



**Environmental
Protection Agency**

Jeff Blum, Governor
Mike Fisher, Lt. Governor
Chris Pappalardo, Director

July 27, 2010

RE: NPDES Compliance Evaluation Inspection and
Notice of Violation

Mr. Tim W. McDaniel
Navistar, Inc.
6125 Urbana Road
Springfield, OH 45502

Dear Mr. McDaniel:

On June 23rd I met with Lisa Silva to conduct a Compliance Evaluation Inspection (CEI) of your facility. On June 24th I met with Ms. Silva, Linda Bolds and Clarence Richardson to evaluate Navistar's laboratory. The lab evaluation followed the newly developed lab inspection checklist included with this letter.

A review of self-monitoring reports since the previous inspection revealed a daily maximum temperature violation at outfall 002 on August 1, 2009 (reported 30°C versus 29°C limit) and a weekly average CBOD limit violation at outfall 001 on November 18, 2009 (reported 26 mg/l versus 18 mg/l limit). In light of the written explanations provided at the time of the violations, no further response is necessary.

As you are aware, subsequent to the inspection, Navistar's sanitary wastewater treatment plant essentially died apparently because of the addition of 300 gallons of 29% calcium chloride into the industrial clarifier that is tributary to the sanitary system. Aside from killing all the microbiology, the chemical addition subsequently caused Navistar's discharge to chemically react with the receiving stream turning it white. Pictures of the stream at the outfall are attached. The discoloration of the stream is a violation of Part III.2.C of your NPDES permit. Results of monitoring conducted on July 17th and 19th showed high levels of total dissolved solids which the calcium chloride would contribute toward.

Navistar provided no notification to Ohio EPA at the time regarding the misapplication of calcium chloride or that the microbiology in the treatment plant had died off. Additionally, it was only through a complaint investigation that we learned of the discoloration in the receiving stream.

At the time of these events, Navistar was going through its summer shut down during which many tanks, pits and lines are drained and cleaned. These wastewaters are sent to existing holding tanks and/or frac tanks for controlled release to the treatment system. I noted there being eleven of what looked like 20,000-gallon frac tanks being used.

My understanding of the sequence of events associated with the plant upset is as follows:

On or Around	Event
July 2	Production plant shut down began.
July 2-3	300 gallons of 29% calcium chloride mistakenly added to industrial waste clarifier. <i>(This chemical and volume was said to normally be added at very low rates as an aid to clarification. 300 gallons would normally takes months to use.)</i>
July 2- 6	MLSS in oxidation ditches noted as decreasing significantly from day to day.
July 6	Second clarifier brought on-line after being out of service for a long time.
July 6-7	WWTP effluent was recycled (no discharge).
July 8	WWTP started discharging.
July 9 and 10	Operator log notes that return activated sludge pumps were pulling clear water and that there was one foot of sludge in the clarifier.
July 10	30,000 gallons of waste activated sludge is pumped to the oxidation ditch through the sanitary wet well.
July 12	50 pounds of rabbit food (six bags) and four pounds of 'bugs in a bag' added to oxidation ditches.
July 13	Complaint that the receiving stream was white received at Ohio EPA around 11:45 AM. Complaint investigation at about 2:30 PM revealed the complaint to be valid. At approximately 4:30 the discharge was shut off.
July 17	Discharge commences but does not yet include industrial wastewater.

Navistar has been conducting specialized treatment for approximately a week using hydrogen peroxide, sodium thiosulfate, ferric chloride and anionic polymer to address an organic calcium phosphate complex suspected to have formed in Navistar's wastewaters. Following in-vessel treatment in both the sanitary and industrial waste systems, wastewaters are being re-introduced to the sanitary wastewater treatment system and subsequent discharge. The sanitary treatment system is said to be on the path to regaining its normal viable microbiological population without the anticipated need to have mixed liquor from the City of Springfield's WWTP hauled in to seed Navistar's plant.

I am interested in knowing if Navistar has a written plan for management and treatment of wastewater generated during annual shut down periods. Such a plan would provide an inventory of all wastewaters and chemicals used for cleaning along with procedures for managing these wastewaters currently accomplished through the use of on-site storage tanks, numerous temporary frac tanks and coordinated treatment. If such a written plan exists, I would appreciate receiving a copy of it. If there is no plan, please provide a date by which one will be submitted.

Mr. Timothy McDaniel
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INSPECTION FINDINGS

From my observations on June 23rd and 24th I have identified the following issues that necessitate your attention:

Sanitary Clarifiers

One of the two clarifiers was out of service but you informed me that it had just finished being repaired and was ready to be brought on-line. Both clarifiers were full during my complaint investigation on July 13th although the sludge scraper arms were not moving.

On June 23rd, I observed a significant amount of algae accumulation on the saw-tooth weir that was preventing uniform overflow. Uneven overflow can cause currents within the clarifier that can then lead to loss of solids. It is necessary to establish a procedure and schedule for cleaning the weirs of algae to ensure maximum performance of the clarifiers. I did note that the clarifier weirs were clean when I viewed the plant on July 13th.

Composite Sampling

Navistar has installed a new flow meter at outfall 601 but has not yet connected a signal from the meter to the automatic composite sampler to allow for flow-proportional sampling. Also, at outfall 001 I noted the automatic composite sampler is programmed to collect nine-six aliquots indicating time-proportional sampling is being practiced.

Please note that Part II.H of your NPDES permit requires all composite sampling to be flow-proportional. Please make necessary arrangements to start flow-proportional composite sampling as soon as possible. Please explain how you plan to address this issue and when flow-proportional sampling will begin.

IWT pH Probes

You indicated that the pH probes used in the industrial waste treatment (IWT) system have proven to be somewhat difficult to maintain. Because proper pH control is critical to the operation of the IWT system, I believe you need to investigate other probes that are more durable for your operations. I have sent you information via e-mail on pH probes used by an industry that told me the pH probes they use have been very reliable and durable. Please let me know if you plan to change the pH probes in the IWT system.

Laboratory Findings

Instead of reiterating each finding noted in the General Lab Criteria portion of the inspection packet, the following are discussions of the more critical issues necessitating your attention:

1. At least for the analytical procedures I evaluated, which did not include heavy metals analysis using atomic absorption, there was a lack of log books for the analytical equipment used in the lab. Log books are used to record maintenance and calibration activities associated with all analytical equipment and are a requirement that Navistar must address immediately.

You expressed concern about the expense and effort of obtaining bound log books with sequentially numbered pages in light of your use of forms unique to each analytical device. I have attached examples of log books used by another laboratory that informed me that they were able to be easily made through a local copy/print services store. Please explain how and when Navistar plans to correct this deficiency.

2. New thermometers used in several pieces of equipment (ovens, incubators, refrigerators, including sample collection refrigerators) are not sufficiently accurate as noted in the inspection form. It is necessary to replace them with new thermometers and ensure they are checked against an NIST thermometer at least annually with correction values posted with each thermometer. Please let me know when new thermometers will be put into use.
3. Although not evaluated during this inspection, Navistar must ensure it has written Standard Operating Procedures (SOP's) for each analytical procedure performed in the lab. Standard Methods 1020A establishes that:

"Quality assurance (QA) is the definitive program for laboratory operation that specifies the measure required to produce defensible data of known precision and accuracy. Standard operating procedures are to be used in the laboratory in sufficient detail that a competent analyst unfamiliar with the method can conduct a reliable review and/or obtain acceptable results."

SOPs include the following (as applicable):

- Title
- Scope and Application
- Summary
- Sample Handling and Preservation
- Interferences
- Apparatus and Materials
- Reagents
- Procedure
- Calculations
- Quality Control
- Maintenance
- Corrective Action
- Reference (Parent Method)

As such, SOPs should be developed for each analytical procedure. Please be prepared to show SOPs during future inspections.

Mr. Timothy McDaniel
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Please review the General Lab Criteria portion of the inspection form carefully and use it as a guide for identifying crucial aspects of laboratory operations that Navistar can then ensure *are being properly implemented*.

Please provide me a written response to this letter by August 23, 2010 that addresses the issues I have raised including dates when actions will be taken.

If you have any questions concerning this letter or the attached inspection forms, please call me at (937) 285-6095.

Sincerely,



Matt Walbridge
Environmental Specialist
Division of Surface Water

ENCLOSURES

CC: Lisa P. Silva – Navistar



Southwest District Office

NPDES Compliance Inspection Report

Section A: National Data System Coding					
Permit #	NPDES#	Month/Day/Year	Inspection Type	Inspector	Facility Type
OH0009954	1IN00022*ID	06/23 & 24/2010	C	S	2

Section B: Facility Data		
Name and Location of Facility Inspected	Entry Time	Permit Effective Date
Navistar, Inc. 6125 Urbana Road Springfield, OH 44501	0900 on June 23 rd 1330 on June 24 th	8-1-07 (modified 4-30-09)
	Exit Time	Permit Expiration Date
	1100 on June 23 rd 1730 on June 24 th	1-31-12

Name(s) and Title(s) of On-Site Representatives	Phone Number(s)
Lisa Silva - Environmental Engineering Supervisor	(937) 390-4026

Name, Address and Title of Responsible Official	Phone Number
Tim McDaniel - Environmental Health and Safety Manager Navistar, Inc. 6125 Urbana Road Springfield, OH 44501	(937) 390-4024

Section C: Areas Evaluated During Inspection					
(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)					
S	Permit	S	Flow Measurement	N	Pretreatment
S	Records/Reports	U	Laboratory	M	Compliance Schedule
S*	Operations & Maintenance	S*	Effluent/Receiving Waters	U	Self-Monitoring Program
S*	Facility Site Review	S	Sludge Storage/Disposal	N	Collection System

Section D: Summary of Findings (Attach additional sheets if necessary)

**Conditions observed on June 23rd were satisfactory but on July 13th, as part of a complaint investigation, the operating condition of the WWTP was unsatisfactory (there was no microbiology) and the effluent and receiving water were unsatisfactory in that the discharge was causing the stream to turn milky white.*

Both oxidation ditches in use and looked good but only one clarifier was on-line (repairs were recently completed and it was ready to be brought on-line. The overflow weirs of the on-line clarifier had heavy accumulations of algae.

The new influent screen looked like it was doing a good job.

Industrial waste water equalization basin looked good (good aeration/mixing). It was pretty full.

pH probes in IWT system were said to be troublesome. I'll send info on possible replacements.

Aeration mixing in tank T2-A could be much better with repairs to missing diffuser piping.

Tank T2-B was in the process of being cleaned of accumulated solids (estimated that approximately 1 foot of sludge will likely have to be 'cut out'). Liquid portion is being transferred from T2-B to frac tank storage, solids are removed from T2-B and then the liquid will be returned.

Industrial waste clarifier looked good. The flights are operated at a very slow pace.

The outfall was pretty foamy but there was no foam in the stream. The stream was very clear and there were fish swimming around the outfall mixing zone.

See inspection letter for further findings.

Inspector	Reviewer
 Date: 7-22-10	 Date: 7/27/10
Matt Walbridge Division of Surface Water Southwest District Office	Martyn Burt Environmental Supervisor Division of Surface Water Southwest District Office

Y – Yes, N – No, N/A – Not Applicable, N/E – Not Evaluated

Section E: Permit Verification

Inspection observations verify the permit

- (a) Correct name and mailing address of permittee Y
- (b) Correct name and location of receiving waters..... Y
- (c) Product(s) and production rates conform with permit application (Industries)..... NA
- (d) Flows and loadings conform with NPDES permit..... Y
- (e) Treatment processes are as described in permit application... Y
- (f) New treatment process(es) added since last inspection..... Y
- (g) Notification given to State of new, different or increased discharges..... N
- (h) All discharges are permitted..... Y
- (i) Number and location of discharge points are as described in permit..... Y

Comments/Status:

e) All units except one secondary clarifier are in service. Repairs recently completed and it is about to be brought into service.

f) There is a new step screen on the sanitary influent channel. Appears to be very effective.

g) After the inspection, no notice was given for 300 gallons of 29% calcium chloride that was dumped into the industrial clarifier that subsequently apparently led to the microbiology in the oxidation ditches dying.

Section E: Permit Verification

- (a) Any significant violations since the last inspection..... Y
- (b) Permittee is taking actions to resolve violations..... Y
- (c) Permittee has a compliance schedule..... Y
- (d) Compliance schedule contained in NPDES permit Part I for Hg.
- (e) Permittee is meeting compliance schedule..... Y

Comments/Status:

a) Discharge on July 13, 2010 (after this inspection) caused the receiving stream at outfall 001 to turn milky white which a general prohibition of Water Quality Standards and the NPDES permit.

e) Third annual update to be submitted by August 1st

Section G: Operation & Maintenance

Treatment Works:

- (a) Standby power available.....generator and/or dual feed Y
- (b) Adequate alarm system available for power or equipment failures.. Y
- (c) All treatment units in service other than backup units..... N
- (d) Operator holds unexpired license of class required by permit..... Y
Class: I
- (f) Routine and preventative maintenance schedule/performed on time..... N
- (g) Any major equipment breakdown since last inspection..... Y
- (h) Operation and maintenance manual provided and maintained..... Y
- (i) Any plant bypasses since last inspection..... N
- (j) Regulatory agency notified of bypasses..... NA
On MORs and/or Spill Hotline (1-800-282-9378)
- (k) Any hydraulic and/or organic overloads since last inspection..... ?

Comments/Status:

b) High level for wet well, EQ basin, mix reaction, chemical feed and pH on outfall 601. There are contingency plans for outages.

c) & g) One of the two clarifiers was still off-line although repairs have recently been completed. It came on-line after the inspection.

d) Need to submit Operator of Record certification.

f) Not really. They need to formalize one.

h) They would benefit from having something for handling wastes during plant shut downs.

k) Although some kind of chemical overload (likely calcium chloride) apparently killed the microbiology in the oxidation ditches.

Collection System:

- (a) Percent combined system: 0 %
- (b) Any collection system overflows since last inspection..... NA
(CSO and/or SSO)
- (c) Regulatory agency notified of overflows (SSOs)..... NA
- (d) CSO O&M plan provided and implemented..... NA
- (e) CSOs monitored and reported in accordance with permit..... NA
- (f) Portable pumps used to relieve system..... NA
- (g) Lift station alarms provided and maintained..... NA
- (h) Are lift stations equipped with permanent standby power or equivalent..... NA
- (i) Is there an inflow/infiltration problem (separate sewer system), or were there any major repairs to collection system since last inspection..... NA
- (j) Any complaints received since last inspection of basement flooding NA
- (k) Are any portions of the sewer system at or near capacity..... NA

Comments/Status:

i) They are conducting a sewer cleaning program to address mercury identification/removal.

Section H: Sludge Management

- (a) Sludge management plan (SMP)
Submitted date: **5-29-96** Approval #: **05-352-IW** Not submitted N/A
- (b) Sludge management plan current..... Y
- (c) Sludge adequately disposed..... Y
(Method: *Liquid to sanitary landfill where it is mixed with bulking agent until solid enough for disposal*)
- (d) If sludge is incinerated, where is ash disposed of NA
- (e) Is sludge disposal contracted..... Y
(Name: *Metropolitan Environmental Services comes as needed*)
- (f) Has amount of sludge generated changed significantly since the last inspection..... N
- (g) Adequate sludge storage provided at plant..... Y
- (h) Land application sites monitored and inspected per SMP.....NA
- (i) Records kept in accordance with State and Federal law..... Y
- (j) Any complaints received in last year regarding sludge..... N
- (k) Is sludge adequately processed (digestion, pathogen control)..... Y

Comments/Status:

- f) 09-10 fee weight has not yet been reported (due September 1st).
- g) Storage other than what is provided by the aerated tank can also be accomplished by increasing MLSS.
- k) Even though it is being sent to Suburban Landfill.

Section I: Self-Monitoring Program

Flow Measurement:

- (a) Primary flow measuring device operated and maintained..... Y
Type of device: Ultrasonic & Parshall flume Ultrasonic & Weir
Weir Calculated from influent Other (Specify: *Doppler*)
- (b) Calibration frequency adequate ND
(Date of last calibration: *ND*)
- (c) Secondary instruments operated and maintained..... NA
- (d) Flow measurement equipment adequate to handle the full range of flows..... Y
- (e) Actual flow discharged is measured..... Y
- (f) Flow measuring equipment inspection frequency
 Daily Weekly monthly other

Comments/Status:

- a) Flow is monitored into and from the EQ basin. Ultrasonic w/ weir is provided at outfall 002. Outfall 001 has a flume with conductance.
- b) Told that it is calibrated once per year. Need to know this is happening.

Section I: Self-Monitoring Program (con't)

Sampling:

- (a) Sampling location(s) are as specified by permit..... Y
- (b) Parameters and sampling frequency agree with permit..... Y
- (c) Permittee uses required sampling method..... N
- (d) Sample collection procedures are adequate..... Y
 - (i) Samples refrigerated during compositing..... Y
 - (ii) Proper preservation techniques used..... Y
 - (iii) Containers and sample holding times prior to analysis conform with 40 CFR 136.3..... Y
- (e) Monitoring records (i.e., flow, pH, DO) maintained for a minimum of three years including all original strip chart recordings (i.e, continuous monitoring instrumentation, calibration and maintenance records)..... Y
- (f) Adequate records maintained of sampling date, time, location, etc.. Y

Laboratory:

General

- (a) EPA approved analytical testing procedures used (40 CFR 136.3).. Y
- (b) If alternate analytical procedures are used, proper approval has been obtained.....NA
- (c) Analyses being performed more frequently than required by permit. Y
- (d) If (c) is yes, are results in permittee's self-monitoring report..... N
- (e) Commercial laboratory used..... Y

Parameters analyzed by commercial lab:

Mercury, TTOs, heptachlor and effluent toxicity

Lab name: **Alloway Laboratories**_(beginning in 2009)

Quality Control/Quality Assurance

- (f) Quality assurance manual provided and maintained..... Y
- (g) Satisfactory calibration and maintenance of instruments/equipment. Y
- (h) Adequate records maintained..... Y
- (i) Results of latest USEPA quality assurance performance sampling program: Satisfactory Marginal Unsatisfactory

Date:

Comments/Status:

Sampling:
c) *They are conducting time-proportional sampling whereas the permit requires flow-proportional sampling.*

Laboratory:
c) & d) *I was informed that they collect process control samples in locations and manners that make them nonreportable,*
i) *They indicated that they participate and that the results are satisfactory, but I did not verify.*

Section J: Effluent/Receiving Water Observations

Outfall Number	Oil sheen	Grease	Turbidity	Visible Foam	Visible Floating Solids	Color	Other
001	No	None	Clear	Yes	No	None	No
002	No	None	Clear	No	No	None	No

Comments/Status:

Section K: Multimedia Observations

- (a) Are there indications of sloppy housekeeping or poor maintenance in work and storage areas or laboratories..... N
- (b) Do you notice staining or discoloration of soils, pavement or floors.. N
- (c) Do you notice distressed (unhealthy, discolored, dead) vegetation.. N
- (d) Do you see unidentified dark smoke or dust clouds coming from sources other than smokestacks..... N
- (e) Do you notice any unusual odors or strong chemical smells..... N
- (f) Do you see any open or unmarked drums, unsecured liquids, or damaged containment facilities..... N

If any of the above are observed, ask the following questions:

- (1) What is the cause of the condition?
- (2) Is the observed condition or source a waste product?
- (3) Where is the suspected contaminant normally disposed?
- (4) Is this disposal permitted?
- (5) How long has the condition existed and when did it begin?

Comments/Status:

● General Lab Criteria ●

Criteria	Standard Methods Requirement	Acceptable?		Rating
Balance				
• Standard Weights	• Either NIST Class S or ASTM/ANSI Class 1 weights ^{1,2}	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	M
• Calibration Frequency / Documentation	• Calibration verification required at least once each day the balance is used. ³	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
• Cleanliness, air movement, vibration	• Cleanliness of balance is a must and air movement and vibration needs to be kept to a minimum ¹	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
• Other	• Service and recalibrate annually (manufacturer representative or comparable) ¹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Must be able to measure to 0.1 grams ⁴	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Instrument manual available	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Log book maintained ²	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	

Comments:

An undocumented calibration check is performed once per week.

The balance was clean, level and there were no vibrations, but a nearby floor fan was blowing right at the balance. I was told that the fan is shut off when the balance is used.

Criteria	Standard Methods Requirement	Acceptable?		Rating
Drying Oven (Suspended Solids)				
• Temperature Recordkeeping	• Temperature recorded with each use ⁴	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	U
	• Log book maintained ²	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
• Calibration Frequency / Documentation	• Thermometer checked annually with NIST traceable thermometer ^{1,2} . Correction factor posted on thermometer / equipment ¹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
• Other	• Thermometer temperature in 0.5° C increments ⁵	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	• Acceptable temperature range is 103° – 105° F ⁴	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	• Instrument manual available	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments:

The recently-purchased thermometer came calibrated with a certificate that the calibration was good for two years. The thermometer (by Control Company) is accurate only to ±1°C between -20 and 100°C. The range is otherwise said to be -50 to 300°C. The sensor of the thermometer was not in a sealed liquid solution.

Thermometer was reading 106.4°F.

General Lab Criteria

Criteria	Standard Methods Requirement	Acceptable?		Rating
pH Meter				
<ul style="list-style-type: none"> • Calibration Frequency / Documentation 	<ul style="list-style-type: none"> • Calibration verification required for testing over long period of time (e.g. 12 hrs.), or after a large number of samples (every 10 samples)³ 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	M
	<ul style="list-style-type: none"> • Logbook maintained² 	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
<ul style="list-style-type: none"> • Minimum of 2 point calibration 	<ul style="list-style-type: none"> • Calibration per manufacturer specification and calibration buffers must bracket anticipated result⁷ 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
<ul style="list-style-type: none"> • Slope Documentation / Acceptability 	<ul style="list-style-type: none"> • Slope acceptable range indicated on benchsheet² 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
<ul style="list-style-type: none"> • Buffer Expiration Date 	<ul style="list-style-type: none"> • Buffers must not be expired 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
<ul style="list-style-type: none"> • Other 	<ul style="list-style-type: none"> • Instrument manual available • Teflon covered magnetic stirrer or equivalent for mixing⁸ 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments: :

Calibration verifications are not documented.

Calibrations are performed weekly.

Buffer solution was recently expired with new buffer yet to be opened. Buffer solutions are kept in uncovered beakers.

Criteria	Standard Methods Requirement	Acceptable?		Rating
Dissolved Oxygen Meter				
<ul style="list-style-type: none"> • Calibration Method 	<ul style="list-style-type: none"> • Air or known DO calibration method¹⁰ 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	M
	<ul style="list-style-type: none"> • Calibration per manufacturer specification¹⁰ 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
<ul style="list-style-type: none"> • Calibration Frequency / Documentation 	<ul style="list-style-type: none"> • Logbook maintained² 	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	<ul style="list-style-type: none"> • Calibration verification required at least once each day the meter is used.³ 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
<ul style="list-style-type: none"> • Other 	<ul style="list-style-type: none"> • Small to no bubble present under membrane (must be smaller than the lead in number 2 pencil)¹¹ 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	<ul style="list-style-type: none"> • Instrument manual available 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments:

They use a saturated solution to perform calibrations.

● General Lab Criteria ●

Criteria	Standard Methods Requirement		Rating
Incubator (CBOD/ E-Coli)	Acceptable?		
• Temperature Recordkeeping	• Temperature checked / recorded twice daily for each shelf in use ¹ (E-Coli)	<input type="checkbox"/> Yes <input type="checkbox"/> No	U
	• Temperature checked / recorded daily ² (CBOD)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	• Acceptable temperature range (CBOD) is 20° C ±1.0 ^{o 12}	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	• Acceptable temperature range (E-Coli) is 35° C ±0.5 ^{o 22}	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	• Logbook maintained ²	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
• Temperature Calibration / Documentation	• Thermometer checked annually with NIST traceable thermometer ^{1, 2}	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	• Temperature correction information posted on incubator ¹	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
• E-Coli can use multiple tubes (five 20 ml or ten 10 ml), or mfg's multi-well tray	• E-coli Ultraviolet lamp (365 nm wave length, 6 W bulb) ²³	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Other	• Instrument manual available	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	• Temperature Log (thermometer reads to 0.5 Celsius). ¹	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Comments :

CBOD incubator was reading 20.2°C (built-in thermometer).

Need to use an NIST- traceable thermometer to check the reading.

Blank ratings are because they do not monitor for E-coli.

Criteria	Standard Methods Requirement		Rating
Refrigerator	Acceptable?		
• Temperature Recordkeeping	• Temperature Log (thermometer reads to 0.5 Celsius). ⁵	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	U
• Temperature Calibration / Documentation	• Thermometer calibrated annually with NIST traceable thermometer ^{1, 2}	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	• Thermometer held in water bath. ¹	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
• Other	• Refrigerator temperature ≤6° Celsius. ¹³	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	• Do not store volatile solvents, food, or beverages. ¹⁴	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Comments:

Temperature is recorded on sample chain of custody sheets occasionally, but not always.

The recently-purchased thermometer came calibrated with a certificate that the calibration was good for two years. The thermometer (by Control Company) is accurate only to ±1°C between -20 and 100°C. The range is otherwise said to be -50 to 300°C.

The sensor of the thermometer was just dangling in the air (not in a sealed liquid solution).

Thermometer was reading 2.9°C.

General Lab Criteria

Criteria	Standard Methods Requirement	Acceptable?		Rating
Chlorine Meter				
• Calibration Frequency / Documentation	• pH / millivolt meter read to 0.1 mV ¹⁵	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	U
	• Calibration verification required for testing over long period of time (e.g. 12 hrs.), or after a large number of samples (every 10 samples) ³	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
• Calibration Method	• Calibration using three iodate solutions 0.2, 1.0, 5.0 milliliters or calibration per manufacturer specification ¹⁶	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	• Standards used for calibration not expired	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
• Slope Documentation / Acceptability	• Calibration curve (acceptable slope)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
• Other	• Electrode free of deposits and foreign material	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Log book being maintained. ²	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	• Instrument manual available	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	

Comments: :

This meter by Fischer Scientific appeared to be unused and old.

Calibrations are said to be done by checking city water from the tap to see if a reading around 1 ppm is achieved. They say they also participate in DMRQA studies and that they have passed using the equipment.

Criteria	Standard Methods Requirement	Acceptable?		Rating
Ammonia Meter				
• Calibration Frequency / Documentation	• Calibration verification required for testing over long period of time (e.g. 12 hrs.), or after a large number of samples (every 10 samples) ³	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	M
	• Log book being maintained ²	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
• Slope acceptability	• Verify calibration slope is acceptable (per mfg. spec.).	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
• Calibration Method	• Standards used for calibration (3 ammonia solutions of 10 mg/l, 1 mg/l, and 0.1 mg/l) or per mfg. spec. ¹⁷	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Standards used for calibration not expired	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
• Other	• Electrode free of deposits and foreign material	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Teflon covered magnetic stirrer or equivalent for mixing ¹⁸	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Instrument manual available	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments:

They recently obtained a new 1,000 ug/l standard from which they make up a 0.2 mg/l solution (instead of a 0.1 mg/l solution).

Meter is said to be calibrated prior to each use.

● General Lab Criteria ●

Criteria	Standard Methods Requirement	Acceptable?		Rating
Sample Collection/Handling				M
• Sample Labeling	• Samples container labeled (description, date, time, preservative added, initialed). ¹⁹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
• Chain of Custody	• Chain of custody (description, date, time, signature). ¹⁹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
• Other	• Composite samples refrigerated during sample collection ¹⁴	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Equipment blanks utilized ¹⁴	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	• SOP for cleaning of sampling equipment	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	• Logbook being maintained ²	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	

Comments:

Preservatives are only noted as 'acid' instead of what acid to what pH.

Sampler pacing information needs to be recorded.

Initials are used on CoC instead of signatures.

Criteria	Standard Methods Requirement	Acceptable?		Rating
Desiccator				M
• General criteria	• Properly working seals.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Desiccant fresh (blue color)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
• Documentation	• Log book being maintained ²	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	

Comments:

Once per month the desiccant pillows are put in the drying oven for three hours.

Criteria	Standard Methods Requirement	Acceptable?		Rating
Bench sheets				M
• General criteria	• Date(s) ²	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Analyst initials ²	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	• Blue or black ink pen ²	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Calibration information ²	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Equations, calculations, units for all measurements, notations, and results present ²	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Corrections, single line through, initialed and dated ²	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	

Comments:

Analyt's initials are pre-entered on the form instead of entered by the analyst.

Corrections are not initialed or dated.

General Lab Criteria

Criteria	Standard Methods Requirement		Rating
Hot Water Bath (Fecal Coliform/E. Coli)	Acceptable?		
• Temperature Recordkeeping	• Temperature Log (thermometer reads 0.2° C) ²¹	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	U
	• Incubator temperature 44.5° C ± 0.2° ^{21/24}	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
• Temperature Calibration / Documentation	• Thermometer calibrated annually with NIST traceable thermometer ^{1,2}	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	• Log book being maintained ²	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
• Water Level	• Thermometer total immersion or partial (line on thermometer to ID immersion depth) ^{1,5}	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Comments:

The bath was tucked way back in the corner of the counter top under the cabinets.

There was no thermometer in use. When the drying oven thermometer was brought over to check the water temperature, it read 44.3°C

I did not see a marker (but it was hard to see because of the location of the bath).

Criteria	Standard Methods Requirement		Rating
Autoclaves/Steam Sterilizers	Acceptable?		
• All apparatus utilized is adequately sterilized before use	• Sterilizing temperature 121° C ²⁵	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	U
	• 10 to 30 minutes time based on material being sterilized ²⁶	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
• Documentation	• Verify the autoclave temperature weekly by using a maximum registering thermometer (MRT) to confirm that 121°C has been reached as measured in the exhaust. ¹	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	• Date, contents, sterilization time and temperature, total time in autoclave, and analyst's initials should be recorded each time the autoclave is used ¹	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
• Temperature Calibration / Documentation	• Thermometer calibrated annually with NIST traceable thermometer ^{1,2}	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	• Log book being maintained ²	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
• Performance Checks	• Test monthly for efficacy using a biological such as commercially available <i>Geobacillus stearothermophilus</i> in spore strips, suspensions, or capsules ¹	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Comments:

They use 'autoclave tape' for ensuring proper temperature.

● General Lab Criteria ●

Criteria	Standard Methods Requirement	Acceptable?	Rating
Final Effluent Temperature Monitoring			
• General Criteria	• Thermometer calibrated annually with NIST traceable thermometer ^{1,2}	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	U
	• Thermometer reads in increments of at least 0.1° C ⁵	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	• Log book being maintained ²	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Comments: <i>There is a work order to check the thermometer against an NIST-traceable thermometer.</i> <i>Thermometer only reads to 1°C.</i> <i>They have a maximum indicating thermometer that logs temps so the log book is moot.</i>			
Number of Criteria Rated:		Acceptable	0
		Marginal	7
		Unacceptable	7
		Total Number of Areas Rated	14
Acceptable Ratings – No action required (recommend SOP's written or updated, perform DMRQA's for all onsite analysis, recommend voluntary lab analyst certification, written response not required).			
Marginal Ratings – Improvements required, written response required (recommend SOP's be written or updated, recommend they perform DMRQA's for all onsite analysis, recommend voluntary lab analyst certification, require deficiencies to be addressed in written response).			
Unsatisfactory Rating - Improvements required, written response required, NOV issued (recommend SOP's be written or updated, recommend they perform DMRQA's for all onsite analysis, recommend voluntary lab analyst certification, require deficiencies to be addressed in written response to NOV).			
Consider recommending PAI Audit from DES when:		>60% of ratings are Marginal >45% of ratings are a combination of Marginal or Unacceptable >30% of ratings are Unacceptable	

Notation of Referenced Method

1 Method 9020-B, Item 3	14 Method 1060A, Item 1
2 Method 1020-A, Item 1	15 Method 4500-CI I, Item 2
3 Method 1020-B, Item 10	16 Method 4500-CI I, Item 4
4 Method 2540-B, Item 2	17 Method 4500-NH3 D, Item 4
5 Method 2550-B, Item 1	18 Method 4500-NH3 D, Item 2
6 Method 1020-A, Item 1	19 Method 1060-B, Item 2
7 Method 4500-H B, Item 4	20 Method 1060-B, Item 1
8 Method 4500-H B, Item 2	21 Method 9222D, Item 1
9 Method 1020-B, Item 2	22 Method 9223 B, Item 2
10 Method 4500-O B, Item 3	23 Method 9223 B, Item 3
11 Method 4500-O G, Item 3	24 Method 1603, Item 2
12 Method 5210-B, Item 5	25 Method 9030-B, Item 3
13 CFR 136.3, Table II	26 Method 9020 B, Table IV

General Lab Criteria

Equipment Logbook Content - all maintenance performed on a piece of equipment should be documented in the logbook. This should include parts replacement and routine maintenance activities. Entries should include date, maintenance performed and initials of person making entry.

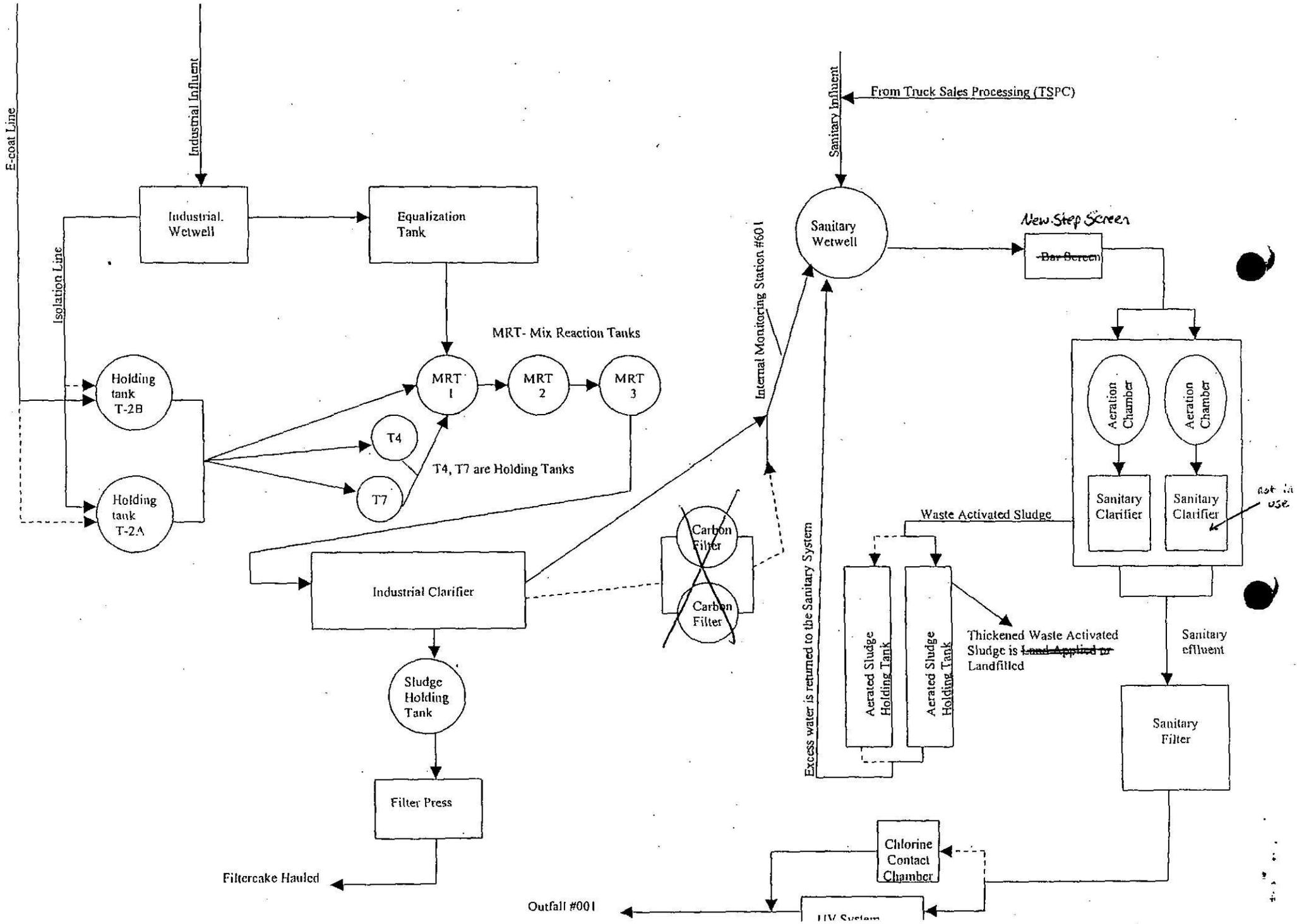
Preservation and Holding Times

Parameter	Container	Min. Sample Size (mL)	Sample Type	Preservation	Maximum Storage Time	
					Recommended	Regulatory
BOD / CBOD	P, G	1000	G, C	Refrigerate $\leq 6^{\circ}\text{C}$	6h	48h
TSS	P, G	200	G, C	Refrigerate $\leq 6^{\circ}\text{C}$	7 d	7 d
pH	P, G	50	G	Analyze immediately	0.25h	0.25 h
NH ₃ -N	P, G	500	G, C	Analyze as soon as possible or add H ₂ SO ₄ to pH <2, Refrigerate $\leq 6^{\circ}\text{C}$	7 d	28 d
TRC	P, G	500	G	Analyze immediately	0.25h	0.25 h
DO (electrode)	G, BOD Bottle	300	G	Analyze immediately	0.25h	0.25 h
Temperature	P, G	--	G	Analyze immediately	0.25h	0.25 h
Metals, general	P, G	1000	G, C	For dissolved filter immediately and add HNO ₃ to pH <2	6 months	6 months
Purgeables by purge and trap	G (PTFE lined lid)	40 (X2)	G	HCl to pH<2, Refrigerate $\leq 6^{\circ}\text{C}$	7 d	14 d
Base/Neutrals and acids	G (solvent rinsed or baked)	1000	C, G	Refrigerate $\leq 6^{\circ}\text{C}$	7 d	7 days until extraction 40 days after extraction
Pesticides	G (PTFE lined lid)	1000	C	Refrigerate $\leq 6^{\circ}\text{C}$	7 d	7 days until extraction 40 days after extraction
Fecal Coliform / E-Coli	G, P (Sterilized)	100	G	Refrigerate $\leq 10^{\circ}\text{C}$ If chlorine present, add sodium thiosulfate tablet	6 hrs transport Start analysis within 2 hrs of receipt in lab.	
Oil and Grease	G	1000	G	HCl or H ₂ SO ₄ to pH <2, Refrigerate $\leq 6^{\circ}\text{C}$	28 d	28 d

Approved Standard Methods

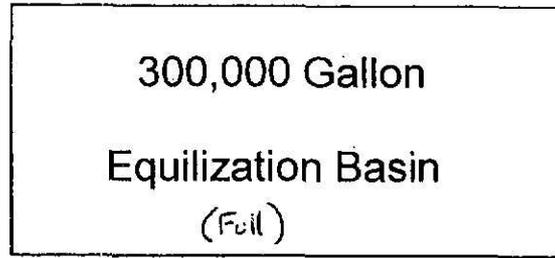
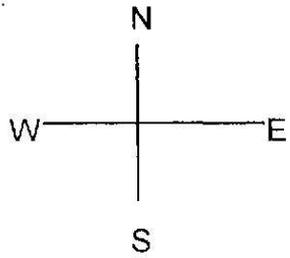
CBOD / BOD 5 Day	Std Methods 5210-B
Ammonia, Selective Electrode Method	Std Methods 4500-NH ₃ D
Total Residual Chlorine, DPD Colorimetric Method	Std Methods 4500-Cl G
Total Suspended Solids, Dried at 103-105 °C	Std Methods 2540-D
Dissolved Oxygen, Membrane Electrode Method	Std Method 4500-O G
pH, Electrometric Method	Std Methods 4500-H+ B
Fecal Coliform, Membrane Filter Procedure	Std Methods 9222D
Escherichia Coli, Enzyme Substrate Test	Std Method 9223B
Escherichia Coli Membrane Filtration Procedure	EPA Method 1603
Oil and Grease	USEPA 1664A or Std Methods 5520B
Metals, general	USEPA 200, Std Methods 3111B or C, or 3120B
Volatiles (Purgeables by purge and trap)	USEPA 6210, Std Methods 624
Semi-Volatiles (Base/Neutrals and acids)	USEPA 6410, Std Methods 625
Pesticides	USEPA 6410 and 6630, Std Methods 608

Flow Diagram

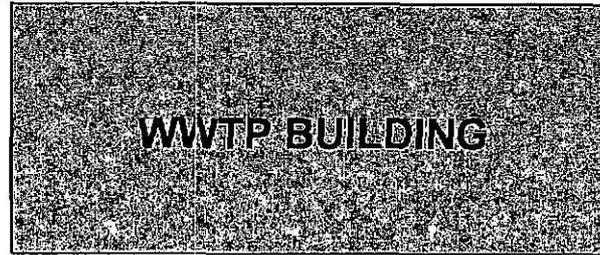
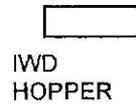


WWTP LAYOUT

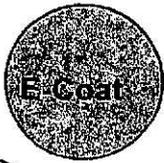
6-23-10



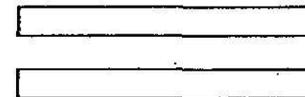
100,000 Gallons each tank



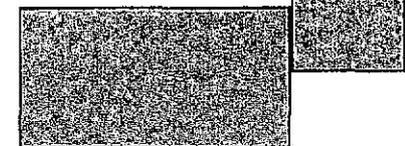
Orange Valve



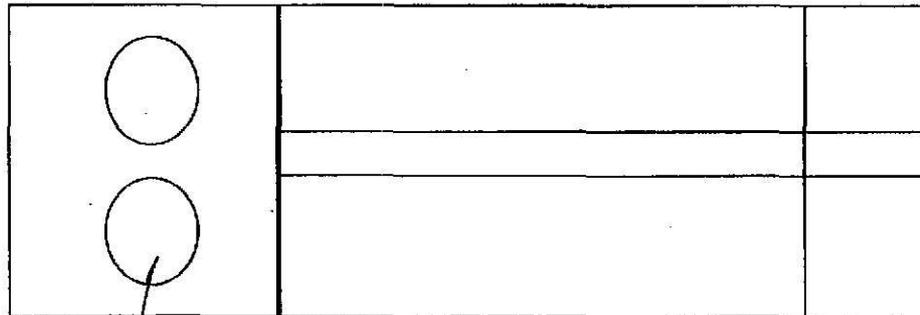
Green Valve



2 Extended Aeration Tanks



Industrial Waste water Clarifier



Oxidation Ditches with Clarifiers

Chlorination



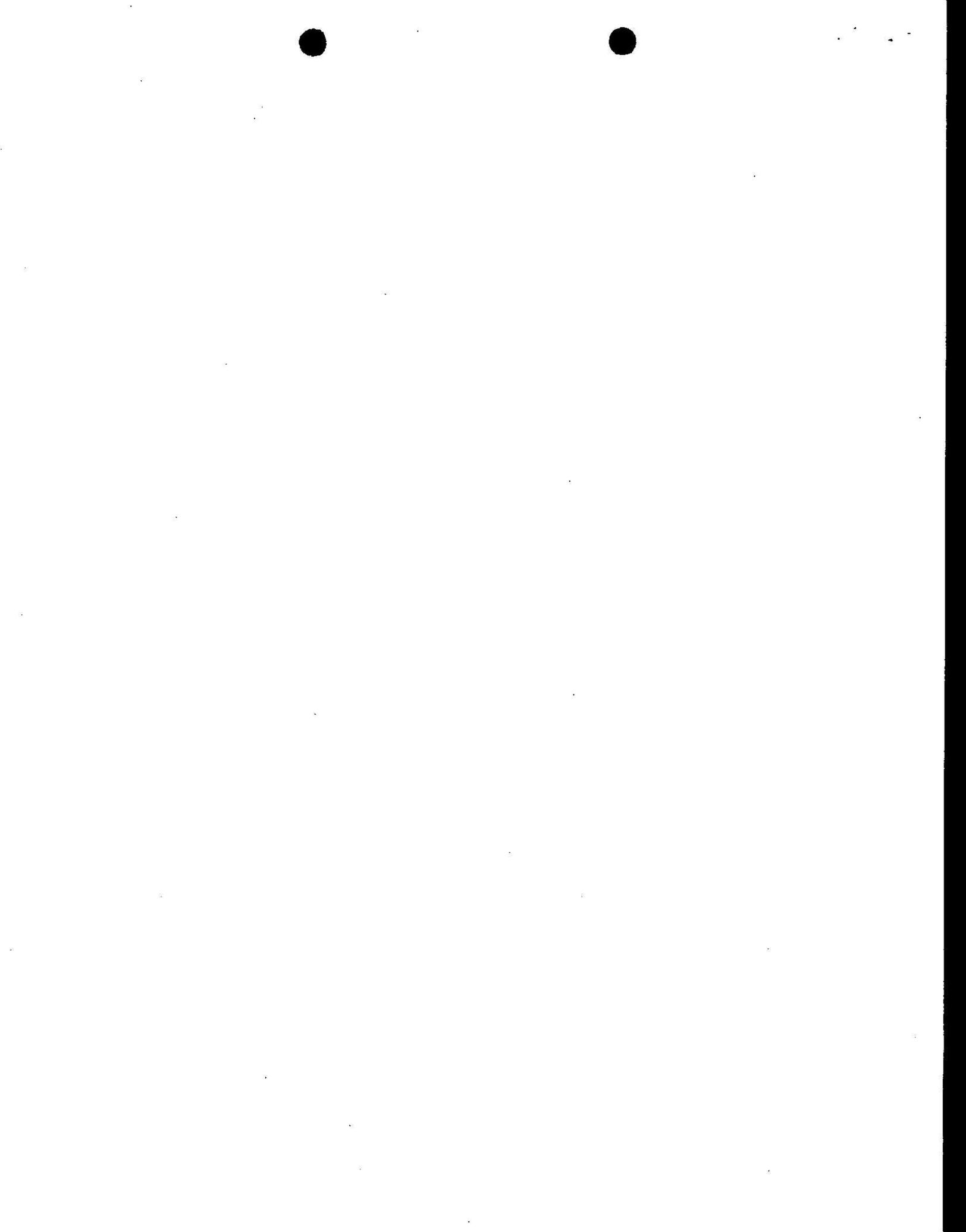
Dechlorination Building



UV SYSTEM

Clarifier not in use at 6-23 inspection but in use beginning 7-6

JMM



This is a page from another log book



DAILY MAINTENANCE AND CALIBRATION RECORD WASTEWATER

Date _____

Analytical Balance			Top Loading Balance			Time / Analyst
Known Value (Weight)	1)	2)	1)	2)		Analytical
	Measured Value	1)	2)	1)	2)	Time / Analyst
Laboratory pH meter			Field pH Meter			Top Loading
Known Value	1)	2)	3)	1)	2)	Lab
	Measured Value	1)	2)	3)	1)	
Buffer Temperature	1)	2)	3)	1)	2)	Time / Analyst
*Only use the Three Point Calibration if Required	Slope:	Change Buffers		Slope:	Change Buffers	
		<input type="checkbox"/> Please check			<input type="checkbox"/> Please check	
Temperature / Adjustment			Temperature / Adjustment			Time / Analyst
Laboratory	Refrigerator	(1-4°C)			Samplers:	Lab
	BOD Incubator	(20±1°C)			Influent (1-4°C)	
	Coliform Incubator	(35±0.5°C)			Effluent (1-4°C)	
	Coliform Water Bath	(44.5±0.2°C)			Others:	Time / Analyst
	Muffle Furnace	(550°C)				Field
	Drying Oven	(104±1°C)				
Autoclave					Analyst	
Date:	List items sterilized				Place indicator Tape Here	
Start Time:						
End Time:						
Dissolved Oxygen Meter Calibration					Time / Analyst	
Laboratory Meter DO Reading: / Adjusted to:	Membrane Check		Winkler mls of Titrant:			Lab
	YES <input type="checkbox"/>		Bottle 1)			
Changed Membrane <input type="checkbox"/>		AVG.			Time / Analyst	
Field Meter DO Reading: / Adjusted to:	YES <input type="checkbox"/>		Bottle 2)			Field
	Changed Membrane <input type="checkbox"/>		Sodium Thiosulfate Correction Factor:			
Selective Ion Calibration					Time / Analyst	
Known Value	1)	2)	3)			
Measured Value	1)	2)	3)			
Slope						
Fume Hood Velocity (feet per minute)	Glassware Residue		Water Quality Reading (megohm)			Time / Analyst
	Pipettes:					Hood Residue Water
	Bottles:					
	Other:					Time / Analyst
Other Documentation					Time / Analyst	

This is a page from another log book

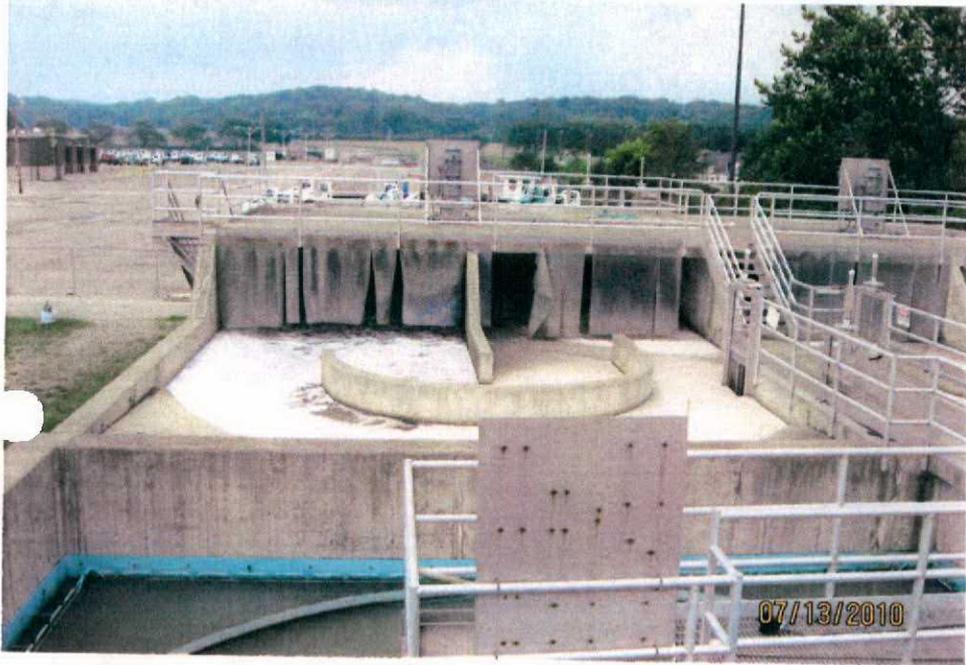


CHAIN OF CUSTODY TRACKING RECORD

Facility																		
Sample Location	H.H.	H.H. DUP	N.R.I	N.R.I DUP	FEFF	H.H.	N.R.I											
COMPOSITE PERIOD SAMPLING	BEGINS	Date							6/8/10									
		Time							0748	0754	0754							
		Initials							BGG									
	ENDS	Date							6/9/10									
		Time							0757	0805	0803							
		Initials							BGG									
Volume							5L	5L	4L									
COLLECTION SAMPLING	Sample Type	<input checked="" type="radio"/> Grab	<input type="radio"/> Comp.	<input checked="" type="radio"/> Grab	<input type="radio"/> Comp.	<input checked="" type="radio"/> Grab	<input type="radio"/> Comp.	<input checked="" type="radio"/> Grab	<input type="radio"/> Comp.	<input checked="" type="radio"/> Grab	<input type="radio"/> Comp.	<input checked="" type="radio"/> Grab	<input type="radio"/> Comp.	<input checked="" type="radio"/> Grab	<input type="radio"/> Comp.	<input checked="" type="radio"/> Grab	<input type="radio"/> Comp.	
	Date	6/9/10																
	Time	0806																
	Collector	BGG																
	Instantaneous Flow (grabs only)	4.0		→	4.5													
Preservation	—		—		—				3.0, 2.8, 2.8	2.4, 2.6, 2.9	2.4, 3.0, 2.2							
DELIVERY	Date	6/9/10																
	Time	0814																
	Initials	BGG																
LABORATORY RECEIVED	Date	6/9/10																
	Time	0814																
	Analyst	TL																
Required Analysis	pH								TS, NH ₃ , CB10, T-P	TS, NH ₃ , CB10								
EQUIPMENT	Type*	<input checked="" type="radio"/> Manual	<input type="radio"/> Automatic	<input checked="" type="radio"/> Manual	<input type="radio"/> Automatic	<input checked="" type="radio"/> Manual	<input type="radio"/> Automatic	<input checked="" type="radio"/> Manual	<input type="radio"/> Automatic	<input checked="" type="radio"/> Manual	<input type="radio"/> Automatic	<input checked="" type="radio"/> Manual	<input type="radio"/> Automatic	<input checked="" type="radio"/> Manual	<input type="radio"/> Automatic	<input checked="" type="radio"/> Manual	<input type="radio"/> Automatic	
	Functioning*	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Documentation Date/Analyst	6/9/10 TL																	
Comments:																		

*Circle the appropriate response
VWNA 3011 (5/04)

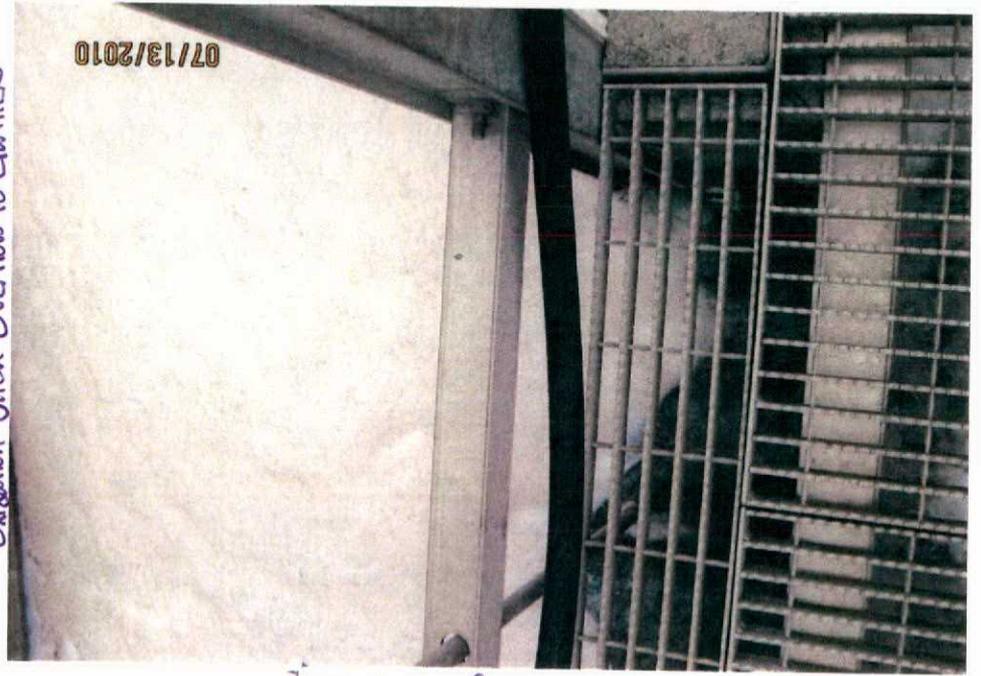
North Oxidation Ditch



At outfall 001

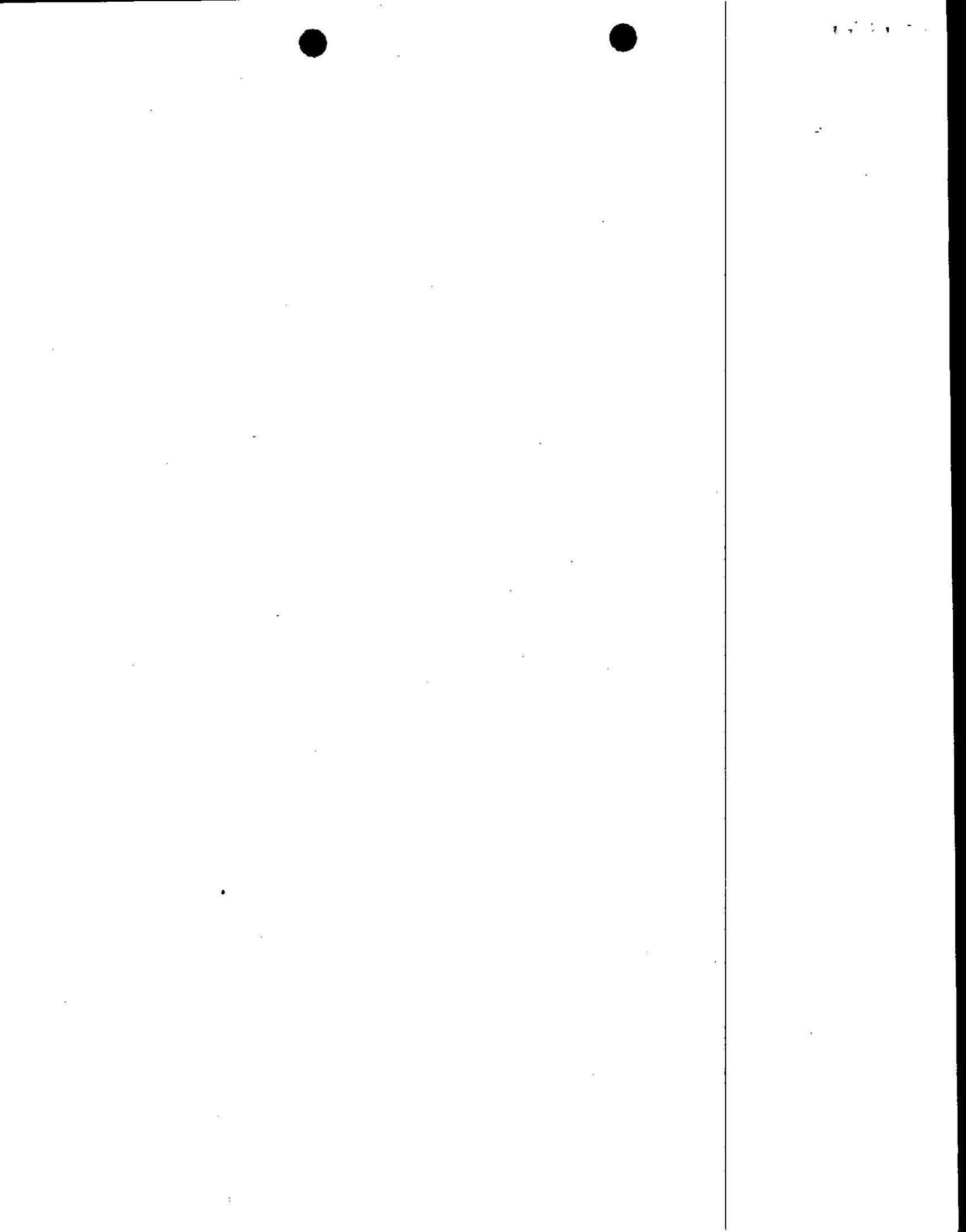


Oxidation Ditch Overflow to Clarifiers



South Clarifier





Receiving Stream Looking Downstream From Outfall 001



07/13/2010



07/13/2010

Opposite Side of Receiving Stream ~ 100 yds Downstream from Outfall 001

