NPDES COMPLIANCE MONITORING PROGRAM
Quality Assurance Program Plan
(Non-Generic)

QA RFA #9012

Revision Date: June 4, 2013
Published Date: July 23, 2008

Prepared by
Thomas J. Croteau
NH Department of Environmental Services (NHDES)
Wastewater Engineering Bureau (WWEB)

Program Manager: _____ 6/27/13
Signature / Date
Tracy L. Wood, NHDES

Program QA Officer: _____ 6/27/13
Signature / Date
Thomas J. Croteau, NHDES

Program Supervisor: _____ 7/18/13
Signature / Date
Stergios Spanos, NHDES

Laboratory Quality Assurance Officer: _____ 6/28/13
Signature / Date
Rachel Rainey, NH PHL

NHDES Quality Assurance Manager: _____ 7/10/13
Signature / Date
Vincent Perelli, NHDES

USEPA NPDES Program Manager: _____ / /
Signature / Date
Joy Hilton, USEPA Region I

USEPA Quality Assurance Manager: _____ / /
Signature / Date
Nora Conlon, USEPA Region I

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Aliquot

Portion of a sample. Often an equally divided portion of a sample.

Chain-of-Custody

A record of each person involved in the possession of a sample from the person who collected the sample to the person who analyzed the sample in the laboratory and to the person who witnessed disposal of the sample.

Code of Federal Regulations (CFR)

A publication of the United States Government which contains all of the finalized regulations, including environmental regulations.

Compliance Evaluation Inspection (CEI)

The CEI is a non-sampling inspection designed to verify permittee compliance with applicable permit self-monitoring requirements, effluent limits, and compliance schedules. This inspection involves record reviews, visual observations, and evaluations of the treatment facilities, laboratories, effluents receiving waters, etc. The CEI also examines both chemical and biological self-monitoring information and provides evidence for enforcement proceedings where appropriate.

Compliance Sampling Inspection (CSI)

The CSI is a sampling inspection designed to obtain representative samples required by the permit. Chemical and bacteriological analyses are performed, and the results are used to verify the accuracy of the permittee's self-monitoring program and reports; determine compliance with discharge limitations; determine the quantity and quality of effluents; and develop permits. In addition, the CSI includes the same objectives and tasks as a CEI.

Discharge (Discharge of a pollutant)

The addition, introduction, leaking, spilling, or emitting of a pollutant to surface waters from a point source.

Discharge Monitoring Report (DMR)

An EPA uniform national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees.

Document

Any written, recorded information that is subject to change over time. Procedures, plans, policies, and records are documents. Documents may be controlled.

Effluent

Wastewater or other liquid – raw, partially or completely treated – flowing from a basin, treatment process, or treatment plant from a point source to a surface water.

Effluent Limitations

Any restriction(s) imposed by the department pursuant to RSA 485-A on quantities, discharge rates, characteristics and concentrations of pollutants which are discharged to surface waters from a point source.

Environmental Conditions

The description of a physical medium (e.g., air, water, soil, sediment) or biological system expressed in terms of its physical, chemical, radiological, or biological characteristics.

Environmental Processes

Manufactured or natural processes that produce discharges to or that impact the ambient environment.

Environmental Data Operations

Work performed to obtain, use, or report information pertaining to environmental processes and conditions.

Environmental Programs

A term pertaining to any work or activities involving the environment, including: characterization of environmental processes and conditions: environmental monitoring; environmental research and development; the design, construction, and operation of environmental technologies; laboratory operations on environmental samples.

Flow-Paced Composite Sample

A composite sample consisting of a mixture of aliquots (a minimum of eight grab samples) continuously collected proportionally to flow during a 24-hour period.

Flow-Weighted Composite Sample

A composite sample consisting of a mixture of aliquots collected at a constant time interval, where the volume of each aliquot is proportional to the flow rate of the discharge.

Grab Sample

A single sample collected at a particular time and place which represents the composition of the wastestream only at that time and place.

Influent

Wastewater or other liquid – raw or partially treated – flowing into a reservoir, basin, treatment process, or treatment plant.

Material Safety Data Sheet (MSDS)

A document which provides pertinent information and a profile of a particular hazardous substance or mixture.

Monthly Operating Report (MOR)

A State uniform form for the reporting of self-monitoring results by permittees.

National Pollutant Discharge Elimination System (NPDES) Permit

NPDES Permit means an authorization, license, or equivalent control document issued by USEPA to implement the requirements of 40 CFR 122.2 and parts 123 and 124.

NPDES Environmental Inspector

The role of the Inspector is to gather information that can be used to determine the reliability of the permittee's self-monitoring data and evaluate compliance with NPDES permit conditions, applicable regulations, and other requirements.

Point Source

Point source means "point source" as defined in 40 CFR 122.2.

Pollutant

Pollutant means "pollutant" as defined in 40 CFR 122.2.

Process Wastewater

Any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Program

A functional unit of the New Hampshire Department of Environmental Services (DES) conducting a defined program. This administrative function will often be found at the Bureau level, but varies across DES. An example would be the Permits and Compliance Program within the Wastewater Engineering Bureau of the Water Division.

Program Manager

The person responsible for conducting a specific DES program; this program management function is vested in people at different administrative levels within DES. The term program manager is used to describe staff that has direct knowledge and/or responsibility at the program-specific level.

Quality Assurance (QA)

An integrated system of management activities involving planning, implementation, documentation, assessment, reporting, and quality improvement to ensure that a process, item, or service is of the type and quality needed and expected by various entities.

Quality Assurance Program Plan (QAPP), Generic

A planning document, written to EPA specifications, which describes quality assurance procedures for a program or a set of projects. Used in conjunction with a Sampling and Analysis Plan (SAP – see Definition).

Quality Assurance Program Plan (QAPP), Non-Generic

A planning document, written to EPA specifications, which describes quality assurance procedures for a specific Program. A Sampling and Analysis Plan (SAP) is not used in conjunction with a Non-Generic QAPP.

Quality Control (QC)

The overall system of technical activities that measures the attributes and performance of a process, item, or service against defined standards to verify that they meet the stated requirements established by the customer; operational techniques and activities that are used to fulfill requirements for quality.

Quality Management Plan (QMP)

A formal document or manual, usually prepared once for an organization that describes the quality system in terms of the organizational structure, functional responsibilities of management and staff, lines of authority, and required interfaces for those planning, implementing, and assessing all activities conducted.

Reconnaissance Inspection (RI)

The RI is used to obtain a preliminary overview of a permittee's compliance program. The Inspector performs a brief visual inspection of the permittee's treatment facility, effluents, and receiving waters. The RI uses the Inspector's experience and judgment to summarize quickly any potential compliance problems. The objective of the RI is to expand inspection coverage without increasing inspection resources. The RI is the briefest and least resource intensive of all NPDES inspections.

Records

A completed document that provides objective evidence of an item or process and is not subject to change over time – unlike a document. Records may include photographs, drawings, magnetic tape, or other data recording media. See documents.

Relative Percent Difference

Duplicate precision is typically checked by calculating the relative percent difference (RPD) between the original sample concentration and the duplicate sample concentration.

Representative Sample

A sample portion of material or wastestream that is as nearly identical in content and consistency as possible to that in the larger body of material or wastestream being sampled.

Sampling and Analysis Plan (SAP)

A planning document used in conjunction with a Generic Program QAPP, which describes the quality assurance procedures for a specific program/task that is not covered by the generic QAPP for the program.

Split sample

A sample which is collected and divided in the field into the necessary number of portions (e.g. 2, 3, etc.) for analysis.

Standard Methods

A joint publication of the American Public Health Association (APHA), American Water Works Association (AWWA), and the Water Environment Federation (WEF) (formerly Water Pollution Control Federation) which outlines accepted laboratory procedures used to analyze the impurities in water and wastewater.

Standard Operating Procedures (SOPs)

A written document that details the method for an operation, analysis, or action with thoroughly prescribed techniques and steps that is officially approved as the method of performing certain routine or repetitive tasks.

Surface Waters

It means the "surface waters of the state" as defined in RSA:485-A:2,XIV and Waters of the United States as defined in 40 CFR 122.2.

Time-Weighted (Sequential) Composite Sample

A composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.

Upset

Upset means an exceptional incident in which there is unintentional and temporary non-compliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include non-compliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

List of Acronyms

Acronym	Full Phrase
APHA	American Public Health Association
AWWA	American Water Works Association
BOD	Biochemical Oxygen Demand
CARP	Compliance Assurance Response Policy
CBOD	Carbonaceous Biochemical Oxygen Demand
CEI	Compliance Evaluation Inspection
CFR	*Code of Federal Regulations*
COC	Chain-of-Custody
CSI	Compliance Sampling Inspection
CWA	Clean Water Act
DPD	*N,N-Diethyl-p-phenylenediamine*
DMR	Discharge Monitoring Report
GPH	Gallons per Hour
ICV	Independent Calibration Verification
IRMU	Information Resources Management Unit
LCS	Laboratory Control Sample
LFB	Laboratory Fortified Blank
MDL	Minimum Detection Limit
MGD	Million Gallons per Day
MOR	Monthly Operating Report
MS/MSD	Martix Spike/Matrix Spike Duplicate
MSGP	Multi-Sector General Permit
NHDES	New Hampshire Department of Environmental Services
NIST	National Institute of Standards and Technology
NPDES	National Pollutant Discharge Elimination System
PCS	Permit Compliance System
POTW	Publicly Owned Treatment Works
QA	Quality Assurance
QAPP	Quality Assurance Program Plan
QC	Quality Control
QMP	Quality Management Plan
RI	Reconnaissance Inspection
RDL	Reporting Detection Limit
RPD	Relative Percent Difference
SM	Standard Methods
SAP	Sampling and Analysis Plan
SOP	Standard Operating Procedure
TRC	Total Residual Chlorine
TSS	Total Suspended Solids
USEPA	United States Environmental Protection Agency
WAL	Water Analysis Lab
WEF	Water Environment Federation
WWEB P&C	Wastewater Engineering Bureau Permit & Compliance

A3 – Distribution List

Table 1 presents a list of people who will receive the approved Quality Assurance Program Plan (QAPP), the QAPP revisions, and any amendments.

Table 1. QAPP Distribution List

QAPP Recipient Name	Program Role	Organization	Telephone number and Email address
Paul Heirtzler	Administrator	NHDES Wastewater Engineering Bureau	603-271-2001 (office) Paul.Heirtzler@des.nh.gov
Thomas Croteau	Program QA Officer and NPDES Chief Environmental Inspector	NHDES Wastewater Engineering Bureau	603-271-2985 (office) 603-419-9497 (cell) Thomas.Croteau@des.nh.gov
Stergios Spanos	Program Supervisor	NHDES Wastewater Engineering Bureau	603-271-2458 (office) Stergios.Spanos@des.nh.gov
Rachel Rainey	Laboratory QA Officer	NH PHL Laboratory Services	603-271-8501 (office) Rachel.Rainey@DHHS.state.nh.us
Vincent Perelli	NHDES Quality Assurance Manager	NHDES Planning Unit Commissioner's Office	603-271-8989 (office) Vincent.Perelli@des.nh.gov
Teresa Ptak	NPDES Environmental Inspector	NHDES Wastewater Engineering Bureau	603-271-1494 (office) 603-419-9496 (cell) Teresa.Ptak@des.nh.gov
Stephanie Larson	NPDES Environmental Inspector	NHDES Wastewater Engineering Bureau	603-271-1493 (office) 603-419-9498 (cell) Stephanie.Larson@des.nh.gov
Tracy L. Wood	NPDES Compliance Engineer and Program Manager	NHDES Wastewater Engineering Bureau	603-271-1497 (office) Tracy.Wood@des.nh.gov
Joy Hilton	EPA Program Officer (NPDES Program)	USEPA Region I	617-918-1877 (office) hilton.joy@epa.gov
Nora Conlon	USEPA Quality Assurance Officer	USEPA Region I	617-918-8335 (office) conlon.nora@epa.gov

A4 – Program/Task Organization

The DES Water Division's Wastewater Engineering Bureau represents the primary entity within DES that deals with the myriad of issues related to effective wastewater management in New Hampshire. Its mission is to ensure that the design, construction, and operation of wastewater treatment facilities are carried out in accordance with all applicable federal laws, state statutes, local by-laws and ordinances, and to assure the appropriate removal, transportation, and disposal (or beneficial use) of associated residuals. Specifically, one of its roles is to ensure that wastewater treatment facilities are operated in accordance with the facilities' discharge permits (and effluent limits) by providing NPDES compliance inspections, technical assistance, and operator training and certification[1].

NHDES Wastewater Engineering Bureau's Permits and Compliance Section (WWEB P&C) staff inspects these facilities that have received NPDES/State permits and reviews monthly discharge monitoring reports to ensure that these permitted facilities are in compliance with all applicable federal and state permit conditions. The WWEB P&C will implement this monitoring program with sampling conducted by the NHDES NPDES Environmental Inspectors (Inspector) and laboratory analysis performed by the New Hampshire Public Health Labs (PHL) – Water Analysis Lab (WAL).

NHDES Wastewater Engineering Bureau

Tracy Wood, Compliance Engineer, is the Program Manager, under the supervision of Stergios Spanos, Program Supervisor of WWEB P&C. The Program Manager will be responsible for the overall Program implementation and final report preparation, preparation and maintenance of the approved QAPP, and will be the primary contact between NHDES and EPA. Each fiscal year, either the Program Manager and/or the Compliance Coordinator, with concurrence by the USEPA, select a number of NPDES permittees that will be inspected and/or sampled by the Inspectors in the Compliance Section.

Thomas Croteau, Chief Inspector for the Compliance Section, will also act as the Program Quality Assurance (QA) Officer. As a result of this dual role, the work of the Program Quality Assurance Officer will be strictly reviewed by the Program Manager or Compliance Coordinator.

Each Inspector is responsible for deciding, unless otherwise directed either by the Program Manager or Compliance Coordinator, when to inspect the selected list of NPDES permit holders including coordinating field sampling activities and sample delivery to the NH PHL WAL. Both the Program Manager and Compliance Coordinator will be able to contact the Inspectors by cellular phone if unanticipated changes are needed in the Program schedule.

If problems or questions arise during an inspection or sampling protocol, each of the Inspectors will be able to communicate with either the Program Manager or Compliance Coordinator via cellular phones.

NH PHL – Water Analysis Labs

Rachel Rainey is the Program Manager and QA Officer for the NH PHL WAL (WAL). She is responsible for performing QA reviews on the laboratory data and communicating any analytical problems to the Program Manager and/or Inspector.

[1] Excerpt from the *NHDES Guidebook for Environmental Permits in New Hampshire* 2002 Edition

The data collected by this Program will be used by WWEB P&C to assess compliance with the individual NPDES permit and to complete EPA's NPDES 3560-3 Form. This data will be made available to the public upon request.

Figure 1 shows the Program's personnel flow chart and Table 2 provides a description of roles and responsibilities as they relate to this Program.

Figure 1. Program's Organizational Chart

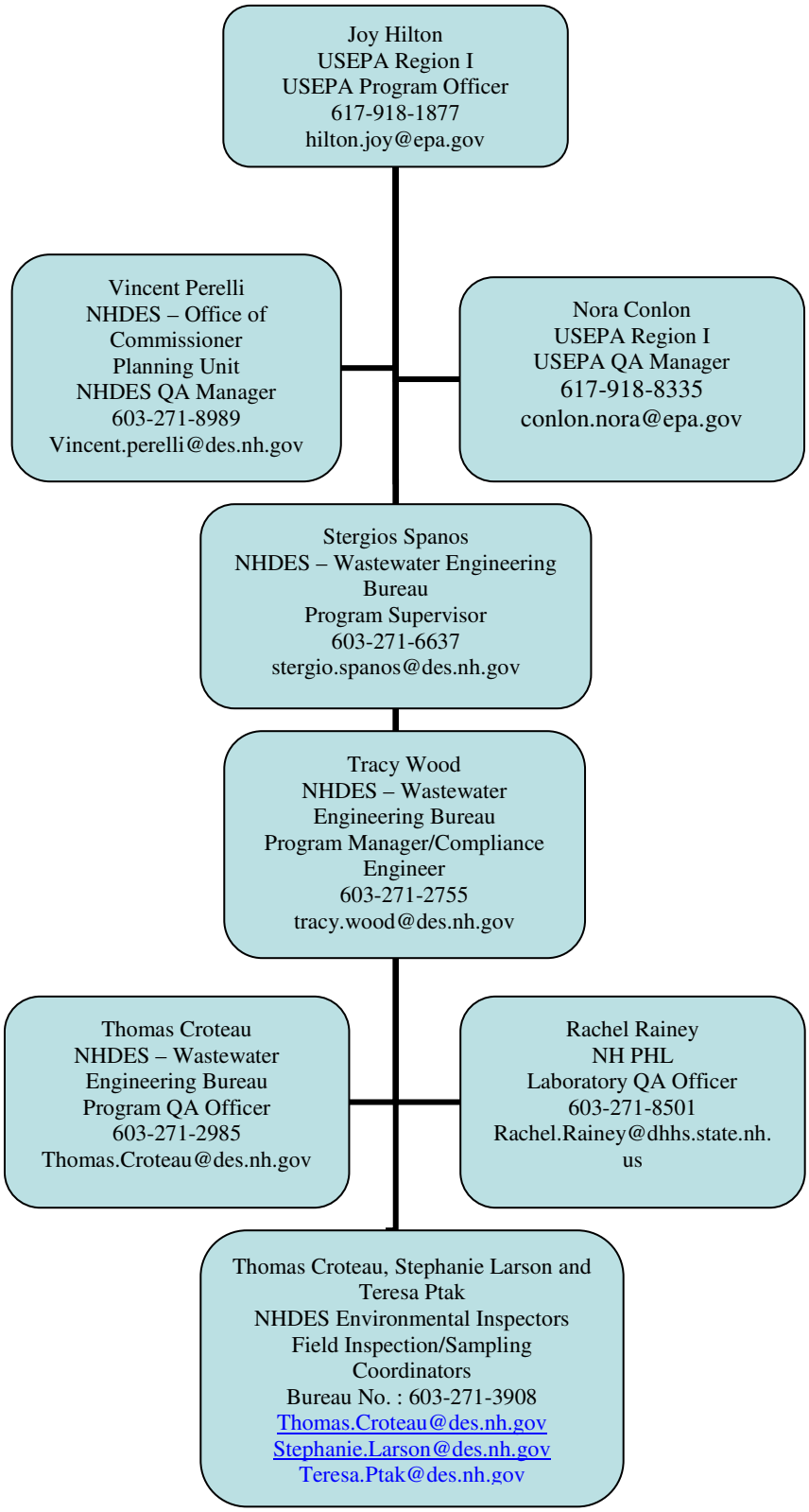

Table 2. Personnel Responsibilities and Qualifications

Name and Affiliation	Responsibilities	Qualifications
Stergios Spanos NHDES Wastewater Engineering Bureau	Oversees WWEB P&C activities	On file at NHDES
Tracy Wood NHDES Wastewater Engineering Bureau	Oversees compliance program Responsible for review of the Program QA Officer's work	On file at NHDES
Thomas Croteau NHDES Wastewater Engineering Bureau	Prepares, reviews and modifies QAPP and related QA/QC activities	On file at NHDES
Stephanie Larson Thomas Croteau Teresa Ptak NHDES Wastewater Engineering Bureau	Responsible for field inspection/sampling activities	On file at NHDES
Rachel Rainey NH PHL - WAL	Oversees laboratory QA/QC activities and identifies necessary corrective actions	On file at NHDES
Vincent Perelli NHDES Quality Assurance Manager	Oversees NHDES QA System and responsible for review of the draft QAPP	On file at NHDES
Joy Hilton USEPA Region I Water Technical Unit	Oversees NHDES NPDES inspection and enforcement activities	On file at EPA
Nora Conlon USEPA Region I Quality Assurance Unit	Responsible for review and approval of the draft QAPP	On file at EPA

A5 – Problem Definition/Background

As New Hampshire is a non-delegated state, EPA administers the National Pollutant Discharge System ("NPDES") Program. Accordingly, EPA issues federal NPDES permits under Section 402 of the federal Clean Water Act. However, EPA cannot issue a federal permit until the state certifies, in writing, that the permit complies with all applicable state rules and regulations. The Permits and Compliance Section of the DES Wastewater Engineering Bureau is responsible for providing the state certification. After the federal NPDES permit is issued, DES adopts this permit as a state permit, as required under RSA 485-A:13 ("Water Pollution and Waste Disposal/Water Discharge Permits").

Even though New Hampshire is a non-delegated state, compliance with the NPDES Program is monitored by the Permits and Compliance Section. Sections 308 and 402 of the Clean Water Act provide for the transfer of Federal program authority to States to conduct NPDES permit compliance monitoring. As mentioned in Section A4, point source dischargers of pollutants (e.g., municipal wastewater treatment plants and industries) are issued permits that set specific limits and operating conditions to be met by the permittee. Section 308 authorizes inspections and monitoring to determine whether NPDES permit conditions are being met. This section provides for two types of monitoring:

1. Self-monitoring, where the facility must monitor itself; or
2. Monitoring by the permit-issuing agency (EPA or State), a process that may include the agency's evaluating the self-monitoring and/or conducting its own monitoring.

Under *40 Code of Federal Regulations (CFR)* 123.26 (relating to State programs), three objectives are to be met during a routine compliance inspection. The inspection/sampling is performed in a manner designed to:

1. Determine the compliance status with permit conditions and other program requirements such as, but not limited to: the quality of the treated discharge to the receiving water for foam, color or loss of treatment plant solids; the adequacy and regular updates of the QA/QC manual and Emergency Response Plans; and the overall operations and maintenance of the facility;
2. Verify the accuracy of information submitted by the permittee in its Discharge Monitoring Reports (DMR); and
3. Verify the adequacy of sampling and monitoring conducted by the permittee.

Other purposes of compliance inspection/sampling include:

1. Gathering evidence to support enforcement actions;
2. Obtaining information that supports the permitting process; and
3. Assessing compliance with orders or consent decrees.

As part of the verification/evaluation process, the Inspector conducts a thorough review of all monitoring reports submitted by the permittee. The Inspector reviews the data and determines if the report is complete and accurate. If the information reported on the DMR was found to be in error (i.e. typo or erroneous calculations), the permittee is notified and required to resubmit a revised DMR.

A6 – Program/Task Description

The Inspector is a representative of EPA and is often the initial contact between EPA and the permittees. In dealing with facility representatives and employees, Inspectors must be professional, tactful, courteous and diplomatic. The primary role of the Inspector is to gather information that can be used to determine the reliability of the permittee's NPDES self-monitoring data and evaluate compliance with permit conditions, applicable regulations, and other requirements. Appendix A, A-1 and A-2 contain a copy of a NPDES Inspection Checklists (Individual, Generals, Hydroelectric, Industrial NCCW, and Remediation Permits) and EPA's NPDES Compliance Inspection Report, the 3560-3 form, respectively. The objective of an NPDES Inspection Checklist is to be consistent in organizing and coordinating all inspection information and evidence into a comprehensive, usable document. The checklist serves as the Sampling and Analysis Plan (SAP) for this program-specific QAPP. In addition, the checklist may be modified to address any new rules and regulations promulgated by state or federal agencies. To meet the objective of the checklist, the information collected is presented in a clear, consistent, and well-organized manner. The information shall be objective and factual (based on sound inspection practices). Once the information collected by the inspector is reviewed, organized, and referenced, the NPDES inspection report letter can be written up on standard office letter head. The inspection letter is to inform the permittee the facts relating to potential violations and deficiencies found during a routine inspection. The Inspector is also responsible for reporting all compliance activities by completing EPA's NPDES Compliance Inspection Report Form (Form 3560-3) and forward in a timely manner (generally within 30 days of the inspection date) the original form to the EPA Program Manager and copies to the permittee and the Compliance Engineer.

The Inspector also plays an important role in enforcement case development and support, and in NPDES permit development.

Inspectors shall observe procedures shown in Table 3 for conducting each inspection element. Depending on the specific purpose of the inspection, the emphasis given to each element may vary among different facilities.

With reference to a work schedule, the inspections are conducted each fiscal year starting on October 1st and ending on September 30th. Prior to the beginning of a new fiscal year, the QAPP Program Manager and the EPA Program Manager discuss and agree on which permitted facilities will be annually inspected and/or sampled. Thereafter, the list of targeted facilities is then divided and assigned to each of the Inspectors.

Most inspections at NPDES permitted facilities are either compliance evaluation inspections (CEIs – non-sampling) or compliance sampling inspections (CSIs - sampling). During a CSI, representative effluent samples are also collected for BOD or CBOD, TSS, *E. coli*, metals (if applicable) and nutrients (if applicable) and are analyzed by the NH HPL - WAL for chemical and bacteriological analyses. The Inspector may conduct a split sample with the permittee as a means to evaluate the permittee's laboratory analytical techniques and procedures. Comparison of the split sample data will be used in identifying discrepancies between laboratories in analytical methodologies. Any widely divergent results from split sampling will be investigated and the cause identified.

The Inspectors and the Compliance Engineer use the analytical data to verify the accuracy of the permittee's NPDES self-monitoring program and reports; determine compliance with discharge limitations; determine the quantity and quality of the effluent; and provide evidence for enforcement proceedings, where appropriate. The WWEB P&C's permit writers will also use this information in assisting EPA in the development and reissuance of NPDES permits.

The analytical results, as well as the information compiled on the NPDES Inspection Checklist, are filed at the NHDES Wastewater Engineering Bureau's P & C Section.

Table 3. Inspector's Responsibilities

Pre-Inspection Preparation. Ensure effective use of inspection resources.
1. Notify facility, if applicable. Generally, the facility is not notified.
2. Establish purpose and scope.
3. Review background information from records, including permit and permittee compliance files.
4. Contact other state program personnel for further information on the permittee (e.g., Hazardous Waste Bureau and Air Resources Division).
5. Develop inspection plan.
6. Prepare documents and equipment, including appropriate safety and sampling equipment.
7. Coordinate schedule with laboratory if sample collection is anticipated.
8. Coordinate schedule, if requested, with other appropriate regulatory authorities (e.g. USEPA or other state program personnel for multi-media type inspections).

Entry. Establish legal entry to facility.
1. Present official credentials.
2. Manage denial of entry if necessary.

Opening Conference. Orient facility officials to inspection plan.
1. Discuss inspection objectives and scope.
2. Establish working relationship with facility officials.

Facility Inspection. Determine compliance with permit conditions; collect evidence of violations.
1. Conduct visual inspection of facility.
2. Review facility records.
3. Inspect monitoring location, equipment, and operations.
4. Collect samples, if appropriate.
5. Review laboratory records for QA/QC.
6. Review laboratory procedures to verify use of approved methods.
7. Document inspection activities by completing the NPDES Inspection Checklist and where appropriate, complete attachments A, B, C, and D (Appendix A).

Closing Conference. Conclude inspection.
1. Collect missing or additional information.
2. Clarify questions with facility officials.
3. Review inspection findings and inform officials that an inspection report will be submitted.

Post Inspection. Organize inspection findings in a report so as to be useful in the development and support of evidence for potential enforcement action.
1. Review NPDES Inspection Checklist with attachments (Appendix A) and, if appropriate, discuss any issues or items of concern with the Compliance Engineer.
2. Complete an NPDES inspection report identifying deficiencies documented during the inspection and forward the report to the permittee for its corrective action plan.

3. Complete EPA's NPDES Compliance Inspection Report Form 3560-3 (Appendix A-2) and submit to USEPA Region I a copy of all documents related to the inspection via an e-mailed pdf file.

A7 – Quality Objectives and Criteria

Whether the Inspector is evaluating a permittee's sampling program or conducting compliance sampling on the permittee's effluent, that Inspector must be familiar with the procedures and techniques necessary for accurate wastewater sampling. Sample collection is an important part of the compliance monitoring program. Without proper sample collection procedures (Appendix C-1), the results of such monitoring programs are neither useful nor valid, even with the most precise and accurate analytical measurements.

The environmental measurements (parameters) taken during a compliance monitoring program are dependent upon the monitoring requirements specified in each NPDES permit. Table 4 summarizes the performance criteria for samples collected for this program.

Table 4. Measurement Performance Criteria for Wastewater Samples

Data Quality Indicators	Measurement Performance Criteria	QC Sample and/or Activity Used to Assess Measurement Performance
Precision-Field	See Table 21	Field Duplicates
Precision-Lab	See Section B5 – Quality Control	Lab Duplicates
Accuracy/Bias	See Section B5 – Quality Control	Spikes/Duplicates
Representativeness	Determine compliance with discharge limitations and the quantity and quality of effluents	Obtain representative effluent samples as required by the permit
Comparability	Deviation from SOPs should not influence the data by more than 5%	Data Comparability Check
Sensitivity	See Table 5	Laboratory-fortified blanks
Data Completeness	100% samples collected	Data Completeness Check
Field Contamination	</= Reporting Detection Limit (see Table 5)	Field Blank
Lab Contamination	</= Reporting Detection Limit (see Table 5)	Lab Blanks

<u>Precision</u>: Duplicate precision is typically analyzed by calculating the relative percent difference (RPD) using the equation:

$$RPD = \frac{|x_1 - x_2|}{\left(\frac{x_1 + x_2}{2}\right)} \times 100\%$$

where x_1 is the original sample concentration

x_2 is the duplicate sample concentration

RPDs < 15% will be deemed acceptable for field duplicates and <10% for lab duplicates.

Accuracy: As an indicator of measurement confidence, percent accuracy will be calculated based on NH PHL WAL's analytical results of spiked samples of known chemical concentrations:

$$\%Accuracy / Bias = \frac{SpikedSampleConc. - UnspikedSampleConc.}{SpikedConc.Added} \times 100\%$$

For pH, accuracy is expressed as the difference between the mean measured value and the theoretical value.

No accuracy objectives have been set for the total/fecal coliforms or *E. coli* analyses because there is no practical way to perform spiked samples or analyze standard reference materials for coliforms. In lieu of this, the NH PHL WAL can run positive and negative control samples to determine that the analytical procedure is performing properly.

Representative: The objective of this Program is to take qualitative measurements that will be representative of the wastewater from treatment plants or industry and its impact on the receiving stream.

Comparability: Using standardized sampling and analytical methods, units of reporting, and specific site selection procedures help ensure comparability. Whenever possible and practicable, the field and laboratory methods for this Program are identical to those used by the permit holder. The laboratory analyses are based on procedures from the current and subsequent EPA-approved edition[2] of *Standard Methods for the Examination of Water and Wastewater* and/or 40 CFR 136 and the permittee's QA/QC manual (the manual is to be submitted by the Permittee and reviewed by the Inspector every 5 years).

Sensitivity. Background information on each proposed sampling location exists, and the data show that the methods and instruments are able to detect the parameter(s) of concern. Detectable ranges of the methods and the equipment (as shown in methods and SOPs) are adequate for the purpose of this NPDES program.

Data Completeness: This Program is not a special study where loss of data would result in a poorly executed study, or as in this instance, Program. Since this is neither a study nor a short-term project, the lack of completeness is not a vital concern in this Program where any incomplete sampling of one or more of the permitted facilities would not compromise the validity of the sampling data obtained from facilities that were sampled for compliance. This Program proposes to randomly select and monitor yearly a large portion of the NPDES permit holders for compliance with their permit. Therefore, the number of planned sample events has no bearing on any proposed study or Program assessment. The information collected is to simply verify compliance with state and federal permit requirements. The permittee's analytical data (considered secondary data) is reviewed during the inspection for precision and accuracy in accordance with their state-approved QA/QC manual and/or EPA's analytical procedures (40 CFR Part 136). Attachments C and D in Appendix A are used to evaluate the permittee's analytical data for quality assurance and control. With a good QA/QC laboratory program and state-certified operators, it is extremely rare to find data that is not valid. The only time that data is either invalid or rejected would be if the analytical test did not meet quality control standards.

[2] Prepared and published jointly by American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF).

Quantitation Limits. The analytical method, analytical/achievable method detection limit, and the analytical/achievable laboratory quantitation limits for this Program are shown in Table 5.

Table 5. Wastewater Target Analytes and Reference Limits

Analyte	Analytical method[3]	Program Action Level	Analytical/Achievable Method Detection Limit	Reporting Detection Limit (Achievable Lab Quantitation Limit)
Total Suspended Solids (TSS)	Standard Method 2540D-2011	Varies by Permit	Not calculated	5.0 mg/L, noise around blank
Biochemical Oxygen Demand (BOD_5)	Standard Method 5210B-2011	Varies by Permit	Not calculated	2.0 mg/L varies by dilution
Chlorine, Total Residual (TRC)	Standard Method 4500–Cl G-2011; **field measured**	Varies by Permit	0.01 mg/L	0.1 mg/L
pH	Standard Method 4500-H+ B-2011; **field measured**	6.5-8.0	Not calculated	Depends on instrument calibration
Fecal coliform in absence of chlorine	Membrane Filter (MF), single step, EPA 600/4-85/076; SM9222D	14 cts/100 mL	0+ cts/100 mL (depends on dilution and sample volume)	0+ cts/100 mL (depends on dilution and sample volume)
Fecal coliform in presence of chlorine	Membrane Filter (MF), single step, EPA 600/4-85/076; SM9221C E	14 cts/100 mL	0+ cts/100 mL (depends on dilution and sample volume)	0+ cts/100 mL (depends on dilution and sample volume)
Total coliform in absence of chlorine	Membrane Filter (MF), single step or two step, EPA 600/4-85/076; SM9222 B	70 cts/100mL	0+ cts/100 mL (depends on dilution and sample volume)	0+ cts/100 mL (depends on dilution and sample volume)
Total coliform in presence of chlorine	Membrane Filter (MF), with enrichment, EPA 600/4-85/076; SM9222 (B+B.5c)	70 cts/100mL	0+ cts/100 mL (depends on dilution and sample volume)	0+ cts/100 mL (depends on dilution and sample volume)
E. coli	Membrane Filter Procedure, EPA Method 1603; Hach mColiBlue24; IDEXX Colilert	126 cts/100 mL	0+ cts/100 mL (depends on dilution and sample volume)	0+ cts/100 mL (depends on dilution and sample volume)
Turbidity	EPA Method 180.1, Rev. 2.0; Standard Method 2130B-2011; **field measured**	>10 NTUs above natural occurring conditions	0.01 NTU	0.1 NTU
Dissolved Oxygen	Standard Method 4500-O G-2011; **field measured**	< 5 mg/l	NA	NA
Temperature	Standard Method 2550 B-2000; **field measured**	State Water Quality Standard	NA	NA
Metals				
Aluminum	EPA Method 200.7	Varies by permit	8 µg/L	25 µg/L
Copper	EPA Method 200.8	Varies by permit	0.02 µg/L	5.0 µg/L
Lead	EPA Method 200.8	Varies by permit	0.10 µg/L	1.0 µg/L
Silver	EPA Method 200.8	Varies by permit	0.25 µg/L	5.0 µg/L
Zinc	EPA Method 200.7	Varies by permit	1.0 µg/L	25.0 µg/L
Nutrients				

[3] Most current approved procedures prescribed in 40 CFR – Chapter I – Part 136

Analyte	Analytical method[3]	Program Action Level	Analytical/Achievable Method Detection Limit	Reporting Detection Limit (Achievable Lab Quantitation Limit)
Ammonia Nitrogen as N	EPA Method 350.1 Rev.2.0; Standard Method 4500-NH3B-2011 Preliminary Distillation Procedure, and G. Automated Phenate, 1998; Lachat Method #10-107-06-A, rev 6 August 1996	Varies by Permit	0.077 mg/L 0.075 mg/L	0.1 mg/L 0.2 mg/L
Total Phosphorus as P	Standard Method 4500-P B.(5)-2011; Lachat QuikChem Method 10-115-01-1-F Total Phosphorus in Persulfate Digests	Varies by Permit	0.0012 mg/L	0.005 mg/L

NA = Not Applicable

A8 – Special Training/Certification

The Program recognizes that its management of environmental data collected is dependent upon the qualifications and proficiency levels of the NH PHL - WAL Unit and WWEB P&C personnel who handle the data. Personnel qualifications are set under the Division of Personnel, which address both general job classification descriptions, and job-specific qualifications specified under supplemental job descriptions. The class specifications are established by the Division of Personnel, and the supplemental job descriptions come out of a corroborative effort between WWEB P&C, the NHDES Human Resources Unit and the Division of Personnel, ensuring the WWEB P&C's input in establishing the personnel qualifications for each of its positions. The WWEB P&C provides in-house training, and promotes staff participation in other required training, including local workshops, regional training, and EPA courses.

As described earlier in this plan, all personnel undergo various types of training including: new employee orientation (which might include "apprenticeship" periods where, for example, a new Inspector travels with a more experienced Inspector), on-the-job training, training conducted by the Division of Personnel's Bureau of Education and Training, participation in regional technical training programs involving USEPA Region I and other states in the region, and national training programs involving USEPA Region I, other federal agencies, Non-Profit Organizations and Non-Governmental Organizations. Currently, there is no set training schedule, but rather training is conducted as deemed necessary, or as made available to the WWEB P&C (e.g. EPA's NPDES Inspector Training Course at their Chelmsford Lab).

The Program Supervisor, the Compliance Engineer and WWEB P&C staff are encouraged to draw upon their educational background, experience, professional training, conferences, and on-the-job training to enhance their understanding and performance of quality assurance-related procedures. Records shall be kept of all quality assurance training attended.

The Program Manager may arrange or alert staff to courses that are available to satisfy staff quality training needs. The WWEB P&C's personnel training is tracked by recording the attended training programs in the employee's personnel file maintained by NHDES's Human Resources Unit (HRU). The

Program Manager encourages the staff to forward their training records to DES's HRU in a timely manner so that each employee's training file is kept up-to-date. In addition, a tabulated training log will be separately maintained by the Program QA Officer and filed with the WWEB P&C.

A9 – Documents and Records

Providing strong documentary support of deficiencies discovered in an inspection is an Inspector's basic responsibility. Documentation is a general term referring to all printed information and mechanical media produced, copied, or taken by an Inspector to provide evidence of alleged deficiencies and/or violations. Types of documentation include: field notebooks, statements, photographs, drawings, maps, printed matter, mechanical recordings, analytical sampling results and copies of records. Chapter 6 of the NHDES QMP provides an overview on documents and records retention and control.

The primary inspection document is the NPDES Inspection Checklist (Appendix A), which provides accurate and inclusive documentation of all routine inspection activities. This checklist allows the Inspector to be consistent with each inspection undertaken. All entries are made in permanent ink. The checklist forms the basis for written reports and contains only facts and pertinent observations.

The date and time of arrivals (for both inspection and sampling if done on separate days) and departures are noted on each inspection checklist. Any errors in the checklist are crossed out and initialed by the Inspector.

NPDES Inspection Checklists (Appendix A) and NPDES Inspection Worksheet (Appendix A-1): There are six different types of inspection checklists: (1) a checklist for an individual permit (i.e. some municipal treatment plants or an industrial facility with a wastewater discharge), (2) a checklist for a general permit (i.e. some municipal treatment plants with a dilution factor greater than 50:1), (3) a checklist for a remedial general permit (groundwater remediation sites), (4) a checklist for a water treatment plant, (5) a checklist for non-contact cooling water from an industrial facility, and (6) a checklist for hydroelectric plants. Each Inspector utilizes a checklist during a typical facility inspection. The checklist also contains Attachments A – D which are sub-checklists used for specific areas of the inspection. As stated earlier, the information gathered is assessed to determine the facility's compliance status. If the Inspector observes either deficiencies or violations, they are documented and the Inspector will provide a written inspection report on letter head stationary in which the facility is put on record for noncompliance with its NPDES Permit conditions and/or requirements. The facility is then given 30 days to respond and describe all steps taken or proposed to correct the identified deficiencies. If the facility fails to respond within 30 days, appropriate enforcement actions may be undertaken.

Photographs: When a situation dictates the use of photographs, the Inspector should document the photographs (refer to Section 8.7 of the NHDES QMP and Appendix E of the CARP for further details) in a field notebook or directly onto the inspection checklist. The Inspector should obtain the facility's approval prior to photographing proprietary items. In some cases, the Inspector may explain to the permittee's representative that wastestreams, receiving waters, and wastewater treatment facilities are public information, not trade secrets. In the event the facility refuses to allow photographs and the Inspector believes the photographs will have a substantial impact on future enforcement proceedings, the NHDES Legal Unit should be consulted for further instructions. Hand-drawn pictures, detailed written descriptions, and field measurements may suffice in lieu of photographs. This information should be collected in addition to photographs. At all times, the Inspector is to avoid confrontations. Refer to Appendix C-12 for Digital Images SOP.

NH PHL – WAL's Login/Chain-of-Custody Sheet (Appendix B): If applicable, sample collection field data at outfall pipes and tributaries will be recorded directly into a field notebook. Field data for the wastewater samples will be transferred from the field notebook to the WAL's Chain-of-Custody sheet for each sample collected. Upon arrival at the WAL, the Inspector will complete the Chain-of-Custody sheet accompanying the field samples. The WAL's standard turnaround time for sample analysis is satisfactory. However, if the Inspector requires that the sample analysis be expedited as a result of either an enforcement case or a potential violation, the Inspector would write in "RUSH" in the comment section of the Chain-of-Custody sheet. The Inspector should make a photocopy of the Chain-of-Custody and retain it while the sample is being analyzed. The Chain-of-Custody photocopy is on file for that specific facility within the WWEB P&C filing system.

Laboratory Data Reports: Data packages from the laboratory will be hardcopy laboratory data sheets containing analytical results for each field sample. The laboratory reports are filed in the WWEB P&C filing system. All NH PHL - WAL records are safely stored in secured locations in the laboratory and in other places in the building (Room 14). Client confidentiality is protected in storage to the extent that the lab is locked at night and in a secured wing. Raw data and sample numbers are stored in the Laboratory Information Management Systems (LIMS) located in Room 14. Key access to Room 14 is limited to lab wing staff and maintenance. The Information Resources Management Unit (IRMU) ensures that the LIMS functions properly, backups are performed, and provides technical assistance for both hardware and software problem resolution. All backup tapes are stored in the Vital Records safe in the IRMU.

Final Report to EPA – Form 3560-3 (Appendix A-2): Within 30 days following the inspection, the Inspector will complete and submit EPA's 3560-3 Form to the USEPA NPDES Program Manager along with copies of the NPDES Inspection Report w/Attachments, inspection cover letter on letter head along with the facility's response letter and/or laboratory data report via an e-mailed pdf file. Upon receipt of this information, the USEPA NPDES Program Manager logs the information in their Integrated Compliance Information System (ICIS) database and hardcopies are maintained in files.

Archiving: The original field and laboratory data sheets, QAPP, and any other reports will be kept on file by the WWEB P&C. The process of reviewing, approving, retaining and archiving documents and records varies according to the type of document or record (see Table 6). A document, such as this plan, will be internally reviewed by the Program Supervisor, Compliance Coordinator, Compliance Engineer, Inspectors, WWEB P&C QA Manager and NHDES QA Manager prior to being submitted for final approval to the USEPA NPDES Program and USEPA QA Managers. The most current approved version of the QAPP for the NPDES Compliance Monitoring Program will be electronically stored in the NHDES's computer network on H:/ drive (copy on Q:/ drive). A hard-copy will be retained in the NHDES WWEB P&C files. Any substantial changes to the QAPP will b e submitted to EPA for approval by the Program QA Officer. Any deviations from and stipulations not addressed in this QAPP, a sampling and analysis plan (SAP) will be prepared and incorporated into the parent QAPP. An example of a SAP can be found in Appendix E. All current and revised versions of the QAPP and/or SAPs will be distributed to appropriate parties by the Program QA Officer. The QAPP will be maintained indefinitely after the date of the final approval, updated yearly as needed, and fully reviewed, updated and re-submitted to NHDES QA Manager and USEPA every 5 years.

Retention and archiving of records is done in accordance with specific statutory or regulatory requirements (additional guidance is provided in Chapter 6 of the NHDES QMP). It is preferable for data to be recorded in both paper and electronic form, although this may not be possible in all cases. Electronic data is converted and/or updated to newer versions or technologies at least every three to four years so that

data is always in a readily retrievable format that has kept pace with ongoing information technology software and hardware advances.

It should be noted that handling of documents used to support enforcement cases are subject to separate requirements. See Section E of Chapter I of the DES *Compliance Assurance Response Policy* (*http://www.des.state.nh.us/legal/carp/carp-ch-1.pdf*). A specific *WWEB P&C Records Retention Schedule* was developed to show how long a record will be retained in the WWEB P&C's office and subsequently how long the record will remain in archives (storage). Some records are classified as permanent (e.g., outfall locations because they are tied to a permanent map showing the discharge points throughout the state and enforcement documents).

Records are kept for a minimum of 3-5 years. The records retention schedule for this Program is shown in Table 6.

Table 6. Proposed Records Retention Schedule

Item/Material	Recommendation	Final Disposition	Comments
NPDES Permit Related: NPDES Permits Discharge Monitoring Reports Inspection Reports Correspondence Laboratory Reports	 Hard Copy Only Hard Copy Only Hard Copy Only Hard and Electronic Copies Hard and Electronic Copies	 Destroy after 5 years Destroy after 3 years " " "	5 years after no action relative to the facility or purge according to final disposition, whichever comes first
Outfall Location Maps (GIS)	Permanent/Computerized data system	Retain indefinitely	Hard-copy or write-protected back-up copy
Enforcement documents, and supporting data	Hard-copy	Retain indefinitely	Hard-copy or write-protected back-up copy
General Correspondence/Memos	Hard-copy	Destroy after 3 years	Purge letters over 3 years old
EPA/State Correspondence	Hard-copy	Destroy after 3 years	Purge letters over 3 years old
Employee Training Records	Made part of personnel's permanent record	Destroy upon retirement	Official state records kept in Concord
Databases	Computerized data system on the NHDES server which is maintained by IRMU	Maintain minimum of 5 years worth of data	Purge data over 5 years old to minimize space in the computer system
QAPP	Hard and/or electronic-copy	Retain indefinitely	Reviewed, updated and submitted every 5 years to DES QA Manager & USEPA
Digital Images	Hard and/or electronic copy	Retain hard copy indefinitely	Destroy electronic copy after enforcement is settled or resolved

B1 – Sampling Process Design

Wastewater sampling/analysis is an integral part of the NPDES Compliance Monitoring Program. NPDES permits contain specific and legally-enforceable effluent limitations and monitoring requirements. As stated earlier in Section A6-Program/Task Description, the Program's purpose is to verify compliance with a facility's NPDES permit and assess the wastewater quality entering the surface waters of the State. Therefore, there is one component to the sampling design for this Program: randomly selecting wastewater

plants and industries for NPDES compliance sampling from approximately 150 permitted facilities around the state.

Sampling Locations

Samples are collected at the sampling location identified and specified in the permit. In some instances, the sampling location specified in the permit or the location chosen by the permittee may not be adequate for the collection of a representative sample. In this instance, the Inspector should determine the most representative sampling point available and collect a sample at both locations. Any conflicts in the sampling criteria must be documented and later resolved with the permitting authority (USEPA Region I). The Standard Operating Procedure (SOP) for sampling procedures and techniques can be found in Appendix C titled "C-1: NPDES Compliance Sampling SOP".

Sample Types[1]

Two types of sample techniques are routinely used: grab and composite. Each NPDES permit specifies what sample type is to be taken by the permittee. Where practicable, the Inspector will collect the same sample type as required by the NPDES permit.

Composite Samples[1]

These samples are collected over time, either by continuous sampling or by mixing discrete samples, and represent the average characteristics of the waste stream during the compositing period. Composite samples are collected when stipulated in a NPDES permit. Various methods for compositing samples are available and are based on either time or flow proportioning. Composite samples can be collected manually or with automatic samplers. The Inspector should consider variability in waste stream flow rate and parameter concentrations carefully when choosing compositing methods. The SOP for composite sampling can be found in Appendix C titled "C-2: NPDES ISCO 6700 Series Sampler SOP for Flow-Paced Proportional Sampling Compositing Mode", "C-3: NPDES ISCO 6700 Series Sampler SOP for Flow-Weighted Proportional Compositing Sampling Mode" and "C-4: NPDES ISCO 6700 Series Sampler SOP for Time-Sequential Composite Sampling Mode".

Grab Samples[1]

Grab samples (Appendix C-5) are individual samples collected over a period of time not exceeding an interval of 15 minutes and represent conditions at the time of sampling. The sample volume depends on the type and number of analyses to be performed.

Sample Matrices

The sample matrix is an aqueous solution. Samples collected are either sanitary wastewater (SW) from municipal wastewater treatment facilities, or non-contact cooling water (NCCW) from industrial facilities or industrial process wastewater (IPW) from industrial facilities (e.g. paper mills, woolen mills, etc.).

Classification of Measured Parameter

Parameters or analytes of interest are those listed in each NPDES permit. Table 5 of the QAPP lists the target analytes of concern. The concentration level for each matrix and parameter can be determined based on previously submitted DMR reports from permittees. Generally, the concentrations are less than the allowable discharge limit in the permit (e.g. 50 mg/L daily maximum for BOD).

[1] Standard Methods for the Examination of Water and Wastewater Part 1060 – "Collection and Preservation of Samples"

B2 – Sampling Methods

Required sample containers, sample preservation, and sample holding times for NPDES samples are described in *40 CFR Part 136* and *Standard Methods for the Examination of Water and Wastewater*[4]. Table 7 includes this information. The SOPs describe the procedures for collecting samples, identify equipment and reagents used, and, if applicable, decontamination and/or cleaning procedures.

The sample containers must be made of chemically-resistant material unaffected by the pollutants to be measured. In addition, sample containers must have a closure that will protect the sample from contamination and leakage.

Wastewater samples for chemical analysis generally are collected in plastic (polyethylene) containers. Bacteriological samples must be collected in properly sterilized plastic or glass containers. Samples that contain constituents that will oxidize when exposed to sunlight (such as chlorine) should be collected in dark containers and analyzed immediately (within 15 minutes).

Sample containers shall be clean and uncontaminated. Some SOPs specify container cleaning procedures to be followed. This Program utilizes sampling containers provided by the NH HPL - WAL Unit. The lab follows cleaning procedures in accordance with each analytical method's protocol.

The sample volume collected depends on the type and number of analyses needed, as reflected in the parameters to be measured. The sample volume obtained should be sufficient for all required analyses plus an additional amount to provide for any split samples or repeat analyses. Table 7 provides a guide to sample volumes required for analyzing wastewater constituents. The laboratory receiving the sample should be consulted for any specific volume requirement. Typically, the laboratory providing the sample containers provides a container that meets the required sample volume for that analyte. Specific recommended minimum sample volumes for different pollutant parameters can be found in EPA's *Methods for Chemical Analysis of Water and Wastes* (USEPA 1979b) and *Handbook for Sampling and Sample Preservation of Water and Wastewater* (USEPA 1982), and the current EPA-approved edition of *Standard Methods for the Examination of Water and Wastewater*.

In some cases, wastewater samples contain one or more unstable pollutants that require immediate preservation and/or analysis. Appropriate chemical preservation should be provided before samples are transferred to the laboratory. Table 7 indicates proper sample preservation procedures. For some parameters such as *E. coli* in the presence of chlorine, preservatives must be added to sample bottles prior to or immediately following sample collection. Proper preservation and holding times are essential to ensure sample integrity (see Table 7 and *40 CFR Part 136, Table II*).

Prompt analysis is the most positive assurance against error from sample deterioration, but prompt analysis is not feasible for composite samples in which portions may be stored for as long as 24 hours. Therefore, sample preservation must be provided during compositing, usually by refrigeration to 6°C or icing. The automatic composite samplers used by the Inspectors will be iced accordingly.

[4] Prepared and published jointly by American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF).

Table 7. Sample Requirements

Analytical Parameter	Collection Method	Sampling SOP	Minimum Sample Volume	Container[1]	Container Size and Type	Preservation Requirements[2]	Max. Holding Time (preparation and analysis)
TSS	Composite or Grab	Appendix C-2, C-3, C-4 or C-5	500 mL	P, FP,G	500 mL white	Cool, $\leq 6^oC$	7 days
BOD_5 or $CBOD_5$	Composite or Grab	Appendix C-2, C-3, C-4 or C-5	500 mL	P, FP,G	500 mL white	Cool, $\leq 6^oC$	48 hours
TRC	Grab; field measured	Appendix C-5 and C-7	100 mL	P,G	NA	NA	Analyze immediately[3]
pH	Grab; field measured	Appendix C-5 and C-6	100 mL	P, FP,G	NA	NA	Analyze immediately[3]
E. coli	Grab	Appendix C-5 and C-9	125 mL	PA,G	125 mL sterile	Cool, $<10^oC$ 0.008% $Na_2S_2O_3$[4]	8 hours
Coliform, Fecal and Total	Grab	Appendix C-5 and C-9	125 mL	PA,G	125 mL sterile	Cool, $<10^oC$ 0.008% $Na_2S_2O_3$[4]	8 hours
Turbidity	Grab; field measured	Appendix C-5 and C-8	100 mL	P, FP,G	NA	Cool, $\leq 6^oC$	48 hours
Dissolved Oxygen	In-situ; filed measured	Appendix C-11	NA	G, Bottle and Top	NA	None	Analyze immediately[3]
Temperature	In-situ; filed measured	Appendix C-11	NA	P, FP,G	NA	None	Analyze immediately[3]
Metals, general	Composite or Grab	Appendix C-2, C-3, C-4 or C-5	500 mL	P, FP,G	500 mL brown	For dissolved metals filter immediately; add HNO_3 to pH<2	6 months
Ammonia as N	Composite or Grab	Appendix C-2, C-3, C-4 or C-5	250 mL	P, FP,G	250 mL brown	Analyze ASAP or add H_2SO_4 to pH<2	28 days
Phosphorus, Total	Composite or Grab	Appendix C-2, C-3, C-4 or C-5	250 mL	P, FP,G	250 mL brown	Add H_2SO_4 to pH<2	28 days

1. P = Polyethylene; G = Glass; FP = Fluoropolymer; PA = any plastic that is made of a sterilized material (polypropylene); NA = Not Applicable
2. Samples requiring pH adjustment shall be checked to determine if the required pH level has been achieved.
3. Within 15 minutes 4. Should only be used in the presence of residual chlorine.

The only support facilities needed for this program is the NH PHL - WAL. The WAL is used to analyze all non-field analytical parameters. If the WAL detects a deviation from test methods, including the reporting of QC results, the laboratory will flag the data and include an explanatory footnote identifying the relevance to data interpretation.

If a failure occurs in the sampling of a facility due to either a power outage, inclement weather, equipment failure, or improper programming of the equipment, the Inspector will be responsible to reschedule the sampling event.

If the Inspector receives an analytical report from the WAL indicating a violation or a potential anomaly, based on the historical data for that facility, the Inspector is responsible to confer this information with the Program Manager's Compliance Engineer. Typically, a follow-up sampling event will be performed to confirm the results. Where a follow-up sample fails to confirm the violation or anomaly, consideration is given as to whether that represents a true change of state of the quality of the wastewater/water, or whether there might have been an analytical error, sample mix-up, or some other error. Where there is doubt as to the integrity of a sample or its analysis, that data shall not be incorporated into the record. In some cases, a second follow-up sample will be required, and will be taken as circumstances dictate.

B3 – Sample Handling and Custody

Each Inspector is responsible for proper packaging, labeling, possession and transferring of the samples to the NH PHL - WAL. Wastewater samples are stored and transported on ice in coolers. The NH PHL - WAL staff or the inspector measures the sample temperature using an infrared sensor and records the temperature on the Chain-of-Custody form at the time of delivery. The samples will be delivered to and analyzed by the laboratory within the required maximum holding time for each parameter.

The most common monitoring errors usually are caused by improper sampling, improper preservation, inadequate mixing during compositing and splitting, and excessive sample holding time. As a check for samples collected and analyzed in the field, duplicate samples are taken from the same source at the same time. Duplicate samples provide a check on sampling equipment and precision techniques.

The NH PHL - WAL will also perform its own quality control measures on samples being analyzed. Generally, QA/QC samples are spiked with a known quantity of substance. These QA/QC samples provide a way to verify the accuracy of the analytical procedures.

Table 8 indicates quality control procedures for field analyses and equipment.

Table 8. Quality Control Procedures for Field Analysis and Equipment

Parameter	General	Daily	Quarterly
pH			
Electrode Method	Report results to nearest 0.01 su and record on Attachment A – Sample Data Summary Sheet.	Refer to Appendix C-6 for proper operation and calibration procedures.	
		Periodically check the buffers expiration date before the sample run.	
		Be on the alert for erratic meter response arising from weak batteries, cracked electrodes, fouling, etc.	Replace or repair as needed.
		Rinse electrodes thoroughly between samples and after calibration.	
Residual Chlorine			

Parameter	General	Daily	Quarterly
Colorimetric – DPD Pillows	Report results to nearest 0.01 mg/l and record on Attachment A – Sample Data Summary Sheet.	Refer to Appendix C-7 for proper operation and calibration procedures.	
Turbidity			
Nephelometric	Report results to nearest 0.1 NTU and record on Attachment A – Sample Data Summary Sheet.	Refer to Appendix C-8 for operation and calibration procedures.	
		Tubes should always be washed prior to use with a mild detergent, rinsed with distilled water and allowed to air dry in an inverted position.	Tubes should be checked for scratches, cracks or other imperfections such as abrasions. Replace as deemed necessary.
Temperature			
Thermistor sensor	Report results to nearest 0.1 ^{o}C and record on Attachment A – Sample Data Summary Sheet.	Refer to Appendix C-11 for proper operation and calibration procedures.	Annually NIST certify the built-in thermometer in the Dissolved Oxygen Meter.
Dissolved Oxygen			
Membrane covered polarographic sensor	Report results to nearest $\pm$ 0.3 mg/l and record on Attachment A – Sample Data Summary Sheet.	Refer to Appendix C-11 for proper operation and calibration procedures.	Check membrane for wrinkles and air bubbles under membrane. If either condition exists, replace membrane.
		Check calibration chamber to ensure that the small sponge in it is still moist.	

B4 – Analytical Methods

Bacteria, TSS, BOD_5, $CBOD_5$, ammonia, metals and phosphorus samples are analyzed by the NH PHL - WAL. BOD_5 or $CBOD_5$ and bacteria samples are analyzed based upon the expected concentration range in typical sewage unless otherwise requested by the Inspector. Generally, the Inspector will inform the NH PHL - WAL of the expected concentration range (based on the facility's operating range) so that the lab knows what dilutions to use when analyzing bacteria, $CBOD_5$ or BOD_5.

The analytical methods used in the field are listed in Table 5 and the respective SOPs (including equipment required, calibration frequency, analytical procedure, reagents used, and collection techniques) for each parameter are in Appendix C. If the Program utilizes the NH PHL - WAL for any of its analytical testing, other than pH, chlorine, temperature, turbidity and dissolved oxygen, the NH PHL - WAL has its own SOPs and are already on file with the USEPA. When performing analysis on samples from NPDES permitted facilities, the NH PHL - WAL must adhere to those analytical methods approved in 40 CFR 136.3 which are the same used by the program. The turnaround time for receipt of analytical results from the WAL is satisfactory but not crucial unless it's an enforcement issue. In the latter matter, the Inspector

will inquire that the WAL expedite the analysis and note it as a "RUSH" in the comment section of the Chain-of-Custody sheet.

The WAL QA Officer is responsible for resolving any problems with the laboratory method and informing either the Inspector or the Program Manager of the data quality.

The Inspector is responsible for resolving any problems encountered in the field analysis. The Inspector can refer to a corrective action plan specified either in the instrument operating manual or SOP.

B5 – Quality Control

For each QC activity, the associated method or procedure, acceptance criteria, and corrective action are either noted in each SOP or Section A7. QC activities for the field mainly include the use of blanks, duplicates and standards.

The Program utilizes the WAL for all non-field measured parameters. The QA control required for those parameters can be found in WAL's Quality Systems Manual[5] - New Hampshire Public Health Labs (copy on file with the USEPA). The QC activities for the WAL include, but are not limited to, the use of blanks, duplicates, matrix spikes, laboratory control samples, surrogates, or second column confirmation. See Tables 9 through 20 for the WAL's control criteria for each of the wastewater parameters they analyze. The WAL has a more than adequate QA/QC program to monitor and document the accuracy and precision of results and meet reliability requirements. The WAL is a fully accredited National Environmental Laboratory Accreditation Conference (NELAC) laboratory[6].

[5] NH PHL - WAL Quality Systems Manual, Revision 1.2, Dated 2-15-03 or current version
[6] Certification Number: 300002-B, Dated 2/25/03

Table 9: NH PHL - WAL Analysis QC Sample for BOD_5

Analytical Method: Standard Method #5210B – 2011		Measurement Performance Criteria		Number of Samples: See NPDES Permit	
Laboratory QC:	**Frequency/Number**	**Method/SOP QC Acceptable Limits**	**Corrective Action (CA)**	**Person(s) Responsible for CA**	**Data Quality Indicator (DQI)**
Method Blank	NA	< 0.2 mg/l	NA	NA	NA
Reagent Blank (Seed Blank)	1/run	0.6 – 1.0 mg/l	Report qualified data or invalidate data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Contamination
Instrument Blank	NA	NA	NA	NA	NA
Laboratory Duplicates (MS/MSD set)	1/batch	9% RPD	Report qualified data or invalidate data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Precision
Laboratory Matrix Spike	1/batch per matrix	Recovery: 80% - 125%	Report qualified data or invalidate data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Interferences
Laboratory Control Sample	1/batch	4.01-5.38 mg/l 87-116% rec	Report qualified data or invalidate data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Accuracy
Laboratory Fortified Blank	NA	NA	NA	NA	NA
Bottle Blank	1/run	< 2 mg/L	Report qualified data or invalidate data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Contamination

NA = Not Applicable

Table 10: NH PHL - WAL Analysis QC Sample for TSS

Analytical Method: Standard Method #2540D – 2011		**Measurement Performance Criteria**		**Number of Samples: See NPDES Permit**	
Laboratory QC:	**Frequency/Number**	**Method/SOP QC Acceptable Limits**	**Corrective Action (CA)**	**Person(s) Responsible for CA**	**Data Quality Indicator (DQI)**
Method Blank	1/run, in duplicate	± 5 mg/L	Correct results based on blank	Analyst, Inorganic Supervisor, Quality Assurance Officer	Drying Effectiveness, method performance
Reagent Blank	NA	NA	NA	NA	NA
Instrument Blank	NA	NA	NA	NA	NA
Laboratory Duplicates	1/batch	30% RPD	Repeat sample Qualify data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Precision
Laboratory Matrix Spike	NA	NA	NA	NA	NA
LCS – level varies per lot	1/run	76 - 110%	Repeat run or Qualify data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Accuracy
Laboratory Fortified Blank	NA	NA	NA	NA	NA

NA = Not Applicable

Table 11: NH PHL - WAL Analysis QC Sample for *E. coli*

Analytical Method: Membrane Filter Procedure, EPA Method 1603; IDEXX Colilert		**Measurement Performance Criteria**		**Number of Samples: See NPDES Permit**	
Laboratory QC:	**Frequency/Number**	**Method/SOP QC Acceptable Limits**	**Corrective Action (CA)**	**Person(s) Responsible for CA**	**Data Quality Indicator (DQI)**
Method Blank	Beginning, end, every 10 samples	No growth	Request resample	Microbiology Supervisor, Quality Assurance Officer	Contamination
Reagent Blank	NA				
Instrument Blank	NA				
Laboratory Duplicates	About 5%	Not established			
Laboratory Matrix Spike	NA				
Laboratory Control Sample	NA				
Laboratory Fortified Blank	NA				

NA = Not Applicable

Table 12: NH PHL - WAL Analysis QC Sample for Total Coliform

Analytical Method: Membrane Filter (MF), Standard Method 9222 (B+B.5c) - 1997		**Measurement Performance Criteria**		**Number of Samples: See NPDES Permit**	
Laboratory QC:	**Frequency/Number**	**Method/SOP QC Acceptable Limits**	**Corrective Action (CA)**	**Person(s) Responsible for CA**	**Data Quality Indicator (DQI)**
Method Blank	Beginning, end, every 10 samples	No growth	Request resample	Microbiology Supervisor, Quality Assurance Officer	Contamination
Reagent Blank	NA				
Instrument Blank	NA				
Laboratory Duplicates	About 5%	Not established			
Laboratory Matrix Spike	NA				
Laboratory Control Sample	NA				
Laboratory Fortified Blank	NA				

NA = Not Applicable

Table 13: NH PHL - WAL Analysis QC Sample for Fecal Coliform

Analytical Method: Membrane Filter (MF), EPA 600/8-78-017; Standard Method 9222D - 1997		**Measurement Performance Criteria**		**Number of Samples: See NPDES Permit**	
Laboratory QC:	**Frequency/Number**	**Method/SOP QC Acceptable Limits**	**Corrective Action (CA)**	**Person(s) Responsible for CA**	**Data Quality Indicator (DQI)**
Method Blank	Beginning, end, every 10 samples	No growth	Request resample	Microbiology Supervisor, Quality Assurance Officer	Contamination
Reagent Blank	NA				
Instrument Blank	NA				
Laboratory Duplicates	About 5%	Not established			
Laboratory Matrix Spike	NA				
Laboratory Control Sample	NA				
Laboratory Fortified Blank	NA				

NA = Not Applicable

Table 14: NH PHL - WAL Analysis QC Sample for Ammonia (NH_3-N)

Analytical Method: Standard Method #4500NH_3-B.+G - 2011., Lachat Method #10-107-06-A, rev. 6 August 1996		**Measurement Performance Criteria**		**Number of Samples: See NPDES Permit**	
Laboratory QC:	**Frequency/Number**	**Method/SOP QC Acceptable Limits**	**Corrective Action (CA)**	**Person(s) Responsible for CA**	**Data Quality Indicator (DQI)**
Method Blank	1 at beginning, end and every 10 samples	Must be: < the RDL	Invalidate data Run and repeat	Analyst, Inorganic Supervisor, Quality Assurance Officer	Method performance contamination drift
Reagent Blank	NA	NA	NA	NA	NA
Instrument Blank	NA	NA	NA	NA	NA
Laboratory Duplicates (MS/MSD set)	1 every 10 samples	13% RPD	Re-run, qualify data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Precision
Laboratory Matrix Spike	1 every 10 samples	Recovery: 90 – 110%	Re-run, qualify data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Matrix effects (interferences)
Laboratory Control Sample	1/run	8.22 (± 10%)	Re-analyze a fresh aliquot or re-run whole run	Analyst, Inorganic Supervisor, Quality Assurance Officer	Accuracy and method performance
Laboratory Fortified Blank	1/run	10 ± 10%	Re-analyze a fresh aliquot or re-run whole run	Analyst, Inorganic Supervisor, Quality Assurance Officer	Accuracy and method performance
Continuing Calibration Verification (mid-point calibration standard)	1 every 10 samples	10 ± 10%	Repeat run or portion of run	Analyst, Inorganic Supervisor, Quality Assurance Officer	Accuracy and method performance

NA = Not Applicable

Table 15: NH PHL - WAL Analysis QC Sample for Total Phosphorous (TP)

Analytical Method: **Standard Method 4500-P B, (5) – 2011** **Lachat QuikChem Method 10-115-01-F** **Determination of Total Phosphorus by Flow Injection Analysis Colorimetry (Acid Persulfate Digestion Method), Revision 12 December 2000**		**Measurement Performance Criteria**		**Number of Samples: See NPDES Permit**	
Laboratory QC:	**Frequency/Number**	**Method/SOP QC Acceptable Limits**	**Corrective Action (CA)**	**Person(s) Responsible for CA**	**Data Quality Indicator (DQI)**
Method Blank	1 at beginning, end and every 10 samples	< RDL	Invalidate the run and repeat	Analyst, Inorganic Supervisor, Quality Assurance Officer	Method performance, contamination, drift
Reagent Blank	NA	NA	NA	NA	NA
Instrument Blank	NA	NA	NA	NA	NA
Laboratory Duplicates (MS/MSD set)	1 every 10 samples	7% RPD	Repeat, qualify data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Precision
Laboratory Matrix Spike	1 every 10 samples	Recovery: 92 – 110%	Repeat, qualify data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Matrix effects
Laboratory Control Sample	1/run	0.100 mg/l 87-109%	Repeat Run	Analyst, Inorganic Supervisor, Quality Assurance Officer	Accuracy
Laboratory Fortified Blank	1/run	0.05 mg/l 94-100%	Repeat Run	Analyst, Inorganic Supervisor, Quality Assurance Officer	Accuracy and method performance
Continuing Calibration Verification (mid-point calibration standard)	1 every 10 samples	0.200 ± 10%	Repeat run or portion of run	Analyst, Inorganic Supervisor, Quality Assurance Officer	Drift

NA = Not Applicable

Table 16: NH PHL - WAL Analysis QC Sample for Aluminum (Al)

Analytical Method: EPA 200.7 Rev 4.4 (1994)		**Measurement Performance Criteria**		**Number of Samples: See NPDES Permit**	
Laboratory QC:	**Frequency/Number**	**Method/SOP QC Acceptable Limits**	**Corrective Action (CA)**	**Person(s) Responsible for CA**	**Data Quality Indicator (DQI)**
Method Blank	After calibration and every 10 samples	< RDL	Re-cal, re-run	Analyst, Inorganics Supervisor, Quality Assurance Officer	Contamination, drift
Reagent Blank	Beginning, end, every 10 samples	< RDL	Re-cal, re-run	Analyst, Inorganics Supervisor, Quality Assurance Officer	Contamination, drift
Instrument Blank	NA				
Laboratory Duplicates MS/MSD	1 every 10 samples duplicated	6% RPD	Repeat sample, qualify data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Precision
Laboratory Matrix Spike	1 every 10 samples spiked	Recovery: ± 30%	Repeat sample, qualify data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Matrix effects
ICV 2.0 mg/L	1/run	86 – 108%	Re-cal, re-run	Analyst, Inorganic Supervisor, Quality Assurance Officer	Accuracy
Laboratory Fortified Blank 0.500 mg/l	1/run	± 15% 0.0425 – 0.0575	Re-cal, re-run	Analyst, Inorganic Supervisor, Quality Assurance Officer	Method performance

NA = Not Applicable

Table 17: NH PHL - WAL Analysis QC Sample for Copper (Cu)

Analytical Method: EPA 200.8 Rev 5.4 – 1994		**Measurement Performance Criteria**		**Number of Samples: See NPDES Permit**	
Laboratory QC:	**Frequency/Number**	**Method/SOP QC Acceptable Limits**	**Corrective Action (CA)**	**Person(s) Responsible for CA**	**Data Quality Indicator (DQI)**
Method Blank	After calibration and every 10 samples	< RDL	Re-cal, re-run	Analyst, Inorganics Supervisor, Quality Assurance Officer	Contamination, drift
Reagent Blank	Beginning, end, every 10 samples	< RDL	Re-cal, re-run	Analyst, Inorganics Supervisor, Quality Assurance Officer	Contamination, drift
Instrument Blank	NA				
Laboratory Duplicates MS/MSD	1 every 10 samples duplicated	14% RPD	Laboratory duplicates	Analyst, Inorganic Supervisor, Quality Assurance Officer	Precision
Laboratory Matrix Spike	1 every 10 samples spiked	Recovery: 70% – 130%	Laboratory Matrix Spike	Analyst, Inorganic Supervisor, Quality Assurance Officer	Matrix effects
ICV 0.020 mg/L	1/run	± 10% 0.018 – 0.022	ICV 0.020 mg/L	Analyst, Inorganic Supervisor, Quality Assurance Officer	Accuracy
Laboratory Fortified Blank 0.050 mg/l	1/run	± 15% 0.0425 – 0.0575	Re-cal, re-run	Analyst, Inorganic Supervisor, Quality Assurance Officer	Method performance

NA = Not Applicable

Table 18: NH PHL - WAL Analysis QC Sample for Lead (Pb)

Analytical Method: EPA 200.8 Rev 5.4 – 1994		**Measurement Performance Criteria**		**Number of Samples: See NPDES Permit**	
Laboratory QC:	**Frequency/Number**	**Method/SOP QC Acceptable Limits**	**Corrective Action (CA)**	**Person(s) Responsible for CA**	**Data Quality Indicator (DQI)**
Method Blank	After calibration and every 10 samples	< RDL	Re-cal, re-run	Analyst, Inorganics Supervisor, Quality Assurance Officer	Contamination, drift
Reagent Blank	Beginning, end, every 10 samples	< RDL	Re-cal, re-run	Analyst, Inorganics Supervisor, Quality Assurance Officer	Contamination, drift
Instrument Blank	NA				
Laboratory Duplicates MS/MSD	1 every 10 samples duplicated	10% RPD	Repeat sample, qualify data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Precision
Laboratory Matrix Spike	1 every 10 samples spiked	Recovery: 70 – 130%	Repeat sample, qualify data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Matrix effects
ICV 0.020 mg/L	1/run	± 10% 0.018 – 0.022	Re-cal, re-run	Analyst, Inorganic Supervisor, Quality Assurance Officer	Accuracy
Laboratory Fortified Blank 0.050 mg/l	1/run	± 15% 0.0425 – 0.0575	Re-cal, re-run	Analyst, Inorganic Supervisor, Quality Assurance Officer	Method performance

NA = Not Applicable

Table 19: NH PHL - WAL Analysis QC Sample for Silver (Ag)

Analytical Method: EPA 200.8 Rev 5.4 – 1994		**Measurement Performance Criteria**		**Number of Samples: See NPDES Permit**	
Laboratory QC:	**Frequency/Number**	**Method/SOP QC Acceptable Limits**	**Corrective Action (CA)**	**Person(s) Responsible for CA**	**Data Quality Indicator (DQI)**
Method Blank	After calibration and every 10 samples	< RDL	Re-cal, re-run	Analyst, Inorganics Supervisor Quality Assurance Officer	Contamination, drift
Reagent Blank	Beginning, end, every 10 samples	< RDL	Re-cal, re-run	Analyst, Inorganics Supervisor, Quality Assurance Officer	Contamination, drift
Instrument Blank	NA				
Laboratory Duplicates MS/MSD	1 every 10 samples duplicated	24% RPD	Repeat sample, qualify data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Precision
Laboratory Matrix Spike	1 every 10 samples spiked	Recovery: 70 – 130%	Repeat sample, qualify data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Matrix effects
ICV 0.020 mg/L	1/run	± 10% 0.018 – 0.022	Re-cal, re-run	Analyst, Inorganic Supervisor, Quality Assurance Officer	Accuracy
Laboratory Fortified Blank 0.050 mg/l	1/run	± 15% 0.0425 – 0.0575	Re-cal, re-run	Analyst, Inorganic Supervisor, Quality Assurance Officer	Method performance

NA = Not Applicable

Table 20: NH PHL - WAL Analysis QC Sample for Zinc (Zn)

Analytical Method: EPA 200.7 Rev 4.4 (1994)		**Measurement Performance Criteria**		**Number of Samples: See NPDES Permit**	
Laboratory QC:	**Frequency/Number**	**Method/SOP QC Acceptable Limits**	**Corrective Action (CA)**	**Person(s) Responsible for CA**	**Data Quality Indicator (DQI)**
Method Blank	After calibration and every 10 samples	< RDL	Re-cal, re-run	Analyst, Inorganics Supervisor, Quality Assurance Officer	Contamination, drift
Reagent Blank	Beginning, end, every 10 samples	< RDL	Re-cal, re-run	Analyst, Inorganics Supervisor, Quality Assurance Officer	Contamination, drift
Instrument Blank	NA				
Laboratory Duplicates MS/MSD	1 every 10 samples duplicated	18% RPD	Repeat sample, qualify data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Precision
Laboratory Matrix Spike	1 every 10 samples spiked	Recovery: 70 – 130%	Repeat sample, qualify data	Analyst, Inorganic Supervisor, Quality Assurance Officer	Matrix effects
ICV 0.020 mg/L	1/run	91-111%	Re-cal, re-run	Analyst, Inorganic Supervisor, Quality Assurance Officer	Accuracy
Laboratory Fortified Blank 0.050 mg/l	1/run	± 15% 0.0425 – 0.0575	Re-cal, re-run	Analyst, Inorganic Supervisor, Quality Assurance Officer	Method performance

NA = Not Applicable

B6/B7 – Instrument/Equipment Testing, Inspection, Maintenance, Calibration and Frequency

Field instruments used by the WWEB P&C during wastewater sample collection may include a pH meter, chlorine colorimeter, and if applicable, a turbidity meter, dissolve oxygen meter and/or composite sampler. See the SOPs in Appendix C for applicable calibration procedures for each equipment unit. The WWEB P&C's field instruments and equipment calibration frequency, acceptance criteria and corrective action are shown in Table 21. Spare parts and reagents are kept in the WWEB P&C's office storage cabinet.

The WAL inspects, maintains and calibrates laboratory instruments and equipment in accordance with its "Quality Systems Manual".

Table 21: Field Instrument/Equipment Calibration Table

Equipment name	Procedure	Frequency of calibration	Acceptance criteria	Corrective action	Person responsible
pH Meter	Appendix C-6	Daily	92% to 102% slope ± 0.5 units	Repeat calibration with fresh buffers	Inspector
Chlorine Colorimeter	Appendix C-7	NA Factory calibrated	0-4.0 mg/L	If > 2.0 ppm, dilute the sample according to manual	Inspector
Turbidity Meter	Appendix C-8	Daily	0.00-1100 NTU	If > 1100 NTU, dilute the sample according to manual	Inspector
Dissolve Oxygen Meter DO Temperature Probe	Appendix C-11	Daily	± 0.2 mg/L and < 0.5 mg/L DO Standard -5 to +45°C ± 0.1 units	Refer to manufacturer's manual for troubleshooting Temperature sensor must be NIST certified	Inspector
ISCO Samplers	Appendix C-2, C-3 and C-4	Automatically calibrates pump curves when programmed	NA	Refer to manufacturer's manual for troubleshooting	Inspector

B8 – Inspection/Acceptance Requirements for Supplies and Consumables

Field Inspection: The WAL supplies the necessary sampling containers for the Inspectors to use. The Inspector is responsible to inspect the containers before collecting samples. Bottles that may have been contaminated will be returned to the WAL for cleaning and/or sterilization.

Laboratory Inspection: The procedures used by the WAL to inspect supplies and consumables are described in its Quality Systems Manual.

B9 – Non-direct Measurements

Data from secondary sources are taken into consideration in the composite sampling of a facility. The secondary data, flow meter readings, is provided by the permittee. Wastewater flow meter readings are used to calculate flow proportional samples prior to compositing the samples. The permitted facility staff will read and record (manually or electronically) the flow meter totalizer readings over a 24-hour sampling period. The total amount of flow discharged over the 24-hour period will be recorded on the "24-hour flow compositing sheet" in Appendix C-3. This flow data is used only for the calculation of flow-weighted samples and is not intended to be used for decision-making nor comparison to an acceptance criteria. The permittee is required to ensure that the meter is annually calibrated by an outside professional vendor. The NPDES Inspection checklist covers the flow meter requirements.

B10 – Data Management

Data Recording Procedures: Facility information will be recorded on the standardized NPDES Inspection Checklist (Appendix A) and field data would be recorded in an applicable field log book. When completing the NPDES Inspection Checklist, the Inspector will abide by the procedures noted in the NHDES *Quality Management Plan (QMP)* (November 2007 – Revision #7) sections 6.3 and 8.7, and especially the sections excerpted below:

- 6.3.a. The records shall clearly indicate the date of the field observation, sample collection, sample preparation, equipment calibration or testing, and other related activities.
- 6.3.b. The records shall include the identity of personnel involved in making observations, collecting field data, sampling, preparation, calibration, or testing.
- 6.3.c. The record-keeping system shall facilitate the retrieval of all working files and archived records for inspection and verification purposes.
- 6.3.d. All documentation entries shall be signed or initialed by responsible staff. The reason for the signature or initials shall be clearly indicated in the records such as "sampled by", "prepared by", or "reviewed by".
- 6.3.e. All generated data except those that are generated by automated data collection systems, shall be recorded directly, promptly, and legibly in permanent ink.
- 6.3.f. Entries in records shall not be obliterated by methods such as erasure, overwritten files, or markings. All corrections to record-keeping errors shall be made by one line marked through the error and initialed. These criteria also shall apply to electronically maintained records, where applicable.

Manipulations of Raw Data: There will be no manipulations of raw data prior to data entry.

Data Entry Procedures: In accordance with Sections 7.6 and 9.2 of the NHDES QMP, the monthly self-monitoring reports, better known as Discharge Monitoring Reports (DMRs), received from permitted facilities are entered by the Inspector into a Microsoft Access database called "Track 2000". The Inspector reviews the DMR for: (1) is the report correctly completed in accordance with USEPA's latest DMR

instructions, (2) are there any discharge violations, (3) is there an explanation for the violation, and (4) is the report post-marked by the 15th of the month following the monitoring period? There is a DMR database entry screen for each permitted facility. The Track 2000 database system is user friendly and uniquely designed to minimize errors or inconsistencies during data entry. The DMR entry screen contains data insets to input the facility name, month and year, parameter violated, type of violation, analytical unit, permit limit, analytical result, number of violations, reported properly, post-mark date, and comments. A copy of a DMR entry screen can be viewed in Appendix D.

Inspection data is also entered into the same database system. The inspection entry screen contains data insets to input the facility name, inspection date, inspection type, inspector name, report date, report type, inspection response received date (facility's response to inspection deficiencies), and findings. A copy of an inspection entry screen can viewed in Appendix D.

Data will be retained by the NHDES WWEB P&C personnel. The NPDES Inspection Checklist, all attachments and the analytical data are kept in the site/case filing cabinets. The WAL will keep its own separate record of the analytical data.

Data Management: Certain records are maintained electronically – most commonly in the guise of a computer database. Although the "hard-copy" files from which these databases were generated are themselves controlled, the databases or other forms of electronic data management must be adequately backed up, and either updated, or held, as appropriate. An example would be the section of the WWEB P&C database used to hold all of the NPDES permit information. The individual written reports from which this database was generated are maintained in the paper copy files as well as eventually electronically, the disposition of which has already been discussed. The computerized data system, which is uniquely designed to handle data specific to this particular program, have built-in mechanisms to screen for valid data and appropriate data relationships. Records are kept in such a way that they can be relatively easy to retrieve. This applies to both paper and electronic files.

Records are saved to the NHDES network, not to local hard drives, to ensure against the catastrophic loss of electronic data. NHDES requires that all databases be backed up onto remote disks, tapes, or other media, in the event of a computer system failure (see Chapter 7 of the NHDES QMP[7]). The NHDES IRMU maintains the network system.

Data Security: The WWEB P&C database is maintained on password protected computers. Hardcopy files are stored in a secured office with a key-card system (29 Hazen Drive, Concord NH) to which only NHDES employees have access.

Data Analysis: The procedures for data analysis were previously described in Section A7.

C1 – Assessments and Response Actions

To ensure that field sampling, field analysis and laboratory activities take place as planned, Inspectors and laboratory personnel shall, if necessary, meet to discuss the methods being employed and to review the quality assurance samples. Typically, the sampling protocols and analytical methods are those specified in the NPDES permit or those detailed in a currently EPA-approved *Standard Methods for the Examination of*

[7] NHDES Quality Management Plan, Revision #6, Dated June 30, 2006

Water and Wastewater[8]. The methods used by the permittee's laboratory or its contract laboratory and the Inspector's laboratory should be uniform, thus, eliminating methodology as a variable when data are compared or shared among laboratories.

Several types of assessment tools are employed by either NHDES or USEPA Region I to ensure the effectiveness of the quality system. These tools are discussed below. NPDES program validity depends on the self-monitoring program quality.

Technical Independent Assessment

USEPA Region I requires all major and selected minor NPDES permittees to annually analyze performance evaluation (PE) samples for many of the parameters in their permit. The analysis of these PE samples is known as the Discharge Monitoring Report-Quality Assurance (DMR-QA) program. The DMR-QA program is an important tool used to ensure the quality of NPDES self-monitoring data. The permittee's analytical laboratory participates in the DMR-QA program. Accuracy data resulting from the DMR-QA program participation are reviewed by USEPA. Results from PE samples are statistically analyzed to provide information on routine laboratory performance and the overall accuracy and bias of the analytical method. Any problems found are addressed by taking appropriate corrective actions to resolve the deficiency(ies). Responding permittees subsequently receive a DMR-QA report showing evaluation of their reported data. Comments and recommendations from these evaluations are used by NHDES and USEPA to take any needed corrective actions.

The DMR-QA Program and the NPDES inspection programs are interdependent in several areas. First, in targeting the inspections, the DMR-QA evaluations of permittee performance can be used, since the evaluations identify potential problems in laboratory analysis or data handling and reporting. This targeting helps to direct limited resources to permittees who need them most. The inspections and DMR-QA results are tracked, and results are provided to the DMR-QA coordinator at USEPA Regional I and WWEB P&C. To track follow-up and complete statistical evaluations properly, a code is provided in EPA's Inspection Report Form 3560-3 (Appendix A-2) to indicate when an inspection is the result of a DMR-QA evaluation (this is shown with the Code Q on the inspection form). Finally, inspections can be used to follow up the DMR-QA program. The DMR-QA results are cross-checked with the permit prior to the onsite visit. The Inspector can then focus on parameters that failed the DMR-QA program while conducting the laboratory inspection.

Technical Self-Assessment

The Inspector, through inspections, conducts an audit of the permittee's environmental sampling activities. The Inspector has the responsibility to initiate and implement response actions associated with the findings (any significant conditions that would adversely affect the quality and usability of the data) identified during the inspection. Thus, the permittee would be required to properly address the deficiency(ies) identified during the audit and provide a corrective action plan as its response. Any changes needed shall be made to ensure consistency and quality of subsequent sampling.

Internal Self-Audit

The NPDES program will conduct an annual internal review/self-audit to verify that operations continue to comply with the requirements of the NHDES QMP, QAPP and SOPs and that non-conformances are

[8] Prepared and published jointly by American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF).

corrected and operations continuously improved. The review will be undertaken at the Program level utilizing the guidance in Appendix H of the NHDES QMP. Any deficiencies found within the QAPP or SOPs will be documented in accordance with Chapter 9 of the QMP and the "*NHDES QA System's Guidance on Annual Program Self-Audits*"[9]. This self-audit guidance focuses on the "Check" part of the NHDES QA System. It is developed to help program manager's audit their program's quality system using one of the forms and/or worksheets/checklists listed in the guidance. The form (Form A or B) is submitted to the NHDES QA Manager by January 31st of every year.

Assessment frequencies and responsible personnel are shown in Table 22.

Table 22: Program Assessment Table

Assessment Type	Frequency	Person responsible for performing assessment	Person responsible for responding to assessment findings	Person responsible for monitoring effectiveness of corrective actions
Field Sampling/Analytical Audit	Once every year	Thomas Croteau NHDES/NPDES Program QA Officer	Thomas Croteau NHDES/NPDES Program QA Officer	Thomas Croteau NHDES/NPDES Program QA Officer
Internal Self-Audit	Once every year	Thomas Croteau NHDES/NPDES Program QA Officer	Thomas Croteau NHDES/NPDES Program QA Officer	Tracy Wood Program Manager NHDES
NH PHL _ WAL Fixed Lab audit	As specified in QA/QC Plan	Rachel Rainey Lab QA Officer NH PHL - WAL	Rachel Rainey Lab QA Officer NH PHL - WAL	Rachel Rainey Lab QA Officer NH PHL – WAL

<u>NH PHL – WAL's Fixed Laboratory Audit</u>: QAPP deviations and program deficiencies determined during the NH PHL – WAL's fixed laboratory assessments will be addressed immediately. Replicates and critical range tables will be checked with data to determine if error sources exist. Any deviations in results will be addressed in both written and verbal formats, and future sampling will be monitored to verify that compliance is reached.

[9] NHDES Quality Assurance System Guidance On Annual Program Self-Audits, Dated December 2006

C2 – Reports to Management

The reports to management are summarized in the following table.

Table 23: Reports to Management

Report	Frequency	Author	Recipient	Action expected of recipient
NPDES Inspection Report	After each inspection	Each Inspector NHDES	NPDES Permitted Facility	Review and respond to deficiencies and identify corrective actions to be taken.
NPDES Inspection Checklist and Report	After each inspection	Each Inspector NHDES	Tracy L. Wood Compliance Engineer NHDES	Review report and provide comments before final report is released.
NPDES Inspection Report w/response(s) and/or laboratory report	After each inspection	Each Inspector NHDES	Tracy L. Wood Compliance Engineer NHDES	Review report. No violations, file into PCS database system. If violations exist, decide next appropriate step w/NHDES Compliance Coordinator, and if appropriate w/USEPA.
Final NPDES Inspection Report w/response(s) and EPA 3560-3 Form	After each inspection	Each Inspector NHDES	Joy Hilton USEPA NPDES Program Manager and Tracy Wood Compliance Engineer NHDES	Review report. No violations, file into PCS database system. If violations exist, decide next appropriate step.
Internal Self-Audit	Annually	NHDES/NPDES Program QA Officer	NHDES QA Manager	Submit audit form by January 31st of each year

D1 – Data Review, Verification and Validation

Each Inspector is responsible for conducting the following data review tasks during a compliance sampling inspection (CSI). The Inspector will utilize the QAPP, SOPs and NPDES permit when assessing these activities.

Table 24: Data Review, Verification, and Validation Tasks

Program Activity	Review Activities
Sampling Protocol	1. Check that sampling strategy conforms to the NPDES permit and QAPP. 2. Check that selection of sampling locations matches the NPDES permit.
Field Sampling	1. Check use of prescribed procedures and equipment. 2. Check that proper containers and preservatives (including proper pH adjustment) were used. 3. Check that all samples were properly stored on ice.

Field Documentation	1. Check that proper data entry procedures were used for any field data sheets or notebooks. 2. Chain-of-Custody forms: Check that forms are properly completed, signed, and dated during transfer. Check that all samples were assigned identification numbers and accounted for. 3. Check that all samples were properly packaged.
Field Analytical Testing Data	1. Check that field instruments were properly calibrated. 2. Check calculations, transcriptions, and reporting units for field measurements recorded on any data sheets or notebooks.
Laboratory	1. Check that all requested data is reported, and is in compliance with contract analytical specifications and methods. 2. Check that COC documentation from laboratory is correct. 3. Check that sample temperatures were <6°C upon receipt at laboratory and refrigerated. 4. Check that holding times were not exceeded from time of collection to time of analysis. 5. Check that QC samples (e.g., duplicate samples) were analyzed. 6. If applicable, check that trip and instrument blanks are not contaminated.
Program file	Check that the Program file at the WWEB P&C office contains all field and laboratory data for the Program.

D2 – Verification and Validation Procedures

The DHHS Laboratory QA Officer is responsible for evaluating results from QC samples and determining whether data quality objectives have been met. Specifically, the DHHS Laboratory QA Officer will:

- Calculate the RPD between duplicate samples to determine if the data quality objectives for precision were met (for more details see Section A7 and B5).
- Ensure that spiked samples are introduced into the train of actual samples at least 10 percent of the time to monitor the performance of the analytical system.
- Review the accuracy control chart that was prepared and used for each analytical procedure.
- Ensure that the laboratory report forms provide complete data documentation and permanent recording, and they facilitate data processing.
- Ensure that laboratory notebooks or pre-printed data forms are bound permanently or otherwise maintained to provide good documentation, including the procedures performed and the details of the analysis, such as the original value recorded, correction factors applied, blanks used, and the reported data values. Dated notes should indicate who performed the analyses and include any abnormalities that occurred during the analytical procedure.

If applicable, the NH PHL - WAL QA Officer will either prepare a memorandum or discuss the findings with the Inspector regarding the data quality. Considering this, the Inspector will discuss this issue with either the Program Manager to either determine if this data is adequately reliable or if re-sampling is necessary.

D3 – Reconciliation with User Requirements

The Program Manager is responsible for reconciling the results from this Program with the requirements of the NPDES Permit Program (the ultimate use of the data). Results that are qualified by the NH PHL - WAL QA Officer may still be used in the NPDES Permit Program if the uncertainty in the results is clearly reported to decision-makers. Because the wastewater samples are collected during specific inspections, additional samples may be collected as needed to confirm any questionable results. To that end, the Inspector will:

1. Review data with respect to sampling design.
2. Review the Data Verification and Validation reports from the NH PHL - WAL QA Officer.
3. Consider how well the data represents actual conditions at the sampling location. Include in the consideration; the original sampling design, sampling methods, and the analytical methods, etc. used.

References

NPDES Compliance Inspection Manual, USEPA Enforcement and Compliance Assurance, EPA 300-B-94-014. September 1994; Updated July 2004.

The most current edition of Standard Methods for the Examination of Water and Wastewater that has the latest EPA approved methods in 40 CFR 136.

40 CFR – Chapter I – Part 136, dated March 26, 2007; Updated June 18, 2012.

NHDES Quality Management Plan, Revision #4a, NHDES-C0-01-4, NH Department of Environmental Services, Concord, NH. February 2004 (or currently updated edition).

NH PHL - WAL Quality Systems Manual, State of New Hampshire, Public Health Labs, Water Analysis Lab, Concord NH.

NHDES Compliance Assurance Response Policy, NH Department of Environmental Services, Legal Services Unit, Concord NH. September 27, 2000.

Methods for Chemical Analysis of Water and Wastes (USEPA 1979b).

Handbook for Sampling and Sample Preservation of Water and Wastewater (USEPA 1982).

Environmental Monitoring and Support Lab (USEPA 600/8-78-017).

APPENDIX A

NPDES INSPECTION CHECKLISTS
And
ATTACHMENTS A - D

NPDES INSPECTION CHECKLIST
MUNICIPAL OR INDUSTRIAL WASTEWATER INDIVIDUAL PERMIT

FACILITY NAME: _____

NPDES PERMIT NUMBER: NH_____

NPDES PERMIT EXPIRATION DATE: _____

I. PRE-INSPECTION INFORMATION

(If closure inspection, complete this upper section, Section II and Section XV)

Permittee's Name: _____ Inspection Date:_____ Sampling Date: _____

Inspection Type: CSI CEI RI Closure Facility Type: Major Minor

Type of Treatment Process or Type of Discharge:_____Grade of Municipal Facility: I II III IV NA

Date of Last Inspection:_____ Type of Last Inspection: CSI CEI RI

Last Inspection Performed by: DES EPA

Name and Title of Responsible Official:_____

Name/Grade of Operator in Responsible Charge:_____

Name/Grade of Back-up Operator in Responsible Charge:_____

Contact (Name/Phone) for Information Regarding Collection System: _____

Inspection:
Time in: _____ Time out: _____

Sampling:
Time in: _____ Time out: _____

BACKGROUND INFORMATION

(Complete this section prior to going to facility)

1. YES NO Are the Discharge Monitoring Reports (DMRs) submitted to EPA and DES on time? *(Permit – Part I)* If no, explain: _____
_____

2. YES NO Are the DMRs completed correctly per the EPA instructions? If no, explain: _____
_____

3. YES NO Has a list of permit violation(s) and DMR error(s) been given to the operator and discussed? If no, explain: _____
_____

4a. YES NO a) Is the person signing the DMRs authorized to do so per the federal regulations? *(40CFR122.22 (b))* If no, explain: _____

4b. YES NO NA b) If yes to 3a., has a copy of the authorization letter been sent to EPA and to DES? *(40CFR122.22(c))* Received on (date) _____

5. YES NO NA Has all permit testing been conducted at the correct frequency? *(Permit: Part I)* If no, explain: _____

6. YES NO NA Have all other permit-required reports such as Whole Effluent Toxicity testing, sludge testing results, etc., been completed correctly and submitted on time? *(Permit: Part I)*. If no, explain: _____

7a. YES NO NA Has all noncompliance which may endanger health or the environment, including all violations of daily limits, a) been orally reported within 24 hours and

7b. YES NO NA b) followed up with a letter to EPA and DES within 5 days? *(Permit Part II, Section D)* If no, explain _____

8. YES NO NA Has the facility explained all permit violations in both the 5-day letters (if applicable) and the DMR submittals? *(Permit Part II, Section D)* If no, explain: _____

9. YES NO NA Has the facility taken corrective action to address all permit violations? *(Permit Part II, Section D)* If no, explain: _____

II. OPENING CONFERENCE

Note: If the facility is unable to meet with you to complete the checklist and perform a site review, then sample, and reschedule the remaining portions of the inspection at a mutually agreeable time.

1. Present credentials/review inspection objectives. *(Objective-To ensure that the facility is being operated as needed to maintain compliance with the facility's NPDES permit)*
2. List people present (include Inspector Name(s)):

NAME	TITLE	PHONE #

3. E-mail address:_____
4. Permittee's mailing address:_____
5. Facility's mailing address: _____

III. PERMIT

1. YES NO NA Is a copy of the current permit (Parts I, II and attachments) onsite? *(40 CFR 122.41)* If no, explain: _____
_____

2. YES NO NA If the permit is expired or due to expire within 180 days, has a reapplication package been submitted to DES and EPA *(40CFR122.21)* If no, explain: _____
_____

IV. OTHER NPDES SPECIFIC REPORTS/REQUIREMENTS

1. _____

2. _____

3. _____

4. _____

V. RECORDS/REPORTS

1. YES NO NA Are the records and reports maintained by the permittee for at least 3 years? *(40CFR122.21(p), 40CFR122.41(j)(2), Part II)* If no, explain: _____
_____

2. YES NO NA If the facility monitors any permitted parameter more frequently than required by the permit, using approved test methods, are these additional results included in its DMR calculations? *(Permit Part II: Section D.1.d)* If no, explain: _____
_____

3. YES NO NA Is a random check of analytical results reported on the facilities benchsheets consistent with data reported by the permittee on their DMRs? *(Part II Section C)*. If no, explain: _____
_____

VI. FACILITY SITE REVIEW

1. YES NO NA Is there excessive scum buildup, grease, foam, or floating sludge in or on any of the treatment units? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____
_____

2. YES NO NA Are tank weirs level? *(40CFR122.41(e) and Permit Part II – Section B)* If no, explain: _
_____
_____

3. YES NO Is there any indication of a hydraulic overload? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____

4. YES NO Are there any noxious odors leaving the site? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____

5. YES NO Are there any unsafe conditions (e.g. slicks, faulty guardrails, missing grating, etc.)? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____

6. YES NO NA Is there any evidence of severe corrosion in any piping or equipment? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____

7. YES NO NA Are there any breaks or leaks in any chemical feed lines or other piping? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____

8. YES NO NA Is there any surcharging of influent lines, overflow weirs, or other structures? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____

9. YES NO NA Is there any evidence of septage spills at the septage receiving facility? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____

10. YES NO Are there any unpermitted flows entering the groundwater or surface water from either the wastewater treatment facility or the collection system? *(RSA 485-A:13)* If yes, explain: _____

11. YES NO Is there any evidence of potential spills which can contribute pollutants to any storm drains? *(RSA 485-A:13)* If yes, explain: _____

12. YES NO NA Is there any dry weather flow in the stormwater drainage system within the facility? *(Possible violation of RSA 485-A:13 – need to investigate/identify source of flow – actually check drains on site)* If yes, explain: _____

13. YES NO Does the facility have any floor drains? *(Violation of Permit Part I and RSA 485-A:13 if discharge to storm drain system, surface water or ground water unless specifically permitted – ok if discharge to headworks of WWTP)* If yes, where are they and where do they discharge? _____

14. YES NO NA If yes to 13, and the floor drain(s) discharge to the headworks of the treatment plant, are there any chemicals/oil/wastes stored in the vicinity of the floor drain? If yes, explain: _____
_____
(Recommendation only if to headworks – violation cited in 13 if discharge anywhere else – if chemicals spill into headworks, may adversely effect the process and result in permit violations)

VII. EFFLUENT/RECEIVING WATER

1. YES NO NA Are there any floating solids, oil sheen, color, or foam **in the effluent**? *(Observation)* If yes, explain: _____
_____

2. YES NO NA Are there any floating solids, oil sheen, color, foam or a recognizable plume **in the receiving water**? *(Permit Part I and Env-Ws 1703.03(c))* If yes, explain: _____
_____

3. Collect sample of effluent. Complete Attachment A.

VIII. FLOW MEASUREMENT

1. YES NO NA Are influent (if applicable) and effluent flow measuring device(s) professionally calibrated, at least once per year? *(40CFR122.41(e) and Permit Part IV – Section B).*
What type of influent meter is used? _____
What type of effluent meter is used? _____
If no, explain: _____
_____

2. YES NO NA Do facility personnel check the calibration of the flow measuring device(s), between the annual professional calibrations, at least three times per year? *(Recommendation only)* If no, explain frequency. If yes, do facility personnel record the results of these additional tests, and are the results within 10 percent accuracy? _____
_____

3. YES NO NA Are all effluent flow measuring devices clean and free of debris and deposits? *(40CFR122.41(e) and Permit Part II – Section B)* If no, explain: _____
_____

4. YES NO NA Are the sides of the flume(s) throat vertical and parallel? *(40CFR122.41(e) and Permit Part II – Section B)* If no, explain: _____
_____

5. YES NO NA Is the effluent weir level? (*40CFR122.41(e) and Permit Part II – Section B*) If no, explain: _____

_____

6. YES NO NA Is there any leakage around any of the flow measuring devices? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____

_____

IX. SELF MONITORING

1. YES NO NA Are the influent and effluent sampling locations representative of the wastestream? *(Permit Part I and II, Section C)* If no, explain: _____

_____

2. YES NO NA Are the correct effluent sample types (grab or composite) taken? *(Permit Part I and Part II-Section E)* If no, explain: _____

_____

3. YES NO NA If composite samples are required, are they flow-proportioned?
[ ] controlled by flow meter [ ] manually done *(Permit Part II-Section E)* If no, explain: _____

_____

4. YES NO NA Are composite samples cooled to ≤6°C to properly preserve them during the compositing period? (*40CFR136*) If no, explain: _____

_____

5a. YES NO NA a) If the composite sample is cooled with ice or gel packs, do you measure the final composite sample temperature to make sure that the cooling is sufficient?
5b. YES NO NA b) Do you record these results? *(40CFR122.41(e), Permit Part II-Section B and 40CFR136)* If no, explain: _____

_____

6a. YES NO NA
6b. YES NO NA
6c. YES NO NA
a) If a refrigerator is used for preserving composite samples, is there a thermometer in the refrigerator? b) Is this thermometer checked each time that it is used and are the results of the checks recorded? c) Or, is the final sample temperature measured and the results recorded? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: _____

_____

7. YES NO NA Are all grab samples cooled with ice, gel packs or refrigerated to ≤6°C from the time of collection until analysis including shipping time, if applicable? If no, explain: _____

_____

8. YES NO NA Are all samples which require preservation properly preserved? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: _____

_____

9. YES NO NA Are the correct sample containers being used? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: _____

_____

10. YES NO NA Are all the sampling equipment and glassware cleaned before being used? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: _____

11. YES NO NA Does the facility's permit require any metals sampling? _____

12. YES NO NA If yes to 11., does the facility acid wash the sampling containers prior to sample collection as required by the approved analytical methods as required by the facility's permit? If no, explain: _____

X. LABORATORY

1. YES NO NA Has a written laboratory QA/QC manual been updated by the facility and approved by DES in the last 5 years? *(40CFR122.41(e) and Permit Part II-Section B)* (Complete Attachment B if one has not been completed in past 5 years) If yes, provide date Attachment B completed. If no or NA, explain: _____

2. YES NO NA Is the QA/QC manual being used by facility personnel? If no explain: _____

3. YES NO NA Does the facility have a copy of the EPA-approved analytical methods for each of the analyses performed at the facility? If no, explain: _____

4. YES NO NA Are the correct analytical testing procedures used and holding times met? *(Permit Part I and 40CFR136)* (Complete Attachment C) If no, explain: _____

5. YES NO NA Are laboratory method detection limits for all parameters tested less than the permit limits? If no, explain: _____

6. YES NO NA With each batch of samples analyzed, is the permittee conducting quality control standards, sample duplicates, spikes and blanks? *(Permit Part I and 40CFR136)* (Complete Attachment D) If no explain: _____

7. YES NO NA If the permittee is using alternate analytical procedures, have they been approved by EPA? (*40CFR136)* If no, explain: _____

8. YES NO NA Is the permittee calibrating and maintaining all laboratory instruments and equipment on the periodic basis specified in the Part 136 Analytical Method or in the QA/QC Manual? *(Annual calibrations for thermometers and balances are required – annual calibrations for all other laboratory instruments are recommended but not required)*

(40CFR122.41(e), 40CFR136 and Permit Part II-Section B) If no, explain: _____
_____

9. YES NO NA Are the thermometers annually checked for calibration using a NIST-certified thermometer or do you purchase new NIST-certified thermometers yearly? *(40CFR122.41(e) and Permit Part II-Section B)* If no, explain: _____
_____

10. YES NO NA Are the reagents and standards being used expired? *(Permit Part II-Section B and 40CFR 122.41(e)* If yes, explain: _____
_____

11. YES NO NA Is proper laboratory grade laboratory pure water available for specific analyses? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: _____
_____

12. YES NO NA Are laboratory safety devices (eyewash and shower, fume hood, proper labeling and storage, pipette suction bulbs) available? *(Recommendation only)* If no, explain: ____
_____

13. YES NO NA Are reagents and solvents used for the analyses properly stored? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: _____
_____

14. YES NO Does the permittee cross-check its calculations? *(Recommendation – may result in misreporting which is a violation of the permit – DMRs are certified to be accurate by signature)* If no, explain: _____
_____

15. YES NO Does the permittee use the correct lab formulae to calculate final results? (*40CFR136)* If no, explain: _____

XI. OPERATIONS AND MAINTENANCE

1. YES NO NA Are all treatment units operable? *(Observation – may result in violation of permit – 40CFR122.41(e) and Permit Part II-Section B)* If no, explain: _____
_____

2. YES NO NA Does the wastewater treatment facility have an alarm system for all essential equipment? *(40CFR122.41(e) and Permit Part II – Section B)* If no, explain: _____
_____

3. YES NO NA Do you check the facility alarm systems? How often? _____When were the alarm systems last checked? *(40CFR122.41(e) and Permit Part II-Section B)* _____
_____

4. YES NO NA Are alarms sent to qualified personnel who can respond immediately to remedy the problem? (*40CFR122.41(e) and Permit Part II*) If no, explain: _____
_____

5. YES NO NA Are routine and preventive maintenance scheduled performed and recorded? *(40CFR122.41(e) and Permit Part II-Section B)* If no, explain: _____
_____

6. YES NO NA Does the facility maintain written procedures for responding to emergencies such as power failures, floods, fires, and other natural disasters? (*40CFR122.41(e) and Permit Part II-Section B*) If no, explain: _____
_____

7. YES NO NA Does the facility maintain a written list of contacts for emergencies? (*40CFR122.41(e) and Permit Part II-Section B*) If no, explain: _____
_____

8. YES NO NA Is a logbook kept which documents all plant activities on a daily basis? *(40CFR122.41(e), Permit Part II-Section B and 40CFR122.41(j)(2))* If no, explain: _____
_____

9. YES NO NA Does the facility maintain an inventory of spare parts, either at the facility or close by, sufficient to keep all of its treatment units operational? (*(40CFR122.41(e) and Permit Part II-Section B)* If no, explain: _____
_____

10. YES NO NA Does the facility have standby power for all treatment units? (*(40CFR122.41(e) and Permit Part II-Section B*) If no, explain: _____
_____

11. YES NO NA Is the standby power regularly exercised under load? (*(40CFR122.41(e) and Permit Part II-Section B*) If no, explain: _____
_____

XII. HANDLING AND DISPOSAL OF WASTES

1. YES NO NA Is leachate accepted at the facility? If yes, what are the source(s)? _____
_____
What is the average quantity accepted each month? _____

XII. SANITARY SEWER OVERFLOWS

1. YES NO NA Have there been any backups or overflows in the sanitary sewer collection system, including pump stations, manholes and piping in the last two years? If yes, explain cause/frequency/locations and corrective actions taken:_____
_____
_____
_____

2. YES NO NA If yes to 1., are these overflows reported to DES and EPA within 24 hours verbally and followed up with a letter in 5 days? If no, explain: _____
_____

3. YES NO NA If yes to 1., have any of these overflows impacted surface water? If yes, explain: _____
_____
_____

4. YES NO NA Does the stormwater collection system for the municipality have any dry weather flows? *(Possible violation of RSA 485-A:13 – need to investigate/identify source of flow – actually check drains on site)* If yes, explain: _____
_____

5. YES NO NA Does the facility have up-to-date maps/schematics of all stormwater outfalls? *(Recommendation only)*

XIV. COMBINED SEWER OVERFLOWS

1. YES NO NA Is any portion of the facility's sewage collection system combined with the storm water collection system with designated outfalls? *(Observation only with referral to EPA for follow-up investigation/enforcement)* If yes, explain: _____
_____
_____

2. YES NO NA If yes to 1., are all combined system outfalls identified and permitted in your NPDES permit? *(RSA 485-A:13 – unpermitted discharge)* If no, explain: _____
_____

XV. CLOSING CONFERENCE

1. Review Findings.
2. Explain what the next steps are.

NPDES INSPECTION CHECKLIST
MUNICIPAL WASTEWATER GENERAL PERMITS

FACILITY NAME: _____

NPDES PERMIT NUMBER: NHG_____

NPDES PERMIT EXPIRATION DATE: _____

I. PRE-INSPECTION INFORMATION

Permittee's Name: _____ Inspection Date:_____ Sampling Date:_____

Inspection Type: CSI CEI RI Closure Facility Type: Major Minor

Type of Treatment Process or Type of Discharge:_____Grade of Municipal Facility: I II III IV NA

Date of Last Inspection:_____ Type of Last Inspection: CSI CEI RI

Last Inspection Performed by: DES EPA

Name and Title of Responsible Official:_____

Name/Grade of Operator in Responsible Charge:_____

Name/Grade of Back-up Operator in Responsible Charge:_____

Contact (Name/Phone) for Information Regarding Collection System: _____

Inspection:
Time in: _____ Time out: _____

Sampling:
Time in: _____ Time out: _____

BACKGROUND INFORMATION
(Complete this section prior to going to facility)

1. YES NO Are the Discharge Monitoring Reports (DMRs) submitted to EPA and DES on time? *(Permit – Part III)* If no, explain: _____
_____

2. YES NO Are the DMRs completed correctly per the EPA instructions? If no, explain: _____
_____

3. YES NO Has a list of permit violation(s) and DMR error(s) been given to the operator and discussed? If no, explain: _____
_____

4a. YES NO a) Is the person signing the DMRs authorized to do so per the federal regulations? *(40CFR122.22 (b))* If no, explain: _____

4b. YES NO NA b) If yes to 4a., has a copy of the authorization letter been sent to EPA and to DES? *(40CFR122.22(c))* Received on (date) _____

5. YES NO NA Has all permit testing been conducted at the correct frequency? *(Permit: Part II)* If no, explain: _____

6. YES NO NA Have all other permit-required reports such as Whole Effluent Toxicity testing, sludge testing results, etc., been completed correctly and submitted on time? *(Permit: Part II and III)*. If no, explain: _____

7a. YES NO NA Has all noncompliance which may endanger health or the environment, including all violations of daily limits, a) been orally reported within 24 hours and

7b. YES NO NA b) followed up with a letter to EPA and DES within 5 days? *(Permit Part IV, Section D)* If no, explain _____

8. YES NO NA Has the facility explained all permit violations in both the 5-day letters (if applicable) and the DMR submittals? *(Permit Part IV, Section D)* If no, explain: _____

9. YES NO NA Has the facility taken corrective action to address all permit violations? *(Permit Part IV, Section D)* If no, explain: _____

II. OPENING CONFERENCE

Note: If the facility is unable to meet with you to complete the checklist and perform a site review, then sample and reschedule the remaining portions of the inspection at a mutually agreeable time.

1. Present credentials/review inspection objectives. *(Objective-To ensure that the facility is being operated as needed to maintain compliance with the facility's NPDES permit)*
2. List people present (include Inspector Name(s)):

NAME	TITLE	PHONE #

3. E-mail address:_____
4. Permittee's mailing address:_____
5. Facility's mailing address: _____

III. PERMIT

1. YES NO NA Is a copy of the current permit (Parts II, III, and IV attachments) onsite? *(40 CFR 122.41)* If no, explain: _____

2. YES NO NA If the permit is expired or due to expire within 180 days, has a reapplication package been submitted to DES and EPA *(40CFR122.21)* If no, explain: _____

IV. OTHER NPDES SPECIFIC REPORTS/REQUIREMENTS

1. _____
2. _____
3. _____
4. _____

V. RECORDS/REPORTS

1. YES NO NA Are the records and reports maintained by the permittee for at least 3 years? *(40CFR122.21(p), 40CFR122.41(j)(2), Permit Part IV)* If no, explain: _____

2. YES NO NA If the facility monitors any permitted parameter more frequently than required by the permit, using approved test methods, do they include these additional results in their DMR calculations? *(Permit Part IV: Section D.1.d(2))* If no, explain: _____

3. YES NO NA Is a random check of analytical results reported on the facilities benchsheets consistent with data reported by the permittee on their DMRs? *(Part IV Section D)*. If no, explain: _____

VI. FACILITY SITE REVIEW

1. YES NO NA Is there excessive scum buildup, grease, foam, or floating sludge in or on any of the treatment units? *(40CFR122.41(e) and Permit Part III – Section A)* If yes, explain: _____

2. YES NO NA Are tank weirs level? *(40CFR122.41(e) and Permit Part IV – Section B)* If no, explain: _____

3. YES NO Is there any indication of a hydraulic overload? *(40CFR122.41(e) and Permit Part IV – Section B)* If yes, explain: _____

4. YES NO Are there any noxious odors leaving the site? *(40CFR122.41(e) and Permit Part IV – Section B)* If yes, explain: _____

5. YES NO Are there any unsafe conditions (e.g. slicks, faulty guardrails, missing grating, etc.)? *(40CFR122.41(e) and Permit Part IV – Section B)* If yes, explain: _____

6. YES NO NA Is there any evidence of severe corrosion in any piping or equipment? *(40CFR122.41(e) and Permit Part IV – Section B)* If yes, explain: _____

7. YES NO NA Are there any breaks or leaks in any chemical feed lines or other piping? *(40CFR122.41(e) and Permit Part IV – Section B)* If yes, explain: _____

8. YES NO NA Is there any surcharging of influent lines, overflow weirs, or other structures? *(40CFR122.41(e) and Permit Part IV – Section B)* If yes, explain: _____

9. YES NO NA Is there any evidence of septage spills at the septage receiving facility? *(40CFR122.41(e) and Permit Part IV – Section B)* If yes, explain: _____

10. YES NO Are there any unpermitted flows entering the groundwater or surface water from either the wastewater treatment facility or the collection system? *(RSA 485-A:13)* If yes, explain: _____

11. YES NO Is there any evidence of potential spills which can contribute pollutants to any storm drains? *(RSA 485-A:13)* If yes, explain: _____

12. YES NO NA Is there any dry weather flow in the stormwater drainage system within the facility? *(Possible violation of RSA 485-A:13 – need to investigate/identify source of flow – actually check drains on site)* If yes, explain: _____

13. YES NO Does the facility have any floor drains? *(Violation of Permit Part I and RSA 485-A:13 if discharge to storm drain system, surface water or ground water unless specifically permitted – ok if discharge to headworks of WWTP)* If yes, where are they and where do they discharge? _____

14. YES NO NA If yes to 13, and the floor drain(s) discharge to the headworks of the treatment plant, are there any chemicals/oil/wastes stored in the vicinity of the floor drain? If yes, explain: _____

_____

(Recommendation only if to headworks – violation cited in 13 if discharge anywhere else – if chemicals spill into headworks, may adversely effect the process and result in permit violations)

VII. EFFLUENT/RECEIVING WATER

1. YES NO NA Are there any floating solids, oil sheen, color, or foam **in the effluent**? *(Observation)* If yes, explain: _____

_____

2. YES NO NA Are there any floating solids, oil sheen, color, foam or a recognizable plume **in the receiving water**? *(Permit Part III Section A and Env-Ws 1703.03(c))* If yes, explain: ___

_____

3. Collect sample of effluent. Complete Attachment A.

VIII. FLOW MEASUREMENT

1. YES NO NA Are influent (if applicable) and effluent flow measuring device(s) professionally calibrated, at least once per year? *(40CFR122.41(e) and Permit Part IV – Section B).*
What type of influent meter is used? _____
What type of effluent meter is used? _____
If no, explain: _____

_____

2. YES NO NA Do facility personnel check the calibration of the flow measuring device(s), between the annual professional calibrations, at least three times per year? *(Recommendation only)* If no, explain frequency. If yes, do facility personnel record the results of these additional tests, and are the results within 10 percent accuracy? _____

3. YES NO NA Are all effluent flow measuring devices clean and free of debris and deposits? *(40CFR122.41(e) and Permit Part IV – Section B)* If no, explain: _____

_____

4. YES NO NA Are the sides of the flume(s) throat vertical and parallel? *(40CFR122.41(e) and Permit Part IV – Section B)* If no, explain: _____

_____

5. YES NO NA Is the effluent weir level? (*40CFR122.41(e) and Permit Part IV – Section B*) If no, explain: _____

_____

6. YES NO NA Is there any leakage around any of the flow measuring devices? *(40CFR122.41(e) and Permit Part IV – Section B)* If yes, explain: _____

IX. SELF MONITORING

1. YES NO NA Are the influent and effluent sampling locations representative of the wastestream? *(Permit Part II.A and IV Section C)* If no, explain: _____

2. YES NO NA Are the correct effluent sample types (grab or composite) taken? *(Permit Part II)* If no, explain: _____

3. YES NO NA If composite samples are required, are they flow-proportioned?
[ ] controlled by flow meter [ ] manually done *(Permit Part II and III)* If no, explain: _____

4. YES NO NA Are composite samples cooled to ≤6°C to properly preserve them during the compositing period? (*40CFR136*) If no, explain: _____

5a. YES NO NA
5b. YES NO NA
a) If the composite sample is cooled with ice or gel packs, do you measure the final composite sample temperature to make sure that the cooling is sufficient? b) Do you record these results? *(40CFR122.41(e), Permit Part IV Section C and 40CFR136)* If no, explain: _____

6a. YES NO NA
6b. YES NO NA
6c. YES NO NA
a) If a refrigerator is used for preserving composite samples, is there a thermometer in the refrigerator? b) Is this thermometer checked each time that it is used and are the results of the checks recorded? c) Or, is the final sample temperature measured and the results recorded? *(40CFR122.41(e), 40CFR136 and Permit Part IV-Section C)* If no, explain: _____

7. YES NO NA Are all grab samples cooled with ice, gel packs or refrigerated to ≤6°C from the time of collection until analysis including shipping time, if applicable? If no, explain: _____

8. YES NO NA Are all samples which require preservation properly preserved? *(40CFR122.41(e), 40CFR136 and Permit Part IV-Section C)* If no, explain: _____

9. YES NO NA Are the correct sample containers being used? *(40CFR122.41(e), 40CFR136 and Permit Part IV-Section C)* If no, explain: _____

10. YES NO NA Are all the sampling equipment and glassware cleaned before being used? *(40CFR122.41(e), 40CFR136 and Permit Part IV-Section C)* If no, explain: _____

_____

11. YES NO NA Does the facility's permit require any metals sampling? _____

12. YES NO NA If yes to 11., does the facility acid wash the sampling containers prior to sample collection as required by the approved analytical methods as required by the facility's permit? If no, explain: _____
_____

X. LABORATORY

1. YES NO NA Has a written laboratory QA/QC manual been updated by the facility and approved by DES in the last 5 years? *(40CFR122.41(e) and Permit Part IV-Section B)* (Complete Attachment B if one has not been completed in past 5 years) If yes, provide date Attachment B completed. If no or NA, explain: _____
_____

2. YES NO NA Is the QA/QC manual being used by facility personnel? If no explain: _____
_____

3. YES NO NA Does the facility have a copy of the EPA-approved analytical methods for each of the analyses performed at the facility? If no, explain: _____
_____
_____

4. YES NO NA Are the correct analytical testing procedures used and holding times met? *(Permit Part IV and 40CFR136)* (Complete Attachment C) If no, explain: _____
_____

5. YES NO NA Are laboratory method detection limits for all parameters tested less than the permit limits? If no, explain: _____
_____

6. YES NO NA With each batch of samples analyzed, is the permittee conducting quality control standards, sample duplicates, spikes and blanks? *(Permit Part IV and 40CFR136)* (Complete Attachment D) If no explain: _____
_____

7. YES NO NA If the permittee is using alternate analytical procedures, have they been approved by EPA? (*40CFR136)* If no, explain: _____
_____

8. YES NO NA Is the permittee calibrating and maintaining all laboratory instruments and equipment on the periodic basis specified in the Part 136 Analytical Method or in the QA/QC Manual? *(Annual calibrations for thermometers and balances are required – annual calibrations for all other laboratory instruments are recommended but not required) (40CFR122.41(e), 40CFR136 and Permit Part IV-Section B)* If no, explain: _____
_____

9. YES NO NA Are the thermometers annually checked for calibration using a NIST-certified thermometer or do you purchase new NIST-certified thermometers yearly? *(40CFR122.41(e) and Permit Part IV-Section B)* If no, explain: _____

10. YES NO NA Are the reagents and standards being used expired? *(Permit Part IV-Section B and 40CFR 122.41(e)* If yes, explain: _____

11. YES NO NA Is proper laboratory grade laboratory pure water available for specific analyses? *(40CFR122.41(e), 40CFR136 and Permit Part IV-Section B)* If no, explain: _____

12. YES NO NA Are laboratory safety devices (eyewash and shower, fume hood, proper labeling and storage, pipette suction bulbs) available? *(Recommendation only)* If no, explain: ___

13. YES NO NA Are reagents and solvents used for the analyses properly stored? *(40CFR122.41(e), 40CFR136 and Permit Part IV-Section B)* If no, explain: _____

14. YES NO Does the permittee cross-check its calculations? *(Recommendation – may result in misreporting which is a violation of the permit – DMRs are certified to be accurate by signature)* If no, explain: _____

15. YES NO Does the permittee use the correct lab formulae to calculate final results? (*40CFR136)* If no, explain: _____

XI. OPERATIONS AND MAINTENANCE

1. YES NO NA Are all treatment units operable? *(Observation – may result in violation of permit – 40CFR122.41(e) and Permit Part IV-Section B)* If no, explain: _____

2. YES NO NA Does the wastewater treatment facility have an alarm system for all essential equipment? *(40CFR122.41(e) and Permit Part IV – Section B)* If no, explain: _____

3. YES NO NA Do you check the facility alarm systems? How often? _____When were the alarm systems last checked? *(40CFR122.41(e) and Permit Part IV-Section B)* _____

4. YES NO NA Are alarms sent to qualified personnel who can respond immediately to remedy the problem? (*40CFR122.41(e) and Permit Part IV*) If no, explain: _____

5. YES NO NA Are routine and preventive maintenance scheduled performed and recorded? *(40CFR122.41(e) and Permit Part IV-Section B)* If no, explain: _____

6. YES NO NA Does the facility maintain written procedures for responding to emergencies such as power failures, floods, fires, and other natural disasters? (*40CFR122.41(e) and Permit Part IV-Section B*) If no, explain: _____

7. YES NO NA Does the facility maintain a written list of contacts for emergencies? (*40CFR122.41(e) and Permit Part IV-Section B*) If no, explain: _____

8. YES NO NA Is a logbook kept which documents all plant activities on a daily basis? *(40CFR122.41(e), Permit Part IV-Section C and 40CFR122.41(j)(2))* If no, explain: _____

9. YES NO NA Does the facility maintain an inventory of spare parts, either at the facility or close by, sufficient to keep all of its treatment units operational? (*(40CFR122.41(e) and Permit Part IV-Section B)* If no, explain: _____

10. YES NO NA Does the facility have standby power for all treatment units? (*(40CFR122.41(e) and Permit Part IV-Section B*) If no, explain: _____

11. YES NO NA Is the standby power regularly exercised under load? (*(40CFR122.41(e) and Permit Part IV-Section B*) If no, explain: _____

XII. HANDLING AND DISPOSAL OF WASTES

1. YES NO NA Is leachate accepted at the facility? If yes, what are the source(s)? _____

What is the average quantity accepted each month? _____

XIII. SANITARY SEWER OVERFLOWS

1. YES NO NA Have there been any backups or overflows in the sanitary sewer collection system, including pump stations, manholes and piping in the last two years? If yes, explain cause/frequency/locations and corrective actions taken: _____

2. YES NO NA If yes to 1., are these overflows reported to DES and EPA within 24 hours verbally and followed up with a letter in 5 days? If no, explain: _____

_____

3. YES NO NA If yes to 1., have any of these overflows impacted surface water? If yes, explain: ____
_____
_____

4. YES NO NA Does the stormwater collection system for the municipality have any dry weather flows? *(Possible violation of RSA 485-A:13 – need to investigate/identify source of flow – actually check drains on site)* If yes, explain: _____
_____

5. YES NO NA Does the facility have up-to-date maps/schematics of all stormwater outfalls? *(Recommendation only)*

XIV. COMBINED SEWER OVERFLOWS

1. YES NO NA Is any portion of the facility's sewage collection system combined with the storm water collection system with designated outfalls? *(Observation only with referral to EPA for follow-up investigation/enforcement)* If yes, explain: _____
_____
_____

2. YES NO NA If yes to 1., are all combined system outfalls identified and permitted in your NPDES permit? *(RSA 485-A:13 – unpermitted discharge)* If no, explain: _____
_____

XV. CLOSING CONFERENCE

1. Review Findings.
5. Explain what the next steps are.

NPDES INSPECTION CHECKLIST FOR REMEDIAL GENERAL PERMITS

FACILITY NAME: _____

NPDES PERMIT NUMBER: NHG_____

NPDES PERMIT EXPIRATION DATE: _____

I. PRE-INSPECTION INFORMATION

(If closure inspection, complete Sections I, II and XI)

Permittee's Name: _____ Inspection Date:_____ Sampling Date:_____

Inspection Type: CSI CEI RI Closure Facility Type: Major Minor

Type of Treatment Process or Type of Discharge:_____ Date of Last Inspection: _____

Type of Last Inspection: CSI CEI RI Last Inspection Performed by: DES EPA

Name and Title of Responsible Official:_____

Name/Grade of Operator in Responsible Charge:_____

Discharge Amount and Frequency: _____ Outfall Location: _____

Parameters tested: **attach RGP summary list** Sampling Frequency: _____

19. Facility Completes Own Analysis? Yes No (***if yes, complete Section IX and ask to tour laboratory during site visit***)

If no, Analytical Laboratory Name? _____

II. OPENING CONFERENCE

Inspection Date: _____

Time in: _____ Time out: _____

1. Present credentials/review inspection objectives. *(Objective-To ensure that the facility is being operated as needed to maintain compliance with the facility's NPDES permit)*
2. List people present (Include Inspector Name(s)):

NAME	TITLE	PHONE #
_____	_____	_____
_____	_____	_____
_____	_____	_____

_____ _____ _____
_____ _____ _____

3. E-mail address:_____
4. Permittee's mailing address:_____
5. Facility's mailing address: _____

III. PERMIT

1. YES NO NA Is a copy of the current permit onsite?
(40 CFR 122.41) If no, explain: _____

2. YES NO NA If the permit is expired or due to expire within 180 days, has a reapplication package been submitted to DES and EPA *(40CFR122.21)* If no, explain: ___
_____

3a. YES NO NA Does the wastewater or treatment system conform to those in the permit application?

3b. YES NO NA If no, has EPA approved the change or has a NOC application been submitted?

IV. RECORDS/REPORTS

1. How long are the records and reports maintained by the permittee? _____
_____

2. YES NO NA If the facility monitors any permitted parameter more frequently than required by a permit, regardless of the testing method, do they report these results? _____
_____
_____

3. YES NO Is there a Best Management Practices Plan (BMPP) on site?
If no, explain:_____

4. YES NO Is there a Preventative Maintenance Plan (PMP)?
If no, explain:_____

5. YES NO Has the permittee submitted an Annual Certification certifying that the BMPP was followed during the previous year (due before 2/15)?
If no, explain:_____

6. YES NO Are the Discharge Monitoring Reports (DMRs) completed correctly per EPA instructions? If no,
explain:_____
_____

V. FACILITY SITE REVIEW

1. YES NO NA Is there any changes to the treatment system/design since the NOI was submitted? If yes, explain: _____
_____

2. YES NO Is there any change in flow conditions such as an increase or decrease in the daily average or maximum flow rate by more than 25%? If yes, explain: _____
_____

3. YES NO Is there any change in treatment such as add-ons or removal of any major operable unit of the system? If yes, explain: _____
_____

4. YES NO NA Is there any chemical additives used to enhance treatment? If yes, explain: ___
_____

5. YES NO Is there any change in the discharge location? If yes, explain: _____
_____

6. YES NO NA If yes to 1-5, has an NOC (Notice of Change – See Appendix V) application been submitted to EPA and the state? If no, explain: _____
_____

7. YES NO Are there any unpermitted flows entering the groundwater or surface water from the wastewater treatment facility? *(RSA 485-A:13)* If yes, explain: _____
_____
_____

8. YES NO Is there any evidence of potential spills which can contribute pollutants to any storm drains? *(RSA 485-A:13)* If yes, explain: _____
_____

9. YES NO NA Does the wastewater treatment facility have any floor drains? *(Violation of RSA 485-A:13 if discharge to storm drain system, surface water or ground water unless specifically permitted)* If yes, where are they and where do they discharge? _____
_____

10. YES NO NA Is there any site security for the treatment and other systems related to the NPDES discharge? (Required as part of the BMP) If no or NA, explain:
_____
_____

VI. EFFLUENT/RECEIVING WATER

1. YES NO NA Are there any floating solids, oil sheen, color, or foam **in the effluent**? *(Observation)* If yes, explain: _____
_____

2. YES NO NA Are there any floating solids, oil sheen, color, foam or a recognizable plume **in the receiving water**? *(Permit Part I and Env-Ws 1703.03(c))* If yes, explain: ___
_____

VII. FLOW MEASUREMENT

1. YES NO NA Are influent and effluent flow measuring device(s) used? _____
If no, explain: _____

2. YES NO Is there an effluent flow totalizer? If no, explain: _____
_____

3. YES NO NA Are all flow measuring devices clean and free of debris and deposits?
If no, explain: _____

4. YES NO NA Is there any leakage around any of the flow measuring devices? *(may result in inaccurate flow measurement)* If yes, explain: _____
_____

VIII. SELF MONITORING

1. YES NO Are the sampling locations representative of the wastestream? If no, explain: ___
_____

2. YES NO NA Are all samples which require preservation properly preserved? If no, explain:
_____

3. YES NO Are the correct sample containers being used? If no, explain: _____
_____

4. YES NO Is all the sampling equipment and glassware cleaned before being used? If no, explain: _____
_____

5. YES NO Is there metals sampling? _____

6. YES NO NA If yes to 5, are the sampling containers acid washed prior to sample collection as required by the approved analytical methods in the facility's permit? If no, explain: _____

IX. LABORATORY

(Complete this section if the facility is doing their own analysis)

1. YES NO Are the correct analytical testing procedures used and holding times met? If no, explain: _____
_____

2. YES NO NA With each batch of samples analyzed, is the facility conducting quality control standards, sample duplicates, spikes and blanks? If no explain: _____
_____

3. YES NO NA Is the facility calibrating and maintaining all laboratory instruments and equipment on the basis specified in the 40 CFR 136 Analytical Method or in the QA Manual? If no, explain: _____
_____

4. YES NO NA Are the reagents and standards being used expired? If yes, explain: _____
_____

5. YES NO NA Are the standard reagents and solvents properly stored? ? If no, explain: _____
_____

6. YES NO NA Is proper grade laboratory water available for specific analyses? If no, explain: _____
_____

X. OPERATION AND MAINTENANCE

1. YES NO NA Does the treatment facility have an alarm system for all essential equipment? *(Recommendation only)* If no, explain: _____
_____

2. YES NO NA Do you check the facility alarm systems? How often? _____When were the alarm systems last checked? _____

3. YES NO NA Are routine and preventive maintenance (Preventative Maintenance Plan – required by permit) scheduled, performed and recorded? If no, explain: _____
_____

4. YES NO NA Are all treatment units operable? *(Observation)* If no, explain: _____
_____

5. YES NO NA Are emergency phone numbers and notification procedures readily available and posted for EPA and DES and other critical parties? *(Recommendation only)* If no, explain: _____

6. YES NO NA Is a logbook kept which documents all plant activities on a daily basis? If no, explain: _____

XI. CLOSING CONFERENCE

1. Review Findings.
2. Explain what the next steps are.

NPDES INSPECTION CHECKLIST
WATER TREATMENT GENERAL PERMIT

FACILITY NAME: _____

NPDES PERMIT NUMBER: NHG_____

NPDES PERMIT EXPIRATION DATE: _____

I. PRE-INSPECTION INFORMATION

(If Closure Inspection, complete this upper section, Section II and Section XI)

Permittee's Name: _____ Inspection Date:_____

Inspection Type: CSI CEI RI Closure Facility Type: Major Minor

Type of Treatment Process or Type of Discharge:_____

Date of Last Inspection:_____ Type of Last Inspection: CSI CEI RI

Last Inspection Performed by: DES EPA

Name and Title of Responsible Official:_____

Name of Operator in Responsible Charge:_____

Name of Back-up Operator in Responsible Charge:_____

Time in: _____ Time out: _____

BACKGROUND INFORMATION

(Complete this section prior to going to facility)

1. YES NO Are the Discharge Monitoring Reports (DMRs) submitted to EPA and DES on time? *(Permit – Part I)* If no, explain: _____
_____

2. YES NO Are the DMRs completed correctly per the EPA instructions? If no, explain: ____
_____

3. YES NO Has a list of permit violation(s) and DMR error(s) been given to the operator and discussed? If no, explain: _____
_____

4a. YES NO a) Is the person signing the DMRs authorized to do so per the federal regulations? *(40CFR122.22 (b))* If no, explain: _____

_____

4b. YES NO NA b) If yes to 4a., has a copy of the authorization letter been sent to EPA and to DES? *(40CFR122.22(c))* Received on (date) _____

_____

5. YES NO NA Has all permit testing been conducted at the correct frequency? *(Permit: Part I)* If no, explain: _____

_____

6a. YES NO NA Has all noncompliance which may endanger health or the environment, including all violations of daily limits, a) been orally reported within 24 hours and

6b. YES NO NA b) followed up with a letter to EPA and DES within 5 days? *(Permit Part II, Section D)* If no, explain _____

_____

7. YES NO NA Has the facility explained all permit violations in both the 5-day letters (if applicable) and the DMR submittals? *(Permit Part II, Section D)* If no, explain: _____

_____

8. YES NO NA Has the facility taken corrective action to address all permit violations? *(Permit Part II, Section D)* If no, explain: _____

_____

II. OPENING CONFERENCE

Note: If the facility is unable to meet with you to complete the checklist and perform a site review, then sample and reschedule the remaining portions of the inspection at a mutually agreeable time.

1. Present credentials/review inspection objectives. *(Objective-To ensure that the facility is being operated as needed to maintain compliance with the facility's NPDES permit)*
2. List people present (include Inspector Name(s)):

NAME	TITLE	PHONE #

3. E-mail address:_____
4. Permittee's mailing address:_____
5. Facility's mailing address: _____

III. PERMIT

1. YES NO NA Is there a copy of the current permit (Parts I and II and attachments) onsite? *(40 CFR 122.41)* If no, explain: _____
_____

2. YES NO NA If the permit is expired or due to expire within 180 days, has a reapplication package been submitted to DES and EPA *(40CFR122.21)* If no, explain: ____
_____

IV. RECORDS/REPORTS

1. YES NO NA Are the records and reports maintained by the permittee for at least 3 years? *(40CFR122.21(p), 40CFR122.41(j)(2), Part II)* If no, explain: _____
_____

2. YES NO NA If the facility monitors any permitted parameter more frequently than required by the permit, using approved test methods, do they include these additional results in their DMR calculations? *(Permit Part II: Section D.1.d)* If no, explain: ___
_____

3. YES NO NA Is a random check of analytical results reported on the facilities benchsheets consistent with data reported by the permittee on their DMRs? *(Part II Section C).* If no, explain: _____
_____

V. FACILITY SITE REVIEW

1. YES NO NA Is there excessive scum buildup, grease, foam, or floating sludge in or on any of the treatment units? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____
_____

2. YES NO NA Are tank weirs level? *(40CFR122.41(e) and Permit Part II – Section B)* If no, explain: _____
_____

3. YES NO Are there any noxious odors leaving the site? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____
_____

4. YES NO Are there any unsafe conditions (e.g. slicks, faulty guardrails, missing grating, etc.)? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____
_____

5. YES NO NA Is there any evidence of severe corrosion in any piping or equipment? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____
_____

6. YES NO NA Are there any breaks or leaks in any chemical feed lines or other piping? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____
_____

7. YES NO Are there any unpermitted flows entering the groundwater or surface water from the water treatment facility? *(RSA 485-A:13)* If yes, explain: _____
_____

8. YES NO Is there any evidence of potential spills which can contribute pollutants to any storm drains? *(RSA 485-A:13)* If yes, explain: _____
_____

9. YES NO NA Is there any dry weather flow in the stormwater drainage system within the facility? *(Possible violation of RSA 485-A:13 – need to investigate/identify source of flow – actually check drains on site)* If yes, explain: _____
_____

10. YES NO Does the facility have any floor drains? *(Violation of Permit Part I and RSA 485-A:13 if discharge to storm drain system, surface water or ground water unless specifically permitted)* If yes, where are they and where do they discharge? _____
_____

11. YES NO NA If yes to 13, and the floor drain(s) are permitted to discharge to the sedimentation pond, are there any chemicals/oil/wastes stored in the vicinity of the floor drain? If yes, explain: _____
_____

(Recommendation only if to sedimentation pond – violation cited in 10 if discharge anywhere else – if chemicals spill into pond, may adversely effect the process and result in permit violations)

VI. EFFLUENT/RECEIVING WATER

1. YES NO NA Are there any floating solids, oil sheen, color, or foam **in the effluent**? *(Observation)* If yes, explain: _____
_____

2. YES NO NA Are there any floating solids, oil sheen, color, foam or a recognizable plume **in the receiving water**? *(Permit Part I and Env-Ws 1703.03(c))* If yes, explain: ___
_____

3. Collect sample of effluent. Complete Attachment A.

VII. FLOW MEASUREMENT

1. YES NO NA Is effluent flow measuring device professionally calibrated in accordance with the manufacturer's recommendations? What is the frequency? _
_____
(40CFR122.41(e) and Permit Part II – Section B) If no, explain: _____
_____

2. YES NO NA If applicable, do facility personnel check the calibration between these professional calibrations? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain frequency: _____
_____

3. YES NO NA Are all effluent flow measuring devices clean and free of debris and deposits? *(40CFR122.41(e) and Permit Part II – Section B)* If no, explain: _____
_____

4. YES NO NA Is the effluent weir level? (*40CFR122.41(e) and Permit Part II – Section B*) If no, explain: _____
_____

5. YES NO NA Is there any leakage around any of the flow measuring devices? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____
_____

VIII. SELF MONITORING

1. YES NO NA Is the effluent sampling location representative of the wastestream? *(Permit Part I and II, Section C)* If no, explain: _____
_____

2. YES NO NA Are the correct effluent sample types (grab or composite) taken? (*Permit Part I and Part II-Section E*) If no, explain: _____
_____

3. YES NO NA Is the influent sampling location representative of the wastestream? *(Permit Part I and Part II-Section C)* If no, explain: _____
_____

4. YES NO NA Are all grab samples cooled with ice, gel packs or refrigerated to $\leq 6^{o}C$ from the time of collection until analysis including shipping time, if applicable? If no, explain: _____

5. YES NO NA Are all samples which require preservation properly preserved? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: __
_____

6. YES NO NA Are the correct sample containers being used? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: _____
_____

7. YES NO NA Are all the sampling equipment and glassware cleaned before being used? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: _
_____

8. YES NO NA Does the facility's permit require any metals sampling? _____

9. YES NO NA If yes to 8., does the facility acid wash the sampling containers prior to sample collection as required by the approved analytical methods and as required by the facility's permit? If no, explain: _____
_____

IX. LABORATORY

1. YES NO NA Has a written laboratory QA/QC manual been updated by the facility and approved by DES in the last 5 years? *(40CFR122.41(e) and Permit Part II-Section B)* (Complete Attachment B if one has not been completed in past 5 years) If yes, provide date Attachment B completed. If no or NA, explain: _
_____

2. YES NO NA Is the QA/QC manual being used by facility personnel? If no explain: _____
_____

3. YES NO NA Does the facility have a copy of the EPA-approved analytical methods for each of the analyses performed at the facility? If no, explain: _____
_____
_____

4. YES NO NA Are the correct analytical testing procedures used and holding times met? *(Permit Part I and 40CFR136)* (Complete Attachment C) If no, explain: ___
_____

5. YES NO NA Are laboratory method detection limits for all parameters tested less than the

permit limits? If no, explain: _____

_____

6. YES NO NA With each batch of samples analyzed, is the permittee conducting quality control standards, sample duplicates, spikes and blanks? *(Permit Part I and 40CFR136)* (Complete Attachment D) If no explain: _____

_____

7. YES NO NA If the permittee is using alternate analytical procedures, have they been approved by EPA? (*40CFR136)* If no, explain: _____

_____

8. YES NO NA Is the permittee calibrating and maintaining all laboratory instruments and equipment on the periodic basis specified in the Part 136 Analytical Method or in the QA/QC Manual? *(Annual calibrations for thermometers and balances are required – annual calibrations for all other laboratory instruments are recommended but not required) (40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: _____

_____

9. YES NO NA Are the thermometers annually checked for calibration using a NIST-certified thermometer or do you purchase new NIST-certified thermometers yearly? *(40CFR122.41(e) and Permit Part II-Section B)* If no, explain: _____

_____

10. YES NO NA Are the reagents and standards being used expired? *(Permit Part II-Section B and 40CFR 122.41(e)* If yes, explain: _____

_____

11. YES NO NA Is proper laboratory grade laboratory pure water available for specific analyses? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: ___

_____

12. YES NO NA Are laboratory safety devices (eyewash and shower, fume hood, proper labeling and storage, pipette suction bulbs) available? *(Recommendation only)* If no, explain: _____

13. YES NO NA Are reagents and solvents used for the analyses properly stored? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: ___

_____

14. YES NO Does the permittee cross-check its calculations? *(Recommendation – may result in misreporting which is a violation of the permit – DMRs are certified to be accurate by signature)* If no, explain: _____

_____

15. YES NO Does the permittee use the correct lab formulae to calculate final results? (*40CFR136)* If no, explain: _____
_____

X. OPERATIONS AND MAINTENANCE

1. YES NO NA Are all treatment units operable? *(Observation – may result in violation of permit – 40CFR122.41(e) and Permit Part II-Section B)* If no, explain: _____
_____

2. YES NO NA Does the water treatment facility have an alarm system for all essential equipment? *(40CFR122.41(e) and Permit Part II – Section B)* If no, explain: _
_____

3. YES NO NA Do you check the facility alarm systems? How often? _____When were the alarm systems last checked? *(40CFR122.41(e) and Permit Part II-Section B)*
_____

4. YES NO NA Are alarms sent to qualified personnel who can respond immediately to remedy the problem? (*40CFR122.41(e) and Permit Part II*) If no, explain: _____
_____

5. YES NO NA Are routine and preventive maintenance scheduled performed and recorded? *(40CFR122.41(e) and Permit Part II-Section B)* If no, explain: _____
_____

6. YES NO NA Does the facility maintain written procedures for responding to emergencies such as power failures, floods, fires, and other natural disasters? (*40CFR122.41(e) and Permit Part II-Section B*) If no, explain: _____
_____

7. YES NO NA Does the facility maintain a written list of contacts for emergencies? (*40CFR122.41(e) and Permit Part II-Section B*) If no, explain: _____
_____

8. YES NO NA Is a logbook kept which documents all plant activities on a daily basis? *(40CFR122.41(e), Permit Part II-Section B and 40CFR122.41(j)(2))* If no, explain: _____
_____

9. YES NO NA Does the facility maintain an inventory of spare parts, either at the facility or close by, sufficient to keep all of its treatment units operational? (*(40CFR122.41(e) and Permit Part II-Section B)* If no, explain: _____

_____

10. YES NO NA Does the facility have standby power for all treatment units? (*(40CFR122.41(e) and Permit Part II-Section B*) If no, explain: _____

_____

11. YES NO NA Is the standby power regularly exercised under load? (*(40CFR122.41(e) and Permit Part II-Section B*) If no, explain: _____

_____

XII. CLOSING CONFERENCE

1. Review Findings.
6. Explain what the next steps are.

NPDES INSPECTION CHECKLIST
INDUSTRIAL NON-CONTACT COOLING WATER PERMIT

FACILITY NAME: _____

NPDES PERMIT NUMBER: NHG_____

NPDES PERMIT EXPIRATION DATE: _____

I. PRE-INSPECTION INFORMATION

(If Closure Inspection, complete this upper section, Sections II and XII)

Permittee's Name: _____ Inspection Date:_____

Inspection Type: CSI CEI RI Closure Facility Type: Major Minor

Type of Treatment Process or Type of Discharge:_____

Date of Last Inspection:_____ Type of Last Inspection: CSI CEI RI

Last Inspection Performed by: DES EPA

Name and Title of Responsible Official:_____

Name of Operator in Responsible Charge:_____

Name of Back-up Operator in Responsible Charge (If applicable):_____

Time in: _____ Time out: _____

BACKGROUND INFORMATION

(Complete this section prior to going to facility)

1. YES NO Are the Discharge Monitoring Reports (DMRs) submitted to EPA and DES on time? *(Permit – Part II)* If no, explain: _____
_____

2. YES NO Are the DMRs completed correctly per latest EPA instructions? If no, explain:
_____

3. YES NO Has a list of permit violation(s) and DMR error(s) been given to the operator and discussed? If no, explain: _____
_____

4a. YES NO a) Is the person signing the DMRs authorized to do so per the federal regulations? *(40CFR122.22 (b))* If no, explain: _____

4b. YES NO NA b) If yes to 4a., has a copy of the authorization letter been sent to EPA and to DES? *(40CFR122.22(c))* Received on (date) _____

5. YES NO NA Has all permit testing been conducted at the correct frequency? *(Permit: Part II)* If no, explain: _____

6a. YES NO NA Has all noncompliance which may endanger health or the environment, including all violations of daily limits, a) been orally reported within 24 hours and

6b. YES NO NA b) followed up with a letter to EPA and DES within 5 days? *(Permit Part II, Section D)* If no, explain _____

7. YES NO NA Has the facility explained all permit violations in both the 5-day letters (if applicable) and the DMR submittals? *(Permit Part II, Section D)* If no, explain: _____

8. YES NO NA Has the facility taken corrective action to address all permit violations? *(Permit Part II, Section D)* If no, explain: _____

II. OPENING CONFERENCE

Note: If the facility is unable to meet with you to complete the checklist and perform a site review, then sample and reschedule the remaining portions of the inspection at a mutually agreeable time.

1. Present credentials/review inspection objectives. *(Objective-To ensure that the facility is being operated as needed to maintain compliance with the facility's NPDES permit).*
2. List people present (include Inspector Name(s)):

NAME	TITLE	PHONE #

3. E-mail address:_____
4. Permittee's mailing address:_____
5. Facility's mailing address: _____

III. PERMIT

1. YES NO NA Is a copy of the current permit (Parts I, II and attachments) onsite? *(40CFR122.41)* If no, explain: _____

2. YES NO NA If the permit is expired or due to expire within 180 days, has a reapplication package been submitted to DES and EPA *(40CFR122.21)* If no, explain: _____

IV. OTHER NPDES SPECIFIC REPORTS/REQUIREMENTS

7. _____

8. _____

9. _____

10. _____

V. RECORDS/REPORTS

1. YES NO NA Are the records and reports maintained by the permittee for at least 3 years? *(40CFR122.21(p), 40CFR122.41(j)(2), Permit Part II)* If no, explain: _____

2. YES NO NA If the facility monitors any permitted parameter more frequently than required by the permit, using approved test methods, are these additional results included in its DMR calculations? *(Permit Part II: Section D.1.d)* If no, explain: _____

3. YES NO NA Is a random check of analytical results reported on the facilities benchsheets consistent with data reported by the permittee on their DMRs? *(Part II Section C)*. If no, explain: _____

VI. FACILITY SITE REVIEW

1. YES NO NA Are tank weirs level? *(40CFR122.41(e) and Permit Part II – Section B)* If no, explain: _____

2. YES NO Are there any noxious odors leaving the site? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____

3. YES NO Are there any unsafe conditions (e.g. slicks, faulty guardrails, missing grating, etc.)? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____

4. YES NO NA Is there any evidence of severe corrosion in any piping or equipment? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____
_____

5. YES NO NA Are there any breaks or leaks in any chemical feed lines or other piping? *(40CRF122.41(e) and Permit Part II – Section B)* If yes, explain: _____
_____

6. YES NO Are there any unpermitted flows entering the groundwater or surface water? *(RSA 485-A:13)* If yes, explain: _____
_____

7. YES NO Is there any evidence of potential spills which can contribute pollutants to any storm drains? *(RSA 485-A:13)* If yes, explain: _____
_____

8. YES NO NA Is there any dry weather flow in the stormwater drainage system within the facility? *(Possible violation of RSA 485-A:13 – need to investigate/identify source of flow – actually check drains on site)* If yes, explain: _____
_____

9. YES NO Does the facility have any floor drains? *(Violation of Permit Part I and RSA 485-A:13 if discharge to storm drain system, surface water or ground water unless discharging to sewer and permitted by the WWTP)* If yes, where are they and where do they discharge? _
_____

10. YES NO NA If yes to 9, and the floor drain(s) discharge to the WWTP, are there any chemicals/oils/wastes stored in the vicinity of the floor drain? If yes, explain: _____
_____
(Recommendation only if to WWTP – violation cited in 10 if discharge anywhere else – if chemicals spill into WWTP sewer system, may adversely effect the processes and result in WWTP permit violations).

VII. EFFLUENT/RECEIVING WATER

1. YES NO Are the number of outfalls correct and are they correctly described in the permit? *(40CFR122.21 – need to visually confirm number)* If no, explain: _____
_____

2. YES NO NA Are there any floating solids, oil sheen, color, or foam **in the effluent**? *(Observation)* If yes, explain: _____
_____

3. Collect sample of effluent. Complete Attachment A.

VII. FLOW MEASUREMENT

1. YES NO NA Is the flow metered [ ] or estimated [ ]? If metered, is the effluent flow measuring device professionally calibrated, at least once per year, in accordance with EPA's *NPDES Compliance Inspection Manual's* requirements?
What is the calibration frequency by a professional source? _____
What type of meter is used? _____
(40CFR122.41(e) and Permit Part II – Section B) If no, explain: _____
_____

2. YES NO NA If applicable, do facility personnel check the calibration between these professional calibrations? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain frequency: _____

3. YES NO NA Are all effluent flow measuring devices clean and free of debris and deposits? *(40CFR122.41(e) and Permit Part II – Section B)* If no, explain: _____
_____

4. YES NO NA Is the effluent weir level? (*40CFR122.41(e) and Permit Part II – Section B*) If no, explain: _____
_____

5. YES NO NA Is there any leakage around any of the flow measuring devices? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____
_____

IX. SELF MONITORING

1. YES NO NA Are the influent and effluent sampling locations representative of the wastestream? *(Permit Part I and II, Section C)* If no, explain: _____
_____

2. YES NO NA Are the correct effluent sample types (grab or composite) taken? *(Permit Part I and II-Section E)* If no, explain: _____
_____

3. YES NO NA Is the influent sampling location representative of the wastestream? *(Permit Part I and Part II, Section C)* If no, explain: _____
_____

4. YES NO NA Are all grab samples cooled with ice, gel packs or refrigerated to $\leq 6^{o}C$ from the time of collection until analysis including shipping time, if applicable? If no, explain: _____
_____

5. YES NO NA Are all samples which require preservation properly preserved? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: _____
_____

6. YES NO NA Are the correct sample containers being used? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: _____

7. YES NO NA Are all the sampling equipment and glassware cleaned before being used? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: _____

8. YES NO NA Does the facility's permit require any metals sampling? _____

9. YES NO NA If yes to 8., does the facility acid wash the sampling containers prior to sample collection as required by the approved analytical methods as required by the facility's permit? If no, explain: _____

X. LABORATORY

1. YES NO NA Has a written laboratory QA/QC manual been updated by the facility and approved by DES in the last 5 years? *(40CFR122.41(e) and Permit Part II-Section B)* (Complete Attachment B if one has not been completed in past 5 years) If yes, provide date Attachment B completed. If no or NA, explain: _____

2. YES NO NA Is the QA/QC manual being used by facility personnel? If no explain: _____

3. YES NO NA Does the facility have a copy of the EPA-approved analytical methods for each of the analyses performed at the facility? If no, explain: _____

4. YES NO NA Are the correct analytical testing procedures used and holding times met? *(Permit Part I and 40CFR136)* (Complete Attachment C) If no, explain: _____

5. YES NO NA Are laboratory method detection limits for all parameters tested less than the permit limits? If no, explain: _____

6. YES NO NA With each batch of samples analyzed, is the permittee conducting quality control standards, sample duplicates, spikes and blanks? *(Permit Part I and 40CFR136)* (Complete Attachment D) If no explain: _____

7. YES NO NA If the permittee is using alternate analytical procedures, have they been approved by EPA? (*40CFR136)* If no, explain: _____

8. YES NO NA Is the permittee calibrating and maintaining all laboratory instruments and equipment on the periodic basis specified in the Part 136 Analytical Method or in the QA/QC Manual?

(Annual calibrations for thermometers and balances are required – annual calibrations for all other laboratory instruments are recommended but are not required) (40CFR122.41(e), 40CFR136 and Permit Part II-Section B) If no, explain: _____
_____
_____

9. YES NO NA Are the thermometers annually checked for calibration using a NIST-certified thermometer or does the facility purchase new NIST-certified thermometers yearly? *(40CFR122.41(e) and Permit Part II-Section B)* If no, explain: _____
_____

10. YES NO NA Are the reagents and standards being used expired? *(Permit Part II-Section B and 40CFR 122.41(e)* If yes, explain: _____
_____

11. YES NO NA Is proper laboratory grade pure water available for specific analyses? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: _____
_____

12. YES NO NA Are laboratory safety devices (eyewash and shower, fume hood, proper labeling and storage, pipette suction bulbs) available? *(Recommendation only)* If no, explain: ____
_____

13. YES NO NA Are reagents and solvents used for the analyses properly stored? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: _____
_____

14. YES NO Does the permittee cross-check its calculations? *(Recommendation – may result in misreporting which is a violation of the permit – DMRs are certified to be accurate by signature)* If no, explain: _____
_____

15. YES NO Does the permittee use the correct lab formulae to calculate final results? (*40CFR136)* If no, explain: _____
_____

XI. OPERATIONS AND MAINTENANCE

1. YES NO NA If applicable, are all treatment units operable? *(Observation – may result in violation of permit – 40CFR122.41(e) and Permit Part II-Section B)* If no, explain: _____
_____

2. YES NO NA Does the facility have an alarm system for all essential equipment? *(40CFR122.41(e) and Permit Part II – Section B)* If no, explain: _____
_____

3. YES NO NA Does the facility check its alarm system? How often? _____When were the alarm system last checked? *(40CFR122.41(e) and Permit Part II-Section B)* _____

_____

4. YES NO NA Are alarms sent to qualified personnel who can respond immediately to remedy the problem? (*40CFR122.41(e) and Permit Part II*) If no, explain: _____
_____

5. YES NO NA Are routine and preventive maintenance scheduled performed and recorded? *(40CFR122.41(e) and Permit Part II-Section B)* If no, explain: _____
_____

6. YES NO NA Does the facility maintain a written list of contacts for emergencies? (*40CFR122.41(e) and Permit Part II-Section B*) If no, explain: _____
_____

7. YES NO NA Is a logbook kept which documents all facility activities on a daily basis? *(40CFR122.41(e), Permit Part II-Section B and 40CFR122.41(j)(2))* If no, explain: __
_____

XII. CLOSING CONFERENCE

1. Review Findings.
3. Explain what the next steps are.

NPDES INSPECTION CHECKLIST
HYDROELECTRIC GENERATING PERMIT

FACILITY NAME: _____

NPDES PERMIT NUMBER: NHG_____

NPDES PERMIT EXPIRATION DATE: _____

I. PRE-INSPECTION INFORMATION

Permittee's Name:_____ Inspection Date:_____

Inspection Type: CSI CEI Type of Last Inspection: CSI CEI RI

Date of Last Inspection:_____ Last Inspection Performed by: DES EPA

Name and Title of Responsible Official:_____

Name of Person in Responsible Charge:_____

Time in: _____ Time out: _____

BACKGROUND INFORMATION
(Complete this section prior to inspection)

1. YES NO Are Discharge Monitoring Reports (DMRs) submitted to EPA and DES on time? *(Permit – Part I)* If no, explain: _____
_____

2. YES NO Are DMRs completed correctly per latest EPA instructions? If no, explain: _____
_____

3. YES NO Has a list of permit violation(s) and DMR error(s) been given to the operator and discussed? If no, explain: _____
_____

4a. YES NO a) Is the person signing the DMRs authorized to do so per the federal regulations? *(40CFR122.22 (b))* If no, explain: _____
_____

4b. YES NO NA b) If yes to 4a., has a copy of the authorization letter been sent to EPA and to DES? *(40CFR122.22(c))* Received on (date) _____
_____

5. YES NO NA Has all permit testing been conducted at the correct frequency? *(Permit: Part I)* If no, explain: _____
_____

6. YES NO NA Have all other permit-required reports such as the annual BMP certification for the previous calendar year's inspections and maintenance activities, monitoring and reporting for facility maintenance-related water during flood/high water events, etc., been completed correctly and submitted on time? *(Permit: Part I and III)*. If no, explain: _____
_____

7a. YES NO NA Has all noncompliance which may endanger health or the environment, including all violations of daily limits, a) been orally reported within 24 hours and

7b. YES NO NA b) followed up with a letter to EPA and DES within 5 days? *(Permit Part II, Section D)* If no, explain _____
_____

8. YES NO NA Has the facility explained all permit violations in both the 5-day letters (if applicable) and the DMR submittals? *(Permit Part II, Section D)* If no, explain: ___
_____

9. YES NO NA Has the facility taken corrective action to address all permit violations? *(Permit Part II, Section D)* If no, explain: _____
_____

II. OPENING CONFERENCE

Note: If the facility is unable to accommodate the inspection, observe the outfall, sample and reschedule the remainder of the inspection at a mutually agreeable time.

1. Present credentials/review inspection objectives. *(Objective-To ensure that the facility is being operated as needed to maintain compliance with the facility's NPDES permit).*

2. List people present (include Inspector Name(s)):

NAME	TITLE	PHONE #

3. E-mail address:_____
4. Permittee's mailing address:_____
5. Facility's mailing address: _____

III. PERMIT

1. YES NO NA Is a copy of the current permit (Parts I, II and attachments) onsite? *(40 CFR 122.41)* If no, explain: _____

2. YES NO NA If the permit is expired or due to expire within 180 days, has a reapplication package been submitted to DES and EPA *(40CFR122.21)* If no, explain: _____

IV. RECORDS/REPORTS

1. YES NO NA Are the records and reports maintained by the permittee for at least 3 years? *(40CFR122.21(p), 40CFR122.41(j)(2), Permit Part II)* If no, explain: _____

2. YES NO NA If the facility monitors any permitted parameter more frequently than required by the permit, using approved test methods, are these additional results included in its DMR calculations? *(Permit Part II: Section D.1.d)* If no, explain: _____

3. YES NO NA Is a random check of analytical results reported on the facilities bench sheets consistent with data reported by the permittee on their DMRs? *(Part II Section C)*. If no, explain: _____

V. FACILITY SITE REVIEW

1. YES NO NA Is the facility properly operating and maintaining all of the applicable operations such as floor drains, trench drains, station sumps, oil/water separators, wheel pit drains or sumps, compressor blowdowns, equipment and seal leakage, lower guide bearing drains and other bearing-related discharges, various pit drains (gate stems, turbine access doors and scroll case access doors), and miscellaneous infiltration and seepage waters collected in a sump or an oil/water separator? *(40CFR122.41(e) and Permit Part I – Section B.2.)* If no, explain: _____

2.a. YES NO Has there been a discharge from maintenance-related water from sump dewatering?

2.b. YES NO NA If yes to 2.a., has the facility monitored the outfall discharge for the parameters listed in Part B.3.? If no, explain: _____

3.a. YES NO Has there been a discharge associated with maintenance-related water during flood/high water event or for equipment-related backwash strainer water?

3.b. YES NO NA If yes to 3.a., has the facility monitored the outfall for the parameters listed in Part B.4.? If no, explain:_____
_____

4. YES NO Is there any evidence of severe corrosion in any piping or equipment? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain: _____
_____

5. YES NO NA Are there any breaks or leaks in any other piping? *(40CFR122.41(e) and Permit Part II – Section B)* If yes, explain:_____
_____

6. YES NO Are there any unpermitted flows entering the groundwater or surface water from the facility? *(RSA 485-A:13)* If yes, explain: _____
_____

7. YES NO Is there any evidence of potential spills which can contribute pollutants to any storm drains or surface water? *(RSA 485-A:13)* If yes, explain: _____
_____

8a. YES NO NA Are there any chemicals added for any purpose to the discharge(s)? If yes, what are they? *Note: Only non-toxic neutralization chemicals may be used*: _____
_____

8b. YES NO NA Have the non-toxic neutralization chemicals information been forwarded to EPA & DES? *(Permit Part I.B. 14.)* If no, explain: _____
_____

VI. EFFLUENT/RECEIVING WATER

1. YES NO NA Are there any floating solids, oil sheen, color, or foam **in the receiving water**? *(Observation)* If yes, explain: _____
_____

2. YES NO NA Is there any visible discoloration **in the receiving water**? *(Permit Part I and Env-Ws 1703.03(c))* If yes, explain:_____
_____

3. YES NO NA Is the discharge causing the turbidity of the receiving water to exceed naturally occurring conditions by more than 10 NTU? *(Permit Part I and Env-Ws 1703.03(c))* If yes, explain:

_____
_____

VII. FLOW MEASUREMENT

1. YES NO NA Is the flow metered [ ] or estimated [ ]? If metered, is the effluent flow measuring device professionally calibrated, at least once per year? *(40CFR122.41(e) and Permit Part II).*
What type of effluent meter is used? _____

2. YES NO NA If applicable, do facility personnel check the calibration of the flow measuring device(s), between the annual professional calibrations, at least three times per year? *(Recommendation only)* If no, explain frequency. If yes, do facility personnel record the results of these additional tests, and are the results within 10 percent accuracy?

VIII. SELF MONITORING

1. YES NO Is the sampling location representative of the discharge(s)? *(Permit Part I and II, Section C)* If no, explain: _____
_____

2. YES NO NA Are samples for the same outfall taken concurrently? Samples must be collected concurrently if possible. *(Permit PartII-Section.B.6)* If no, explain: _____
_____
_____

3. YES NO Are all grab samples cooled with ice, gel packs or refrigerated to $\leq 6^{o}C$ from the time of collection until analysis including shipping time, if applicable? If no, explain: _____

4. YES NO NA Are all samples which require preservation properly preserved? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: __
_____

5. YES NO NA Are the correct sample containers being used? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: _____
_____

6. YES NO NA Are all the sampling equipment and glassware cleaned before being used? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: ___
_____

IX. LABORATORY

1. YES NO NA Has a written laboratory QA/QC manual been updated by the facility and approved by DES in the last 5 years? *(40CFR122.41(e) and Permit Part II-Section B)* (Complete Attachment B if one has not been completed in past 5 years) If yes, provide date Attachment B completed. If no or NA, explain: _____
_____

2. YES NO NA Is the QA/QC manual being used by facility personnel? If no explain: _____
_____

3. YES NO NA Does the facility have a copy of the EPA-approved analytical methods for each of the analyses performed at the facility? If no, explain: _____
_____

4. YES NO NA Are the correct analytical testing procedures used and holding times met? *(Permit Part I and 40CFR136)* (Complete Attachment C) If no, explain: _____
_____

5. YES NO NA Are laboratory method detection limits for all parameters tested less than the permit limits? If no, explain: _____
_____

6. YES NO NA With each batch of samples analyzed, is the permittee conducting sample duplicates? *(Permit Part I-Section C and 40CFR136)* (Complete Attachment D) If no, explain: _____

7. YES NO NA Are thermometers annually checked for calibration using a NIST-certified thermometer or does the facility purchase new NIST-certified thermometers yearly? *(40CFR122.41(e) and Permit Part II-Section B)* If no, explain: _____
_____

8. YES NO NA Are the reagents and standards being used expired? *(Permit Part II-Section B and 40CFR 122.41(e)* If yes, explain: _____
_____

9. YES NO NA Is proper laboratory grade pure water available for specific analyses? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: ___
_____

10. YES NO NA Are reagents and solvents used for the analyses properly stored? *(40CFR122.41(e), 40CFR136 and Permit Part II-Section B)* If no, explain: ___
_____

X. OPERATIONS AND MAINTENANCE

1. YES NO NA Are all treatment units operable? *(Observation – may result in violation of permit – 40CFR122.41(e) and Permit Part II-Section B)* If no, explain: _____
_____

2. YES NO NA Are routine and preventive maintenance scheduled, performed and recorded? *(40CFR122.41(e) and Permit Part II-Section B)* If no, explain: _____
_____

3. YES NO Are the solid materials removed from the trash racks or intake screens disposed in accordance with the procedures developed in Part III.D.4? If no, explain:_____

XI. BEST MANAGEMENT PLAN

1. YES NO Has a written BMP plan been updated by the facility and reviewed by DES? (Complete Attachment I if it was not reviewed since the last inspection) If yes, provide the date of review. _____

XII. CLOSING CONFERENCE

1. Review Findings.
4. Explain what the next steps are.

ATTACHMENT I

BEST MANAGEMENT PLAN REVIEW FOR HYDROS

NAME OF HYDRO:_____
DATE OF REVIEW:_____
REVIEWED BY:_____

The contents of the BMP plan shall include, at a minimum, the following items (check all that applies to the facility; some sections may not apply):

1. YES NO Pollution Prevention Team:

[ ] Identifies a specific individual or [ ] individuals within the facility organization;
[ ] Lists activities and responsibilities of each team member.

2. YES NO NA Description of Potential Pollutant Sources:

[ ] Identifies all activities and significant materials as potential pollutant sources.

3. YES NO Drainage:

[ ] A plot of the interior floor drainage including sumps and oil/water separators;
[ ] Locations where major spills or leaks identified in line item 5 below (Spills and Leaks) have occurred.

4. YES NO NA Inventory of Exposed Materials:

[ ] Inventory of the types of materials handled;
[ ] Narrative description of significant materials that are or have been handled, treated, stored or disposed in a manner to allow exposure to the internal drainage water between the time of 3 years before the active date of permit coverage and the present;
[ ] Method and location of on-site storage and disposal;
[ ] Materials management practices employed to minimize contact of materials with the interior drainage water between the time of 3 years before the active date of permit coverage and the present;
[ ] Location and description of existing structural and non-structural control measures to reduce pollutants in the drainage water; and
[ ] Description of any treatment these discharges received.

5. YES NO NA Spills and Leaks:

[ ] List of significant spills and leaks of toxic or hazardous pollutants that occurred, during the 3 year period prior to the active date of permit coverage, at areas that drain to an outfall associated with floor drains.

6. YES NO Sampling Data:

[ ] A summary of existing discharge sampling data describing pollutants in the interior drainage water including a summary of sampling data collected during the term of the permit.

7. YES NO NA Risk Identification and Summary of Potential Pollutant Sources:

[ ] Narrative description of the potential pollutant sources from the following activities:

[ ] Loading and unloading operations
[ ] Maintenance programs
[ ] On-site waste disposal practices
[ ] Description of any potential source of pollutants and
[ ] For each potential source, pollutant parameter (e.g. BOD, etc) of concern shall be identified

8. YES NO Measures and Controls:

Good Housekeeping:
[ ] requires the maintenance of areas which could contribute pollutants to drainage water.

Preventative Maintenance:
[ ] timely inspection and maintenance of water management devices (e.g., cleaning oil/water separators, pits, sumps) as well as inspecting and testing the equipment and systems to ensure functionality.

Oil/Water Separators:
[ ] Maintain proper operation of oil/water separators through inspections at appropriate intervals by regularly scheduled maintenance and by review of sampling data.

Spill Prevention and Response Procedures:
[ ] Procedures developed and implemented to eliminate and/or minimize the opportunity for oil leakage to enter the drainage system;
[ ] Specify material handling procedures, storage requirements and use of equipment; and
[ ] Procedures for cleaning up spills and the necessary equipment to implement a clean up is available to personnel.

Inspections:
[ ] Qualified personnel shall be identified to inspect designated equipment and areas at appropriate intervals;
[ ] A set of tracking or follow-up procedures to ensure that appropriate actions are taken; and
[ ] Records of inspection maintained.

Employee Training:
[ ] Employee training programs shall inform personnel responsible for implementing the BMP plan of such topics as spill response, good housekeeping and material management practices; and
[ ] The BMP plan shall identify periodic dates for such training.

Record-Keeping and Internal Reporting Procedures:
[ ] Description of incidents, such as spills or other discharges, along with information describing the quality and quantity of drainage water discharges; and
[ ] These incidents shall be documented and records maintained.

Record-Keeping and Reporting Procedures:
[ ] Annual report summarizing the scope of compliance evaluation(s)
[ ] Personnel making the evaluations
[ ] The date(s) of the evaluations
[ ] Major observations relating to the implementation of the BMP plan and actions taken
[ ] Retain records for three years after the date of the evaluation(s).

9. YES NO

Trash Racks or Intake Screens:
[ ] Procedures to remove solid materials from the racks or screens;
[ ] Method of disposal; and
[ ] Inspections and maintenance of the racks or screens shall be scheduled and documented.

10. YES NO NA

Backwash Strainer on the Cooling Water Intake Line:
[ ] Develop and implement inspection and maintenance procedures at appropriate intervals to insure proper operation of the strainer;
[ ] Qualified personnel identified to inspect the strainer; and
[ ] Records of inspections and maintenance shall be maintained and summarized in the Annual Report.

11. YES NO NA

Representative Outfall Sampling:
[ ] A description of the locations of outfalls with substantially identical discharges;
[ ] Describe the operations contributing flow;
[ ] Explain why the discharges are expected to be substantially identical;
[ ] Identify the selected representative outfall for effluent sampling;
[ ] A list of other outfalls with discharges covered by the representative outfall sampling results;

YES NO

Are the outfalls grouped and numbered using the system established in the NOI?; and

YES NO

Has the representative outfall information been amended due to outfall elimination or ceased to be representative?

Attachment A
Sample Data Summary – To be completed with every inspection

Facility Name: _____ Date: ___/___/___ Inspector: _____

Sample Type: Grab or Composite Sample Time: _____ Sampler: _____
Sample Location: _____
Is this the normal sample location for the plant effluent sampling? YES or NO If NO, explain: _____

Were split samples collected? YES or NO Comments: _____

Sampling Acknowledgement: (Operator/other signature): _____Date/Time: _____

On-Site Analyses

Equipment Calibration	Analysis	Analysis Time	Analysis Method	Analyst	Results	Permit Limit	Sample Observations (Clarity, color, etc)
	DO		4500–O G				
(see DO)	Temperature		2550 B				
	TRC		4500–Cl G				
	pH		4500-H+ B				
	Turbidity		2130 B				

Laboratory Analyses – attach laboratory report to this Attachment

Analysis	Analysis Method	Results	Permit Limit	Comments
BOD or CBOD	5210 B			
TSS	2540 D			
E-coli	1603			
Ammonia, N_2	350.2			
Phosphorus, T	4500-P B			
Aluminum, T	200.7			

Analysis	Analysis Method	Results	Permit Limit	Comments
Copper, T, TR & D	200.8			
Lead, T, TR & D	200.8			
Zinc, T, TR & D	200.7			

T = Total TR = Total Recoverable D = Dissolved

Quality Assurance/Quality Control Manual Checklist – Attachment B

Facility Name: _____ Date: ___/___/___ Inspector: _____

A. General:

1. Yes No NA Is there a written laboratory QA/QC manual available?

B. Are there Facility specific Laboratory Quality Assurance guidelines:

1. Yes No NA General laboratory water quality?

2. Yes No NA Microbiological laboratory water quality?

3. NA Reagent Quality?
   - Yes No a. Expiration, date of receipt, and opened dates?
   - Yes No b. Handling of reagents?

4. NA Quality Control?
   - Yes No a. Spike or quality control standard?
   - Yes No b. Sample duplicates?
   - Yes No c. Blank on water?

5. Sample collection?
   - Yes No a. Container descriptions?
   - Yes No b. Cleaning procedures?
   - Yes No c. Volume of sample required for analysis?
   - Yes No d. Preservation techniques?
   - Yes No e. Representative sampling times?
   - Yes No f. Consistent and representative sampling locations?
   - Yes No g. Sample collection techniques?
   - Yes No h. Holding time?

6. Sample handling?
   - Yes No NA a. Labeling of bottles
   - Yes No NA b. Chain-of-Custody forms?
   - Yes No NA c. Date and time sample collected?

7. NA Instrument or equipment calibration?
   - Yes No a. Frequency of routine calibration?
   - Yes No b. Frequency of professional calibration?
   - Yes No c. Calibration procedures?

8. Analytical procedures?
   - Yes No a. Cleaning procedures for lab glassware?

	Yes	No		b. Preparation of reagents?
	Yes	No		c. Brief description of the test performed?
	Yes	No		d. Bench sheets?
	Yes	No		e. Reference method number?
9.				Data manipulation and validation?
	Yes	No	NA	a. Rule for rounding numerical results?
	Yes	No	NA	b. Procedure for handling invalid results?
	Yes	No	NA	c. Chart or table available to prompt personnel in units manipulation?
	Yes	No		d. Transcription and calculations check system to include bench sheets, lab books, and DMRs?
	Yes	No		e. Correct MOR and DMR completion?
10.			NA	Preventative maintenance procedures and schedules?
	Yes	No		a. A regular, comprehensive maintenance schedule?
	Yes	No		b. List of employees responsible for performing maintenance?
	Yes	No		c. List of duties, with check-off areas to ensure completion?
11.				Corrective action contingencies?
	Yes	No		a. Reasons for unacceptable results?
	Yes	No		b. Estimating impact to receiving water?
	Yes	No		c. Steps to prevent reoccurrence?
	Yes	No		d. Resampling and retesting requirements?
	Yes	No		e. Whom to inform?
	Yes	No		f. Corrective action documentation?

Monitoring Data Checklist – Attachment C

_____ Date: ____/____/____ Inspector: _____

C, 24C)
rent approved edition of Standard Methods
lyses

2. Automatic Flow Proportioned (AFP), Manual Flow Proportioned (MFP)
4. For composite samples put time last sample was obtained
6. Put asterisk next to in-house analyses

Attachment D
NPDES Inspection Checklist
QC for Each Batch of Samples Analyzed

Facility Name: _____ Date: ____/____/____

		yes	no	comments
BOD	effluent (3 dilutions)	___	___	_____
	dilution water blank	___	___	_____
	QC standard (e.g., Alpha-trol)	___	___	_____
	seeded dilution water, if applicable	___	___	_____
	seed control	___	___	_____
	duplicate (1 dilution)	___	___	_____
	spike (1/year)	___	___	_____
	pH check/adjustment	___	___	_____
	proper dechlorination solution	___	___	_____
TSS	effluent	___	___	_____
	lab water blank	___	___	_____
	QC standard (e.g., NSI)	___	___	_____
	duplicate	___	___	_____
	repeat weighing	___	___	_____
	other: _____	___	___	_____
Bacteria	effluent (3 dilutions)	___	___	_____
	dilution water blank	___	___	_____
	duplicate	___	___	_____
	quarterly split	___	___	_____
pH	calibration standards (4, 7, 10)	___	___	_____
	QC standard	___	___	_____
	effluent	___	___	_____
	duplicate	___	___	_____
	temperature	___	___	_____
	% slope	___	___	_____
TRC	blank	___	___	_____
	QC standard	___	___	_____
	effluent	___	___	_____
	duplicate	___	___	_____
Other: _____				
	effluent	___	___	_____
	QC standard	___	___	_____
	duplicate	___	___	_____
	blank	___	___	_____
	spike	___	___	_____

APPENDIX A-1

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APPENDIX A-2

EPA Form 3560-3

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EPA 3560-3 Form

APPENDIX B

NH PHL - WAL's Chain-of-Custody

NH DHHS DPHS PUBLIC HEALTH LABORATORIES LOGIN AND CUSTODY SHEET
(Laboratory Policy: Samples not meeting method requirements will be analyzed at the discretion of the DPHS, PHL.)
Samples must be delivered in a cooler with ice or ice packs.

LAB ACCOUNT (Billing) _____ One Stop Project: _____ NHDES Site Number_____
Description:_____ Town:_____ Temp. °C._____
Collected by:_____ Contact & Phone# _____

Sample Location / Station ID	Date/Time Sampled	# of Containers	Matrix											Misc ID	Sampler Comments (RESIDUAL CHLORINE LEVEL)	Lab Login #

Relinquished By_____Date and Time_____Received By_____

Relinquished By_____Date and Time_____ **Received For Laboratory By**_____

Matrix: A= Air S= Soil AQ= Aqueous (Ground Water, Surface Water, Drinking Water, Waste Water) ❒ Other: _____

Page _____ of _____ Data Reviewed By_____ Date_____

Section No.: 22.0
Revision No.: 6
Date: 4-8-10
Page 1 of 1

APPENDIX C

Standard Operating Procedures for the NPDES Compliance Monitoring Program

Appendix C-1

NPDES Compliance Sampling SOP

1.0. Sample Procedures and Techniques

Always wear latex gloves when sampling contaminated waters.

NOTE: Label all sample bottles prior to filling them. The label information shall include: Date and time sampled, collected by, sample location, parameter(s) to be analyzed and preservative when applicable.

Prior to the day that composite sampling is to occur, composite sampling equipment must be cleaned in accordance with SOP C-9. Sampling containers such as buckets are rinsed three times with plant wastewater effluent prior to collecting a sample. The sampling/measurement sequence is as follows:

1. Samples requiring no filtration for laboratory analyses are filled first.
2. Samples (e.g. dissolved metals) requiring filtration in the field are prepared next.
3. Field measurements for the following parameters are made after all samples for laboratory analyses have been collected.
    a. pH
    b. Turbidity
    c. Chlorine Residual
    d. Dissolved Oxygen
    e. Temperature

Sample collection is an important part of the NPDES compliance monitoring program. Without proper sample collection procedures, the results of such monitoring programs are neither useful nor valid, even with the most precise and accurate analytical measurements.

2.0 Selection of Representative Sampling Sites

The sample type to be collected are either composites (see Appendix C-2 or C-3 for composite sampling protocol) or grabs (see Appendix C-4 for grab sampling protocol). Each individual NPDES permit specifies the sample type to be performed and the sample location. In some instances, the sampling location specified in the permit or the location chosen by the permittee may not be adequate for the collection of a representative sample. In that case, the Inspector should determine the most representative sampling point available and collect a sample at both locations. Any conflicts in the sampling criteria must be documented and later resolved with the permitting authority (USEPA Region I).

a. Influent samples (reference NPDES permit for applicability)

    These samples should be collected at points of high turbulence flow to ensure good mixing. Sampling points should always be above plant return lines, and sampling equipment should be placed so that the sampling equipment does not interfere with flow measuring devices. The

preferred sampling points for raw wastewater are:

1. Influent pump wet well (if turbulent)
2. Upstream collection lines, tank, or distribution box following pumping from the wet well or sump
3. Influent flume throat
4. Aerated grit chamber

b. Effluent Samples (reference NPDES permit for the referenced outfall pipe)

These samples should be collected at the outfall specified in the NPDES permit or, if no outfall is specified in the NPDES permit, at the most representative site downstream from all entering wastestreams before they enter the receiving waters. For most municipal plants, samples should be collected after chlorination/dechlorination. Occasionally, municipal plant permits may specify sampling prior to chlorination. For these facilities, all parameters can be monitored at the upstream location except for *E. coli*, pH, and total residual chlorine.

Samples can be collected either manual grabs or with automatic samplers (composite only). The following general guidelines apply when taking samples:

1. Collect samples at the outfall specified in the NPDES permit and/or at a site location selected to yield a representative sample.

2. If practicable, use a sampling method (grab, composite, continuous) required in the NPDES permit. Parameters that are not to be collected by automatic samplers, but must be collected as grab samples include total residual chlorine, bacteria, turbidity, dissolved oxygen, temperature and pH. If using an automatic sampler, refer to SOP C-2 or 3 for proper set up procedures.

3. Avoid collecting large non-homogeneous particles and objects while collecting grab samples.

4. Collect the sample facing upstream to avoid contamination.

5. Do not rinse sample container with sample when collecting microbiological samples. Fill the container to within 1 inch of the top.

6. Fill the container (no head space) completely if the sample is to be analyzed for ammonia or phosphorus.

7. Collect sufficient volume to allow for quality assurance testing. (Table 7 in the QAPP provides a guide to various sample volumes, but additional volumes may be necessary for quality assurance testing).

3.0 Sample Handling/Preservation

a. Preserve all samples properly and store the samples in a cooler on ice. Submit the samples to NH PHL WAL within the sample holding time appropriate for each analysis. Bacteria samples have a maximum holding time of 6 hours (for more information, call the WAL at 271-3445).

4.0 Quality Assurance/Quality Control (QA/QC)

For quality assurance purposes, a duplicate is collected and analyzed as part of each field sampling event.

Appendix C-2

NPDES ISCO 6700 Series Sampler[10] SOP for Flow-Paced Proportional Compositing Sampling Mode (Controlled by a Flow Meter)

1.0 STANDARD PROGRAM: FLOW-PACED PROPORTIONAL COMPOSITE SAMPLING:

One sample collected each time a specified number of flow meter pulses is sensed by the ISCO sampler.

The 6700 Sampler requires 12-volt DC power. The power source for this model is a 913 High Capacity Power Pack with a 120-volt AC plug. If a 120-volt power source is not readily available, a 934 Nickel Cadmium Battery can be used.

NOTE: REMEMBER TO PUT ICE IN THE SAMPLER BEFORE PROGRAMMING

Place the ice into the center of the bottle kit or around the composite bottle. The amount of ice varies according to the bottle kit used. Always use the retaining rings or hold downs to hold the bottles in position and keep the bottles from floating.

Program the sampler to collect a sample every 10 flow pulses for a total of 24 samples by following these steps:

a.

6700 SAMPLER STANDARD PROGRAMMING For HELP at any screen press **?** key.

Turn the sampler on by pressing the **On/Off** key (upper left key pad located on the front panel). The On/Off key is labeled with this icon ⏻. The start-up screen appears first and remains on the display for about eight seconds or until you press another key.

b.

RUN PROGRAM VIEW REPORT OTHER FUNCTIONS

This main menu has a list of four options. To enter a sampling program, press an arrow key until PROGRAM blinks. Then press ↵ (Enter) key. *The ↵ (Enter) key always accepts the blinking option.*

c.

SITE DESCRIPTION: "FACTORY" CHANGE? YES **NO**

The option **NO** will be blinking. Press the ↵ (Enter) key. For the purposes of this set-up, the site description doesn't need to be changed unless you want to label the site with a name and/or number (see page 20 of the ISCO manual).

[10] Adapted from- ISCO Incorporated. 1997. Model 6700 Portable Samplers: Instruction Manual. ISCO , Lincoln, Nebraska, USA. 157pp.

d.

SELECT UNITS FOR LENGTH: **ft** m

The option **ft** will be blinking, press the ↵ (Enter) key.

e.

NUMBER OF BOTTLES: 1 2 4 8 12 **24**

Select the number of bottles in your bottle kit by pressing either arrow key until the correct number blinks (select 24). Press the ↵ (Enter) key.

f.

BOTTLE VOLUME IS **500** ML (300-30000)

Type the bottle volume in your kit and then press ↵ (Enter) key.

g.

SUCTION LINE LENGTH IS **10** ft (3-99)

Type the length of the suction line, then press ↵ (Enter) key. If you change the length, the sampler will display a message, 'PLEASE WAIT!…GENERATING PUMP TABLES". Afterwards, the next screen will appear.

h.

TIME PACED **FLOW PACED**

Because this procedure is for flow pacing, select FLOW PACED by pressing an arrow until the option FLOW PACED blinks. Then press ↵ (Enter) key.

i.

FLOW BETWEEN SAMPLE EVENTS **10** PULSES (1-9999)

When programming the sampler for flow pacing using a flow meter, the sampler prompts you to enter an interval number between sample events. Type the number of flow pulses needed and press ↵ (Enter) key.

j.

SEQUENTIAL BOTTLES/SAMPLES **SAMPLES/BOTTLE**

In this program, we want to collect one sample per bottle. Select SAMPLES/BOTTLE by pressing an arrow key until the option SAMPLES/BOTTLES blinks. Then, press ↵ (Enter) key.

k.

1 SAMPLE PER BOTTLE

Since we want one sample per bottle, enter 1 then, press ↵ (Enter) key.

l.

RUN CONTINUOUSLY? YES **NO**

For this part of the programming, select NO by pressing an arrow until the option blinks. Then, press ↵ (Enter) key. Selecting YES allows the program to run indefinitely by repeating the sample distribution. Continuous sampling assumes that filled bottles are replaced with empty bottles at regular intervals.

m.

SAMPLE VOLUME: **400** ml (10-1000)

Type the volume of the sample you want deposited in each bottle (i.e. if your bottle capacity is 500 ml, type in 400 ml – it's best to leave some space in the bottle. Then, press ↵ (Enter) key.

n.

NO DELAY TO START **DELAYED START** CLOCK TIME

In this program, select DELAYED START by pressing an arrow until the option blinks. Then, press ↵ (Enter) key. If you do not want a delay period, then select NO DELAY TO START.

o.

FIRST SAMPLE AFTER A **5** MINUTE DELAY (1-999)

Type the delay period you want between the time you run the program and the time the sampler takes the first sample. For example: If the current time is 10:55 am and you want the sampler to start at 11:00 am, then you enter **5** as the delay. Then, press ↵ (Enter) key

p.

PROGRAMMING COMPLETE RUN THIS PROGRAM NOW? **YES** NO

Run the program immediately by selecting YES. Select NO if you want to run the program later by selecting RUN from the main menu. Press ↵ (Enter) key after making your choice. In this program, YES is selected.

q.

PROGRAM WILL START AT 11:00 Mo 23 – SEP 10:55 Mo 23 - SEP

If you selected **YES**, this menu is displayed. In this example, the sampler will start sampling at 11:00 am on Monday, September 23 and the current time and

date are displayed just below the start time and date.

q.

OR

RUN PROGRAM VIEW REPORT OTHER FUNCTIONS

If you selected **NO** in step p. above**,** this menu is displayed. The word **Run** will be blinking. To start the program, press the ↵ (Enter) key.

The sampler will now operate, collect 400 ml samples every 10 flow meter pulses and deposit the sample in the bottle and continue operating until all 24 bottles are filled.

2.0 Quality Assurance/Quality Control (QA/QC)

Check the pump tubing for cracks or pin holes. Replace the pump tubing if necessary and reset the pump tubing warning. (See *Checklist for Replacing Pump Tube* on page 74 of the owner's manual.). Route the suction line so that the line runs continuously downhill from the sampler to the liquid source. This helps drain the line during pre-sample and post-sample purges. For representative samples, place the intake in the main current of the flow stream, not in an eddy or at an edge of flow. Placing the intake strainer at the bottom may produce samples with excess heavy solids and no floating materials, while placement at the top may produce the opposite conditions. Place the sampler on a relatively flat, horizontal surface.

3.0 Cleaning/Maintenance Procedures

Refer to SOP C-9 or manufacturer's manual.

4.0 Decontamination

Decontamination of the equipment is required prior to equipment service. Routine decontamination after each sampling event is performed in accordance with SOP C-10.

Appendix C-3

NPDES ISCO 6700 Series Sampler[1] SOP for Flow-Weighted Proportional Compositing Sampling Mode (Not Controlled by a Flow Meter)

1.0 STANDARD PROGRAM: TIME-SEQUENTIAL[2] COMPOSITE SAMPLES FORMED INTO A FLOW-WEIGHTED COMPOSITE SAMPLE:

Discrete samples collected in individual containers at constant time intervals (time-sequential sampling) that can be manually flow-proportioned to form the composite sample (flow-weighted sample) by following the steps in Section 2.0 below.

The 6700 Sampler requires 12-volt DC power. The power source for this model is a 913 High Capacity Power Pack with a 120-volt AC plug. If a 120-volt power source is not readily available, a 934 Nickel Cadmium Battery can be used.

NOTE: REMEMBER TO PUT ICE IN THE SAMPLER BEFORE PROGRAMMING

Place the ice into the center of the bottle kit or around the composite bottle. The amount of ice varies according to the bottle kit used. Always use the retaining rings or hold downs to hold the bottles in position and keep the bottles from floating.

Program the sampler to collect a sample every hour for the next 24 hours by following these steps:

a.

6700 SAMPLER STANDARD PROGRAMMING For HELP at any screen press **?** key.

Turn the sampler on by pressing the **On/Off** key (upper left key pad located on the front panel). The On/Off key is labeled with this icon ⏻. The start-up screen appears first and remains on the display for about eight seconds or until you press another key.

b.

RUN PROGRAM VIEW REPORT OTHER FUNCTIONS

This main menu has a list of four options. To enter a sampling program, press an arrow key until PROGRAM blinks. Then press ↵ (Enter) key. *The ↵ (Enter) key always accepts the blinking option.*

[1] Adapted from- ISCO Incorporated. 1997. Model 6700 Portable Samplers: Instruction Manual. ISCO , Lincoln, Nebraska, USA. 157pp.

[2] Time-Sequential means discrete samples collected in individual containers at constant time intervals.

c.

SITE DESCRIPTION: "FACTORY" CHANGE? YES **NO**

The option **NO** will be blinking. Press the ↵ (Enter) key. For the purposes of this set-up, the site description doesn't need to be changed unless you want to label the site with a name and/or number (see page 20 of the ISCO manual).

d.

SELECT UNITS FOR LENGTH: **ft** m

The option **ft** will be blinking, press the ↵ (Enter) key.

e.

NUMBER OF BOTTLES: 1 2 4 8 12 **24**

Select the number of bottles in your bottle kit by pressing either arrow key until the correct number blinks (select 24). Press the ↵ (Enter) key.

f.

BOTTLE VOLUME IS **500** ML (300-30000)

Type the bottle volume in your kit and then press ↵ (Enter) key.

g.

SUCTION LINE LENGTH IS **10** ft (3-99)

Type the length of the suction line, then press ↵ (Enter) key. If you change the length, the sampler will display a message, 'PLEASE WAIT!…GENERATING PUMP TABLES". Afterwards, the next screen will appear.

h.

TIME PACED FLOW PACED

Because we want samples based on time intervals, select TIME PACED by pressing an arrow until the option TIME PACED blinks. Then press ↵ (Enter) key.

i.

TIME BETWEEN SAMPLE EVENTS **1** HOURS, **0** MINUTES

For this example, type 1 for hours and press ↵ (Enter) key. Type 0 for minutes and press ↵ (Enter) key. Tip: Move back and forth between hours and minutes by pressing an arrow key.

j.

SEQUENTIAL BOTTLES/SAMPLES SAMPLES/BOTTLE

Because this program requires one sample in each bottle, select SEQUENTIAL by pressing an arrow key until the option SEQUENTIAL blinks. Then, press ↵ (Enter) key.

k.

RUN CONTINUOUSLY? YES **NO**

For this part of the programming, select NO by pressing an arrow until the option blinks. Then, press ↵ (Enter) key. Selecting YES allows the program to run indefinitely by repeating the sample distribution. Continuous sampling assumes that filled bottles are replaced with empty bottles at regular intervals.

l.

SAMPLE VOLUME: **400** ml (10-1000)

Type the volume of the sample you want deposited in each bottle (i.e. if your bottle capacity is 500 ml, type in 400 ml – it's best to leave some space in the bottle. Then, press ↵ (Enter) key.

m.

NO DELAY TO START **DELAYED START** CLOCK TIME

In this program, select DELAYED START by pressing an arrow until the option blinks. Then, press ↵ (Enter) key. If you do not want a delay period, then select NO DELAY TO START.

n.

FIRST SAMPLE AFTER A **5** MINUTE DELAY (1-999)

Type the delay period you want between the time you run the program and the time the sampler takes the first sample. For example: If the current time is 10:55 am and you want the sampler to start at 11:00 am, then you enter **5** as the delay. Then, press ↵ (Enter) key

o.

PROGRAMMING COMPLETE RUN THIS PROGRAM NOW? **YES** NO

Run the program immediately by selecting YES. Select NO if you want to run the program later by selecting RUN from the main menu. Press ↵ (Enter) key after making your choice. In this program, YES is selected.

p.

PROGRAM WILL START AT 11:00 Mo 23 – SEP 10:55 Mo 23 - SEP

If you selected **YES**, this menu is displayed. In this example, the sampler will start sampling at 11:00 am on Monday, September 23 and the current time and

date are displayed just below the start time and date.

p.

OR

RUN
PROGRAM
VIEW REPORT
OTHER FUNCTIONS

If you selected **NO** in step p. above**,** this menu is displayed. The word **Run** will be blinking. To start the program, press the ↵ (Enter) key.

The sampler will now operate in a time-sequential mode, collect a 400 ml sample every hour and deposit the sample in each bottle and continue operating until all 24 bottles are filled.

2.0 TIME-SEQUENTIAL DISCRETE SAMPLES FORMED INTO A FLOW-WEIGHTED[1] COMPOSITE SAMPLE:

The time-sequential samples collected in Section 1.0 can be manually flow-proportioned to form the flow-weighted composite sample. There are two procedures that can be used to perform this function.

a. Totalizer readings recorded during the sampling period can be used to perform a flow-weighted composite sample using the discrete samples collected in Section 1.0 above. A specified volume of each discrete sample is measured and made proportional to the flow at the time the sample was collected. Each measured sample is combined in a single large container to form a composite sample. Table I shows an example where each hourly totalizer readings were recorded and used to calculate the sample volume. In this example, 100 mLs of sample was measured for every 10,000 gallons per day of flow for a total volume of 4500 mLs. If 100 mLs is either too much or not enough, try decreasing or increasing respectively.

[1] Flow-weighted means a composite sample consisting of a mixture of aliquots collected at a constant time interval, where the volume of each aliquot is manually made flow-proportioned to form the composite sample.

Table I

TIME	METER READING	CHANGE IN FLOW, GPH	SAMPLE[3], ml
8:00 A.M.	1,500,000		
9:00 A.M.	1,520,000	20,000	200
10:00 A.M.	1,535,000	15,000	150
11:00 A.M.	1,565,000	30,000	300
NOON	1,600,000	35,000	350
1:00 P.M.	1,635,000	35,000	350
2:00 P.M.	1,665,000	30,000	300
3:00 P.M.	1,685,000	20,000	200
4:00 P.M.	1,700,000	15,000	150
5:00 P.M.	1,730,000	30,000	300
6:00 P.M.	1,755,000	25,000	250
7:00 P.M.	1,780,000	25,000	250
8:00 P.M.	1,800,000	20,000	200
9:00 P.M.	1,820,000	20,000	200
10:00 P.M.	1,835,000	15,000	150
11:00 P.M.	1,845,000	10,000	100
Midnight	1,855,000	10,000	100
1:00 A.M.	1,860,000	5,000	50
2:00 A.M.	1,865,000	5,000	50
3:00 A.M.	1,870,000	5,000	50
4:00 A.M.	1,880,000	10,000	100
5:00 A.M.	1,895,000	15,000	150
6:00 A.M.	1,910,000	15,000	150
7:00 A.M.	1,930,000	20,000	200
8:00 A.M.	1,950,000	20,000	200
		Composite Sample Size, mL =	4500

b. Flow readings recorded on a chart recorder during the sampling period can be used to perform a flow-weighted composite sample using the discrete samples collected in Section 1.0 above. A specified volume of each discrete sample is measured and made proportional to the flow at the time the sample was collected. Each measured sample is combined in a single large container to form a composite sample. The following '24-Hour Flow Proportional Compositing' sheet can be used to calculate the volume of sample for hourly flow readings. Flow readings are entered on the sheet as percentages based on the maximum flow reading recorded during the sampling period. As an example, the following compositing sheet has been filled out using 375 mLs as the sample volume for the maximum flow reading.

24 Hour Flow Proportional Compositing

Facility Name: Anytown Wastewater Plant Location: Anytown, NH
First sample at: 8:00 am Date: 7/10/02 Final Sample at: 7:00 am Date: 7/11/02
Maximum Chart Reading: 700,000 gallons

Time	Flow	% of maximum flow **x**	mL	= amount from	Bottle #
8:00	350,000	0.50	375	188	1
9:00	375,000	0.53	375	199	2
10:00	378,000	0.54	375	202	3
11:00	430,000	0.61	375	229	4
Noon	460,000	0.66	375	248	5
1:00	560,000	0.80	375	300	6
2:00	658,000	0.94	375	353	7
3:00	700,000	1.00	375	375	8
4:00	665,000	0.95	375	356	9
5:00	650,000	0.93	375	349	10
6:00	620,000	0.88	375	330	11
7:00	620,000	0.88	375	330	12
8:00	550,000	0.78	375	376	13
9:00	495,000	0.71	375	266	14
10:00	400,000	0.57	375	214	15
11:00	395,000	0.56	375	210	16
Midnight	325,000	0.46	375	173	17
1:00	275,000	0.39	375	146	18
2:00	275,000	0.39	375	146	19
3:00	245,000	0.35	375	131	20
4:00	225,000	0.32	375	120	21
5:00	230,000	0.33	375	124	22
6:00	290,000	0.41	375	154	23
7:00	335,000	0.48	375	180	24
			Total volume =	5,699 mLs	

Total flow for the day: 573,750 gallons

3.0 Quality Assurance/Quality Control (QA/QC)

Check the pump tubing for cracks or pin holes. Replace the pump tubing if necessary and reset the pump tubing warning. (See *Checklist for Replacing Pump Tube* on page 74 of the owner's manual.) Route the suction line so that the line runs continuously downhill from the sampler to the liquid source. This helps drain the line during pre-sample and post-sample purges. For representative samples, place the intake in the main current of the flow stream, not in an eddy or at an edge of flow. Placing the intake strainer at the bottom may produce samples with excess heavy solids and no floating materials, while placement at the top may produce the opposite conditions. Place the sampler on a relatively flat, horizontal surface.

4.0 Cleaning/Maintenance Procedures

Refer to SOP C-9 or manufacturer's manual.

5.0 Decontamination

Decontamination of the equipment is required prior to equipment service. Routine decontamination after each sampling event is performed in accordance with SOP C-10.

Appendix C-4

NPDES ISCO 6700 Series Sampler[1] SOP for Time-Sequential Composite Sampling Mode

1.0 STANDARD PROGRAM: TIME-SEQUENTIAL[2] COMPOSITE SAMPLES:

Discrete samples collected in individual containers at constant time intervals. This method is appropriate when the flow is constant (flow rate does not vary more than ± 10 percent of the average flow rate) or when flow monitoring equipment is not available.

The 6700 Sampler requires 12-volt DC power. The power source for this model is a 913 High Capacity Power Pack with a 120-volt AC plug. If a 120-volt power source is not readily available, a 934 Nickel Cadmium Battery can be used.

NOTE: REMEMBER TO PUT ICE IN THE SAMPLER BEFORE PROGRAMMING

Place the ice into the center of the bottle kit or around the composite bottle. The amount of ice varies according to the bottle kit used. Always use the retaining rings or hold downs to hold the bottles in position and keep the bottles from floating.

Program the sampler to collect a sample every hour for the next 24 hours by following these steps:

a.

6700 SAMPLER STANDARD PROGRAMMING For HELP at any screen press **?** key.

Turn the sampler on by pressing the **On/Off** key (upper left key pad located on the front panel). The On/Off key is labeled with this icon ⏻. The start-up screen appears first and remains on the display for about eight seconds or until you press another key.

b.

RUN PROGRAM VIEW REPORT OTHER FUNCTIONS

This main menu has a list of four options. To enter a sampling program, press an arrow key until PROGRAM blinks. Then press ↵ (Enter) key. *The ↵ (Enter) key always accepts the blinking option.*

c.

SITE DESCRIPTION: "FACTORY" CHANGE? YES **NO**

The option **NO** will be blinking. Press the ↵ (Enter) key. For the purposes of this set-up, the site description doesn't need to be changed unless you want to label the

[1] Adapted from- ISCO Incorporated. 1997. Model 6700 Portable Samplers: Instruction Manual. ISCO , Lincoln, Nebraska, USA. 157pp.
[2] Time-Sequential means discrete samples collected in individual containers at constant time intervals.

site with a name and/or number (see page 20 of the ISCO manual).

d.

SELECT UNITS FOR LENGTH: **ft** m

The option **ft** will be blinking, press the ↵ (Enter) key.

e.

NUMBER OF BOTTLES: 1 2 4 8 12 **24**

Select the number of bottles in your bottle kit by pressing either arrow key until the correct number blinks (select 24). Press the ↵ (Enter) key.

f.

BOTTLE VOLUME IS **500** ML (300-30000)

Type the bottle volume in your kit and then press ↵ (Enter) key.

g.

SUCTION LINE LENGTH IS **10** ft (3-99)

Type the length of the suction line, then press ↵ (Enter) key. If you change the length, the sampler will display a message, 'PLEASE WAIT!…GENERATING PUMP TABLES". Afterwards, the next screen will appear.

h.

TIME PACED FLOW PACED

Because we want samples based on time intervals, select TIME PACED by pressing an arrow until the option TIME PACED blinks. Then press ↵ (Enter) key.

i.

TIME BETWEEN SAMPLE EVENTS **1** HOURS, **0** MINUTES

For this example, type 1 for hours and press ↵ (Enter) key. Type 0 for minutes and press ↵ (Enter) key. Tip: Move back and forth between hours and minutes by pressing an arrow key.

j.

SEQUENTIAL BOTTLES/SAMPLES SAMPLES/BOTTLE

Because this program requires one sample in each bottle, select SEQUENTIAL by pressing an arrow key until the option SEQUENTIAL blinks. Then, press ↵ (Enter) key.

k.

RUN CONTINUOUSLY? YES **NO**

For this part of the programming, select NO by pressing an arrow until the option blinks. Then, press ↵ (Enter) key. Selecting YES allows the program to run indefinitely by repeating the sample distribution. Continuous sampling assumes that filled bottles are replaced with empty bottles at regular intervals.

l.

SAMPLE VOLUME: **400** ml (10-1000)

Type the volume of the sample you want deposited in each bottle (i.e. if your bottle capacity is 500 ml, type in 400 ml – it's best to leave some space in the bottle. Then, press ↵ (Enter) key.

m.

NO DELAY TO START **DELAYED START** CLOCK TIME

In this program, select DELAYED START by pressing an arrow until the option blinks. Then, press ↵ (Enter) key. If you do not want a delay period, then select NO DELAY TO START.

n.

FIRST SAMPLE AFTER A **5** MINUTE DELAY (1-999)

Type the delay period you want between the time you run the program and the time the sampler takes the first sample. For example: If the current time is 10:55 am and you want the sampler to start at 11:00 am, then you enter **5** as the delay. Then, press ↵ (Enter) key

o.

PROGRAMMING COMPLETE RUN THIS PROGRAM NOW? **YES** NO

Run the program immediately by selecting YES. Select NO if you want to run the program later by selecting RUN from the main menu. Press ↵ (Enter) key after making your choice. In this program, YES is selected.

p.

PROGRAM WILL START AT 11:00 Mo 23 – SEP 10:55 Mo 23 - SEP

If you selected **YES**, this menu is displayed. In this example, the sampler will start sampling at 11:00 am on Monday, September 23 and the current time and date are displayed just below the start time and date.

p. **OR**

RUN
PROGRAM
VIEW REPORT
OTHER FUNCTIONS

If you selected **NO** in step p. above**,** this menu is displayed. The word **Run** will be blinking. To start the program, press the ↵ (Enter) key.

The sampler will now operate in a time-sequential mode, collect a 400 ml sample every hour and deposit the sample in each bottle and continue operating until all 24 bottles are filled.

2.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

Check the pump tubing for cracks or pin holes. Replace the pump tubing if necessary and reset the pump tubing warning. (See *Checklist for Replacing Pump Tube* on page 74 of the owner's manual.) Route the suction line so that the line runs continuously downhill from the sampler to the liquid source. This helps drain the line during pre-sample and post-sample purges. For representative samples, place the intake in the main current of the flow stream, not in an eddy or at an edge of flow. Placing the intake strainer at the bottom may produce samples with excess heavy solids and no floating materials, while placement at the top may produce the opposite conditions. Place the sampler on a relatively flat, horizontal surface.

3.0 CLEANING/MAINTENANCE PROCEDURES

Refer to SOP C-9 or manufacturer's manual.

4.0 Decontamination

Decontamination of the equipment is required prior to equipment service. Routine decontamination after each sampling event is performed in accordance with SOP C-10.

C-5

NPDES Grab Sampling SOP

1.0 GRAB SAMPLES

Always wear latex gloves when sampling contaminated waters.

NOTE: Label all sample bottles prior to filling them. The label information shall include: Date and time sampled, collected by, sample location, parameter(s) to be analyzed and preservative if applicable.

Grab samples are individual samples collected over a period of time not exceeding 15 minutes and are representative of conditions at the time the sample is collected. The sample volume depends on the type and number of analyses to be performed (see Table 7 in the QAPP). The collection of a grab sample is appropriate when a sample is needed to:

a. Sample an effluent discharge that is not on a continuous basis.
b. Provide information about instantaneous concentrations of pollutants at a specific time.
c. Monitor parameters not amenable to compositing (e.g., pH, dissolve oxygen, temperature, chlorine, bacteria and others that may be specified in the NPDES permit).

In lieu of composite samples, grab samples may also periodically be collected and analyzed for BOD_5 or $CBOD_5$, TSS or other wastewater constituents as a screening tool for wastewater treatment plant performance.

Follow these procedures for grab samples submitted to NH PHL - WAL and for field analysis.

2.0 SELECTION OF REPRESENTATIVE SAMPLING SITES

Samples should be collected at the location specified in each individual NPDES Permit. In some instances, the sampling location specified in the permit or the location chosen by the permittee may not be adequate for the collection of a representative sample. In that case, the Inspector should determine the most representative sampling point available and collect a sample at both locations. Any conflicts in the sampling criteria must be documented and later resolved with the permitting authority (USEPA Region I).

a. Influent samples

These samples should be taken at points of high turbulence flow to ensure good mixing. Sampling points should always be above plant return lines, and sampling equipment should be placed so that the sampling equipment does not interfere with flow measuring devices. The preferred sampling points for raw wastewater are:

1. Influent pump wet well (if turbulent)
2. Upstream collection lines, tank, or distribution box following pumping from the wet well or sump

3. Influent flume throat
4. Aerated grit chamber

b. Effluent Samples

These samples should be collected at the outfall specified in the NPDES permit or, if no outfall is specified in the NPDES permit, at the most representative site downstream from all entering wastestreams before they enter the receiving waters. For most municipal plants, samples should be collected after chlorination/dechlorination. The following parameters are collected as grab field samples: bacteria, pH, turbidity, dissolve oxygen (in-situ), temperature (in-situ), and total residual chlorine. Appendix C contains the SOPs for each of these analytical tests.

The following general guidelines apply when collecting grab samples:

1. Collect grab samples at the outfall specified in the NPDES permit and/or at a site location selected to yield a representative sample.
2. Avoid collecting large non-homogeneous particles and objects.
3. Collect the sample facing upstream to avoid contamination
4. Do not rinse sample container with sample when collecting bacteria samples due to the dechlorinating agent in the container. Fill the container directly but do not overfill (leave a small air space). If overfilled, grab another sample container and try again.
5. Collect sufficient volume to allow for quality assurance testing. (Table 7 provides a guide to numerous sample volumes, but additional volumes may be necessary for quality assurance testing).

3.0 SAMPLE HANDLING/PRESERVATION

a. Preserve all samples properly with ice and submit the samples to the NH PHL - WAL within the sample holding time appropriate to each test (for more information, call NH PHL - WAL at 271-3445).

4.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

For quality assurance purposes, a duplicate is collected and analyzed as part of each field sampling event.

C-6

NPDES pH Analysis SOP

1.0 EQUIPMENT

a. Orion Model 230A pH meter[1] (pH meter) with an Automatic Temperature Compensation (ATC) low maintenance electrode (probe).
b. If available, magnetic stirrer with magnetic stirring bars.
c. Beakers for samples.
d. Unexpired buffers.
e. Lint free wipes.
f. Bottle of de-ionized water
g. Latex gloves

2.0 BUFFERS

Buffers 4.01, 7.00 and 10.01

3.0 pH METER CALIBRATION PROCEDURES

Note: The procedures outlined in Sections a, b, and c, below, are performed prior to collecting a sample.

a. Inspect and/or clean the pH electrode

1. Gently remove the probe[2] from the electrode storage compartment. Clean any salty deposits off by rinsing the probe with de-ionized water. Blot dry with a wipe.

2. Visually inspect the glass bulb for scratches and cracks, and inspect the probe cord port for salt deposits. Remove deposits as necessary with de-ionized water and blot dry with a wipe

3. Shake air bubbles from the measurement end (bulb location), by gently tapping the outside of the probe against your finger.

4. Continue with the calibration procedures outlined in Section 3.0, b, below.

b. Calibration

[1] Adapted from - Orion Research Incorporated. 1991. Model 230A Meter: Instruction Manual. Orion Research Incorporated, Beverly, MA, USA. 60pp.
[2] Adapted from - Orion Research Incorporated. 1996. Low Maintenance Triode pH electrode Model 9107BN: Instruction Manual. Orion Research Incorporated, Beverly, MA, USA. 15pp.

A two buffer calibrations should be performed before pH is measured. Use two buffers that bracket the expected sample range.

There are two ways of calibrating the pH meter: auto-calibration or manual calibration. The following are the instructions for the auto-calibration method. Auto-calibration is a feature of the pH meter that automatically recognizes the buffers 7.00, 4.01, and 10.01 within a range of ± 0.5 pH units.

c. Auto-Calibration

1. Choose either 4.01 and 7.00, or 7.00 and 10.01 buffers, whichever will bracket the expected sample range.

2. Press the **POWER** key to turn the pH meter on. All the features of the display will light up. Then the model number, "230", will be displayed. Once all power up procedures are complete the pH meter advances to "MEASURE" mode.

   *For the first time operation, **or if any problems are encountered**, complete the Check Out procedure on page 15 of the pH meter Instruction Manual before using the pH meter.*

   *To conserve battery life, the pH meter has an Auto shutoff feature. If the meter is left on and no key is pressed for ten (10) minutes, the meter will automatically shut off if the Auto shutoff feature is on. Power can be restored by pressing the **POWER** key once. The pH meter needs to be calibrated each time you power up the pH meter.*

3. Press **cal.** CALIBRATION is displayed above the main readout and **P1** is displayed in the lower field. **P1** indicates that the pH meter is ready for the first buffer. Place probe into 7.01 buffer and gently swirl (if a magnetic stirrer is not available) the probe in the buffer solution. When the probe is stable, the **READY** prompt will be displayed and the temperature-corrected value for the buffer is displayed. Press **yes.** The display will remain frozen for two seconds then **P2** will be displayed in the lower field indicating the pH meter is ready for the second buffer.

4. Rinse the probe and blot dry with a wipe. Place probe into the second buffer solution and gently swirl (if a magnetic stirrer is not available) the probe in the buffer solution. Wait for a stable pH display and press **yes.** After the second buffer value has been entered, the electrode slope will be displayed. **SLP** appears in the lower field while the actual probe slope (in percent) appears in the main field. The slope value must be recorded in the Inspector's field notebook.

   If an error message is displayed, see pages 48-50 of the pH meter Instruction Manual for a description of the error messages.

   *If "E-23" is displayed, this indicates that the probe slope is not within the desired range (80% to 100%). Press any key EXCEPT **POWER** to acknowledge this message and*

recalibrate (use fresh standards). ***Record the second probe slope value in your field notebook for the day, and any descriptive comments of the problem.***

If the error persists, refer to the manufacturer's probe Instruction Manual for procedures to clean the probe. ***Record any problems encountered in the field notebook for the day.***

5. The pH meter automatically advances to the measure mode. **MEASURE** is displayed above the main field. Remove the probe from the second buffer, rinse with de-ionized water and blot dry. The pH meter is now ready for use.

6. Place the probe in the slot on the side of the pH meter and set the pH meter down until you are ready to take a pH reading (remember, you will have to press the POWER key to restore power if ten minutes has elapsed between calibration and sampling; you'll need to recalibrate the pH meter after restoring power).

   NOTE: When the pH meter is no longer needed during the sampling event, rinse the probe with de-ionized water and blot dry. Gently place the probe back into the probe storage compartment on the side of the pH meter. As the probe does not require a storage solution, the probe is stored dry in the storage compartment.

4.0 pH MEASUREMENTS

NPDES Compliance Monitoring: Samples shall be collected in compliance with the monitoring requirements as specified in each of the individual NPDES permits and shall be collected at a location that provides a representative analysis of the effluent.

a. Gently remove the probe from the probe storage compartment and rinse with de-ionized water. Avoid touching the probe (glass bulb) and blot dry with a wipe.

b. Collect a grab sample. Immerse the probe into the sample container and gently swirl (if a magnetic stirrer is not available) the probe in the sample. The pH meter should be in the "MEASURE" mode.

c. Read the pH and temperature values directly from the pH meter display. Record the sample values into the field notebook.

d. Rinse the probe with de-ionized water and return the probe to the storage compartment on the side of the pH meter.

5. QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

QA/QC includes calibration and duplicate analysis.

1. Calibration: Prior to sampling, the pH meter is calibrated according to the steps listed in Section 3.0, c. above.
2. Duplicate analysis: A duplicate is collected and analyzed as part of each field sampling event.

6. PROBE MAINTENANCE

Weekly

a. Inspect the probe for scratches, cracks, salt crystal build-up, or membrane/junction deposits.
b. Rinse off any salt build-up with distilled water, and remove any membrane/junction deposits as directed in cleaning procedures below.

Decontamination/Cleaning Procedures

a. Refer to the probe Instruction Manual

7. MSDS Sheets: Please refer to Appendix F for pertinent information on the reagents used.

C-7

NPDES Chlorine, Total Residual (TRC)[1] Analysis SOP

Chlorine in aqueous solution is not stable, and the chlorine content of samples or solutions, particularly weak solutions, will decrease rapidly. Exposure to sunlight or other strong light or agitation will accelerate the reduction of chlorine. Therefore, start chlorine determinations immediately after sampling, avoiding excessive light and agitation. Do not store samples to be analyzed for chlorine.

1.0 EQUIPMENT

a. HACH Chlorine Pocket Colorimeter Test Kit (Colorimeter)
b. Polypropylene or glass sample beakers
c. Lint free wipes
d. Bottle of de-ionized water
e. Latex gloves

2.0 REAGENTS

DPD* Total Chlorine Reagent Powder Pillows for 10-mL sample (Cat No. 21056-69)

(* DPD = N,N-Diethyl-p-phenylenediamine)

3.0 CALIBRATION

General Note: The Colorimeter is factory calibrated to save you the time and expense required to construct your own calibration curve. The Colorimeter is ready for use without calibration by the user.

4.0 MEASUREMENT[2] [3]

NPDES Compliance Monitoring: Samples shall be collected in compliance with the monitoring requirements as specified in each NPDES permit and shall be collected at a location that provides a representative analysis of the effluent.

a. Before use, ensure that the Colorimeter is in the expected range you wish to measure chlorine. To determine which range the instrument is in, press the **ZERO** or **READ** key and look at the display. The low range mode display will show 0.00 mg/L (hundredths) resolution. The high range mode display will show 0.0 mg/L (tenths) resolution. The low range mode is used to calibrate the 0 to 2.00 mg/L Total Chlorine Residual (TRC) tests. The high range mode is for 0 to 4.5 mg/L TRC. **To change modes, press both the ZERO and READ keys**

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[1] Adapted from- HACH Company. 1991-1998 Chlorine Pocket Colorimeter: Instruction Manual. HACH Company, Loveland, CO, USA. 64pp.
[2] DPD Method adapted from *Standard Methods for the Examination of Water and Wastewater*.
[3] Procedure is equivalent to USEPA Method 330.5 for wastewater and Standard Method 4500-CL G for drinking water.

simultaneously. After one second, release the ZERO key and hold the READ key until "HI" or "LO" appears in the display. These letters designate the calibration range the instrument will use to determine chlorine in samples. Repeat until the instrument displays the desired mode. Release the key when the instrument is in the correct mode.

b. A DI water blank must be performed daily to ensure that the colorimeter is functioning properly. Fill a sample cell to the 10-mL line with the DI water. Add the contents of one DPD Total Chlorine Powder Pillow to the sample cell (the prepared sample). Cap the cell and wipe any moisture, dust and/or fingerprints with a lint free wipe from the sample cell. Gently shake for 20 seconds (note: gentle shaking dissipates bubbles which may form in samples containing dissolved gases). Wait 3 minutes. During this period, proceed with steps c-g.

c. Fill a second 10-mL sample cell to the 10-mL line with DI water (the blank). Cap the blank sample cell. Wipe any moisture, dust and/or fingerprints from the sample cell.

d. Grab the blank sample cell by the cap and place in the cell holder, with the 'diamond' mark on the cell facing you. Cover the sample cell with the instrument cap (flat ribbed side should face the back of the instrument).

e. Press **ZERO**. The instrument will display --- followed by 0.00. Remove the blank sample from the cell holder after zeroing, empty the blank sample cell and rinse with de-ionized water.

f. Within 3 minutes after the 3-minute period, place the 'prepared' sample in the cell holder and cover the sample cell with the instrument cap. Note: The instrument automatically shuts off after one minute and stores the last *zero in memory.*

g. Press **READ**. The instrument will display --- followed by the result in mg/L total residual chlorine of the DI water (typical range is 0.00 – 0.01 mg/l). Record the result in your field notebook. Remove the sample cell, empty the sample cell and rinse with de-ionized water

Measuring Hints

If the sample temporarily turns yellow after reagent addition, or the display shows over range (flashing 2.20 in display), dilute a fresh sample and repeat the test. A slight loss of chlorine may occur because of the dilution. Multiply the result by the appropriate dilution factor.

h. Rinse the sampling container (polypropylene type) once with de-ionized water. Then rinse the sampling container twice with the sample medium. Grab enough sample to perform the test. Fill a 10-mL sample cell to the 10-mL line with the sample. Add the contents of one DPD Total Chlorine Powder Pillow (note: a pink color will form if chlorine is present and accuracy is not affected by undissolved powder) to the sample cell (the prepared sample). Cap the cell and wipe any moisture, dust and/or fingerprints with a lint free wipe from the sample cell. Gently shake for 20 seconds (note: gentle shaking dissipates bubbles which may form in samples containing dissolved gases). Wait 3 minutes. During this period, proceed with steps

i through n.

i. Fill a second 10-mL sample cell to the 10-mL line with sample (the blank). Cap the blank sample cell. Wipe any moisture, dust and/or fingerprints from the sample cell.

j. Remove the instrument cap. Note: For best results, zero the instrument and read all samples under the same lighting conditions.

k. Grab the blank sample cell by the cap and place in the cell holder, with the 'diamond' mark on the cell facing you. Cover the sample cell with the instrument cap (flat ribbed side should face the back of the instrument).

l. Press **ZERO**. The instrument will display --- followed by 0.00. Remove the blank sample from the cell holder after zeroing, empty the blank sample cell and rinse with de-ionized water.

m. Within 3 minutes after the 3-minute period, place the 'prepared' sample in the cell holder and cover the sample cell with the instrument cap. Note: The instrument automatically shuts off after one minute and stores the last *zero in memory.*

n. Press **READ**. The instrument will display --- followed by the result in mg/L total residual chlorine. Record the result in your field notebook. Remove the sample cell, empty the sample cell and rinse with de-ionized water.

o. The colorimeter will automatically turn off after one minute to conserve battery power.

5.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

For quality assurance purposes, a duplicate is collected and analyzed as part of each field sampling event.

6.0 MAINTENANCE

a. Decontamination/Cleaning

NOTE: The Colorimeter is inspected and/or cleaned prior to the commencement of sampling. Inspections are also conducted on a daily basis prior to use throughout the sampling season. Refer to manufacturer's manual for decontamination/cleaning procedures.

1. Wipe all sample cells with a lint-free cloth to remove any water, dust and/or fingerprints.

2. Rinse sample cells three times with de-ionized water.

7. MSDS Sheets: Please refer to Appendix F for pertinent information on the reagent used.

C-8

NPDES Turbidity[1] Analysis SOP

1.0 EQUIPMENT

a. LaMotte Model 2020 Turbidimeter (Turbidimeter)
b. Polypropylene sampling container
c. Lint free wipes
d. Bottle of de-ionized water
e. Latex gloves

2.0 REAGENTS

Standards of 0.00 and 20.00 NTUs are available but not needed for calibration.

3.0 CALIBRATION IS OPTIONAL

General Note: The Turbidimeter has been pre-calibrated by the factory in the range of 0 to 100 NTU with AMCO™ primary standards manufactured by Advanced Polymer Systems, Inc. This allows the meter to be used for treated water, natural water or wastewater. Recalibration of the Turbidimeter by the user is not required.

Calibrating the Turbidimeter:

a. From the Turbidimeter case, remove the standard tube marked "20.0 NTU" and carefully wipe off any water, dust and/or fingerprints.

   Any residue on the tubes will interfere with a turbidity reading. Avoid scratching the tubes, scratches can cause inaccurate readings.

b. Open the lid of the Turbidimeter and align the etched indexing arrow mark on the "20.0 NTU" tube with the indexing arrow mark on the Turbidimeter (under the lid), and insert the tube into the chamber.

c. Close the lid and push the **READ** button. If the displayed value is not the same as the value of the 20.0 standard (within ± 0.01 NTU), continue with the calibration procedure.

d. Push the **CAL** button for 5 seconds until **CAL** is displayed. Release button. The display will flash. Adjust the display with the up and down arrow buttons until the value of the standard is displayed.

[1] Adapted from: Lamotte Company. 2000. 2020 Turbidimeter: Instruction Manual. Lamotte Company, Chestertown, MD, USA. 26pp.

e. Push the **CAL** button again to memorize the calibration. The Turbidimeter display will stop flashing. The calibration is complete.

4.0 SAMPLING/MEASUREMENT

The Turbidimeter has two operating modes: the standard operating mode and the EPA mode. The Turbidimeter can only be switched from one mode to the other while turning the Turbidimeter on, from the OFF state. The Turbidimeter will remain in which ever mode last used, even if the Turbidimeter has been turned OFF. To switch from one mode to the other, turn OFF the Turbidimeter, press and hold down the CAL button while pressing the READ button to turn the Turbidimeter on. The Turbidimeter will come on in the opposite mode than last used (while in EPA mode, a triangle will be visible on the display).

The standard operating mode displays the measured turbidity to the full resolution of the Turbidimeter. The EPA[2] mode displays the measured turbidity rounded to the reporting requirements of the EPA and Standard Methods compliance monitoring programs. The difference between the two modes is that the EPA mode eliminates the need for the user to manually round off the results. Turbidity can be measured in either modes.

a. Sampling

Samples shall be collected to determine compliance with the NH Code of Administrative Rules, Chapter Env-Ws 1700, Surface Water Quality Standards. Samples shall be collected at a location upstream and downstream of the point of discharge to the receiving stream. The sample measurements (between the upstream and downstream) for Class B waters shall not exceed the naturally occurring conditions by more than 10 NTUs. Here are a few helpful tips:

1. Always collect downstream samples first to avoid artificially elevating the turbidity in the stream. In addition, always collect the sample on upstream side where you are standing. The sample shall be collected at least ten feet downstream from the discharge point.

2. Upstream samples shall be collected far enough away from the discharge point (e.g. either an outfall pipe or a non-point source) so that the sample collected does not contain any of the wastewater from that point of discharge.

3. Point source discharge samples shall be collected directly from the discharge pipe.

4. Samples should be collected in a clean glass or polyethylene container.

5. Turbidity readings will be affected by electric fields around motors.

6. The Turbidimeter should be placed on a vibration free surface. Vibrations may cause elevated readings.

[2] Procedure is equivalent to USEPA Method 180.1 for NPDES monitoring programs

b. Measurements

1. Fill a clean sampling container with at least 50 mL of sample water and cover. Set sample aside to allow sample to equilibrate to air temperature. Avoid contaminants and analyze as soon as possible.

2. Rinse an empty turbidity tube with a portion of the sample. Shake out excess water.

3. Fill the turbidity tube to the neck by carefully pouring the sample down the side of the container to avoid creating bubbles.

4. Cap the tube and wipe dry with a clean lint-free wipe.

5. Open the Turbidimeter lid, align the etched indexing arrow on the sample tube with the indexing arrow on the Turbidimeter (under the lid) and insert the tube into the chamber.

6. Close the lid. Push the **READ** button. The turbidity in NTU units will be displayed within 5 seconds.

7. Record the displayed turbidity reading in the field notebook, and turn the Turbidimeter off by holding the **READ** button down until the screen reads "OFF". Remove the sample tube, empty the tube and rinse with de-ionized water.

5.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

For quality assurance purposes, a duplicate is collected and analyzed as part of each field sampling event.

6.0 MAINTENANCE

a. Decontamination/Cleaning

NOTE: The turbidity meter is inspected and/or cleaned prior to the commencement and at the conclusion of the sampling event. Inspections are also conducted on a daily basis prior to use throughout the sampling season. Refer to manufacturer's manual for decontamination/cleaning procedures.

1. Rinse sample vial three times with de-ionized water.
2. Wipe all vials with a lint-free cloth to remove any water, dust and/or fingerprints.

7.0 MSDS Sheets: Please refer to Appendix F for pertinent information on the reagent used.

C-9

NPDES Bacteria Sampling SOP

1.0 EQUIPMENT

a. 125 ml sterilized plastic sample container
b. Latex gloves

2.0 REAGENTS

Sodium thiosulfate if the sample is chlorinated

3.0 SAMPLE PROCEDURES

For NPDES Compliance Monitoring, all samples shall be collected in compliance with the monitoring requirements as specified in each of the individual NPDES permits and shall be collected at a location that provides a representative effluent analysis.

a. Sampling Procedures

1. All samples are collected in 125 mL sterilize containers.

2. **If the facility is chlorinating**, collect a sample of chlorinated effluent from the outfall in a sterilized wide mouth plastic jar containing 200 ug/l of 10% sodium thiosulfate solution or tablet.

   If the facility is dechlorinating, collect a sample of dechlorinated effluent in a sterilized wide mouth plastic jar containing 200 ug/l of 10% sodium thiosulfate solution. The sodium thiosulfate is used to remove any potential traces of chlorine which will interfere with the analysis.

   If the facility is not chlorinating (UV disinfection), collect a sample of final effluent from the outfall in a sterilized wide mouth plastic jar without sodium thiosulfate solution.

4.0 COLLECTION PROCEDURES

a. When the sample is collected, leave ample air space in the bottle to facilitate mixing by shaking, before examination.

b. Collect samples by flushing sample ports and using aseptic techniques (e.g., avoid touching the insides of the container and cap, do not allow the container to come in contact with the sampling port) to avoid sample contamination.

c. Keep sample container closed until ready to fill.

d. Fill, but do not overfill, container without rinsing and replace cap immediately.

5.0 COLLECTION TECHNIQUES

a. Collection Technique #1 for submerged outfall pipes and inaccessible launder boxes: Clamp a sample container to an extendable pole. Avoid touching the inside of bottle and cap. Slowly lower the sample container into the outfall pool and fill; BUT DO NOT OVERFILL to avoid diluting the sodium thiosulfate solution.

b. Collection technique #2: If you do not have the equipment as in Collection Technique #1, you can grab a sample by means of an automatic sampler which may be located at the facility's effluent station. Remember to flush the line before collecting a sample.

6.0 PRESERVATION

Preserve all samples on ice in a cooler and submit the samples to the NH PHL - WAL within eight hours or less from the time of sample collection.

7.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

QA/QC is inherent to NH PHL - WAL Unit's procedures for bacteria tests. Additional QA practices can be found in EPA's manual of microbiological methods[1] which provides added guidance on sampling and analytical methodology.

8.0 MSDS Sheets: Please refer to Appendix F for pertinent information on the reagent used.

[1] EPA 600/8-78-017, Environmental Monitoring & Support Lab.

C-10

NPDES ISCO Sampler Cleaning SOP

1.0 STANDARD WASH (NON-METALS SAMPLING)

a. Required Equipment

1. 'Liquinox' (brand name; phosphate-free detergent or equivalent)
2. Flat head screwdriver or pliers for removing hose clamps
3. Bottle brush/scrub brush
4. A wash sink w/hot water and if available, sink hose sprayer
5. De-ionized water
6. Latex gloves

b. Procedure for cleaning sample bottles

1. Plug sink drain and add 5-10 ml of Liquinox (or its equivalent) detergent.
2. Fill sink ½ full w/hot water.
3. Remove sample bottles from the bottle kit holder
4. Submerge bottles in hot soapy water and scrub with bottle brush to remove solids and/or film.
5. Triple rinse bottles with tap water then triple rinse bottles with de-ionized water.
6. Place bottles in storage base, upside down, to drain and dry.

c. Procedure for cleaning suction line, pump and discharge tubings

1. Clean the suction line, pump and discharge tubings by placing the end of the suction line in the hot soapy water and pumping the soapy water through the delivery system by manually operating the pump. If these items are severely contaminated (e.g., discoloration, solids build-up, oily sheen, etc.), discard them to trash.
2. Rinse with clean tap water for two minutes.
3. Rinse with de-ionized water for one minute.

d. Procedure for cleaning the strainer

1. Clean the strainer with a brush and hot soapy water.
2. Rinse with tap water for two minutes followed by a one minute de-ionized water rinse.

e. Procedure for cleaning controller, top cover, center section, retaining ring and tub

1. Clean the top cover, center section, retaining ring, and tub with warm soapy water or by spraying them with a hose. Avoid using a high-pressure hose to clean the controller, especially around the control panel. Extreme pressures may force water past the control-panel seal

NOTE: When cleaning the controller and top cover, cap the connectors at the back of the controller tightly. Keep a battery connected to the power-source connector, or replace the protective cap (shipped with sampler) over the power source connector, to protect the pins from moisture damage. Make sure the pump drain hole (located at the bottom right-hand side of the pump, beneath the pump band) is open and free of debris or buildup.

2. After complete drying, reassemble the ISCO sampler and place in a safe/dry storage area.

2.0 MAINTENANCE CHECKLIST

1. Inspect the pump tubing for wear. Replace if necessary.
2. Clean the pump tubing housing.
3. If the suction line appears contaminated, change the suction line.
4. Check the humidity indicator. If the indicator reaches the area marked “30” on the paper humidity indicator (which turns pink), the desiccant inside the controller box should be recharged. See ISCO manual for details.
5. When the battery warning appears on the display, replace the controller’s internal battery. See ISCO manual for details.

3.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

The cleaning procedure is inherent to QA/QC protocol. The detergent must be free of nutrients (including phosphates) and other contaminants.

4.0 MSDS Sheets: Please refer to Appendix F for pertinent information on the cleaner used.

C-11

NPDES Dissolved Oxygen/Temperature Sampling SOP

1.0 EQUIPMENT

a. YSI Model 55 Handheld Dissolved Oxygen and Temperature Meter
b. Latex gloves

2.0 CALIBRATION:

General Note: The dissolved oxygen calibration must be done in an environment with a known oxygen content. Since a relative humidity of 100% makes an excellent environment for calibration, the moist sponge in the calibration/storage chamber creates a 100% water saturated air environment for proper calibration. Ensure that the DO sensor does not contact the wet sponge by inserting the sensor only until the rubber o-ring seal is flush with the outer edge of the chamber.

Before you calibrate the Dissolved Oxygen Meter:

To accurately calibrate the YSI Model 55, you will need to know the following information:

1. The approximate altitude of the region in which you are located.
2. The approximate salinity of the water you will be analyzing. Fresh water and as well as sanitary wastewater has a salinity of approximately zero. Sea water has a salinity of approximately 35,000 mg/L or 35 parts per thousand (ppt).

Calibration Process:

1. Remove the oxygen probe from the calibration chamber and check to ensure that the sponge inside the instrument's calibration chamber is wet. Re-insert the probe back into the chamber but do not allow the tip to come in contact with the wet sponge.

2. Turn the instrument on by pressing the **ON/OFF** button on the front of the instrument. Wait for the dissolved oxygen and temperature readings to stabilize (usually 15 minutes is required after turning the instrument on).

3. To enter the calibration menu, use two fingers to press and release both the **UP ARROW** and **DOWN ARROW** keys at the same time.

4. The LCD will prompt you to enter the local altitude in hundreds of feet. Use the arrow keys to increase or decrease the altitude. Example: Entering the number 12 indicates 1200 feet. When the proper altitude appears on the LCD, press the **ENTER** key.

   The LCD should now display **CAL** in the lower left of the display, the calibration value (98%) is

displayed in the lower right and the current DO reading (before calibration) shown on the main display.

5. Make sure that the DO % saturation reading (large display) is stable (should be in the range of 98 ± 0.1%), then press the **ENTER** button. The LCD will prompt you to enter the approximate salinity of the water you are about to analyze. You can now enter any number from 0 to 40 ppt of salinity. Use the arrow keys to increase or decrease the salinity setting. When the correct salinity appears on the LCD, press the **ENTER** key. The instrument will return to normal operation.

6. If the calibration value is not within 98 ± 0.1%, then recalibrate according to Steps 3 through 5. If calibration is successful, continue with Steps 7 through 10.

NOTE: The calibration procedure outlined as Step 7 through 10 is only administered as a check to determine if the dissolved oxygen probe is working correctly at the low range of the instrument. If the probe is not functioning properly, the main display will read "Er 5" which means to either re-calibrate using correct altitude and salinity or return the instrument for service.

7. Place the sensor in a zero oxygen environment (excess sodium sulfite and cobalt chloride solution) and allow 5 minutes for the meter to equilibrate.

8. After the dissolved oxygen rate stabilizes, record the reading on Attachment A – Sample Data Summary Sheet. The zero DO standard reading should be < 0.5 mg/L. If zeroing is successful proceed to next step. If not, stop, the instrument needs to be serviced by YSI.

9. Rinse the sensor thoroughly to completely remove any chemical residuals.

10. Proceed to the measurement procedures outlined in section 3.0 below.

Once the calibration process is complete, the only keys which will remain operational are the **MODE,** the **LIGHT** and the **ON/OFF** keys.

For best results:

Each time the meter is turned off, re-calibrate before taking measurements.

3.0 MEASUREMENT

1. Measurements shall be taken at a location downstream from all processes (outfall pipe or after the chlorination/de-chlorination system).

2. Gently lower the probe into the wastestream where there is ample turbulence but avoid the probe from being slapped against any objects. It is important to recognize that oxygen dissolved in the wastestream is consumed during the test. It is therefore essential that the wastestream be moving at the sensor tip. If stagnation occurs, the readings will be artificially

low. If there is little to no turbulence, move the probe in an up and downward motion in the wastestream.

3. After the dissolved oxygen rate stabilizes, record the reading on Attachment A – Sample Data Summary Sheet.

4. Record the temperature[11] of the wastestream on Attachment A - Sample Data Summary Sheet.

5. Rinse the probe well with distilled water prior to placing the probe back into the calibration/storage chamber.

4.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

For quality assurance purposes, calibrate at a temperature within $\pm$ 10 ^{o}C of the sample temperature.

5.0 MAINTENANCE

a. Inspection

NOTE: The Dissolved Oxygen meter is inspected prior to the commencement and at the conclusion of the sampling event. Inspections are also conducted on a daily basis prior to use throughout the sampling season.

1. If you look into the calibration/storage chamber, you should notice a small round sponge in the bottom. Carefully put 3 to 6 drops of distilled water onto the sponge. Turn the instrument over to its side and allow any excess water to drain out of the chamber. This creates a 100% water saturated air environment for the probe which is ideal for dissolved oxygen calibration.

2. Membrane life depends on usage. Membranes will last a long time if installed properly and treated with care. Check for loose, wrinkled, damaged or fouled membranes and any large (more than 1/8" diameter) bubbles in the electrolyte reservoir. Replace the membrane and the KCL solution as per the manufacturer's instructions.

3. The gold cathode must always be bright for correct probe operation. If it is tarnished, use YSI Model 5680 Probe Reconditioning Kit and follow the cleaning instructions in the owner's manual.

4. The silver anode must be tarnish free for successful calibration. If it is tarnished, soak the probe overnight in 3% ammonium hydroxide and follow the cleaning instructions in the owner's manual.

[11] The internal temperature sensor is annually certified using a NIST certified thermometer.

b. Decontamination/Cleaning

NOTE: Before the meter can be serviced, equipment exposed to biological or toxic materials must be cleaned and disinfected. Biological contamination is presumed for any instrument, probe, or other device that has been used with wastewater.

1. Decontaminate all exposed surfaces with either 70% isopropyl alcohol or a solution of ¼ cup bleach to 1 gallon of tap water. The probe may be disinfected with 0.5% Lysol if this is more convenient to the user.

6.0 MSDS Sheets: Please refer to Appendix F for pertinent information on the reagent used.

C-12

Digital Camera Guidance/SOP

1.0 PURPOSE/SCOPE

The use of a digital camera to document investigations and inspections is increasingly common. The Legal Unit determined it is acceptable to use digital cameras/photographs for documenting inspections and investigations provided certain requirements are met, either specified in DES's CARP or in this standard operating procedure (SOP). Inspectors occasionally include photographs taken during the inspection to support their observations. The use of digital images presents somewhat different issues related to the use of these images as evidence. To be effective, the image must be of sufficient clarity and detail to support the observations, and must represent what the inspector saw with the appropriate level of detail.

The consistent use of standard operating procedures for the collection, storage, and reproduction of digital imagery would help to ensure that all such images are available, reliable, and admissible should the images become relevant in an enforcement action. The SOP described in this document is designed to enable: recovery of the original digital file if the authenticity of a digital image is challenged; a witness to testify that a digital image is a "true and accurate representation" of the scene observed by the inspector; and complete and timely production of the full set of original files in response to any discovery or disclosure requirements. In addition, the SOP will key on addressing both enforcement and non-enforcement digital image requirements.

2.0 EQUIPMENT AND SUPPLIES

a. Olympus Camedia Digital Camera Model D-595 Zoom
b. Memory card
c. Batteries
d. Imaging software

3.0 DEFINITIONS

a. TIFF (Tagged Image File Format) is a universal image format that is compatible with most image editing and viewing programs. The camera processes and retains all the image information from the sensor and stores it in TIFF format. The TIFF format is usually compressed either by the camera or computer into a more familiar JPEG format.

b. RAW (this is not an acronym) is an unprocessed image format obtained directly from the camera sensor. This format is also compressed by the camera or computer into JPEG.

c. JPEG (Joint Photographic Experts Group) is a compression scheme that compresses color information more than detail information since our eyes are more sensitive to details than color. This scheme also attempts to discard fine detail over coarse detail since our eyes are more sensitive to coarse than to fine. Thus for images with the same RAW or TIFF file size but with

differing amounts of color and detail the compression will not result in a similar JPEG size.

4.0 PROCEDURE

a. Digital Camera

The digital camera user needs to become familiar with the camera's functions and limitations. Of special concern to the user is the need for back-up batteries and/or supplemental memory cards.

b. Camera Settings

1. Date and Time – Since each image file contains the date and time a photo is taken, it is important to properly set this information and adjust it to the proper time zone if needed.

2. Image Size/Resolution – The proper image size is dependent on what your final product will be. In general, if you have ample memory card capacity it is best to set image size/resolution to the highest JPEG value (Olympus currently set at HQ 2560 x 1920).

3. Image Quality – In addition to the image size/resolution settings discussed above, the amount of storage space required for each image is affected by how much the image is compressed. This is typically referred to as *"image quality"* somewhere within the set-up or other menu options of your camera. It is preferable to pick the least compression option which will be called something like: "high", "fine" or "best" within the options if available in your camera.

   The above discussion applies to "single image" photography. Most digital cameras also have a "video" mode which records at a much lower resolution and is suitable for viewing on a computer monitor or projector, but is inferior for printing.

5.0 CHAIN-OF-CUSTODY (Primarily for enforcement activities)

The camera and its images need to kept secure or in your control at all times. The use of a chain-of-custody in an enforcement case is important if you intend to send copies of the archival copy via e-mail or postal mail. It is also important to account for all images and it is best to avoid deleting any photographs unless they are poor or low priority images. It is important to document in a field book or photo log and explain why any images have been deleted.

6.0 PHOTO LOG

It is important to be able to associate certain information with each photograph. This information can be initially documented in a field log book, within an audio file on the digital camera (see section 8.0 for sound recording), or other suitable means. Documentation should include the following:

a. Photographer's name
b. Date and time
c. City and State
d. Facility/Site Name
e. Description of photo

7.0 IMAGE TRANSFER AND STORAGE:

1. ENFORCEMENT AND NON-ENFORCEMENT RELATED

Image Downloading:

a. Inspectors must create an "archival copy[12]" of the original images as soon as practical after image capture. The archival copy must be labeled as such and kept secure. Any enhancements needed on the image must be made only to a "working copy"[13]. (**NEVER EDIT THE ORIGINAL IMAGES OR ARCHIVAL COPY**). Ideally unalterable storage media such as read-only Compact Disk (CD-R) must be used to create the archival copy. If this option is not available, an alterable storage media (H:/ drive, which we will be using – see Image Archiving below) may be used for the archival copy, provided the images can be verified and Chain-of-Custody procedures are followed to prevent tampering.

b. When mailing the archival copy via postal mail, inspectors must place the storage media in a jacket, pouch or equivalent with a custody seal and follow the procedures used for mailing samples to ensure its integrity.

c. When e-mailing an archival copy, inspectors must inform the receiver that the images are an original copy and that the receiver's name will be logged on the Chain-of-Custody log.

Image Archiving:

a. Plug the USB cable to the camera and when the camera display shows PC, press the OK MENU button on the camera.

b. The Olympus Master menu will appear on your monitor screen (if it doesn't, click the Olympus Master icon on the desk top). Click OK to launch the main menu.

c. Click the "Transfer Images" button. The menu for selecting the source is displayed.

d. Click "From Camera". The window for selecting images is displayed. All the images in the

[12] An archival copy is an unchanged, unedited copy of the original images that will be used as the permanent record. It is equivalent to the "negatives" in film photography.
[13] The working copy is the "back-up" copy of the original images which may be used to make minor enhancements or edits such as cropping and improving contrast.

camera are displayed.

e. Before transferring images, you'll need to select where the images will be transferred to. Click on the 'Create new folder with the current date' button located at the 'Transfer Destination' menu. The 🗁 button will now be highlighted.

f. Click on the 🗁 button and the 'Select Folder' menu is displayed.

g. Go to and select the H:/ drive. Single click on the + sign to display the H:/ drive folders.

h. Single click the + sign on the 'Permits & Compliance' folder to display all other folders within 'Permits & Compliance'.

i. Single click the + sign on the 'Compliance Town & Facilities' folder to display all other folders within 'Compliance Town & Facilities'.

j. Single click on the 'Town' folder and then the 'Enforcement' folder where the pictures would be placed.

k. In the 'Create New Folder' menu, type in a name (such as facility/site name) for this new folder and click the OK button. This will create a folder within the folder titled 'Enforcement'.

l. Single click the + sign on the 'Enforcement' folder. Select the folder you just created with a single click to highlight it. Click the OK button.

m. The name of your new folder will now appear in the 'Transfer Destination:' box.

n. Select the images you want to transfer to this folder and click the 'Transfer Images' button.

o. Once the transfer is completed, a menu will display for browsing the images. You can view them now by clicking 'Browse images now' or you can view them later.

Once the enforcement case has been settled or resolved, the archival copy can be removed from the H:/ drive since digital images can consume large amounts of disc space on the LAN.

8.0 ADDING SOUND TO STILL PICTURES AFTER IT WAS TAKEN

Sound can be added to a still picture that you have already taken, this is known as "after-recording"). You can also re-record over the sound that has already been recorded. Total recording time per picture is approximately 4 seconds.

a. Press the ▸ to view and select the still picture to which you want to add sound.

b. Press the OK MENU button and then select the MODE MENU using the right arrow key.

c. Press the right arrow key again, then the down arrow key to select sound recording and the right arrow key again to display 'START'.

d. Press the OK MENU button to start recording. Remember, you have 4 seconds.

PHOTO LOG FORM

Facility/Site Name:_____ Photographer:_____

City/Town:_____ Date:_____

Time	Photo #	New Photo Name?	Subject Description

CHAIN-OF-CUSTODY FORM

Facility/Site Name:_____ Photographer:_____

City/Town:_____ Date:_____

Time	Photo # or Name	Subject Description	Via e-mail (E) or Postal (P)	Name of Recipient

Appendix D

Track 2000 Data Entry Screens

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Track 2000 Data Entry Screens

Appendix E

Example of a Sampling and Analysis Plan

Example of a Sampling and Analysis Plan

Since this is a non-generic QAPP, SAPs would not typically be developed. However, if there's ever a need to prepare a SAP as a result of any deviations and/or stipulations, this SAP example would be used.

Sampling and Analysis Plans (SAPs) will be prepared by the Program QA Officer, reviewed and approved by the Program Manager prior to field work, and a copy retained in the WWEB P&C files (referenced from Section A-9 of the QAPP). A copy of the approved plan will be sent to the NHDES Quality Assurance Manager. The Program QA Officer is responsible for communicating the SAP and other QA/QC requirements to other field sampling Inspectors that may be working in the program.

The SAPs will reference its parent QAPP. Deviations from and stipulations not addressed in the parent QAPP will be incorporated into the SAPs. These will include site information, rationale, program description and schedule (if applicable), analysis, and reporting. Additional information will be considered and added when applicable. Also, the Program QA Officer will be responsible to locate or produce procedures for any deviations and stipulations, in particular, sampling and testing required for a criteria that is not addressed in the parent QAPP, in which case the Program Manager will review and approve. An example of possible information per deviation and/or stipulation is as follows:

Site Information

Site location
Sample location
Personnel identification and organization

Rationale

Problem definition
Historic Data (if applicable)
Matrix of concern

Program description and schedule

Sampling design (sampling location, sampling and analysis method/SOP requirements)
Sampling procedures and requirements
Data analysis

Reporting

To whom results and discussion are reported

Appendix F

MSDS Sheets

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MSDS Sheets