

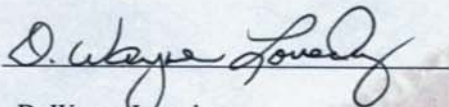


Third Revised Operations Record-Keeping Program

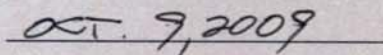
For All KUB-Operated Wastewater Treatment Plants

Third Revised Version Posted in the Public Document Repository October 9, 2009

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



D. Wayne Loveday



Date



The 7 Elements of a Proper MOM Program KUB's Operations Record-Keeping Program For All KUB-Operated Wastewater Treatment Plants

1. Utility-Specific

This Operations Record-Keeping Program describes KUB's system for accurately recording KUB's operation of the wastewater treatment plants (WWTPs). The program specifically addresses standard reports and documentation compiled for operational decisions and regulatory reporting at KUB's WWTPs:

- Kuwahee
- Fourth Creek
- Loves Creek
- Eastbridge.

2. Purposeful

KUB is committed to meeting all regulatory reporting and Consent Decree requirements. This program describes KUB's protocol for recording all required WWTP operation information as required by the Tennessee Department of Environment and Conservation (TDEC) and the Environmental Protection Agency (EPA). It is purposeful because it provides a structure for accurately reporting operational data and ensures that accurate information is reported to regulatory agencies.

3. Goal-Oriented

The goal of this program is for KUB to achieve accurate and prompt recording of WWTP operational data.

4. Uses Performance Measures

The data reported to regulators will be used by KUB to evaluate system performance. That evaluation will drive any corrective action and help direct future improvement projects.

5. Periodically Evaluated

This program is evaluated annually and changed, if necessary, to maintain an accurate and robust method of recording operational data.

6. Available in Writing

The written program will be maintained and kept readily available as a reference for current staff and will be used to train new personnel to ensure all understand and follow the proper procedures. It will also be available in the Public Document Repository for interested customers and others to view.

7. Implemented by Trained Personnel

Employees responsible for the implementation of the Operations Record-Keeping Program will be initially trained upon employment and on an as needed basis for existing employees on the requirements and methods presented in this document. In addition to meeting regulatory requirements, records of data reported to TDEC and EPA are valuable training, evaluation, and planning tools.

**Operations Record-Keeping Program
For all KUB-Operated Wastewater Treatment Plants**

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1.1 Background

The Knoxville Utilities Board (KUB) operates four wastewater treatment plants (WWTPs): Kuwahee, Fourth Creek, Loves Creek, and Eastbridge. The plants receive flow from over 65,000 customers in and around the Knoxville area.

- Kuwahee Wastewater Treatment Plant is an activated sludge facility that includes primary sedimentation, nitrification, final clarification, anaerobic sludge digestion, centrifuge dewatering, and disinfection of all flows. Biosolids from each of the other treatment plants are processed at Kuwahee. This facility was designed and approved for Diversions.
- Fourth Creek Wastewater Treatment Plant is an activated sludge facility that includes primary sedimentation, complete mix activated sludge, final clarification, and disinfection of all flows. This facility was designed and approved for Diversions.
- Loves Creek Wastewater Treatment Plant is an extended aeration activated sludge facility with aeration, final clarification, and disinfection of all flows prior to discharge. This facility was designed and approved for Diversions.
- Eastbridge Wastewater Treatment Plant is a sequencing batch reactor facility and includes disinfection of all flows prior to discharge. This facility does not divert flows.

The Operations Record-Keeping Program describes the protocol for accurately recording the operation of all KUB WWTPs. This program specifically addresses operator log/activity reports, KUB Water Quality Assurance Lab analytical data, performance reports that aid in recording operational data, and documentation of Bypasses and Diversions. The program is purposeful because it provides a structure for accurately reporting operational data and ensures that accurate information is reported to regulatory agencies.

KUB evaluates this program annually and changes it, if necessary, to maintain an accurate and robust method of recording operational data. KUB also trains employees annually on the requirements and the methods of the program.

1.2 Environmental Protection Agency (EPA) Consent Decree Requirements

The Operations Record-Keeping Program establishes a system for accurately recording KUB's operation of the WWTPs. The program includes Operator Logs, Activity Reports, Performance Reports, and documentation of all Bypass and Diversion events. The program also includes performance measures for ensuring that the reports kept pursuant to this program are accurate.

1.3 Operations Record-Keeping Program Documents and Responsible Parties

1.3.1 Table of Documents and Responsible Parties

The table below includes documents from the Reporting, Notification, and Record-Keeping Program coupled with other documents used for recording data and operational decisions. It lists all documents that are reportable to the Tennessee Department of Environment and Conservation (TDEC) and EPA. These reportable documents are either communicated directly to the appropriate agencies or combined for reporting.

Document	Responsible Party	Action/Responsibility	Record Location	Records Retention
TDEC Correspondence	Vice President, LRC Manager, Plant Supervisor, Plant Technician III	<ol style="list-style-type: none"> 1. Compile data surrounding event 2. Write correspondence to TDEC reporting the violation, cause, and corrective action 	Plants Department drive/Violations and Bypasses/Violations Database and in the LRC files	Life of the Consent Decree or 5 years from the date of origination, whichever is longer
EPA Section XIX Correspondence	Consent Decree Regulatory Compliance	<ol style="list-style-type: none"> 1. Report regulatory and order compliance according to Section XIX of Consent Decree 	Consent Decree Regulatory Compliance Files	Life of the Consent Decree or 5 years from the date of origination, whichever is longer
Discharge Monitoring Report (DMR)	Vice President, Plants Manager, LRC Manager, Plant Supervisor, Plant Technician III	<ol style="list-style-type: none"> 1. Compile all DMR data 2. Review data based on Operations Record-Keeping Program for all WWTPs Procedures 3. Report based on NPDES requirements 	Regulatory Compliance maintains documents for 2 years. After two years the documents are moved to archive at the KUB Concord Street location.	Life of the Consent Decree or 5 years from the date of origination, whichever is longer
Monthly Operating Report (MOR)	Vice President, Plants Manager, LRC Manager, Plant Supervisor, Plant Technician III	<ol style="list-style-type: none"> 1. Compile all MOR data 2. Review data based on Operations Record-Keeping Program for all WWTPs Procedures 3. Report based on NPDES requirements 	Regulatory Compliance maintains documents for 2 years. After two years the documents are moved to archive at the KUB Concord Street location.	Life of the Consent Decree or 5 years from the date of origination, whichever is longer
Bypass Report	Vice President, Plants Manager, LRC Manager, Plant Supervisor, Plant Technician III	<ol style="list-style-type: none"> 1. Compile data for report 2. Review report for accuracy based on Operations Record-Keeping Program for all WWTPs Procedures 3. Report based on NPDES requirements 4. Place into report package 	WWTP files and Plants Department drive	Life of the Consent Decree or 5 years from the date of origination, whichever is longer
Industrial Pretreatment Program (IPP) Semi-Annual Report	Vice President, LRC Manager, IPP Coordinator	<ol style="list-style-type: none"> 1. Collect internal analytical plant data, KUB industrial sampling data, industrial self-monitoring data, and inspection data. 2. Use data for compiling report 3. Submit to TDEC 	Regulatory Compliance	Life of the Consent Decree or 5 years from the date of origination, whichever is longer
Biosolids Data (Compiled for EPA reporting)	Plant Technician III, Shift Plant Technician	<ol style="list-style-type: none"> 1. Enter accurate data into logs 2. Use data to compile information for reporting 	Kuwahee WWTP database	Life of the Consent Decree or 5 years from the date of origination, whichever is longer

The table below lists all documents that are not routinely reportable to TDEC and EPA. These internal documents are combined for reporting, used for performance reports and WWTP operational guidance.

Document	Responsible Party	Action/Responsibility	Record Location	Records Retention
Diversion Report	Vice President, Plant Manager, Plant Supervisor, Plant Technician III	<ol style="list-style-type: none"> 1. Compile data for report 2. Review report for accuracy based on Operations Record-Keeping Program for all WWTPs Procedures 3. Enter data into "Treatment Plants – SSO and BBU Reporting" database owned by Department 84. 4. Place into report package. 	WWTP files and Plants Department drive	Life of the Consent Decree or 5 years from the date of origination, whichever is longer
Diversion and Bypass Document Package	Plant Supervisor, Plant Technician III, Shift Plant Technician	<p>Diversion/Bypass Checklist – Compile Documents on checklist and confirm by inserting initials of reviewer. Package includes:</p> <ul style="list-style-type: none"> • Bypass or Diversion report • SCADA Report • Necessary Operational trends • Daily Log • Wet Weather Checklists • Bypass letter for Bypass events • Any additional documents 	WWTP files	Life of the Consent Decree or 5 years from the date of origination, whichever is longer
WWTP Raw Data Sheets	Plant Technician	<ol style="list-style-type: none"> 1. Collect data from plant processes. 2. Enter raw data into database 3. Database is used for building MOR and DMR 	WWTP files and data are stored on WWTP database. This database is located on the Dept 83 SQL server and is backed up daily.	Life of the Consent Decree or 5 years from the date of origination, whichever is longer
Operator Daily Log	Plant Supervisor, Plant Technician III, Shift Plant Technician	<ol style="list-style-type: none"> 1. Enter operational information into the electronic daily log from raw data sheets. 2. Enter Operations Analytical Equipment Data (i.e. pH, DO, etc.) into daily log 3. Review daily log for completeness 	WWTP files and data are stored on WWTP database. This database is located on the dept 83 SQL server and is backed up daily.	Life of the Consent Decree or 5 years from the date of origination, whichever is longer
LIMS Database	Lab Analyst	<ol style="list-style-type: none"> 1. Analyze data and enter onto the LIMS raw data sheet. 2. Enter data from spreadsheet into database 	KUB Server and Regulatory Compliance	Life of the Consent Decree or 5 years from the date of origination, whichever is longer
Root Cause Analysis for effluent NPDES violations	Plant Supervisor, Plant Technician	<ol style="list-style-type: none"> 1. Compile data surrounding event 2. Analyze data and information 3. Initiate a corrective action plan 	WWTP files and Plants Department drive	Life of the Consent Decree or 5 years from the date of origination, whichever is longer

Document	Responsible Party	Action/Responsibility	Record Location	Records Retention
Data Verification Program Documents	Laboratory Analyst, LRC Manager, Plant Technician, Plant Technician III, Plant Supervisor, Internal KUB Compliance Assessor	<ol style="list-style-type: none"> 1. Plant Operations Database Check - -Operators on night shift verify information in the operations database matches what is on the daily data sheets for their shift and the prior shift. 2. Data Entry Check - -Compare hand written data collection with the database entered data -Compare database entries with hand written data after the conclusion of the monitoring period -Correct any incorrectly entered data. 3. Calculation Check - Review reporting calculations manually and compare them to the computer generated results 4. Internal KUB Compliance Assessment - Perform annual assessment on the MOR/DMR process and associated records 5. MOR/DMR Data Evaluation - Evaluate MOR and DMR based on the Database Entry Check form 	WWTP files	Life of the Consent Decree or 5 years from the date of origination

1.3.2 Description of Operator Log/Activity Reports

The Plant Technicians complete the plant daily log during the shift and prior to the close of the 24-hour period. The logs are primarily for communication between shifts and record abnormal events or process changes. Since these are used for communication purposes, there are fields entered such as plant process issues and changes, SMS communication, equipment changes and incidents entered into MIMS, maintenance and planning activities, preventative maintenance activities, SCADA activities and updates, safety comments, and capital project updates.

Plant data entered for all WWTPs includes operational information plus reportable information, such as pH and dissolved oxygen data. The operator logs and data files are maintained on the KUB server.

Data entered into the daily operational logs are checked for accuracy by the methods described in the Data Verification Plan in Section 1.4 of this document.

1.3.3 Description of KUB Water Quality Assurance Lab Analytical Data

Composite and grab samples are collected according to NPDES Permit requirements to monitor plant discharge and operating conditions. Test samples for parameters other than pH, dissolved oxygen, and chlorine are submitted to the KUB Water Quality Assurance Laboratory for analysis via chain of custody procedures.

Laboratory Analysts perform testing per guidance in 40 C.F.R. Part 136. Results and associated data are maintained on file at the laboratory and within an internal Laboratory Information Management System (LIMS) database for retrieval and compliance reporting.

All data is obtained and managed in accordance with the requirements and guidance described in the KUB Water Quality Assurance Lab – Quality Assurance Plan.

1.3.4 Description of Performance Reports

KUB WWTPs examine data daily to ensure proper operation of the plant processes. The Monthly Operating Reports (MORs) and Discharge Monitoring Reports (DMRs) are used as monthly performance reports. Other data reviews and performance measures are compiled on an as-needed basis and stored electronically on hard drives on the KUB server. Examples of these as-needed reviews are the digester performance indicators and the Annual Biosolids Report.

The Industrial Pretreatment Program uses data from internal analytical plant data, KUB industrial sampling data, industrial self-monitoring data, and inspections to complete a Semi-Annual Report. This report is compiled for two semi-annual reporting periods from April 1st through September 30th and October 1st through March 31st. TDEC then compiles the data from all pretreatment programs and submits the data to the EPA.

1.3.5 Description of the Reporting, Notification, and Record-Keeping Program for KUB's WWTPs

The Reporting, Notification, and Record-Keeping Program provides structure for accurately reporting Bypass, Diversion, and effluent limit violation events to the proper departments and regulators.

Through the program, KUB ensures accurate and prompt reporting and analysis of individual events. KUB evaluates the program annually and changes it, if necessary, to maintain an accurate and robust method of communication with regulatory agencies. New employees are trained after hire and existing employees are trained on an as needed basis on the requirements and the methods of the program.

At a minimum, KUB must report all Bypasses and Diversions to TDEC as required by NPDES permits and to the EPA in accordance with Section XIX of the Consent Decree (CD). KUB uses standard record-keeping procedures and forms containing, at a minimum, the items listed in the Consent Decree on page 44.

1.4 Operations Record-Keeping Program Data Verification Plan

1.4.1 Introduction

KUB operates four WWTPs and collects operational data for reporting in accordance with the applicable NPDES Permits and regulations. This Data Verification Plan (DVP) describes the responsibilities and activities related to the collection and analysis of samples and data to ensure quality and accuracy in preparation of the MOR and DMR.

1.4.2 Purpose

Under the NPDES Permits, KUB must collect, analyze, and report monthly on standard forms by the 15th day of the following month. These reports are the MOR and DMR. This DVP provides a process to ensure the quality and accuracy of the data.

1.4.3 Organization and Authorities

Key personnel reporting information submitted in the MOR/DMRs are Plant Technicians, Plant Supervisors, Plant Manager, Lab Analysts, Regulatory Compliance (LRC) Manager, Vice President of Plants and Underground Construction, and Internal KUB Assessor. The operators complete the Daily Raw Data Sheets, enter the data into the database, and perform data checks at the direction of the Supervisor. The Plant Supervisor is responsible for ensuring the data is accurate and MOR/DMR data evaluations are performed. The LRC Manager is responsible for validating the analytical data and generating the MOR and DMR that KUB sends to TDEC each month. The Vice President of Plants and Underground Construction is responsible for the overall quality of the reported data and signing the DMRs. The MOR is signed by a Tennessee Certified Wastewater Treatment Operator with a certification grade equal to or higher than the grade described in the WWTP NPDES Permit. The KUB Assessor periodically performs assessments of the MOR/DMR generation process as scheduled in this DVP.

1.4.4 Quality Assurance Procedures

The procedures specified in this section are designed to implement this DVP.

1.4.4.1 Plant Data Entry Check

Plant Technicians perform initial data checks before or during the entry of data into the database. The initial data check compares the values and calculations on the Daily Raw Data sheets to the information being entered into the databases. Plant Technicians perform a second check that compares the database printout to the Daily Raw Data Sheets. This check is performed after the conclusion of the month being reviewed.

1.4.4.2 Lab Data Entry Check

The Lab Analysts responsible for generating laboratory results perform a lab data entry check. The review is done at the completion of results entry in the LIMS database and is verified by a reviewer (peer or Supervisor). Signatures on raw lab data sheets or within LIMS will verify the validity of the data entered into the LIMS.

1.4.4.3 Analytical Data Validation

The LRC Manager will review the analytical data used in the MOR and DMR for its consistency and accuracy prior to making those reports available for review to plant operations. Any atypical or suspect results will be investigated and corrected as necessary to ensure quality and accuracy before proceeding to the next step of review.

1.4.4.4 MOR/DMR Data Evaluation

The MOR/DMR is printed each month and made available to the Plant Supervisors for evaluation using the form in Appendix 1.5.1. If the Plant

Supervisors determine that there is an error in the data, then the error will be noted on the Database Entry Check form and the Plant Supervisor signs the form. The data error is corrected and communicated to the LRC Manager who corrects the necessary forms. The signed Database Entry Check form with the corrected MOR/DMR attached is then presented to the Vice President of Plants and Underground Construction and appropriate Tennessee Certified Wastewater Treatment Operator for review and required signature.

1.4.4.5 Checking Calculations and Data Policy

KUB conducts checks to verify calculations that contribute to regulatory or compliance determinations. The originator of the reports takes responsibility to ensure that a competent reviewer checks the calculations and/or data. The reviewer’s responsibilities include performing an appropriate and accurate review and documenting review results on the Calculations Verification Form annually.

The calculation verifications include reviewing calculations to ensure that correct formulas, conversion factors, etc., were used in calculating the results. In the case of computer-generated calculations, review of formulas will consist of manual calculations using the same data and formulas used by the computer to verify the computer results.

On an annual basis, one day per month must be selected and the calculations tested for comparison to MOR and DMR reports. The results of the manual calculations reflected on the Calculations Verification Form in Appendix 1.5.2 will be filed and maintained by the reviewer.

1.4.4.6 Quality Assurance Assessment

Assessments are performed daily, monthly, and annually to ensure the information reported on the MORs and DMRs is accurate. An internal KUB Assessor selected by the LRC Manager will perform the Internal KUB Compliance Assessment which is an annual review of the Operations Record-Keeping Program.

Frequency	Type of Assessment	Responsible Party
Daily	Plant Operations Database Check	Night Shift Operators
Monthly	Database Entry Check	Plant Techs, SCADA Team, Lab Analysts
Monthly	MOR Data Evaluation	SCADA Team, LRC Manager, Plant Supervisors
Annually	Calculation Check	LRC Manager or designee
Annually	Internal KUB Compliance Assessment	KUB Assessor

1.5 Appendices

Appendix 1.5.1
Database Entry Check

**Knoxville Utilities Board
Database Entry Check**

_____ Plant
_____ (Month/Year)

_____ Five dates were selected for the current month and compared to the detailed data listed on the "Daily Data Sheets" to verify the accuracy of the information reported on the MOR/DMR
(Include first and last day of the month for review)

Please list dates: _____

_____ The MOR/DMR for the current month was scanned for missing data (i.e., a blank space where data would normally be reflected)

_____ The data reflected on the MOR/DMR was checked for operational accuracy. None of the data appeared distorted or out of range (i.e., no data excessively high or low)

_____ The MOR/DMR was reviewed for any permit limits being exceeded for BODs, TSSs, SSs, pHs, Fecal Coli, or NH3-Ns

Please list if any:

_____ The MOR/DMR was reviewed for any indicators of operation problems or undesirable trends

_____ All Bypasses, if any, for the month were accurately reflected and noted on the MOR/DMR

_____ All NPDES Permit violations, if any, are listed at the bottom of the MOR/DMR

_____ Correspondence letters to regulatory agencies have been written and delivered

The MOR/DMR referenced above has been reviewed and is to the best of my knowledge and belief correct.

Signature of Operator _____

Date _____

Signature of Supervisor _____

Date _____

Appendix 1.5.2

MOR/DMR Calculations Verification Form

Knoxville Utilities Board MOR/DMR Calculations Verification Form

Calculation Type	Performed Properly	Corrections/Changes needed, if any
Max/Min DOs and pHs		
Monthly Max TSS, BOD, Settleable Solids, Flows		
Weekly Avg. – mg/L TSS, BOD, others		
Monthly Avg. – mg/L TSS, BOD, others		
Monthly Avg. – lbs/day TSS, BOD, others		
Percent Reduction – TSS, BOD		
Misc. calculations, if any [Describe]		

Comments:

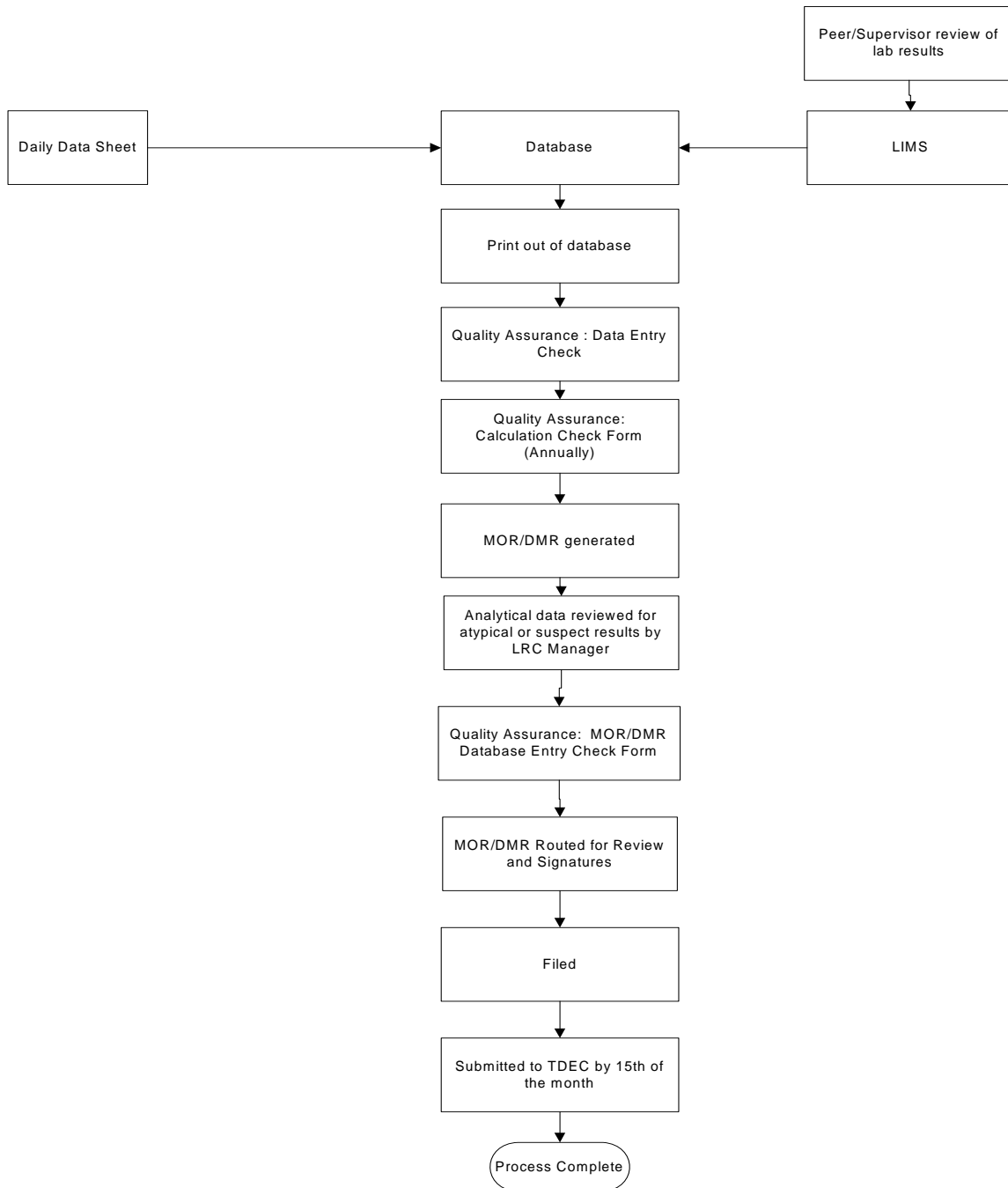
Signature of Reviewer _____

Date _____

Appendix 1.5.3

Data Entry and Verification Quality Assurance Process

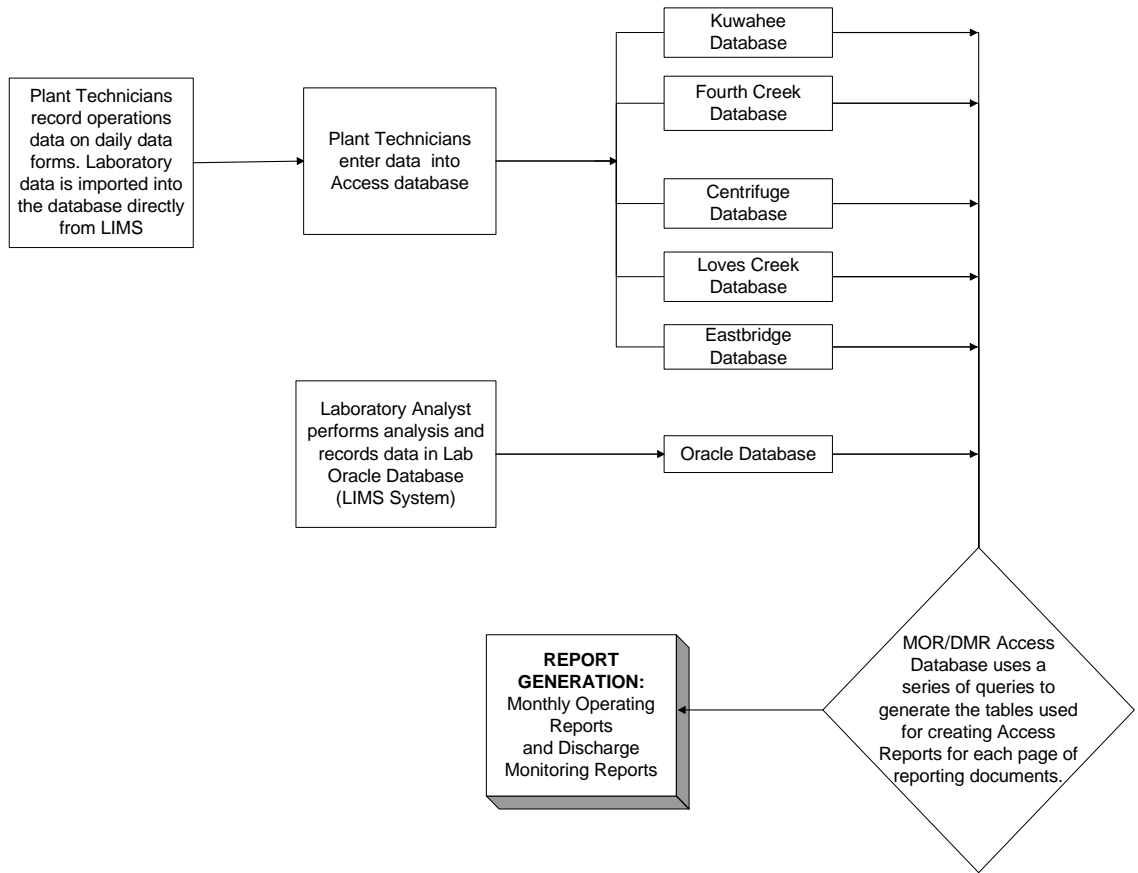
Data Entry and Verification Quality Assurance Process



Appendix 1.5.4

MOR and DMR Generation Data Flow

MOR and DMR Generation Data Flow
Updated 5/25/07



Appendix 1.5.5

Bypass Documentation Checklist

KUB WWTP DATE: _____ WWTP: _____
BYPASS DOCUMENTATION PACKAGE CHECKLIST

Purpose: This form serves as a checklist to capture all of the documentation required for compliance record-keeping. KUB fills out a form for each Bypass that occurs at any of the wastewater facilities. KUB maintains all forms and documentation on file at the Kuwahee WWTP and submits them to Collection System Improvement as part of the Bypass Report.

Package Contents: All applicable documents must be included in the package. If a Bypass occurs in more than one 24-hour period, documentation must be included for each successive day. The Technicians will add documents, check off, and initial that they included the documentation. The Operations Technician III / Plant Supervisor reviews the package to ensure that all required documentation is enclosed.

Check As Added To Package and Initial:

Document	Included in Package	Operations Technician Review
Bypass Report	<input type="checkbox"/> _____	<input type="checkbox"/> _____
SCADA Report	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Trends: (a) <i>Influent Flow</i> (b) <i>Bypass Flow</i>	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Wet Weather Checklists	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Daily Log	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Bypass Letter	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Special Notations: List any additional documentation in special notations such as Root Cause Analysis or other reports as applicable:	<input type="checkbox"/> _____	<input type="checkbox"/> _____

Reviewed by Supervisor: _____
 Date Submitted To Collection System Improvement Team ____/____/____
 Special Notations Concerning Bypass Event: _____

Appendix 1.5.6

Diversion Documentation Checklist

KUB WWTP DATE: _____ WWTP: _____
DIVERSION DOCUMENTATION PACKAGE CHECKLIST

Purpose: This form serves as a checklist to capture all of the documentation required for compliance record-keeping. KUB fills out a form for each Diversion that occurs at any of its wastewater facilities. KUB maintains all forms and documentation on file at the Kuwahee WWTP and submits them to Collection System Improvement as part of the Diversion Report.

Package Contents: All applicable documents must be included in the package. If the Diversion occurs in more than one 24-hour period, documentation must be included for each successive day. The Technicians will add documents, check off, and initial that they included the documentation. The Operations Technician III / Plant Supervisor reviews the package to ensure that all required documentation is enclosed.

Check As Added To Package and Initial:

Document	Included in Package	Operations Technician Review
Diversion Report	<input type="checkbox"/> _____	<input type="checkbox"/> _____
SCADA Report	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Trends: (if applicable) (a) <i>Influent Flow</i> (b) <i>Diversion Flow</i> (c) <i>Biological Flow</i> (d) <i>Primary Clarifier Flow</i> (e) <i>Effluent Suspended Solids</i>	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Wet Weather Checklist	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Daily Log	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Special Notations: List any additional documentation in special notations such as Root Cause Analysis or other reports as applicable:	<input type="checkbox"/> _____	<input type="checkbox"/> _____

Reviewed by Supervisor: _____
 Date Submitted To Collection System Improvement Team ___/___/___
 Special Notations Concerning Diversion Event: _____

Appendix 1.5.7
Diversion Report Form

KUB WWTP
DIVERSION REPORT

12:00 AM DATE TO 12:00 AM DATE

Supervisory Staff Approving Diversion

Name:

Title:

Designate WWTP where Diversion Occurred with an X

Kuwahee Wastewater Treatment Plant

Tennessee River Mile 646.2. The flows were diverted from the biological treatment/Activated Sludge process

Fourth Creek Wastewater Treatment Plant

Tennessee River Mile 640. The flows were diverted from the biological treatment/Activated Sludge process

Loves Creek Wastewater Treatment Plant

Holston River Mile 5. The flows were diverted from the biological treatment/extended aeration process

ROOT CAUSE FOR THE DIVERSION. Designate with an X

DESIGNATE WITH CAPITAL X INFLUENT FLOW IN EXCESS OF PLANT'S HYDRAULIC CAPACITY, DUE TO RAINFALL

X

MECHANICAL OR ELECTRICAL BREAKDOWN OF PLANT EQUIPMENT (PUMPS, ETC.)

OTHER _____

PERSON OR PERSONS INITIATING DIVERSION

IS THIS A CONTINUATION OF THE PREVIOUS DAY'S DIVERSION?

DESIGNATE WITH AN X

NO

YES

START DATE:

TIME DIVERSION GATE OPEN(ED) =

If this is a continuation, enter hour and date of the original gate opening.

HOUR DATE

TIME DIVERSION GATE WAS CLOSED:

HOUR DATE

PERSON OR PERSONS STOPPING DIVERSION

TOTAL DURATION DIVERTED THIS 24 HOUR PERIOD

HRS

TOTAL GALLONS DIVERTED:

MG

Appendix 1.5.8
Bypass Report Form

**KUB WWTP
BYPASS REPORT**

12:00 AM DATE TO 12:00 AM DATE

VICE PRESIDENT or MANAGER

APPROVING BYPASS

Name:
Title:

Bypass is prohibited unless the following three (3) conditions are met:

1. The Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage;
2. There are not feasible alternatives to Bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime.
This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a Bypass which occurred during normal periods of equipment down-time or preventative maintenance;
3. The permittee submits notice of an unanticipated Bypass to the appropriate field office of the Division of Water Pollution Control within 24 hours of becoming aware of the Bypass (if this information is provided orally, a written submission must be provided within five days). When the need for the Bypass is foreseeable, prior notification shall be submitted to the Director, if possible, at least ten (10) days before the date of the Bypass.

Designate WWTP where Bypass occurred with an X

<input type="checkbox"/>	Kuwahee Wastewater Treatment Plant
<input type="checkbox"/>	Tennessee River Mile 646.2. During the Bypass, all processes of the WWTP were bypassed

<input type="checkbox"/>	Fourth Creek Wastewater Treatment Plant
<input type="checkbox"/>	Tennessee River Mile 640. During the Bypass, all processes of the WWTP were bypassed

ROOT CAUSE FOR THE BYPASS. Designate with an X

DESIGNATE WITH CAPITAL X	<input type="checkbox"/>	INFLUENT FLOW IN EXCESS OF PLANT'S HYDRAULIC CAPACITY, DUE TO RAINFALL
	<input type="checkbox"/>	MECHANICAL OR ELECTRICAL BREAKDOWN OF PLANT EQUIPMENT (PUMPS, ETC.)
	<input type="checkbox"/>	OTHER _____

PERSON OR PERSONS INITIATING BYPASS

<input type="text"/>
<input type="text"/>

IS THIS A CONTINUATION OF THE PREVIOUS DAY'S BYPASS?

DESIGNATE WITH AN X		START DATE:
NO	<input type="checkbox"/>	YES <input type="checkbox"/> <input type="checkbox"/>

TIME BYPASS BEGAN:	HOUR	DATE
	<input type="text"/>	<input type="text"/>

TIME BYPASS ENDED:	HOUR	DATE
	<input type="text"/>	<input type="text"/>

PERSON OR PERSONS STOPPING BYPASS

<input type="text"/>
<input type="text"/>

TOTAL DURATION BYPASSED THIS 24 HOUR PERIOD	<input type="text"/>	HRS
TOTAL GALLONS BYPASSED:	<input type="text"/>	MG

Appendix 1.5.9

SSO Report – Treatment Plants

SSO Report-Treatment Plants

- Facility and specific site of SSO
- Kuwahee _____
- Fourth Creek _____
- Loves Creek _____
- Eastbridge _____

Date of Discharge: _____
Initial Time Onset of Discharge: _____
End Time of Discharge: _____
Duration in Hours: _____
Estimated Volume: _____
Reason for the Event:

Employee Reporting: _____
STEP: 1 -Call Systems Operations Dispatch and report:
Dispatcher: _____
Date: _____

STEP: 2- Notify Dept. Supervisor of SSO:
Supervisor: _____

Action Taken:

STEP: 3
Enter data into the “Treatment Plants – SSO and BBU Reporting” database owned by Department 84. Confirm via phone with Collection System Improvement Team, within 24-hours or, if discharge is on the weekend, by Monday at 10:00 a.m.

Appendix 1.5.10

**Dept. 83 - Root Cause Analysis
for Quality Improvement**

**Root Cause Analysis
(Location and violation)**

Meeting Held On: **(DATE HERE)**

Follow-Up Deadline On Action Items: **(DATE HERE)**

Event:
Date -
Time -
Observer -
Location -
Reason -
Action Taken -
KUB Responders -
Est. Recovered Volume -
Est. Not Recovered Volume -
Duration -
Water of the State -
Receiving Water -
Photographs -

Action Item	Responsible Party	Action Taken	Date Completed

Appendix 1.5.11

Kuwahee East End Raw Data Sheet

Kuwahee East End Raw Data Sheet

EAST READINGS

Technician Name				
DATE				
TIME				
Influent Temp				
O2 Meter %	Scrubber			
H2S Meter	Auto	Yes___ No___		
LEL Meter	Caustic %			
#1 Chlorine Analyzer	Saf TC EQ			
#1 Chlorine Tank DR-820	Nitrogen Cyl Weight			
Chlorine Feed Rate	Display all Normal?	Yes___ No___		
South chlorine bank pressure	Spare Nitrogen Cyls	Full___ Empty___		
North chlorine bank pressure				
South Cylinder Weight				
North Cylinder Weight	Fire & Smoke Detector			
Bisulfite Tank Level	Conditions Normal	Yes___ No___		
Water Pressure	Any Alarms displayed?	Yes___ No___		
% Inf jug volume	Note: If any alarms, list below <u>AND</u> on Daily Log			
Inf. Sampler in				Flow
% Sec jug volume				
% Eff jug volume				
Eff. Sampler in				Flow
Lead Intermediate Pump				
Lag Intermediate Pump				
#3 chlorine analyzer residual				
Final Eff. DR-820				
Thickener blanket level				
Inf pH				
Inf pH Time				
Secondary pH				
Secondary pH Time				
Eff pH				
Eff pH Time				
Eff DO				
Eff DO Time				

Appendix 1.5.12

Kuwahee West End Raw Data Sheet

Kuwahee West End Raw Data Sheet

WEST READINGS

Technician	Date	Time

Digester	Meter	Rod	Inlet Temp
#2			
#3			
#4			
#5			
#6			

Sludge Heater	Temp (F)
HTR #1	
HTR #2	
HTR #3	

Turbo Mixers		Discharge Pressure (normal - @ 15 psi)	Vacuum/Pressure (normal =12-14 in H2O)
Unit	Status		
1			
2			
3			

Supernate Quality	Quality

DAF				
Unit	Status	Eff quality	Skimmer Speed	Line PSI
1				
2				
3				

MLSS	10 Minute		30 Minute

Final Clarifiers			
Tanks	Telescopic Valve	Blanket	
#1			East Gas Detector Methane PPM_____
#2			
#3			
#4			
#5			
#6			West Gas Detector Methane PPM_____

BLOWER

Motor free end oil level	
Thrust bearing oil Temp (#1)	
Impeller end oil Temp (#2)	
Air filter oil pressure (#3)	
Oil cooler discharge Temp (#4)	
Coupling end oil Temp (#5)	
Motor coupling end oil level	
Main Oil Pump PSI	
Main blower oil level	
NOTE: If auxiliary oil pump is running, the main oil pump needs immediate maintenance!	

Appendix 1.5.13

Fourth Creek Daily Data Sheet

Fourth Creek Daily Data Sheet

Today's Date	
Time	
Operator	
Air Temp	
Influent Temp	
Influent pH / Time Data Recorded	
Influent DO / Time Data Recorded	
Initial CL2 Analyzer / DR-820	
Post CL2 Analyzer / DR-820	
Final CL2 Analyzer / DR-820	
Grit Removed	
Grit Bridge Cycle Timer	
# Primaries on line	
Primary Sludge Valve Time	
P.E. pH / Time Data Recorded	
MLSS DO / Time Data Recorded	
MLSS pH / Time Data Recorded	
30 Minute Settleable Solids	
Return Sludge Flow	
Return Sludge DO / Time Data Recorded	
#1 Final Blanket Level	
#2 Final Blanket Level	
#3 Final Blanket Level	
#4 Final Blanket Level	
Chlorine Feed Rate	
Eff pH / Time Data Recorded	
Eff DO / Time Data Recorded	
Effluent Flow / Time Recorded	
Influent Flow / Time Recorded	

Monitoring Flow Data

Yesterday's date	
Total lbs CL2 Used	
Inches of Rainfall	
Waste Activated Sludge Minutes	

% Inf jug volume

Inf Sampler in Flow
Time

% Sec jug volume

Time

% Eff jug volume

Efff Sample in Flow
Time

H2S Meter	
LEL Meter	

Bisulfite Level	
CL2 Cyl Weight	
HTH # drums	
Degreaser	
Deoderant	

# Empty CL2 cylinders	
-----------------------	--

Appendix 1.5.14
Loves Creek Daily Data Sheet

Loves Creek Daily Data Sheet

OPERATOR

RAIN

DATE

Influent Temp Time

--	--

Effluent Temp Time

--	--

Previous
CL2 lbs

Influent D.O. Time

--	--

Effluent D.O. Time

--	--

Present
CL2 lbs

Influent pH Time

--	--

Effluent pH Time

--	--

CL2 lbs
Used

MLSS D.O.

CL2 Post
DR-800 Time

--	--

Waste
Minutes

MLSS 30 Min Set
Solids

CL2 Final
DR-800 Time

--	--

Sludge Blankets

Clarifier 1	
Clarifier 2	
Clarifier 3	

Comments

% Inf jug volume		
Inf Sampler in	Flow Y / N	
Time		
% Eff jug volume		
Eff Sampler in	Flow Y / N	
Time		

Appendix 1.5.15
Eastbridge Daily Data Sheet

Eastbridge Daily Data Sheet

DAY _____ DATE _____ TECH _____ RAIN _____

BENCH TOP TEST

	TEMP	TIME	DO	TIME	PH	TIME	30 MIN SS	CL2 RESID	TIME	1HR IMHOFF
INFLUENT										
SBR # 1										
SBR # 2										
SBR # 3										
EFFLUENT										

CHLORINE READINGS

	LEFT BANK				RIGHT BANK			
	1	2	3	4	1	2	3	4
YESTERDAY								
TODAY								
TOTAL								

TOTAL

WASTE SLUDGE

SBR # 1	
SBR # 2	
SBR # 3	
TOTAL	

Comments

% Inf jug volume		
Inf Sampler in	Flow Y / N	
Time		
% Eff jug volume		
Eff Sampler in	Flow Y / N	
Time		