"/></p> <p>D. Onsite or Offsite Disposal <input type="checkbox"/></p> <p>E. Other: <input type="checkbox"/></p>
<p><input checked="" type="radio"/> Yes   No   N/A</p>	<p>3. Is the sewage sludge disposal practice authorized by current NPDES permit?</p>
<p><input checked="" type="radio"/> Yes   No   N/A</p>	<p>4. If the authorized sewage sludge disposal practice changes, will notification be given to Ohio EPA prior to the change?</p>
<p><input checked="" type="radio"/> Yes   No   N/A</p>	<p>5. The facility is utilizing sewage sludge land application sites that have been previously authorized by Ohio EPA.</p>
<p><b>Comments:</b></p>	

### Monitoring and Reporting

<input checked="" type="radio"/> Yes	No	N/A	1. Is facility self-monitoring occurring at the frequencies specified for the parameters located in the facility's NPDES permit or OAC 3745-40?
<input checked="" type="radio"/> Yes	No	N/A	2. Is the facility reporting parameters using Ohio EPA <del>form 4500</del> <i>ESMR</i> ?
<input checked="" type="radio"/> Yes	No	N/A	3. Is facility self-monitoring data available for all regulated pollutants for the previous five years?
<input checked="" type="radio"/> Yes	No	N/A	4. Do monthly operating reports show pollutant concentrations below ceiling concentrations shown in OAC 3745-40-05(F)(1)?
<input checked="" type="radio"/> Yes	No	N/A	5. Do monthly operating reports show pollutant concentrations below monthly average concentrations shown in OAC 3745-40-05(F)(3)?
Yes	No	<input checked="" type="radio"/> N/A	6. Are general requirements and management practices applied for sewage sludge not meeting monthly average concentrations shown in OAC 3745-40-05(F)(3)?
<input checked="" type="radio"/> Yes	No	N/A	7. Are sewage sludge records adequate to assess compliance with annual and/or cumulative pollutant loading rates?
<input checked="" type="radio"/> Yes	No	N/A	8. Are pathogen and vector attraction reduction method descriptions and certification statements available for the previous five years?
<input checked="" type="radio"/> Yes	No	N/A	9. Are records available for all sewage sludge use or disposal practices available for the previous five years?
<input checked="" type="radio"/> Yes	No	N/A	10. Have the facility's sewage sludge sites been tested for pH and Phosphorus within two years of land application? <i>Need to make sure Midwest provides data</i>
<input checked="" type="radio"/> Yes	No	N/A	11. Are accurate records of sewage sludge volume or mass maintained for the previous five years?
<input checked="" type="radio"/> Yes	No	N/A	12. Are monitoring and analysis being performed more frequently than required by the facility's NPDES permit?
<input checked="" type="radio"/> Yes	No	N/A	If so, are the results being reported to Ohio EPA?
<input checked="" type="radio"/> Yes	No	N/A	13. Do sewage sludge treatment unit operation records verify compliance with pathogen reduction and vector attraction reduction requirements, when appropriate?
<input checked="" type="radio"/> Yes	No	N/A	14. Are sewage sludge samples taken at the locations specified in the facility's NPDES permit? <i>Hauled sludge samples taken from truck</i>
<input checked="" type="radio"/> Yes	No	N/A	15. Are sewage sludge sample locations and methods appropriate for obtaining representative samples? <i>When hauling or from last holding tank</i>

- Check with Midwest about certification statements
- Pathogen and Metals samples also taken from truck loading port

Yes	No	N/A	
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	16. Sample collection procedures:
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	A. Adequate sample volumes obtained?
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	B. Proper preservation techniques utilized? <i>Refrigerated / Shipped Cold</i>
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	C. Containers conform to appropriate analytical methods specified in OAC 3745-40?
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	D. Samples analyzed within the appropriate time frames specified in OAC 3745-40? <i>Shipped Next Day</i>
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	17. Are analytic results reported on a dry weight basis (mg/kg)?
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	18. Are samples refrigerated subsequent to compositing?
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	19. Are chain-of-custody procedures employed?
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	20. Are the analytic methods used approved in OAC 3745-40?
Comments:			<i>Run sludge samples for metals in house - Jones and Henry</i>

*- Samples run in lab and documented in a log book*