

BUREAU OF LABORATORY SERVICES
HOUSTON DEPARTMENT OF HEALTH AND HUMAN SERVICES

HANDBOOK FOR SPECIMEN COLLECTION AND SUBMISSION

2250-2252 Holcombe Blvd
HOUSTON, TEXAS 77030



Revised 12-20-11

All Users of the Houston
Department of Health and Human
Services Laboratory Services

Laboratory Handbook

1. Our laboratory facilities are well equipped and staffed to provide all users the highest caliber of support. However, the laboratory must be properly utilized if we are to achieve the quantity and quality of support you require.
2. It is important for all of us to understand that the laboratory is a finite resource and unnecessary requests, or improperly submitted requests, inevitably slow the response time to the possible detriment of patients or the public. It also wastes

resources which could be used more productively.

3. This manual will enable you to obtain maximum support from your laboratory.

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INTRODUCTION

The Bureau of Laboratory Services of the City of Houston Department of Health and Human Services (HDHHS), is dedicated to providing high quality clinical and environmental laboratory support. This manual is designed to assist those using the laboratory in obtaining this support. It is therefore in the best interest of the public that careful attention be given to the information in this manual.

The Bureau of Laboratory Services is staffed with approximately 60 personnel. It operates from the Central Laboratory at 2250-52 Holcombe Blvd and Health Center Stat Labs. Besides supporting Houston's Public Health programs, the Bureau also serves as a regional laboratory for a 17 county region in Texas Public Health Region 6/5 South and is a reference laboratory for over 90 area medical facilities.

A wide variety of tests and services are available within the Bureau of Laboratory Services. However, if a needed procedure is not described in this manual, call the appropriate laboratory section or the Chief, Laboratory Services. We may be able to help.

Tests are made available to Public Health agencies, area medical facilities, veterinarians, and in some cases (potable water testing) to private individuals. For other than HDHHS facilities, a fee is normally charged to cover the cost of providing the test. To receive a fee schedule, please call (832) 393-3900.

I. GENERAL INFORMATION

A. The Bureau of Laboratory Services is divided into two services

1. Clinical Laboratory Service which includes Medical Microbiology, Virology/Serology, Health Center Support Labs, Molecular Diagnostics and Laboratory Support sections.
2. Environmental Laboratory Service which includes Water and Air Pollution Chemistry, Trace Organics and Environmental Microbiology.

B. The Central Laboratory is located at 2250-52 Holcombe Blvd.

C. Telephone number (832) 393-3900

Please call the number above and follow the telephonic prompt to reach the required section of the laboratory.

D. Laboratory hours and staffing

1. Routine hours are 8:00 a.m. - 5:00 p.m. Monday through Friday.
2. A skeleton staff works some hours on weekends, holidays and some evenings for the purpose of doing required testing procedures. However, specimens will not be accepted during these hours except on an emergency basis.

E. Laboratory requests. All specimens/samples must be accompanied by a completed request form. All laboratory requests must contain the following minimum information:

1. Date of Collection
2. Specimen Source
3. Patient Name and Sex (Clinical Samples)
4. Date of Birth and/or SSN (Clinical Samples)
5. Name of Submitter
6. Name of Submitting Location
7. Test Required
8. Medical Record Number (Clinical Samples)

This is both a requirement for laboratory certification and an essential practice to minimize errors and aid in interpretation. Likewise, samples must be legibly labeled with two identifiers (preferably patient name and SSN or medical record number) if a clinical sample or with the specimen identification if an environmental specimen.

F. General Specimen Rejection Criteria:

Observation of any of the conditions below, upon receipt of the specimen will result in the rejection of the specimen and the submitting entity will be informed.

1. Incomplete patient request form
2. No return address
3. Incomplete/Unlabeled/Mismatched label on specimen and patient request form
4. Leaky specimens/Broken tubes
5. Inappropriate test requested for specimen type submitted

6. Specimens held beyond recommended transport time
 7. Specimens transported and stored at inappropriate temperature or conditions
 8. Insufficient quantity of specimen for testing
 9. Specimen received in expired collection device or transport medium
 10. Specimen received in inappropriate collection device or transport medium
 11. Inadequate centrifugation or specimen not centrifuged
- G. Request categories. Tests may be requested in three categories: STAT, ASAP, and Routine.
1. STAT. Stat tests are requested during a serious crisis or a situation demanding performance on the test before all others. If the submitter has fax equipment, the results will be faxed if the fax number is on the request slip. Otherwise, results will be telephoned. Mark both lab slip and specimen/sample with STAT labels. STAT tests to be performed during other than routine hours must be coordinated with the Chief, Bureau of Laboratory Services, an Assistant Chief, or the Supervisor of the laboratory doing the test.
 2. ASAP. Expedite test, results available as soon as possible. When possible, ordering of ASAP rather than STAT testing is encouraged, as it allows laboratory workers to batch tests and thus perform much more efficiently.
 3. Routine. General guidelines cannot be set for this category as many of the tests require extended periods of time for performance. In general, most tests are performed daily but some tests only twice weekly or weekly. Detailed information on each test and expected routine turn-a-round time are available elsewhere in this manual.
 4. Specimens delivered to the Central laboratory must arrive no later than 5:00 p.m. Monday through Thursday and 5:30 p.m. on Friday to receive proper handling. If a situation arises which causes a delay in transport, please call (832) 393-3900 and we will arrange for someone to receive the specimens until 6:00 p.m. at the latest. If these instructions are not followed, specimens arriving after 5:00 p.m. Monday through Thursday and 5:30 p.m. on Friday may not receive attention until the next morning, by which time they may have deteriorated to an unsatisfactory state.
 5. Please contact the Chief, Laboratory Services when any special investigation is planned or when you have any questions about laboratory services or interpretation of results. Section supervisors will be happy to answer questions about proper submission of specimens.
- H. Some laboratory tests not available here may be available at the State Health Department Laboratory or at a CDC laboratory. On request, the Bureau of Laboratory Services will arrange for the testing to be done at one of these laboratories. All requests for testing not addressed in this manual must be individually coordinated with the Chief of Clinical Laboratory Services, the Chief of Environmental Laboratory Services or the Chief, Bureau of Laboratory Services. This ensures the correct administrative processing and handling of specimens/samples.
- I. The laboratory will consider and evaluate requests for expanded laboratory support from HDHHS programs. However such requests must be balanced against the needs of the entire department for laboratory support and the finite personnel and financial resources available for the total laboratory effort at the Department of Health and Human Services. Please include laboratory funding and personnel needs in all planning for new or expanded programs requiring laboratory support.
- J. Quality Control. The Bureau of Laboratory Services is committed to a vigorous, meticulous, ongoing program of quality control in all areas of the laboratory. Rigorous quality control and documentation is performed on every test, instrument, reagent and material used. Every area of the laboratory devotes considerable time and effort daily in an attempt to assure reliability of data produced.
- K. Inspection and Certification. The laboratory is certified by the the Texas Department of Health, the Texas Air Control Board, FDA, NELAP, American Industrial Hygiene Association, CMS, CAP and Texas Commission of

Environmental Quality.

- L. If a negative incident occurs that you would like to bring to our attention, please fill out an incident report form and send it to us. (See Appendix, Form 1)

Clinical Laboratory Services

2250 Holcombe Blvd / Stat Labs in Health Centers

II. CLINICAL LABORATORY SERVICES

A. Medical Microbiology (Please submit all specimens in leak-proof container)

TEST	SPECIMEN REQUIRED	AMOUNT REQUIRED	SPECIAL INSTRUCTIONS	TEST FREQUENCY	NORMAL VALUES
<i>Bordetella pertussis</i> direct immunofluorescence antibody (DFA) and/or culture	Nasopharyngeal swab Nasal wash Nasal aspirate Prepared slide Culture	1 swab, 1 swab for DFA or 1 prepared slide 1 slant or sealed plate	1 calcium alginate or Dacron fiber tip swab in appropriate media or prepared slide. Flush specimen into a sterile leak-proof container with 1-1.5 mL of sterile saline. Inoculate culture at bedside for optimum recovery. Use sterile leak-proof container without fixative or preservative. Use Amies transport medium or similar (Charcoal Agar) for transport of swab. Submit within 24 hours of collection at room temperature. If shipping is delayed, incubate swab at 35°C for 48 hours before shipping. Submit clinical isolate on appropriate media such as Regan-Lowe. Ship in a biohazard bag and in a UN certified shipping container.	Mon-Fri	
<i>Legionella</i> direct immuno-fluorescence antibody (DFA) and/or culture	Sputum, Bronchial washes, Aspirates, (Nasotracheal, Transtracheal, Percutaneous lung, and Endobronchial) Bronchoscopy, Biopsy, Fluid (CSF, Pericardial, Peritoneal, Pleural) Tissue Culture	2mL 1 slant or sealed plate	All clinical specimens may be fresh or fresh-frozen. For respiratory samples collect any dense gray or reddish consolidated areas. Use sterile leak-proof container without fixative or preservative. Collect washings using sterile water. Saline is inhibitory to <i>Legionella</i> species. Store at 2-8°C. Submit clinical isolate on appropriate media such as buffered charcoal yeast extract (BCYE) agar to insure viability. Transport to laboratory in a biohazard bag on ice packs and in a UN certified shipping container.	Mon-Fri	

Continuation of Medical Microbiology (Please submit all specimens in leak-proof container)

TEST	SPECIMEN REQUIRED	AMOUNT REQUIRED	SPECIAL INSTRUCTIONS	TEST FREQUENCY	NORMAL VALUES
Stool Culture (Aerobic Isolation)	Stool	Cary Blair transport media filled to Fill arrow	Collect stools before antibiotic treatment is initiated for greatest chance of isolation of enteric pathogens. Transfer stools immediately to enteric transport medium such as Cary Blair. Store at 2-8°C. Ship stools in Cary Blair transport medium on ice packs in a biohazard bag and in a UN certified shipping container. Specimens MUST be received within 3 days of collection.	Mon-Fri	
EHEC Shiga-Toxin assay	Stool	10 mL GN Broth or Cary Blair transport medium filled to Fill Arrow	Submit stool in Cary Blair or GN broth. Store at 2-8°C. Ship stool specimens and broths on ice packs in a UN certified shipping container. Specimens MUST be received within 7 days of collection.	Mon-Fri	
Reference culture Identification: <i>E. coli</i> O157:H7	Pure culture on sorbitol MacConkey, blood agar plate or agar slant	1 slant or sealed plate	Specimen should be submitted when suspected <i>E. coli</i> O157:H7 has been isolated from patient. Transport sealed plate or slant in biohazard bag and in a UN certified shipping container.	Mon-Fri	
<i>Salmonella</i> species serotyping including <i>Salmonella typhi</i>	Pure culture on HIA slant, or similar media	1 slant or plate	Specimen should be submitted when <i>Salmonella</i> species has been isolated from a patient. Transport sealed plate or slant in biohazard bag and in a UN certified shipping container.	Mon-Fri	
<i>Shigella</i> Serotyping	Pure culture on HIA slant, or similar media	1 slant or sealed plate	Specimen should be submitted when <i>Shigella</i> species has been isolated from a patient. Transport sealed plate or slant in biohazard bag and in a UN certified shipping container.	Mon-Fri	
<i>Neisseria meningitidis</i> Serotyping	Pure culture on chocolate slant/plate	1 slant or sealed plate	Culture must be collected from a sterile body site such as blood or CSF for serotyping. Transport in inoculated chocolate slant (Preferred) in biohazard bag and in a UN certified shipping container.	Mon-Fri	

Continuation of Medical Microbiology (Please submit all specimens in leak-proof container)

TEST	SPECIMEN REQUIRED	AMOUNT REQUIRED	SPECIAL INSTRUCTIONS	TEST FREQUENCY	NORMAL VALUES
Reference Culture Identification: <i>Campylobacter</i> species	Pure culture	1 slant or plate in an microaerophilic container	Maintain culture on <i>Campylobacter</i> blood agar media in microaerophilic environment. Culture must be submitted under microaerophilic conditions and in a UN certified shipping container.	Mon-Fri	
Reference Culture Identification: <i>Vibrio</i> species	Pure culture	1 slant or plate	Specimen should be isolated on to an HIA, BHIA, or TSA. Culture must be submitted in a biohazard bag and transported in a UN certified shipping container	Mon-Fri	
Reference Culture Identification: <i>Listeria</i> species	Pure Culture	1 slant or sealed plate	Specimen should be isolated on to an HIA, BHIA, or TSA. Culture must be submitted in a biohazard bag and transported in a UN certified shipping container	Mon-Fri	
<i>Haemophilus influenzae</i> typing	Pure culture	1 chocolate slant or sealed plate	Culture must be collected from a sterile body site such as blood or CSF for serotyping Transport in inoculated chocolate slant (Preferred) or plate in biohazard bag and in a UN certified shipping container.	Mon-Fri	
<i>Clostridium botulinum</i> toxin detection, typing, isolation	Stool Serum	10 g stool 10mL serum	Requires pre-approval by the Texas Dept. of State Health Services. Telephone Dr. Linda Gaul, Epidemiologist @512-458-7111 x7676, x6358. Store at 2-8°C. Transport in a sterile container on ice packs. Specimen must be submitted in a biohazard bag and shipped in UN certified shipping container.	Mon-Fri	

Continuation of Medical Microbiology (Please submit all specimens in leak-proof container)

TEST	SPECIMEN	AMOUNT	SPECIAL INSTRUCTIONS	TEST	NORMAL
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	REQUIRED	REQUIRED		FREQUENCY	VALUES
Fluorochrome Smear and AFB Culture	Abscess, exudates	Tissue or fluid preferred	<p><i>Hold all specimens for fluorochrome smear and AFB culture at 2-8° C and ship in a cooler with ice-packs within 24 hours of collection. Exceptions are blood and bone marrow, which should be maintained at room temperature during storage and transport.</i></p> <p>Collect fluid/ abscess material with syringe and/or remove tissue aseptically. A swab is discouraged unless it is the only specimen available Submit swabs in 2 to 3 mL sterile saline such as 50 mL conical tube.</p>		
	Sputum, expectorated	1 ml minimum 5-10 mL preferred, specimens collected on 3 consecutive days, early morning specimen preferred	Collect specimen under direct supervision of nurse/health care worker. Have patient rinse with water to remove excess bacteria. Instruct patient to cough deeply to produce a lower respiratory specimen.		
	Sputum, induced	1 ml minimum 5-10 mL preferred, specimens collected on 3 consecutive days	Collect specimen under direct supervision of nurse/health care worker. Have patient rinse with water to remove excess bacteria. With aid of a nebulizer, have patients inhale approximately 25 mL of 3-10% sterile saline.		
	Fluids: abdominal, amniotic, ascites, bile, joint, paracentesis, pericardial, peritoneal, pleural, synovial, thoracentesis	1 ml minimum 5-15 mL preferred	Obtain specimen via percutaneous needle aspiration or surgery; submit as much fluid as possible; swabs dipped in fluid are not acceptable.		
	Tissue/lymph node	1 gm, if available	Add 2- 3mL of 0.85% sterile saline to tissue for transport.		

Continuation of Medical Microbiology (Please submit all specimens in leak-proof container)

TEST	SPECIMEN REQUIRED	AMOUNT REQUIRED	SPECIAL INSTRUCTIONS	TEST FREQUENCY	NORMAL VALUES
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Fluorochrome Smear and AFB Culture (contd)	<p>Gastric lavage</p> <p>Bronchial lavage, brush, endotracheal aspirate, lower BAL CSF</p> <p>Blood, Bone Marrow</p> <p>Stool</p>	<p>5-10 mL minimum, specimens collected on 3 consecutive days</p> <p>2-4 mL minimum</p> <p>1-5 mL minimum</p> <p>1 mL minimum</p> <p>1 gm, if available</p>	<p>Collect in early morning before patients eat. Introduce nasogastric tube into stomach. Perform wash with 25-50 mL chilled, sterile water. Recover sample and place in 50 mL conical tube. Neutralize pH with 100 mg sodium carbonate within 4 hrs of collection.</p> <p>Collect washing or aspirate in sputum trap, place brush in 5 mL saline.</p> <p>Direct smears not performed on blood, do not refrigerate. 10 mL SPS yellow top collection tube. SPS is preferred yet, heparinized blood is also acceptable.</p> <p>Pass specimen directly into container. Do not use transport medium. Rectal swabs are not acceptable.</p>	Mon-Fri	
Mycobacteria Culture Identification	Pure culture	1 slant, plate, or broth	Specimen should be isolated on Lowenstein-Jensen slant, sealed 7H10 Middlebrook agar plate, or broth. Culture must be submitted in a biohazard bag and transported in UN certified shipping container.	Mon-Fri	
MTB or <i>M. kansasii</i> primary drug susceptibility test	Pure culture	1 slant, plate, or broth	Specimen should be isolated on Lowenstein-Jensen slant, sealed 7H10 Middlebrook agar plate, or broth. Culture must be submitted in a biohazard bag and transported in a UN certified shipping container.	Mon-Fri	
MTB secondary drug susceptibility test	Pure culture	1 slant, plate, or broth	Specimen should be isolated on Lowenstein-Jensen slant, sealed 7H10 Middlebrook agar plate, or broth. Culture must be submitted in a biohazard bag and transported in a UN certified shipping container.	Upon request	

Continuation of Medical Microbiology (Please submit all specimens in leak-proof container)

TEST	SPECIMEN REQUIRED	AMOUNT REQUIRED	SPECIAL INSTRUCTIONS	TEST FREQUENCY	NORMAL VALUES
QuantiFERON®TB Gold In Tube	Cellestis QuantiFERON®-TB Gold in Tube collection tubes (Nil, TB antigen, Mitogen)	1 mL whole blood in each of the 3 tubes	Immediately following collection, each specimen tube must be mixed firmly by shaking the tube up and down 10 times to ensure that entire inner surface of the tube is coated with blood. After mixing, incubate upright at 37°C for 16-24 hours (within 16 hours of collection). Transport incubated tubes at 2-27°C within 72 hours. For non incubated tubes transport at 17-27°C within 16 hours of collection. (Do not refrigerate)	Weekly	

B. Serology/Virology

TEST	SPECIMEN REQUIRED	AMOUNT REQUIRED	SPECIAL INSTRUCTIONS	TEST FREQUENCY	NORMAL VALUES
RPR	Serum, Plasma	1.0 ml		Daily	Nonreactive
Serodia-TP-PA	Plasma, Serum	1.0 ml		Tuesday/Thursday	Nonreactive
CMV - IgG EIA	Serum	1.0 ml	A single positive result only indicates previous immunologic exposure.	Upon Request	Those specimens with an absorbance value \geq to a cut off are positive for CMV antibodies.
Rubella - IgG EIA	Serum	1.0 ml	Single serum to determine the immune status.	Daily	Those specimens with an absorbance value \geq to a cut off value are positive for Rubella antibodies and indicate past infection or vaccination.
Rubella - IgM EIA			A specimen taken very early during the acute stage or late after the convalescent stage of infection may not contain detectable levels of Rubella IgM antibodies.	Upon Request	Those specimens positive before and after RF neutralization are positive for IgM class antibodies to rubella virus.
Toxo - IgG EIA	Serum	1.0 ml	A single positive result only indicates previous immunologic exposure.	Upon Request	Specimens with an absorbance value \geq to a cut off value are positive for Toxo antibodies and indicate acute or past infection.
Mumps EIA	Serum	1.0 ml	Single serum to determine the immune status. A positive test result indicates a current or previous infection with Mumps virus or prior vaccination.	Weekly	Specimens with absorbance value \geq to a cut off value are positive.
Rubeola IgM EIA	Serum	1.0 ml	Sent to DSHS (Department of State Health Services)	Upon request	

Continuation of Serology/Virology

TEST	SPECIMEN REQUIRED	AMOUNT REQUIRED	SPECIAL INSTRUCTIONS	TEST FREQUENCY	NORMAL VALUES
Rubeola IgG EIA	Serum	1.0 ml	<p>Single specimen to determine the immune status. A positive test result indicates a current or previous infection with measles virus.</p> <p>Acute and convalescent sera collected 5-7 days apart for serological diagnosis. If the first sample is negative and the second sample is positive, the patient is considered to have a primary measles infection.</p>	Weekly	<p>Specimens with absorbance value \geq to a cut off value are positive.</p> <p>First specimen has an absorbance value \leq to a cut off value and second specimen has absorbance value \geq to a cut off value indicative of a primary measles infection.</p>
VZ IgG EIA	Serum	1.0 ml	Single serum to determine the immune status. A positive test indicates previous exposure to VZ virus by infection or vaccination.	Weekly	Specimens with absorbance value \geq to a cut off value are positive.
Arbovirus MIA	Serum, CSF	1.0 ml	Single specimen to detect presence of IgM antibodies to WNV & SLE. A positive result indicates current or recent infection.	Weekly during season	Specimens with high mean fluorescence index (MFI) are considered positive for the indicated antibody.
HAVAB - IgG EIA	Serum	1.0 ml	Single Serum serum antibody detection	As required	Specimens with absorbance values repeatedly \geq to a cut off value are considered positive.
HAVAB - IgM EIA					Specimens with absorbance values repeatedly \geq to a cut off value are considered positive.

Continuation of Serology/Virology

TEST	SPECIMEN REQUIRED	AMOUNT REQUIRED	SPECIAL INSTRUCTIONS	TEST FREQUENCY	NORMAL VALUES
HBsAg EIA	Serum	1.0 ml	Single serum	Twice weekly and as specimen load indicates	Specimens with absorbance values repeatedly \geq to a cut off value are considered positive. Repeatedly reactive specimens should be tested by a licensed neutralizing confirmatory test.
HBsAg Confirmatory EIA			Used to confirm the presence of HBsAg in specimens found to be repeatedly reactive in HBsAg EIA.	Weekly	A specimen is confirmed as positive if the reduction in signal of the neutralized specimen is at least 50% and the non-neutralized control generates a signal \geq to the assay cut off.
Anti-HBs EIA			Single serum	Weekly	Specimens with absorbance values \geq to a cut off value are positive.
Anti-HBc EIA			Single serum	Weekly	Specimens with absorbance values \geq to a cut off value are positive.
Anti-HBc IgM EIA	Serum	1.0 ml	Single serum. Positive specimen is indicative of acute or recent (usually 6 months or less) Hepatitis B viral infection	As required	Specimens with absorbance values \geq to a cut off value are positive.
HBe/Anti-HBe EIA	Serum	1.0 ml	Single serum	As required	Specimens with absorbance values \geq to a cut off value are positive for HBeAg. Specimens with absorbance values \geq to a cut off value are positive for Anti-HBe.

Continuation of Serology/Virology

TEST	SPECIMEN REQUIRED	AMOUNT REQUIRED	SPECIAL INSTRUCTIONS	TEST FREQUENCY	NORMAL VALUES
HIV-1/ HIV-2 Plus O EIA Screen	Serum Plasma	1.0 ml	Single serum. Available to patients in health department clinics or others with approved counseling programs.	Daily	Specimens with absorbance values \geq to cut off value are considered initially reactive (IR). IR specimens are repeated in duplicate. Repeatedly reactive specimens (RR) are confirmed using the Western Blot.
Western Blot	Serum Plasma	0.5 ml	Available on repeatedly reactive specimens. Test requires 1-2 days.	Weekly or as specimen load dictates	Specimens containing no bands are negative for HIV-1 antibody. Specimens containing at least two of the three viral bands: p24, gp41, or gp120/160 are reported positive for the presence of HIV-1 antibody. Specimens containing bands not meeting the criteria for a positive are reported as Indeterminate.
Aptima HIV-1 RNA Qualitative Assay	Serum Plasma	1.0 to 3.0 ml	Single specimen. Reactive result is indicative of acute or current infection with HIV-1	Weekly or as specimen load dictates	Specimens with a valid internal control (IC), IC \geq cutoff and with a S/CO less than 1.00 are considered nonreactive for HIV-1.
Adenovirus	Throat swab Conjunctival swab Feces Urine	30-50 mg 1-2 ml	Isolation, Identification (FA)	As required. Cultures held 10 days before reporting out.	Absence of virus is reported as no virus isolated.
Chlamydia	Cervical swab Urethral swab		Isolation, Identification (FA). All cultures are subcultured once before reporting as positive or negative.	Weekly or as specimen load dictates	Specimens lacking specific fluorescence are reported as negative.
rRT-PCR Seasonal Influenza	Upper respiratory swab, N/P wash or aspirate	1-2 ml	Specimen must be transported on ice packs and received within 4 days of collection	As required	Specimens with Ct values above 37 are considered undetectable for viral presence.

Continuation of Serology/Virology

TEST	SPECIMEN REQUIRED	AMOUNT REQUIRED	SPECIAL INSTRUCTIONS	TEST FREQUENCY	NORMAL VALUES
CMV Culture	Urine, Throat swab or washing; Bronchoalveolar lavage; Biopsy tissue	1-2 ml 1-2 gm	Isolation, Identification (FA). Specimens must be sent on ice pack.	As required. Cultures held 20 days before reporting out.	Specimens lacking specific fluorescence are reported as negative.
Enteroviruses Coxsackie-viruses Echoviruses Polio viruses	Isolate Feces Throat swabs Spinal Fluid	1.0 ml 30-50 mg 1.0 ml	Isolation, Identification, typing specimens must be sent frozen or on ice.	As required. Cultures held until typing completed. Turn around time -2 to 3 weeks.	Absence of virus reported as no virus isolated.
Herpes Simplex	Viral Culturette/swab from lesion	N/A	Isolation, Identification (FA). Specimens must be kept cold. (Refrigerate)	Daily. Turn around time - 1 to 7 days.	Absence of virus reported as negative.
Mumps Culture	Spinal Fluid Urine Saliva	1.0 ml	Isolation, Identification (FA)	As required. Cultures held 10 days before reporting out.	Absence of virus reported as no virus isolated.
Rabies	Animal head Human tissue	N/A	Identification (FA). No whole carcasses (with the exception of bats) are accepted. Heads must not be frozen. It is required by law that the Lab be notified at the shipping of a head. (713) 558-3467 or (713) 558-3468.	Daily. All results (positive or negative) are reported by phone daily.	Specimens lacking specific fluorescence reported as negative.
Rubeola Culture	Throat swab Urine	1.0 ml	Isolation Identification (FA)	As required.	Specimens lacking specific fluorescence reported as no virus isolated.
Varicella Culture	Exudate swab	N/A	Isolation, Identification (FA)	As required.	Specimens lacking specific fluorescence reported as no virus isolated.
Viral Screen	Swab in viral transport medium, isolate Washes, aspirates, other	1.0 ml	Isolation by culture, Identification (FA)	As required.	Specimens lacking specific fluorescence reported as no virus isolated.

C. Health Center Support Labs

TEST	SPECIMEN REQUIRED	AMOUNT REQUIRED	SPECIAL INSTRUCTIONS	TEST FREQUENCY	NORMAL VALUES
RPR	Red top tube (Serum) Lavender top vacutainer tube (EDTA) Plasma	Minimum 1.0 mL serum Minimum 1.0 mL plasma	Allow to clot for 60 minutes. Centrifuge within 2 hours of collection at ≤1300 RCF (g) for 10 minutes. Gently invert tube 8 to 10 times slowly when drawn to mix anticoagulant. Centrifuge for 10 minutes at 1000-1300 RCF (g).	On Receipt	Non-Reactive
Wet Mount	Vaginal Secretion	Secretion collected with swab & placed in 1 ml sterile saline	Collect vaginal sample on swab, inoculate saline tube.	On Receipt	Only epithelial cells and PMNs present
Gram Stain	Urethral Secretion	Thin layer on microscope slide	Clean outside of urethral area well before collecting sample. Sample should be fresh secretion.	On Receipt	PMNs absent or present, no significant microorganisms seen.
Dark field	Exudate from Lesion	Very thin inoculum mixed with 1 drop saline on microscope slide	Cover slip should not float on slide.	On Receipt	No organisms resembling <i>T. pallidum</i> found.
Rapid HIV	Lavender top vacutainer tube (EDTA)	Minimum 1.0 mL	Gently invert tube 8 to 10 times slowly when drawn to mix anticoagulant.	On Receipt	Negative
Amplified nucleic acid test for the detection of <i>C. trachomatis</i> and <i>N. gonorrhoeae</i>	Endocervical, vaginal, urethral (male) First voided urine (male or female)	1 unisex swab or 1 urine	Collect one endocervical swab, vaginal or male urethral swab. Urine must be first voided. Only use collection devices contained in the APTIMA Combo 2 specimen collection kits. Refer to manufacturer's package insert for complete details on specimen collection. Patients must not have urinated 1 hour prior to specimen collection. Transport the APTIMA Unisex swab specimen collection tube, swab or urine at room temperature within 48 to 72 hours of collection in a biohazard bag.	Mon-Fri	
Gonorrhea	Cervical, urethral,	1 Thayer-Martin or Martin-Lewis agar	Collect specimens with Dacron or rayon	Mon-Fri	

Culture (Isolation)	rectal, throat, or vaginal swab	bottle or plate with CO ₂ atmosphere	<p>swabs. Cotton swabs may be used, but some cotton contains fatty acids that are inhibitory to gonococci. Obtain a swab from the cervix, urethra, rectum or throat and inoculate transport medium immediately.</p> <p>Transport commercial bottle or plate with a CO₂ atmosphere at room temperature in a biohazard bag and in a UN certified shipping container. If commercial media are not available, modified Thayer-Martin plates must be transported at room temperature in candle extinction can with a moist piece of cotton or paper towel. Do not refrigerate.</p>		
Gonorrhea Culture Identification	Pure culture on chocolate slant/plate	1 slant or plate	<p>Maintain on media such as Thayer-Martin or chocolate agar. Keep in a 3-6% CO₂ atmosphere.</p> <p>Transport clinical isolate at room temperature with a CO₂ atmosphere.</p>	Mon-Fri	

Molecular Diagnostics Section Clinical Laboratory Services

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Laboratory Testing Protocol for the Surveillance of

Influenza Virus

Revised: October 28, 2011

*Guidelines subject to change depending on the situation and state/federal updates

This document is being updated for clinicians within the seventeen-county region serviced by the Houston Department of Health and Human Services (HDHHS) Laboratory Response Network (LRN) Reference Laboratory in accordance with local practices and state and CDC guidelines.

Influenza virus testing conducted at the HDHHS laboratory is for surveillance purposes. The primary goals for this testing are to:

- detect the distribution and spread of the virus
- detect new variants of the virus
- assist in outbreak investigations

Lab testing for clinical disease management purposes in individual patients is not a primary function of public health laboratory testing. Such diagnostic testing, if desired, should be performed by commercial laboratories.

Specimen Collection Guidelines

Samples should be collected as soon as possible after the onset of illness.

Acceptable specimens include upper respiratory tract clinical specimens and lower respiratory tract specimens:

Upper respiratory tract clinical specimens:

1. nasopharyngeal swabs [NPS]
2. nasal swabs [NS]
3. throat swabs [TS]
4. nasal aspirates [NA]
5. nasal washes [NW]
6. dual nasopharyngeal/throat swabs [NPS/TS]

Lower respiratory tract specimens:

1. bronchoalveolar lavage [BAL]
2. bronchial wash [BW]
3. tracheal aspirate [TA]
4. sputum
5. lung tissue

Specimen Collection, Handling, and Storage

Inadequate or inappropriate specimen collection, storage, and transport are likely to yield false negative results. Training in specimen collection is highly recommended due to the importance of specimen quality.

- Collecting the specimen:
 - Follow specimen collection devices manufacturer instructions for proper collection methods.
 - Swab specimens should be collected using only swabs with a synthetic tip, such as nylon or Dacron, and an aluminum or plastic shaft. Calcium alginate swabs are unacceptable and cotton swabs with wooden shafts are not recommended.
- Transporting specimen:
 - Ensure that, when transporting human respiratory specimens, all applicable regulations for the transport of etiologic agents are met. Human respiratory specimens, to be tested within 72 hours post-collection, should be transported refrigerated at 2-8°C. Alternatively, specimens may be frozen and transported for testing.
 - Respiratory specimens should be collected and placed into viral transport media (VTM) as described by CDC and WHO "Guidelines for the collection of clinical specimens during field investigation of outbreaks", <http://www.who.int/csr/resources/publications/surveillance/whocdscsredc2004.pdf>, and/or www.cdc.gov/h1n1flu/specimencollection.htm

Specimen Rejection Criteria

- Swabs with calcium alginate or cotton tips and wooden shafts
- Specimens not transported on ice
- Frozen specimens not transported on dry ice
- Swabs not transported in viral transport media
- Specimens submitted in expired viral transport media
- Refrigerated specimens more than 72 hours old
- Specimens accompanied by incorrect, improperly completed or incomplete requisition forms
- Specimen source, collection date and time not specified on requisition form
- Inappropriate specimens types (other than acceptable specimens)

References

Instructions for Use Package Insert: CDC Human Influenza Virus Real-time RT-PCR Diagnostic Panel (CDC Flu rRT-PCR Dx Panel), catalog # FluIVD03

Collection, Packaging and Shipping, and Accessioning of Norovirus Samples

Collection, Packaging and Shipping, and Accessioning of Norovirus Samples

I. Purpose

The purpose of this document is to provide a standard operating procedure (SOP) for collection, packaging and shipping, and accessioning of norovirus samples. This SOP provides guidance to personnel within the Houston Department of Health and Human Services (HDHHS) laboratory and other personnel who may be involved in such processes (e.g., epidemiologists) for the proper collection, quantity, transport and accessioning of norovirus samples.

II. Procedure

A. Timing of Collection

Stool or vomitus specimens should be collected during the acute phase of illness (i.e., within 48-72 hours after onset). In specific cases, specimens may be collected later in the illness (i.e., 7-10 days after symptom onset), if testing is necessary for either determining the etiology of the outbreak or for epidemiological purposes (e.g., a specimen obtained from an ill food handler who might be the source of the infection).

B. Quantity

Ideally, stool or vomitus specimens from at least 7-10 ill persons should be obtained during the acute phase of the illness for testing. Depending on the outbreak or cooperation of the patients involved, it may be difficult to collect the ideal number of samples. If this is the case, the number of samples collected will be determined by Epidemiology. 10-50 mL of stool or vomitus should be collected and placed in a tightly capped (leak-proof) stool or urine sample cup.

C. Storage and Transport

Stool or vomitus specimens should be kept refrigerated at 4 °C. This temperature allows for the specimens to be stored without compromising diagnostic yield for 2-3 weeks from collection. Freezing can destroy the characteristic viral morphology and may preclude a preliminary diagnosis by electro microscopy (EM). Specimens can be frozen for PCR testing if the test cannot be done within 2-3 weeks. Prior to being shipped, specimen cups should be individually sealed and bagged. Specimens should be shipped in an appropriately labeled, insulated, waterproof shipping container with refrigerant packs.

D. Specimen Accessioning

Specimens are received in the Molecular Diagnostics Section or in the Medical Microbiology Section. Each specimen must be matched to its submission form. Lab personnel will enter all specimen information into CyberLab and begin testing, unless otherwise told to hold off on testing by Epidemiology, in expectation of more samples. All Quality Assurance/Quality Control measures and safety precautions must be followed as specified by the QA/QC and safety protocols state.

III. Procedural Updates

This SOP will be updated as situations or testing procedures change. At minimum, this SOP will be reviewed and updated annually. All individuals involved with Norovirus testing at HDHHS lab should read and become familiar with, as well as follow this protocol.

Environmental Laboratory Services

2250 Holcombe Blvd
832-393-3900/3976

Procedure Document for Sample Submission.

This procedure is prepared to ensure that laboratory documentation and data will be admissible in compliance or legal situations. The laboratory will have the original sample data package and all related documentation. This will allow to quickly monitor the quality of documentation. The protocols outlined in this document are applicable to parties responsible for sample collection, handling, field screening, documentation and submission of samples.

Four factors that will affect the integrity of data produced in the laboratory are:

1. Proper collection of a representative sample
2. Sample contamination
3. Documentation of sampling events
4. Following the proper holding time requirements.

For any questions please call Odatt Rajan at 832-393-3976 or Emina Marjanovich at 832-393-3935

Sample receiving or tracking procedure

Samples are received at the laboratory as per the laboratory sample receiving protocol provided in this document. Trained sampling personnel bring all samples to the laboratory.

No samples related to the evidentiary type are shipped to the laboratory.

Sample release: Samples will not be transferred to another location for testing. After the samples are tested, samples will not be returned to the submitter. All samples except soil samples are discarded after holding time has expired. Soil samples are stored for two years and after that they are discarded for disposal.

Sample Containers, Preservation, Sample volume, and Hold Times.

Prior to sample collection, containers, preservatives, holding times, sample volumes, and target analytes must be considered. Field personnel must make every effort to follow proper sample handling protocol and limit requests only to pertinent analyses. The parameters to be measures are usually dictated by the purpose of an investigation and should be selected based upon required monitoring conditions or upon the investigator's knowledge of the problem. The volume of sample collected must be sufficient to perform all the requested tests as well as perform the needed quality control tests such as duplicates, matrix spikes, etc. Please note that if you are requesting TSS analysis, the laboratory requires a sample volume of about 1000 ml. Therefore, please bring an additional cubitainer for TSS analysis. This is required for the compliance of the test method.

Proper sample preservation is the responsibility of the sampling personnel. Laboratory staff will assist in the preservation of samples, if requested. If trace metals samples are acidified at the lab, there is a waiting period of 24 hrs before analysis can begin. Preservatives must be of reagent grade or higher. Acids suitable for trace metals analysis must be used for preserving metals samples. Fresh preservatives should be obtained from parent stocks prior to each sampling event. Any remaining preservatives that are not in sealed ampoules should be properly discarded and not returned back to the stock.

Using narrow range pH paper and an aliquot of the preserved sample, check the effectiveness of required pH adjustment the field.

In addition to chemical preservation, most samples must be properly iced at the time of collection. Care must be taken to avoid freezing of samples. Ice must be added to the cooler prior to or immediately after the first samples are collected. A temperature $>0 \leq 6^{\circ}\text{C}$ is ideal, but this depends on the time span between sampling and submission. Otherwise, evidence of cooling is acceptable. Wet ice and not dry ice or 'blue ice- packs" should be used for this purpose. In order to ensure proper cooling, samples should be nearly covered by rather than resting on top of ice.

The holding time is the maximum time that a sample can be held from collection time to preparation or analysis. Some parameters (e.g. semi-volatile organics) have separate hold times for sample preparation and sample analysis. Close attention must be paid to published holding times. Samples must be delivered to the lab as soon as possible after collection.

Field personnel should use extreme care to ensure samples are not contaminated. Secure sample container caps tightly before placing them in the cooler. Make sure melted ice does not cause sample containers to become submerged, as this may cause cross contamination. When small sample containers are used (for VOA and bacteriological), it is recommended that these be secured in plastic bags before placing them in the cooler of ice. Each collected sample contained in the cooler is specified on the Chain of Custody sheet. All other required field information such as sampling location, sample type, collection date and time, sample collector's name and signature etc. must be entered on the sample submission sheet. At present time, this laboratory is not accepting evidentiary type samples that should have a tamper proof seal.

Sample Identification Requirements

All sample containers must be labeled with a unique identification number. A sample submittal form with the associated COC record must accompany all samples that are submitted to the laboratory. The history of a sample must be clearly evident from the retained records and documentation. Copies or originals of all documentation that are associated with the sample collection and analysis event must be kept. This laboratory retains all sample transmittal documentation It includes all records and documentation necessary to trace a sample from its point of origin through the final report. This includes, but not limited to: sample receipt, log-in, sample preparation, and sample analysis. In addition tasks or activities related to each of the described events, (e.g. reagent preparation, calibration, quality control measures etc.) are also documented.

Laboratory Operating hours and Sample Receiving

The normal operating hours of the laboratory is 8 a.m. to 5 p.m. However, due to proper documentation and pH analysis requirements, the following protocol must be followed for sample delivery to the laboratory. Please note that unless there is an emergency requirement, the environmental laboratory section closes at 5 p.m. So, once again we request that the field sampling personnel adhere to the following sample delivery time schedule.

- All organic and inorganic samples must arrive at the laboratory by 3:30 p.m. All the paperwork should be completed before 4:00 p.m. Completed lab sheets will be stamped by the CHEMIST, only after all samples checked and accepted. This will allow sufficient time for the laboratory personnel to complete all the needed work associated with these samples.
- Please notify the lab managers the day before, if possible, or at least 4 hours in advance if emergency or special sampling is planned or occurring.
- Not following protocol or improperly collected samples will result in sample rejection. Please review and understand the proper sample collection and preservation protocol which is provided to you. If you require, the laboratory will be more than happy to provide training in these areas.

Sample Storage, Preservation, Minimum Sample Volume and Handling Requirements for the City of Houston Department of Health and Human Services – Holcombe Lab, 2250 Holcombe Blvd

INORGANICS & MICRO: MATRIX: SURFACE AND WASTE WATER SAMPLES

<i>Parameter</i>	Container	Preservation	Minimum Sample Volume	Holding Time
Ammonia-N	Plastic Cubitainer	H ₂ SO ₄ to pH <2 Cool to 4°C	500 mL **	28 days
C-BOD5	Plastic Cubitainer	Cool to 4°C	600 mL ***	48 hours
Chloride	Plastic Cubitainer	Cool to 4°C	100 mL ***	28 days
E. coli	Sterile Plastic	Cool to 4°C .008% Na ₂ S ₂ O ₃	100 mL	6 hours
Enterococcus	Sterile Plastic	Cool to 4°C .008% Na ₂ S ₂ O ₃	100 mL	6 hours
Fluoride	Plastic Cubitainer	Cool to 4°C	100 mL ***	28 days
Nitrate – N	Plastic Cubitainer	Cool to 4°C	100 mL ***	48 hours
Phosphorus, total	Plastic Cubitainer	H ₂ SO ₄ to pH <2 Cool to 4°C	100 mL **	28 days
Sulfate	Plastic Cubitainer	Cool to 4°C	100 mL ***	28 days
TDS	Plastic Cubitainer	Cool to 4°C	400 mL ***	7 days
TSS	Plastic Cubitainer	Cool to 4°C	1000 mL ***	7 days
Mercury	Plastic Cubitainer	HNO ₃ to pH <2 Cool to 4°C	500 mL **	28 days
Trace Metals	Plastic Cubitainer	HNO ₃ to pH <2 Cool to 4°C	700 mL	6 Months
Oil & Grease	1L-Amber Glass Bottle	H ₂ SO ₄ to pH <2 Cool to 4°C	900 mL	28 days
pH & Conductivity	Plastic Cubitainer	Cool to 4°C	200 mL ***	pH 24 hrs Con. : 28 days

** If a sample requires all these parameters to be tested, one full cubitainer(1000 mL) with preservative. The required amount of liquid is removed from this preserved container (~1000 mL) and split at the lab for several different tests.

*** For all these parameters, one full cubitainer (1000 mL) . The required amount of liquid is removed from this container (~1000 mL) and split at the lab for several different tests. This container does NOT have preservative added.
TSS requires 2 gallon container in some cases.

SOIL, SLUDGE, & OILY SAMPLES FOR INORGANICS:

Approximately 300 g of sample in glass bottle is sufficient for inorganic analysis. Straight - side clear glass jars of 300 ml capacity with Teflon lined caps and short bottle style are recommended. Please note that separate sample bottles are needed for organics analysis

Lead Program Sample Submission Protocol For Lead Testing.

Matrix: Lead in wipes, Paint chips, and Soil samples

The normal operating hours of the laboratory are 8 am to 5 pm. Due to proper documentation and checking-in requirements, please follow the following protocol for sample delivery to the laboratory. Please note that unless there is an emergency requirement, the environmental laboratory section closes at 5 pm. Once again, we request that field sampling personnel adhere to the following sample delivery time schedule.

- All samples must be brought by 4:30 pm with completed paperwork for all associated samples. Completed lab sheets will be stamped by a Chemist; only after all samples are checked and accepted.
This allows sufficient time for personnel to complete all needed steps in accepting the samples, and closing down the laboratory for the day.
- Please notify laboratory management the day before, if possible, or a few hours in advance if emergency or special sampling is planned or occurring.
- If it's not possible to get samples to the laboratory by the 4:30 pm, they should be delivered the next morning.
- The laboratory will reject samples collected improperly or without following the proper protocol. This includes: having more than one exposed wipe in a 50 mL conical tube, insufficient quantity (optimally, 3 g for paint chips and 15 g for soils) and no sample where paperwork says there is.

Samples are only accepted when:

- All necessary areas on the lab form are completed.
- The current revision of the lab form is used.
- Assigned lab numbers match the corresponding paperwork, samples.
- A field blank is submitted with every batch of wipes.
- The area ft² for wipes is recorded (nothing in field blank's spot).
- All samples are submitted in Ziploc bags or 50 mL conical tubes.
- One wipe is submitted per tube.
- A signature, date is provided to certify collection of wipe samples.
- Field information on samples checked against the lab form is correct.
- All errors are crossed out, initial/dated and needed corrections made.
- The chemist clocks in the lab form and signs it for acceptance.

Please come with enough time to submit samples to the laboratory since all paperwork and samples must be checked for accuracy and completeness. Incomplete forms or samples left [by the sampler] before laboratory personnel review all paperwork and take over chain of custody will not be accepted. If sampling personnel leaves the lab before samples are accepted, the chemist will reject the sample which does not meet the acceptance criteria.

This Lead Sample Submission Protocol applies to all samples submitted for Lead analysis to the City of Houston Holcombe Laboratory.

Blood Lead Testing:

Blood-Lead Specimen Receiving, Specimen rejection Protocol.

1. The blood specimen is drawn for blood lead testing according to the policy and procedure designed by the city of Houston Department of Health and Human Services Nursing Services.
2. The following tubes will be used for this procedure:
 - a. Becton Dickinson (BD) 250uL-500uL Tube Microtainer with K₂EDTA – Lavender top
 - b. Becton Dickinson (BD) 2mL Vacutainer K₂EDTA 3.6mg Tube – Lavender top
3. The tubes should be filled only to the specified fill volume, as the ratio of the EDTA is very important to prevent micro clots.
4. Collected specimens are placed individually in biohazard bags and are sealed properly. Do not centrifuge
5. STAT samples should be provided in biohazard STAT bags which are then placed in PAPER bags with cold packs. These bags are then marked ' BLOOD- LEAD STAT' clearly on the outside.
6. The blood specimen should be delivered to the laboratory preferably on the date of collection. Place the specimen in the indicated laboratory collection receptacle. The blood-lead specimen must be stored on ice or kept cold by keeping it on cold packs until they are delivered to the laboratory. Samples must be received in the lab within six (6) days of collection to allow the laboratory to complete the analysis before the end of seven day holding time requirement. Samples delivered on Friday should be within 4 days of sample collection because the laboratory is closed on Saturday and Sunday. Each sample must be accompanied by a completed blood lead request form.

Samples are rejected by the laboratory if:

- Sampled in any tubes other than specified above.
- Samples not placed individually in bio-hazard bags
- Samples that are filled over or below 10% of the fill volume.
- Samples delivered without having sufficient time for analysis to meet the seven-day holding time requirement.
- Samples received in mail or transported without cold packs or ice.
- Samples with sample information and the data entry information are different.
- Samples without completed blood lead request form.
- Sample tubes that is broken or leaking.
- Clotted samples.
- Any proficiency samples coming from another Lab
- Specimens whose sample tube information and data entry/laboratory sheet information are not correlating with each other.

HDHHS - ENVIRONMENTAL LABORATORY SERVICES
2250 Holcombe blvd., Houston TX 77030
METHODS, REPORTING LIMITS and TAT INFORMATION
INORGANIC ANALYSIS

TEST NAME	Matrix	MRL	Modified Method	TAT	Holding time
Ammonia-N	Aqueous	0.1 mg/L	SM 4500-NH ₃ H SM 4500-NH ₃ D (by ISE)	7-10 days	28 days
CBOD₅	Aqueous	4 mg/L	SM 5210B	7-10 days	48 hours
Chloride	Aqueous	5 mg/L	EPA 300.0	7-10 days	28 days
Nitrate-N	Aqueous	0.02 mg/L	EPA 300.0	7-10 days	48 hours
Sulfate	Aqueous	5 mg/L	EPA 300.0	7-10 days	28 days
Total phosphorous (as P)	Aqueous	0.02 mg/L	EPA 365.1	7-10 days	28 days
TDS	Aqueous	10 mg/L	SM 2540 C	7-10 days	7 days
TSS	Aqueous	4 mg/L	SM 2540 D	7-10 days	7 days
Conductivity	Aqueous	NA	SM 2510B	1-2 day	28 days
pH	Aqueous	NA	SM 4500H⁺ B	1-2 day	24 hrs.
pH	soil	NA	SW846 Method 9045	3-5days	24 hrs
O&G	Aqueous	16 mg/L	EPA 1664, Rev A	7-10 days	28 days
O&G	Soil	800 mg/L	EPA 9071B	7-10 days	28 days

HDHHS - BUREAU OF LABORATORY SERVICES
2250 Holcombe blvd., Houston, TX 77030

Methods, Method Reporting Limit, and TAT Information

TRACE METAL ANALYSIS

TEST NAME	Matrix	MRL	Modified Method	TAT	Holding time
Metals	Water		EPA 6010B/3005A	15 days or less	6 Months
element:	Cu	0.01 mg/L			
	Mn	0.01 mg/L			
	Zn	0.03 mg/L			
	Ni	0.03 mg/L			
	Pb	0.05 mg/L			
	Cr	0.01 mg/L			
	Cd	0.01 mg/L			
	Ag	0.01 mg/L			
Metals	Soil		EPA 3050B/6010B	15 days or less	6 Months
	Cu	5 ug/g			
	Mn	5 ug/g			
	Zn	10 ug/g			
	Ni	10 ug/g			
	Pb	10 ug/g			
	Cr	5 ug/g			
	Cd	2 ug/g			
	Ag	2 ug/g			
Mercury	Water	0.5 ug/L	EPA 7470A	15 days or less	28 days
Mercury	Soil	0.5 ug/g	EPA 7471A	"	28 days
Mercury	Air filter	0.05ug/filter	OSHA ID-145	"	
Lead	Aqueous	2 ug/L	EPA 7421	"	28 days
Arsenic	Aqueous	2 ug/L	EPA 7060/7010	"	28 days
Arsenic	Soil	0.5 ug/g	EPA 3050B/7010	"	6 Months
Selenium	Aqueous	2 ug/L	EPA 7740	"	28 days
Selenium	Soil	0.5 ug/g	EPA 3050B/7010		6 Months

HDHHS - BUREAU OF LABORATORY SERVICES
2250 Holcombe blvd., Houston, TX 77030
Methods, Method Reporting Limit, and TAT Information

LEAD TESTING

June 12, 2012

TEST NAME	Matrix	MRL	Modified Method	TAT	Holding time
Program	Wipes		40 CFR part 50,App.G		6 Months
HCD	Pb	10 ug/wipe		3days	
HUD-RUSH	Pb	10 ug/wipe		1-3 days	
HUD-Reg.	Pb	10 ug/wipe		6-8 days	
Program	Soil		EPA 202.2/7420		6 Months
HCD	Pb	20 ug/g		3 days	
HUD-RUSH	Pb	20 ug/g		1-3 days	
HUD-Reg.	Pb	20 ug/g		6-8 days	
Program	Paint chips		AOAC974.02/ EPA7420		6 Months
HCD	Pb	0.002%		5-7 days	
HUD-Reg.	Pb	0.002%		5-7 days	
Other clients	Pb	0.002%		5-7 days	

Sample Storage, Preservation, Minimum Sample Volume and Handling Requirements for the City of Houston
 Department of Health and Human Services – Holcombe Lab, 2250 Holcombe Blvd
 Tel # 832-393-3976 or 832-393-3946

ORGANICS:

MATRIX: SURFACE AND WASTE WATER SAMPLES

<i>Parameter</i>	Container	Preservation	Minimum Sample Volume	Holding Time
Trace Organics Semi-Volatile Priority Pollutants	Amber glass Screw cap lined with Teflon	Cool, 4°C	1000mL Note: For each sample set, one sample should be collected – 3x1000ml.	7days until extraction
Volatile Organics BTEX	Glass- 40mL vials; Teflon lined septum, no headspace.	Cool, 4°C	4-40mL vials	7 days
Total Petroleum Hydrocarbons (TPH)	Glass- 40mL vials; Teflon lined septum, no headspace	Cool, 4°C	4-40mL vials	7 days
Pesticides/PCB's	Amber glass Screw cap lined with Teflon	Cool, 4°C	1000mL Note: For each sample set, one sample should be collected – 3x1000ml.	7days until extraction

SOIL, SLUDGE, & PURE ORGANIC LIQUID SAMPLES:

For Semi and Non-volatile organics.

Approximately 200 g sample in glass bottle is sufficient for organic analysis. Straight - side clear glass jars of 300 ml capacity with Teflon lined caps are recommended. Bottle style: Short. Please note that a separate sample bottle is needed for Trace Metals analysis.

For Volatile organics:

Low concentration soil sampling method - generally applicable to soils and other solid samples with VOC concentrations in the range of 0.5 to 200 µg/kg. Collection method EPA Method 5035.

The method for soil containing low levels of volatiles utilizes a hermetically-sealed sample vial, the seal of which is never broken from the time of sampling to the time of analysis. Since the sample is never exposed to the atmosphere after sampling, the losses of VOCs during sample transport, handling, and analysis are negligible. The applicable concentration range of the low soil method is dependent on the determinative method, matrix, and compound. However, it will generally fall in the 0.5 to 200 µg/kg range.

Volatile organic compounds (VOCs) are determined by collecting an approximately 5-g sample, weighed in the field at the time of collection, and placing it in a pre-weighed vial with a septum-sealed screw-cap that already contains a stirring bar and a sodium

bisulfate preservative solution. The vial is sealed and shipped to a laboratory or appropriate analysis site. The entire vial is then placed, unopened, into the instrument carousel. Immediately before analysis, organic-free reagent water, surrogates, and internal standards (if applicable) are automatically added without opening the sample vial. The vial containing the sample is heated to 40 C and the volatiles purged into an appropriate trap using an inert gas combined with agitation of the sample. Purged components travel via a transfer line to a trap. When purging is complete, the trap is heated and backflushed with helium to desorb the trapped sample components into a gas chromatograph for analysis by an appropriate determinative method.

Bulk sampling.

For medium to high concentration soils and also, when clients do not want to do the above method of sampling.

This method is used when low concentration (<200 ug/kg) of volatiles is not important. Please note that doing bulk sampling, some amount of volatile organics will be lost during collection, transport and analysis since the sample jar has to be opened for sample analysis.

Samples are collected in 4 oz or 8 oz jars with Teflon lined caps. Jars are filled to the top to minimize loss of volatiles. Jars are transported to the laboratory on ice. Holding time for solid samples is 14 days from collection. **However, every attempt will be made to analyze samples as soon as possible.**

Sample Collection for TPH Analysis of Soil.

Using the bulk sampling technique, samples are collected in 4 oz or 8 oz jars with Teflon lined caps. Jars are filled to the top to minimize head space (to reduce loss of low boiling hydrocarbons in the nC6 to nC12 range.). Jars are transported to the laboratory on ice. Holding time for solid samples is 14 days from collection to extraction. **However, every attempt will be made to analyze samples as soon as possible.**

Please note that samples analyzed using bulk sampling, the results for the hydrocarbons in the nC6 to nC12 range, if present, will be lower due to some loss of those hydrocarbons during bulk sampling, transport, and analysis. If those hydrocarbon results are important or their presence is suspected and need to capture as much concentration as possible, please use Method SW-846 5035 for sample collection. In such cases the size of the sample for TNRCC method 1005 analysis that is collected should be approximately 10 g and the sample should be collected using a coring device, extruded into a tared 40 ml vial with a PTFE-lined septum cap.

The above sampling methods are explained to me and the results obtained from the laboratory analysis based on the bulk sampling technique are acceptable to our needs.

Clients Name and signature: _____

Date:

COLLECTION OF DRINKING WATER SAMPLES FOR TOTAL COLIFORM AND *E.coli* TESTING.

Potable Water Samples

Samples are accepted at two locations: Holcombe Central Lab and North-Side Health Clinic.

The Holcombe Central Lab accepts and test samples of potable water intended for human consumption. These samples must be submitted in sterile treated bottles supplied by the City of Houston Health Department, Harris County Health Department, the Texas Department of Health, Texas Commission on Environmental Quality (TCEQ), or your local health authority.

Water samples are accepted from 8:00 am to 4:00 pm Monday through Friday.

[For questions please call the laboratory at 832-393-3956.](#)

For potable water testing, the laboratory has arranged a drop off location for customers from the North part of the City. The address and the drop off time are as follows:

Drop off Location:

North-Side Health Clinic

8504 Schuller Road

Houston, TX 77093

Clinic phone number: 713 696-5900

Clinic is open for drop off samples from 8:30 to 4:00, Monday thru Thursday. Drop off instructions are provided at the clinic or call the laboratory.

[For questions please call the laboratory at 832-393-3956.](#)

Sample Rejection Criteria:

1. Sample is received in laboratory more than 30 hours after collection.
2. Sample contains less than the required 100 ml (-2.5 ml) of water.
3. A current City of Houston account number, check, or money order does not accompany sample.
4. Chlorine odor is detected when the sample is processed, or the sample exhibits a blue color when the Colilert reagent is added or develops a brown color as the sample warms.
5. Sample is frozen or $>35.5^{\circ}\text{C}$ upon arrival at the laboratory.

Sample Preservation

- Holding/travel time between sampling and analysis is not to exceed 30 hours.
- Hold all samples at $1 - 5^{\circ}\text{C}$ before analyses and tested within 30 hours of collection.

DAIRY SAMPLE TESTING

I. TYPE(S) OF DAIRY SAMPLES ACCEPTED/COLLECTED/SUBMISSION:

- a. Samples collected by a COH or TDSHS registered sanitarian only.

II Lists of Tests Performed :

Test Name	Sample type		
PAC (petrifilm aerobic count)	In-Plant Raw Milk (Silo, Commingled) Individual producer milk Grade A Retail Raw Milk Grade A Retail Raw Goat Milk		

	Other Milk & Dairy products Ice Cream Reduced Milkfat, Lowfat, Skim, Nonfat Frozen Yogurt Novelties		
PCC (petrifilm coliform count)	In-Plant Raw Milk (Silo, Commingled) Individual producer milk Grade A Retail Raw Milk Grade A Retail Raw Goat Milk Other yogurt, ice cream etc products Reduced Milkfat, Lowfat, Skim, Nonfat Frozen Yogurt Mix Reduced Milkfat, Lowfat, Skim, Nonfat Frozen Yogurt Novelties		
Growth Inhibitor	In-Plant Raw Milk (Silo, Commingled) Individual producer milk Grade A Retail Raw Milk Grade A Retail Raw Goat Milk Bulk Whole Milk Bulk Skim Milk Pasteurized Milk Supply Whole Milk Bulk Cream Heat Treated Bulk Cream Bulk Heavy Cream Light Cream / Whipping Cream Cream / Whipping Cream Heavy Cream / Whipping Cream UHT, ESL Cream Asceptic Cream Half-Half (plain or added solids) UHT, ESL Half-Half		
Antibiotic Rapid test	In-Plant Raw Milk (Silo, Commingled) Individual producer milk Grade A Retail Raw Milk Grade A Retail Raw Goat Milk		
Aflatoxin	In-Plant Raw Milk (Silo, Commingled) Individual producer milk Grade A Retail Raw Milk		
Freezing Point	In-Plant Raw Milk (Silo, Commingled) Individual producer milk Grade A Retail Raw Milk		

Direct Somatic Cell Count	In-Plant Raw Milk (Silo, Commingled) Individual producer milk Grade A Retail Raw Milk		
Electronic Somatic Cell Count	In-Plant Raw Milk (Silo, Commingled) Individual producer milk Grade A Retail Raw Milk		
Phosphatase	Whole Milk Highfat Whole Milk Highfat Whole Creamline Milk UHT, ESL Whole Milk Asceptic Whole Milk Skim, Nonfat, Fat-free Lowfat, Reduced Milkfat Milk (1/2%, 1%, 2%) UHT, ESL Skim & Lowfat Milk Asceptic Skim & Lowfat Milk UHT, ESL Half-Half		
Colilert-18	Dairy water: glycol and well water		

Environmental Water (non-potable) – *E.coli* and *Enterococcus* spp. Testing

Sample Collection, Handling, and Preservation

Note: The Lab does not collect samples. Samples are submitted by City of Houston Bureau of Pollution Control and Prevention and various other agencies.

- Samples to be analyzed for *E. coli* and *Enterococcus* spp. must be held at < 10°C and arrive at the laboratory within 6 hours of collection on ice.
- [Samples must be processed within 2 hours of arriving at the laboratory.](#)
- Samples that arrive after the 6 hour time limit will not be analyzed.
- Samples are accepted only in approved sterile plastic bottles. Chlorinated samples must be collected in bottles treated with sodium thiosulfate.
- Samples must be checked for chlorine residual by using low range chlorine strips (0-10 mg/L). Samples with detectable chlorine will be rejected.

III SAMPLE REJECTION: Sample requirements necessary for NCIMS laboratories to accept samples for Section 6 testing:

- Producer samples are about ¾ full. Samples too full are not tested.
- Samples at the time of receipt by the testing laboratory must be 0.0 to 4.4C to be accepted for regulatory testing. Liquid samples must not be frozen.
- Samples must not be leaking. Do not accept.
- Tops of samples must be protected from direct contact with ice.
- Unprotected sample(s) must not be submerged in water and/or ice or slush.

- f. If milk sample temperature control exceeds 4.4°C on receipt, do not test microbiologically (samples may be tested if temperature does not exceed 7°C and time of receipt is ≤ 3 hours from collection and sample temperature at receipt is no greater than at collection).

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INCIDENT REPORT FORM

DATE/TIME OF INCIDENT	
PATIENT MEDICAL RECORD NUMBER	
SPECIMEN SOURCE	
TEST REQUESTED	
PROBLEM:	
PERSON REPORTING	DATE:
SUPERVISOR	DATE:
RESPONSE:	
PERSON RESPONDING	DATE:
SUPERVISOR	DATE:
SECTION CHIEF	DATE:
BUREAU CHIEF	DATE: