

Biological Assessment of

Coca-Cola Foods, Auburndale

Polk County

NPDES #FL0000418

Sampled 21 February and 21 March, 1991

May 1991

Biology Section
Division of Administrative and Technical Services

Introduction

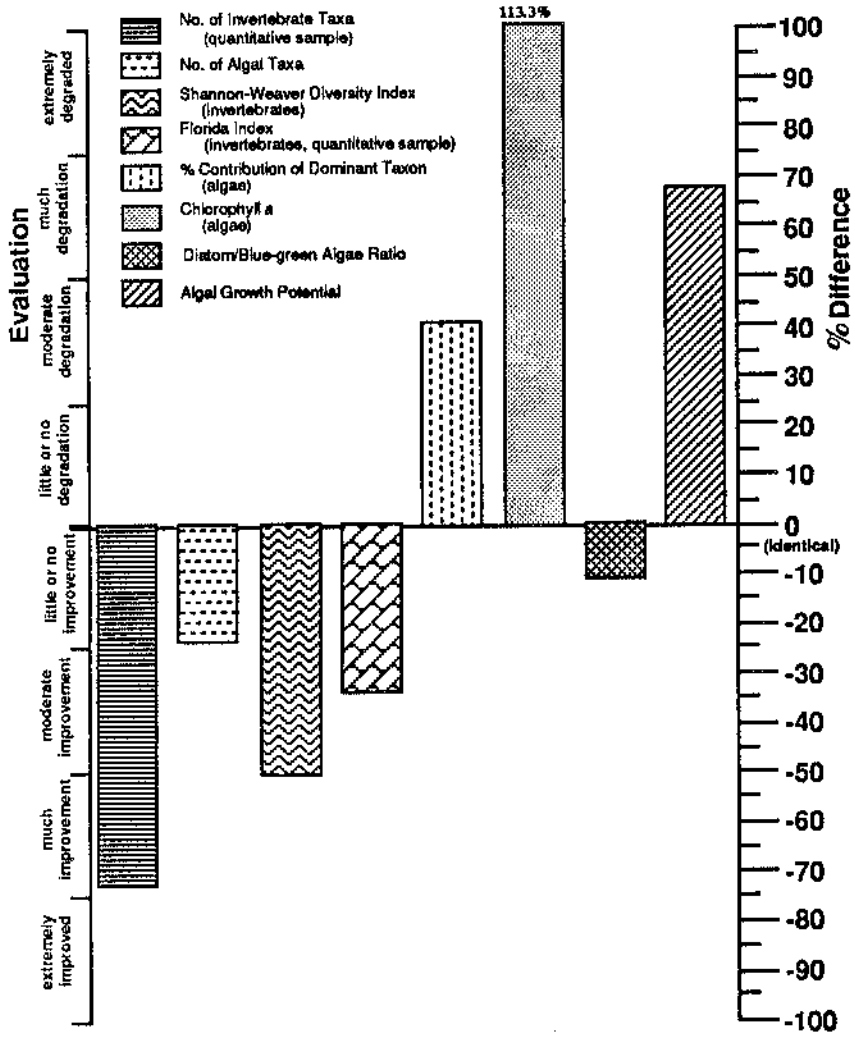
Coca Cola Foods, located on McKean Street and Derby Avenue in Auburndale, Florida is a citrus processing plant whose main products are orange juice concentrate, single strength juice, cattle feed, and other by-products. The plant processes approximately 5400 tons/day of fruit. Raw materials and chemicals used consist of oranges, grapefruit, lemons, NaOH, CaOH, and biodegradable fruit cleaning detergents. A 5.0 MGD non-contact cooling water (ground water source) discharge (outfall #002) is currently permitted under FDER permit # I053-114194 to Lake Lena Run. Effluent limitations for this discharge are shown in the Appendix. A recent application submittal also indicates that seven acres of untreated roof and parking lot stormwater is also discharged through the cooling water outfall (#002).

The Coca Cola facility is also permitted to dispose of 2.3 MGD of wastewater via percolation ponds and sprayfields (see map in Appendix) under FDER permit #I053-152061. This water consists of the following components: evaporator scrubber water, strong citrus wastewater, various plant process wastewater, domestic wastewater, and an undetermined amount of sludge pit supernatant overflow.

The 25 acre north sprayfield receives 0.3 MGD of diluted wastewater and evaporator scrubber water. The remaining 2.0 + MGD of blended wastewater is discharged into the percolation ponds and then to a 570 acre sprayfield offsite (Florida Gold Grove sprayfield). If this effluent cannot be pumped to Florida Gold Grove due to maintenance problems, then

Major characteristics of community structure of control and test sites.

	Station 1	Station 2	Station 3
Macroinvertebrate Qualitative			
Number of Taxa	33	16	25
Florida Index	1	6	7
% Contribution of Dominant Taxon	24.1	29.4	34.1
% Oligochaeta	8.7	30.5	10.4
% Diptera	45.7	6.3	4.3
% Malacostraca	5.1	4.2	35.4
% Gastropoda	24.8	29.5	18.9
% Odonata	4.2	19.0	19.5
% Coleoptera	6.8	3.2	3.7
% Other	4.7	7.3	7.8
% Predators	11.4	9.2	26.3
% Collector-Gatherers	42.9	35.1	47.5
% Collector-Filterers	2.3	5.2	6.1
% Scrapers	24.8	29.5	18.9
% Shredders	18.6	2.1	1.2
Macroinvertebrate Hester-Dendy			
Number of Taxa	17	18	31
Florida Index	3	6	8
Shannon-Weaver Diversity	3.4	2.4	3.6
% Trichoptera	0	1.2	0
% Diptera	9.1	96.0	49.8
% Gastropoda	27.2	0.5	15.7
% Malacostraca	22.2	0.2	24.7
% Odonata	13.1	0	0
% Coleoptera	0	1.1	4.3
% Other	28.4	1.0	5.5
% Predators	26.3	36.1	23.5
% Collector-Gatherers	43.9	33.2	40.5
% Collector-Filterers	0	2.3	1.0
% Scrapers	26.3	1.3	26.4
% Shredders	2.5	27.1	8.6
Periphyton Algae			
Number of Taxa	-	13	16
% Contribution of Dominant Taxon	-	59.5	83.7
Chlorophyll a (mg/m^2)	-	55.0	117.3
Diatom/Blue-green Abundance Ratio	-	0.86	0.96
% Blue-green	-	13.2	3.8
% Green	-	7.5	5.9
% Diatoms	-	79.3	90.3
Algal Growth Potential (mg dry wt/l)	9.1	7.6	12.8



Effect of discharge on receiving stream
(measured as difference between control and test sites).

the northeastern 50 acres of the 110 acre south sprayfield may be used. The south sprayfield is dissected with a series of intersecting ditches that are contiguous with Lake Lena Run. The placement of these ditches lowers the water table throughout the site, thereby drawing contaminated groundwater from the percolation ponds, sprayfields, and sludge pits into the ditches—to become surface water, which eventually flows into Lake Lena Run (perc pond/sprayfield discharge). It is also important to note that the proximity of Lake Lena Run to the pond system also allows water to seep from these percolation ponds directly into Lake Lena Run.

Lake Lena Run flows southward into Lake Hancock, which is among the most eutrophic lakes in Florida. Lake Hancock discharges into the Peace River which flows southward into Charlotte Harbor and the Gulf of Mexico. The Peace River is a major source of drinking water for the Port Charlotte area, serviced by General Development Utilities.

Methods

The focus of this investigation was to determine the discharger's effects on the receiving waters. A comparison of biological community health was made between a reference site (located in Lake Lena Run, above the perc pond/spray field discharge) and a test site (the area down gradient of the perc pond/spray field discharge). An additional station, located upstream of the cooling water discharge, was also sampled. A habitat assessment was performed *in situ* to establish comparability between sites. Supplemental physical/chemical data were also collected on the effluent and study sites. Acute screening toxicity bioassays, using *Daphnia pulex* and *Notropis leedsi* as test organisms, were performed on an effluent sample (Peltier and Weber 1985, FDER 1985). The effluents were analyzed for organic constituents (base neutrals, acid extractables, and pesticide extractables) and metals. Additionally, nutrient analyses were performed on reference and test sites. Methods used for all chemical analyses are on file at the Tallahassee DER Chemistry Laboratory.

Benthic macroinvertebrate communities were evaluated at reference and test sites. Collection methods consisted of a timed (one hour per site) multi-substrate (e.g., snags, vegetation, sediment) semi-quantitative effort. Additional invertebrate collections were accomplished using Hester-Dendy multiplate samplers which were incubated for 28 days (Ross 1990). Periphyton was sampled at both reference and test sites by incubating glass microscope slides in a standard periphytometer for 28 days (Ross 1990). Chlorophyll a was also determined for periphyton communi-

below the perc pond/spray field discharge, respectively).

During the February 21 sampling, numerous dead and decaying fish were observed at Stations 2 and 3 (not a single live fish was found). It was suspected that an ammonia spill which occurred on 17 February 1991 (released into Lena Run via the Coca-Cola cooling water discharge) was responsible for the fish kill.

No organic constituents were detected in the cooling water or perc pond/spray field discharge water (Appendix). Only 30 µg/l of iron was found in the cooling water discharge. Metals detected in the perc pond/spray field discharge included iron (590 µg/l), aluminum (711 µg/l), and zinc (26 µg/l). Zinc is reported to be acutely toxic to *Daphnia* at 40 µg/l (USEPA Ambient Water Quality Criteria Document).

All three stations were moderately enriched with bioreactive nitrogen. Ammonia levels ranged from 0.13 mg/l at Station 3 to 0.16 mg/l at Station 2. Nitrate-nitrite concentrations ranged from 0.41 mg/l at Station 2 to 0.36 mg/l at Station 3. While total phosphorus was below detection limits at Stations 1 and 2, phosphorus enrichment was noted at Station 3 (0.22 mg P/l). Algal Growth Potential results indicated that water from all three stations was nutrient enriched, and above the 5.0 mg/l algal dry weight "problem threshold" (Raschke and Schultz 1987). AGP was highest at Station 3 (with 12.8 mg algal dry weight/l), probably reflecting the increased phosphorus concentration found below the perc pond/spray field discharge.

Organic compounds detected in sediment samples were as follows: 2700 µg/kg of aliphatics at Station 1, 330 µg/kg of aliphatics at Station 2, and camphor (70 µg/kg), alkyl substituted phenol (170 µg/kg), benzeneacetic acid (130 µg/kg), aromatics (100 µg/kg), $C_{15}H_{44}$ aliphatics (1000 µg/kg) and $C_{8\text{-}44}$ aliphatics (3300 µg/kg) at Station 3. The perc pond/spray field discharge was probably responsible for many of the compounds found in the sediments at Station 3.

Several metals were also found in sediment samples from each station (Appendix). When normalized against aluminum, zinc levels at all three stations were indicative of anthropogenic enrichment (*sensu* Schropp *et al.* 1990). Sediment lead concentrations at Stations 1 and 3 were also high enough to be considered anthropogenically enriched. Although non-point sources appear to be one source of these metals, the generally higher levels of lead (17.8 mg/kg) and zinc (32.8 mg/kg) at Station 3 suggest that the perc pond/spray field discharge is also a source.

Neither discharge was acutely toxic to the fish, *Notropis leedsi*. However, the undiluted cooling water discharge produced 90% mortality to *Daphnia pulex*. The undiluted perc pond/spray field discharge caused mortality to 75% of the *D. pulex* tested. Both discharges are in violation of State toxicity requirements (17.4.244(3)(a)FAC). It should be noted that an additional water sample, taken about 400 meters downstream from the cooling water discharge in Lena Run (in the vicinity of Florida Distillers), was also tested for toxicity. This particular sample was not acutely toxic to either the fish or the water flea.

The biological sampling stations were designed primarily to detect the effects of the perc pond/spray field discharge. Stations 2 and 3 were located above and below this source, respectively. These sites were virtually identical with regard to habitat and standard physical-chemical parameters. Due to differences in habitat and the potential for other inputs not associated with the Coca-Cola Foods Plant, comparisons between Station 1 and 2 are not emphasized in this report.

Benthic macroinvertebrate community health improved downstream of the perc pond/spray field discharge. These improvements involved increases in taxa richness, diversity, and the Florida Index. The figure on p. 2 indicates the degree of difference between the control and test sites. Larger differences (that is, higher percentages) correspond with greater degrees of degradation. Negative values mean that the test site is better than the control. The figure on p. 3 summarizes similarities between the sites. Smaller similarities (lower percentages) generally correspond with greater degradation. In this particular case, though, the lack of similarity between macroinvertebrate communities at the two sites is indicative of improvement.

The periphyton community downstream of the perc pond/spray field discharge showed signs of degradation usually associated with nutrient enrichment. These included an increase in the percent contribution of the dominant taxon and a substantial increase in biomass (chlorophyll *a*). These findings are consistent with the results of AGP and nutrient analyses.

Conclusions

The Coca-Cola Foods cooling water (outfall #002) and the facility's

ties (Ross 1990). Algal Growth Potential tests, using *Selenastrum capricornutum* as the test organism, followed Miller *et al.* (1978). Sediment from reference and test sites was analyzed for organic constituents (base neutrals, acid extractables, and pesticide extractables), metals, grain size, and percent organic matter (Ross 1990).

Explanation of Measurements of Community Health

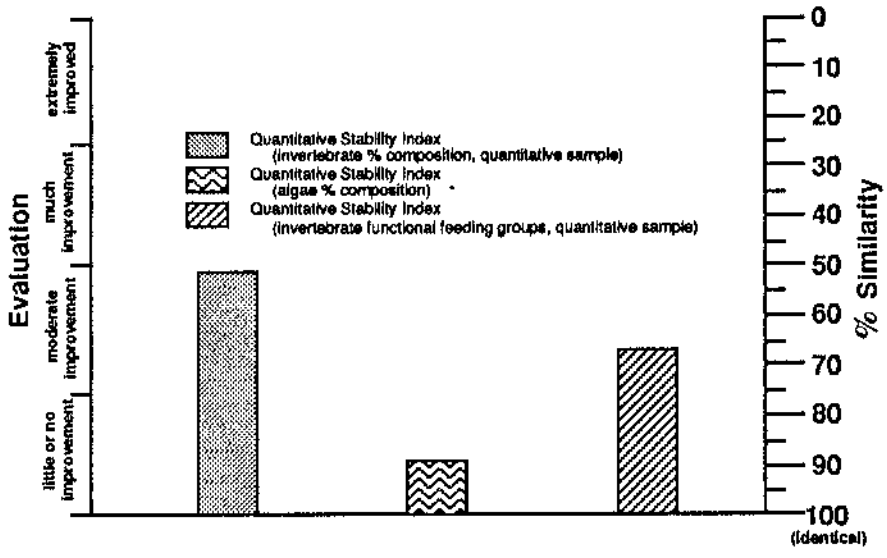
Several different measurements of macroinvertebrate and algal community health have been employed. Many of these, such as the number of taxa, Shannon-Weaver Diversity Index, and chlorophyll a are well known. Others are briefly explained here. The Florida Index assigns points to stream-dwelling macroinvertebrates based on their sensitivity to pollution (see Ross 1990). A site with a high Florida Index score is considered healthy (i.e., many clean-water organisms are present). Excessive numerical dominance of a single type of organism (a high % contribution of dominant taxon) is usually associated with disturbance. A decreased diatom to blue-green algae ratio (calculated by dividing the number of individuals in the Bacillariophyta by the number of individuals in the Bacillariophyta + Cyanophyta) is often indicative of nutrient enriched conditions. The determination of the Quantitative Stability Index (for taxonomic % composition) is a two step process. First, the relative proportions of major taxonomic groups are calculated for each site. Then, the lesser of the two percentages for each discrete taxonomic group is totaled. A QSI (% composition) of 100% means that the two sites being compared are identical. This same type of procedure is used for calculating the QSI (functional feeding groups).

For graphical purposes, the percent differences between the reference and test sites involving the number of taxa, the diversity index, Florida Index, and the diatom to blue-green algae ratio are measured as the reference site minus test site divided by the reference site. The percent differences between sites involving the percent contribution of dominant taxon, chlorophyll a, and algal growth potential are measured as the test site minus reference site divided by the reference site.

The following personnel were involved in this investigation: Pat Fricano (DER Southwest District) and Lyn Burton, Russel Frydenborg, Kathleen Lurding, and Sandra McClure (Tallahassee Biology Laboratory).

Results and Discussion

Three stations in Lake Lena Run were studied in this investigation (see map in Appendix). Station 1, located farthest upstream and above the Coca-Cola cooling water discharge, was characterized by very poor habitat quality (with 22 points) (Appendix). Habitat quality was good (with 86 points each) at remaining stations. Lake Lena Run is a channelized stream whose source begins from the eutrophic Lake Lena. The Coca-Cola cooling water (derived from the Floridan Aquifer), imparts deep aquifer fed characteristics to the stream. For example, pH increased from 6.6 above the cooling discharge to 7.4 below, while conductivity rose from 237 µmhos/cm^2 to 298 µmhos/cm^2 below the cooling water. Temperature also increased from 22.5°C above to 30.0°C below the cooling water discharge. Dissolved oxygen was below 5.0 mg/l at all stations, being lowest (3.3 mg/l) at Station 1 and highest (4.7 mg/l) at Station 3. Habitat quality and standard physical-chemical parameters were almost identical at Stations 2 and 3 (located above and



Effect of discharge on receiving stream
(measured as similarity between control and test sites).

unpermitted percolation pond/spray field discharge were both acutely toxic to the water flea, *Dapnia pulex*, but not to the fish, *Notropis leedsi*. No organic priority pollutants were detected in either outfall. Zinc was the only metal found approaching problem levels in the water column, and it was found only in the perc pond/spray field discharge (at 26 µg/l).

While moderate nitrogen enrichment appeared throughout Lake Lena Run (probably due to non-point sources), phosphorus enrichment and increased AGP levels were attributed to the perc pond/spray field discharge. Benthic macroinvertebrate communities were not adversely affected by the perc pond/spray field discharge, but the periphyton assemblage below this source exhibited signs of nutrient induced degradation. Many organic constituents were found in the sediments downstream of the perc pond/spray field discharge. The metals lead and zinc were detected in sediments throughout Lena Run at levels indicative of anthropogenic enrichment (appearing primarily to be a non-point source effect).

Literature Cited

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Raschke, R. L. and D. A. Schultz. 1987. The use of the algal growth potential test for data assessment. J. Wat. Poll. Cont. Fed. 59(4): 222-227.

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PERMITTEE:
The Coca-Cola Company
Mr. James D. Folkerts

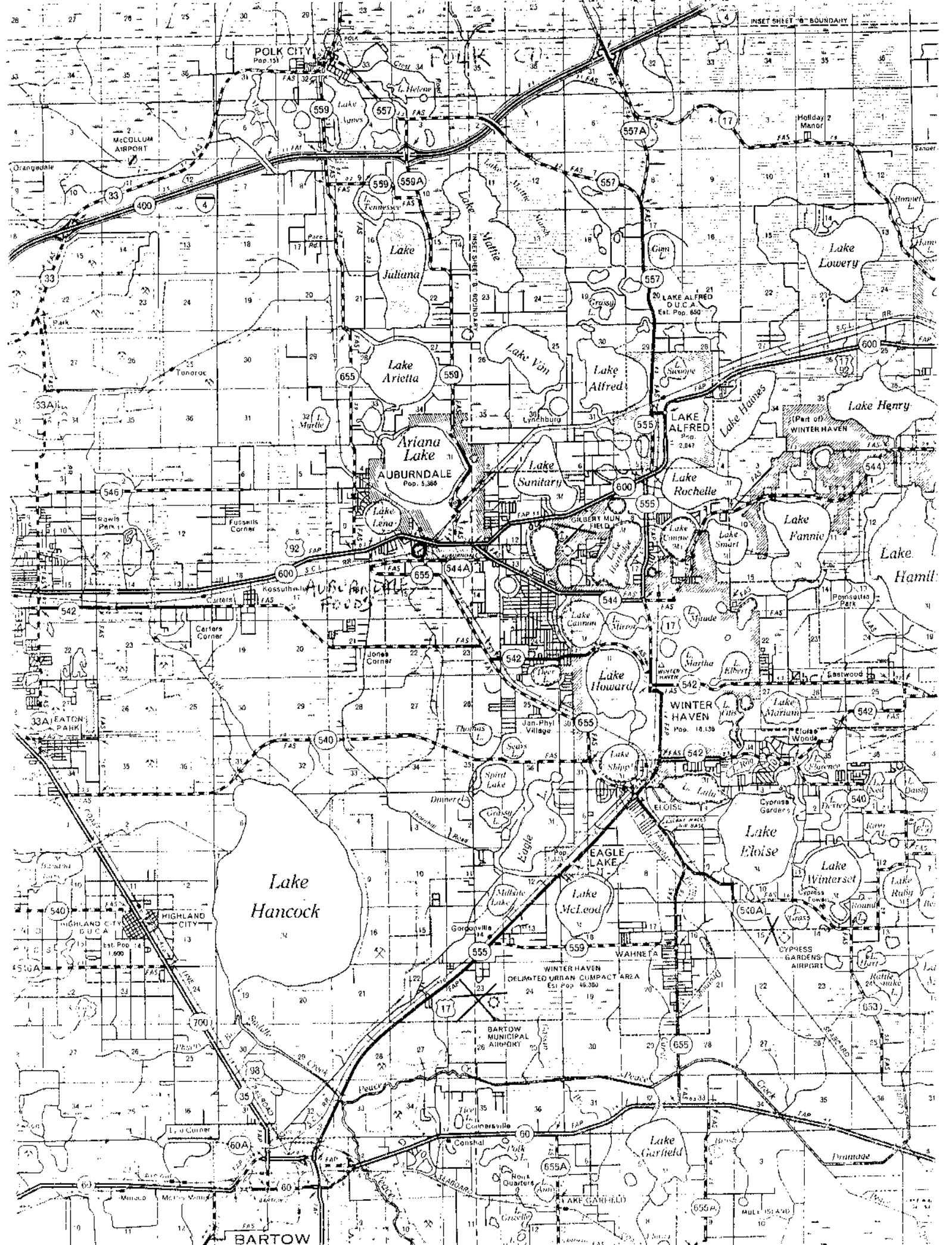
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Permit No.: IO53-114194
Expiration Date: February 28, 1991

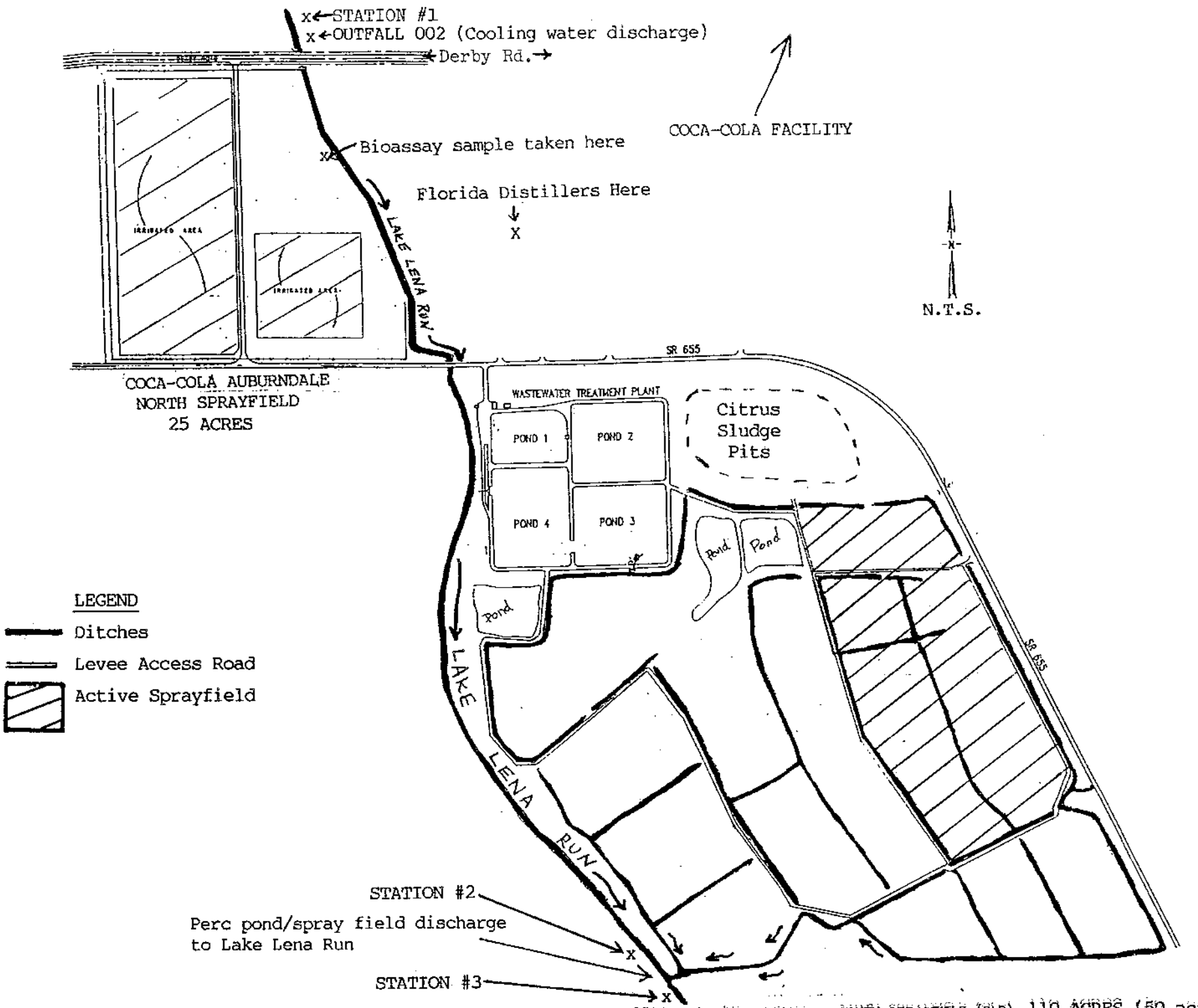
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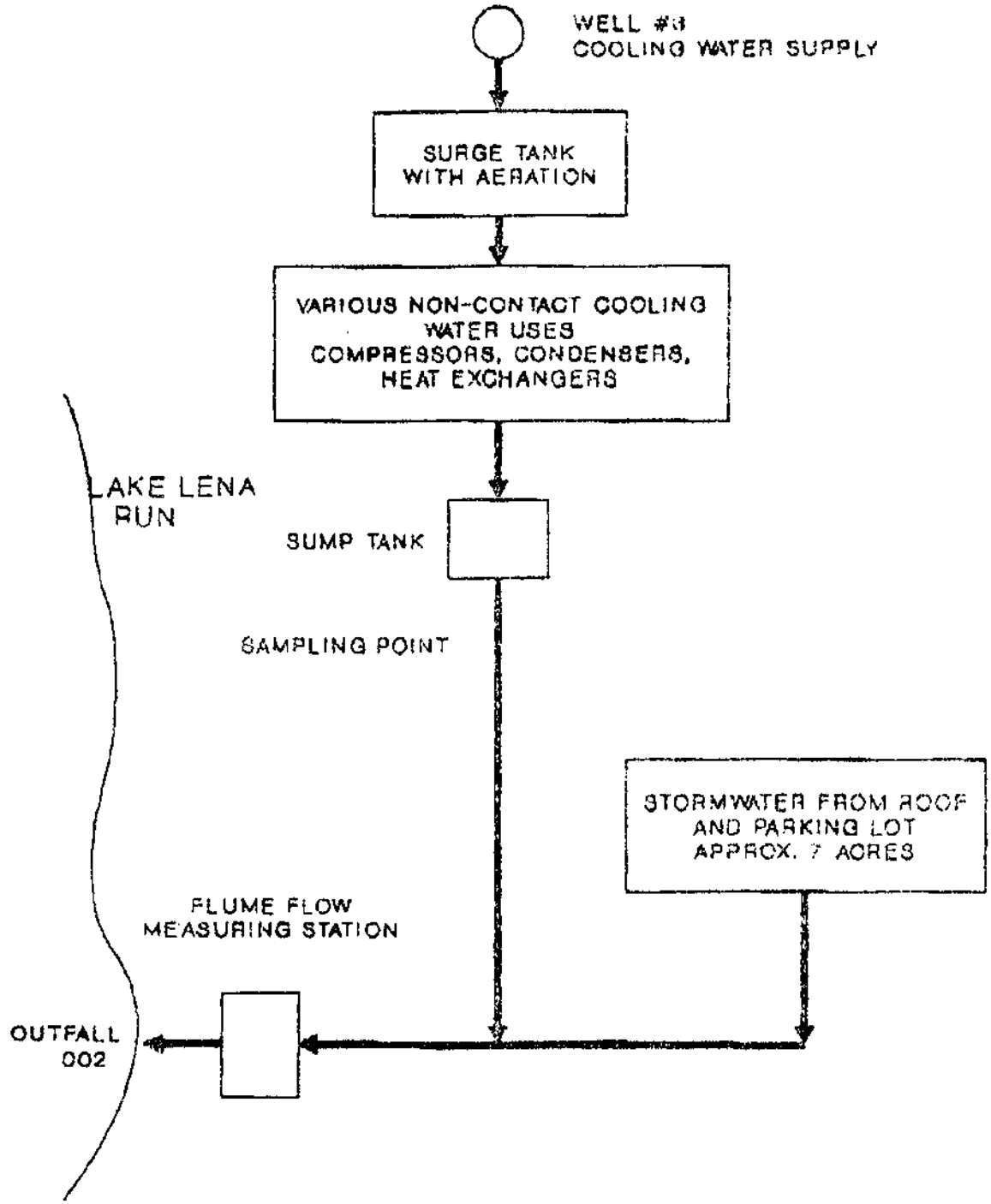
3. The permittee shall assure that the effluent from outfall 002 (cooling water) shall not exceed the effluent limitations and shall be monitored as specified below; if there is no discharge, the sample shall be collected on the day of the next discharge.

	EFFLUENT LIMITATIONS Outfall 002			
EFFLUENT CHARACTERISTIC	30 DAY AVE.	DAILY MAX.	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow, (MGD)	3.0	5.0	Continuous	Recorder
BOD_5, (mg/l)	2.0	4.0	Once/week	24 Hour Composite
Total Suspended Solids, TSS, (mg/l)	5.0	10.0	Once/week	24 Hour Composite
Total Kjeldahl Nitrogen, TKN, (mg/l)	0.8	1.6	Once/week	24 Hour Composite
Total Nitrogen, TN, (mg/l)	0.8	1.6	Once/week	24 Hour Composite
Un-ionized Ammonia, (mg/l)	---	0.02	Once/week	24 Hour Composite
Fecal Coliform (CTS/100 ml)	200	800	Once/week	Grab
Dissolved Oxygen, D.O., (mg/l)	*	*	Once/week	Grab
pH (standard units)	6.0 - 8.5		Once/week	Grab

*The 30-day average and daily minimum at outfall 002 shall not be less than 6.0 and 5.0 mg/l, respectively.


POLK CITY
Pop. 153
POLK
INSET SHEET 16 BOUNDARY
McCOLLUM AIRPORT
Orangedale
Holiday Manor
Lake Lowery
LAKE ALFRED
D.U.C.A.
Est. Pop. 850
Lake Juliana
Lake Arietta
Lake Von
Lake Alfred
Lake Haines
Lake Henry
(Part of) WINTER HAVEN
LAKE ALFRED
Pop. 2,847
Ariana Lake
AUBURNDALE
Pop. 5,366
Lake Sanitary
Lake Rochelle
Lake Fannie
Lake Hamilton
Lake Howard
WINTER HAVEN
Pop. 14,136
Lake Eloise
Lake Winterset
Lake Hancock
Lake McLeod
Lake Garfield
EAGLE LAKE
ELOISE
HIGHLAND CITY
D.U.C.A.
Est. Pop. 1,600
WAHNETA
CYPRESS GARDENS AIRPORT
WINTER HAVEN
DELIMITED URBAN COMPACT AREA
Est. Pop. 46,380
BARTOW MUNICIPAL AIRPORT
BARTOW
LAKE GARFIELD
EATON PARK
Auburndale
Carters Corner
Jones Corner
Fussells Corner
Kossuth Ville
Lynchburg
Tenoroc
Gordonville
Conservation
Peace Creek
Saddle Creek
Banana Creek
Eagle
Spirit Lake
Thomas L.
Scales L.
Jan-Phyl Village
Cypress Gardens
Eastwood
Holiday Manor
Lake Marian
Lake Elbert
Lake Martha
Lake Mirror
Lake Cannon
Lake Smart
Lake Hartridge
Lake Lena
Lake Marie
Lake Mattie
Lake Tennessee
Lake Annie
Lake Helene
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x←STATION #1
x←OUTFALL 002 (Cooling water discharge)
←Derby Rd.→
COCA-COLA FACILITY
Bioassay sample taken here
Florida Distillers Here
LAKE LENA RUN
N.T.S.
SR 655
COCA-COLA AUBURNDALE
NORTH SPRAYFIELD
25 ACRES
WASTEWATER TREATMENT PLANT
POND 1
POND 2
POND 4
POND 3
Citrus
Sludge
Pits
Pond
Pond
Pond
LAKE LENA RUN
SR 655
LEGEND
Ditches
Levee Access Road
Active Sprayfield
STATION #2
Perc pond/spray field discharge
to Lake Lena Run
STATION #3
COCA-COLA AUBURNDALE - SOUTH SPRAYFIELD (OLD) 110 ACRES (50 active)


WELL #3
COOLING WATER SUPPLY
SURGE TANK
WITH AERATION
VARIOUS NON-CONTACT COOLING
WATER USES
COMPRESSORS, CONDENSERS,
HEAT EXCHANGERS
LAKE LENA
RUN
SUMP TANK
SAMPLING POINT
STORMWATER FROM ROOF
AND PARKING LOT
APPROX. 7 ACRES
FLUME FLOW
MEASURING STATION
OUTFALL
002

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
FRESHWATER BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	RECEIVING BODY OF WATER:
		2-21-91	LAKE LENT RUN

REMARKS:	LOCATION:	FIELD ID/NAME:
	ABOVE AUBURNDALE [illegible]	[illegible]

Habitat Parameter score	Excellent	Good	Fair	Poor
Bottom Substrate/ Available Cover 7	Greater than 40% snags, logs, tree roots, emergent vegetation, leaf packs, undercut banks, rubble, or other stable habitat. **23-30 points**	20% to 40% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Adequate habitat. **16-22 points**	5% to 20% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Less than desirable habitat. **8-15 points**	Less than 5% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Lack of habitat is obvious. **0-7 points**
Water Velocity 8	Max. observed; >0.3 m/sec. **23-30 points**	Max. observed; 0.1 to 0.3 m/sec **16-22 points**	Max. observed; 0.05 to 0.1 m/sec **8-15 points**	Max. observed; <0.05 m/sec **0-7 points**
Artificial Channel/ Flow Alteration 1	No artificial channelization. Little activity (impervious surface) in watershed which would cause scouring during spates. **12-15 points**	—	—	Artificially channelized, or scouring present during spates because of excess impervious surface in watershed. **0-3 points**
Bank Stability 1	Stable. No evidence of erosion or bank failure. Little potential for future problems. **9-10 points**	Moderately stable. Infrequent or small areas of erosion, mostly healed over. **6-8 points**	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. **3-5 points**	Unstable. Many raw, eroded areas. Obvious bank sloughing. **0-2 points**
Riparian Zone Vegetation Quality 0	Over 80% of streambank surfaces consist of native plants, classified as: bottomland hardwoods, understory shrubs, or non-woody macrophytes. **9-10 points**	50% to 80% of riparian zone is vegetated, but one class of plants is not represented. **6-8 points**	25% to 50% of riparian zone is vegetated, but one or two classes of plants are not represented. **3-5 points**	Less than 25% of streambank surfaces are vegetated. Poor plant community (e.g. grass monoculture) present. **0-2 points**

Adjustments		TOTAL SCORE
5	Add **5 points** if cross-sectional area of flow is estimated to be greater than one square meter during periods of normal flow.	22

COMMENTS: DUCKWEED & HYDRILLA CHOKED

ANALYSIS DATE:	ANALYST:	SIGNATURE:
2-21-91	RBF	Russell [illegible]

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/DY):	RECEIVING BODY OF WATER:
		2-21-91	LAKE [illegible]

REMARKS:	LOCATION: Coca Cola upstream of [illegible]	FIELD ID/NAME:
		001

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land-Use (specify relative percent in each category):

Forest	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other
		10			90	

Local Watershed Erosion (check box): None ☐ Moderate ☐ Heavy ☑

Local Watershed NPS Pollution (check box): No evidence ☐ Some potential sources ☐ Obvious sources ☑

Point-Source Pollution (list location and describe): INDUSTRIAL, PARKING, RR TRACKS AG

Estimated Stream Width (range, m): 4M - 2M	Estimated Stream Depth (range, m): ~1 M MAX		yes
High Water Mark (m above bed):	Velocity (range, m/s): FAST 0.2M/S — NO	Impounded ☐ Channelized ☒	

Canopy Cover % (check box): Open: ☒ Lightly Shaded: ☐ Moderately Shaded: ☐ Heavily Shaded: ☐

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: ☒ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Anaerobic: ☐ Other: ☐

Sediment Oils: Absent: ☒ Slight: ☐ Moderate: ☐ Profuse: ☐

Sediment Deposits: Sludge: ☐ Paper Fiber: ☐ Mud: ☒ Sand: ☒ Shell: ☐ Other: ☐

Substrate Types (estimated % surface coverage):

Limestone:		Sand/Silt/Clay Mix:	
Consolidated Clay:		Clay/Silt (inorganic):	
Gravel/Shell		Coarse Organic Debris:	5
Sand:	80	Mud/Muck (organic):	15

WATER QUALITY

	Temp. (°C):	D.O. (mg/l):		
Top	22.5	3.3	Secchi Depth (m):	BOTTOM
Mid-depth			pH (SU):	6.6
Bottom			Conductivity (µmho/cm):	230
			Other Parameters:	Salinity 0

Stream Type (check box): Blackwater: ☐ Deep Aquifer Fed: ☐ Surficial Aquifer Fed: ☐ Alluvial: ☐ Other: ☒ [illegible]

Water Odors (check box): Normal ☒ Sewage ☐ Petroleum ☐ Chemical ☐ Other ☐

Water Surface Oils (check box): Slick: ☐ Sheen: ☐ Globs: ☐ None: ☒

Clarity (check box): Clear: ☒ Slightly turbid: ☐ Turbid: ☐ Opaque: ☐

Color (check box): SLIGHT Tannic? ☒ Green (algae): ☐ Clear: ☐ Other: ☐

Weather Conditions: SUNNY HOT

Abundance:	Absent	Rare	Common	Abundant
Periphyton	☐	☐	☐	☒
Fish	☐	☐	☒	☐
Aquatic Macrophytes	☐	☐	☐	☒
Iron/sulfur Bacteria	☒	☐	☐	☐

ANALYSIS DATE:	ANALYST:	SIGNATURE:
2-21-91	R FRYDENBORG	[signature]

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STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
FRESHWATER BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	RECEIVING BODY OF WATER:
		2-21-91	LAKE LENA RUN

REMARKS:	LOCATION:	FIELD ID/NAME:
	#1 Above pond	#2

Habitat Parameter score	Excellent	Good	Fair	Poor
Bottom Substrate/ Available Cover 25	Greater than 40% snags, logs, tree roots, emergent vegetation, leaf packs, undercut banks, rubble, or other stable habitat. **23-30 points**	20% to 40% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Adequate habitat. **16-22 points**	5% to 20% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Less than desirable habitat. **8-15 points**	Less than 5% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Lack of habitat is obvious. **0-7 points**
Water Velocity 30	Max. observed; >0.3 m/sec. **23-30 points**	Max. observed; 0.1 to 0.3 m/sec **16-22 points**	Max. observed; 0.05 to 0.1 m/sec **8-15 points**	Max. observed; <0.05 m/sec **0-7 points**
Artificial Channel/ Flow Alteration 18	No artificial channelization. Little activity (impervious surface) in watershed which would cause scouring during spates. **12-15 points**	—	—	Artificially channelized, or scouring present during spates because of excess impervious surface in watershed. **0-3 points**
Bank Stability 10	Stable. No evidence of erosion or bank failure. Little potential for future problems. **9-10 points**	Moderately stable. Infrequent or small areas of erosion, mostly healed over. **6-8 points**	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. **3-5 points**	Unstable. Many raw, eroded areas. Obvious bank sloughing. **0-2 points**
Riparian Zone Vegetation Quality 8 EXOTICS COLOCASIA	Over 80% of streambank surfaces consist of native plants, classified as: bottomland hardwoods, understory shrubs, or non-woody macrophytes. **9-10 points**	50% to 80% of riparian zone is vegetated, but one class of plants is not represented. **6-8 points**	25% to 50% of riparian zone is vegetated, but one or two classes of plants are not represented. **3-5 points**	Less than 25% of streambank surfaces are vegetated. Poor plant community (e.g. grass monoculture) present. **0-2 points**

Adjustments		TOTAL SCORE
5	Add **5 points** if cross-sectional area of flow is estimated to be greater than one square meter during periods of normal flow.	86

COMMENTS: FISH KILL SEEN AMMONIA SPILL 2-17-91

ANALYSIS DATE:	ANALYST:	SIGNATURE:
2-21-91	RSI	

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	RECEIVING BODY OF WATER:
		2-21-91	LAKE LENA RUN

REMARKS:	LOCATION:	FIELD ID/NAME:
	#2 Above Perte discharge	ST 2

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land-Use (specify relative percent in each category):

Forest	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other
50	5				45	

Local Watershed Erosion (check box): None [X] Moderate [ ] Heavy [ ]

Local Watershed NPS Pollution (check box): No evidence [ ] Some potential sources [X] Obvious sources [ ]

Point Source Pollution (list location and describe):
PERC POND DISCHARGE BELOW

Estimated Stream Width (range, m):	2-3 M	Estimated Stream Depth (range, m):	.2-.5M	Impounded yes [ ]
High Water Mark (m above bed):	1 M	Velocity (range, m/s):	.5 M/S	Channelized [X]

Canopy Cover % (check box): Open: [ ] Lightly Shaded: [X] Moderately Shaded: [ ] Heavily Shaded: [ ]

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: [ ] Sewage: [ ] Petroleum: [ ] Chemical: [ ] Anaerobic: [✓] Other: [ ] _____

Sediment Oils: Absent: [✓] Slight: [ ] Moderate: [ ] Profuse: [ ]

Sediment Deposits: Sludge: [ ] Paper Fiber: [ ] Mud: [ ] Sand: [✓] Shell: [ ] Other: [✓] ROOTS

Substrate Types (estimated % surface coverage):

Limestone:		Sand/Silt/Clay Mix:	
Consolidated Clay:		Clay/Silt (inorganic):	
Gravel/Shell		Coarse Organic Debris:	5
Sand:	90	Mud/Muck (organic):	5

WATER QUALITY

	Temp. (°C):	D.O. (mg/l):		
Top	30.	4.3	Secchi Depth (m):	
Mid depth			pH (SU):	7.4
Bottom			Conductivity (µmho/cm):	298
			Other Parameters:	Salinity 2.5

Stream Type (check box): Blackwater: [ ] Deep Aquifer Fed: [X] Surficial Aquifer Fed: [ ] Alluvial: [ ] Other: [X] FROM COCKROACH BAY

Water Odors (check box): Normal: [✓] Sewage: [ ] Petroleum: [ ] Chemical: [ ] Other: [X] _____

Water Surface Oils (check box): Slick: [ ] Sheen: [ ] Globs: [ ] None: [X]

Clarity (check box): Clear: [ ] Slightly turbid: [ ] Turbid: [ ] Opaque: [ ]

Color (check box): Tannic: [ ] Green (algae): [ ] Clear: [X] Other: [ ] _____

Weather Conditions:
HOT
SUNNY

Abundance:	Absent	Rare	Common	Abundant
Periphyton	[ ]	[X]	[ ]	[ ]
Fish	[X]	[ ]	[ ]	[ ]
Aquatic Macrophytes	[ ]	[ ]	[X]	[ ]
Iron/sulfur Bacteria	[X]	[ ]	[ ]	[ ]

ANALYSIS DATE:	ANALYST:	SIGNATURE:
2-21-91		Russell Lydecker

EVIDENCE OF RECENT FISH KILL — DECAYING FISH SMELL OF ENGLISH

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
FRESHWATER BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	RECEIVING BODY OF WATER:
		2-21-91	LONA RUN

REMARKS:	LOCATION:	FIELD ID/NAME:
	23rd Ave discharge (pipe)	#3

Habitat Parameter / score	Excellent	Good	Fair	Poor
Bottom Substrate/ Available Cover 25	Greater than 40% snags, logs, tree roots, emergent vegetation, leaf packs, undercut banks, rubble, or other stable habitat. **23-30 points**	20% to 40% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Adequate habitat. **16-22 points**	5% to 20% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Less than desirable habitat. **8-15 points**	Less than 5% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Lack of habitat is obvious. **0-7 points**
Water Velocity 30	Max. observed; >0.3 m/sec. **23-30 points**	Max. observed; 0.1 to 0.3 m/sec **16-22 points**	Max. observed; 0.05 to 0.1 m/sec **8-15 points**	Max. observed; <0.05 m/sec **0-7 points**
Artificial Channel/ Flow Alteration 8	No artificial channelization. Little activity (impervious surface) in watershed which would cause scouring during spates. **12-15 points**	—	—	Artificially channelized, or scouring present during spates because of excess impervious surface in watershed. **0-3 points**
Bank Stability 10	Stable. No evidence of erosion or bank failure. Little potential for future problems. **9-10 points**	Moderately stable. Infrequent or small areas of erosion, mostly healed over. **6-8 points**	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. **3-5 points**	Unstable. Many raw, eroded areas. Obvious bank sloughing. **0-2 points**
Riparian Zone Vegetation Quality 8 exotics coloniza	Over 80% of streambank surfaces consist of native plants, classified as: bottomland hardwoods, understory shrubs, or non-woody macrophytes. **9-10 points**	50% to 80% of riparian zone is vegetated, but one class of plants is not represented. **6-8 points**	25% to 50% of riparian zone is vegetated, but one or two classes of plants are not represented. **3-5 points**	Less than 25% of streambank surfaces are vegetated. Poor plant community (e.g. grass monoculture) present. **0-2 points**

Adjustments		TOTAL SCORE
5	Add **5 points** if cross-sectional area of flow is estimated to be greater than one square meter during periods of normal flow.	86

COMMENTS: FISH KILL AMMONIA SPILL 2-17-91

ANALYSIS DATE:	ANALYST:	SIGNATURE:
2-21-91	RBF	Richard Brinkmeyer

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	RECEIVING BODY OF WATER:
		2-21-91	STH 3

REMARKS:	LOCATION:	FIELD ID/NAME:
	Below Auburn. Park Dr.	STH 3

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land-Use (specify relative percent in each category):

Forest	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other
50	5				45	

Local Watershed Erosion (check box): None [X] Moderate [ ] Heavy [ ]

Local Watershed NPS Pollution (check box): No evidence [ ] Some potential sources [X] Obvious sources [ ]

Point-Source Pollution (list location and describe):

Estimated Stream Width (range, m): 2-3 M	Estimated Stream Depth (range, m): 2-5 M	yes
High Water Mark (m above bed): 1 M	Velocity (range, m/s): .5 M/sec	Impounded [ ] Channelized [ ]

Canopy Cover % (check box): Open: [ ] Lightly Shaded: [X] Moderately Shaded: [ ] Heavily Shaded: [ ]

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: [ ] Sewage: [ ] Petroleum: [ ] Chemical: [ ] Anaerobic: [X] Other: [ ] NONE

Sediment Oils: Absent: [X] Slight: [ ] Moderate: [ ] Profuse: [ ]

Sediment Deposits: Sludge: [ ] Paper Fiber: [ ] Mud: [ ] Sand: [X] Shell: [ ] Other: [X] Rocks

Substrate Types (estimated % surface coverage):

Limestone:		Sand/Silt/Clay Mix:	
Consolidated Clay:		Clay/Silt (inorganic):	
Gravel/Shell		Coarse Organic Debris:	5
Sand:	90	Mud/Muck (organic):	5

WATER QUALITY

	Temp. (°C):	D.O. (mg/l):		
Top			Secchi Depth (m):	
Mid-depth	30	4.7	pH (SU):	7.4
Bottom			Conductivity (µmho/cm):	300
			Other Parameters: Salinity 2	

Stream Type (check box): Blackwater: [ ] Deep Aquifer Fed: [X] Surficial Aquifer Fed: [ ] Alluvial: [ ] Other: [X]

Water Odors (check box): Normal: [X] Sewage: [ ] Petroleum: [ ] Chemical: [ ] Other: [ ]

Water Surface Oils (check box): Slick: [ ] Sheen: [ ] Globs: [ ] None: [X]

Clarity (check box): Clear: [X] Slightly turbid: [ ] Turbid: [ ] Opaque: [ ]

Color (check box): Tannic: [X] SOME Green (algae): [ ] Clear: [ ] Other: [ ]

Weather Conditions: HOT SUNNY

Abundance:	Absent	Rare	Common	Abundant
Periphyton	[ ]	[X]	[ ]	[ ]
Fish	[X]	[ ]	[ ]	[ ]
Aquatic Macrophytes	[ ]	[ ]	[X]	[ ]
Iron/sulfur Bacteria	[X]	[ ]	[ ]	[ ]

ANALYSIS DATE:	ANALYST:	SIGNATURE:
2-21-91	RF	

FISH KILL
DECAYING FISH

FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
CENTRAL LABORATORY
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

CHEMICAL ANALYSIS REPORT

Job ID: 91-FEB-25-01
Date Received: 25-FEB-1991
Authorized: 30-MAR-1991

Project: BIOASSAY
Customer ID: BIOLOGY
By: Bill Coppenger

Submitted By: DER Biology Lab

For Additional Information, Please Contact
G. William Coppenger, Ph.D.
Yuh-Hsu Pan, Ph.D.
Suncom 277-2571
(904) 487-2571

Certified By: _____ Date: 4-2-91

Abbreviations & Storet Codes:

A - Value reported is the mean of two or more determinations
E - Scientific notation
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Not analyzed for this compound
T - Value reported is less than the practical quantitation limit
U - Material was analyzed for but not detected;
The value reported is the minimum detection limit
NA - Not applicable
NR - Not requested

Sample ID: 13980/91-FEB-25-01-01 Matrix: W-EFFLUENT
Location: Coca Cola Auburndale Foods
Field ID: 002-Cooling water
Collected: 21-FEB-1991 11:00 By: R.B.Frydenborg
Authorized: 11-MAR-1991 By: Liang T. Lin
Type: Grab Sample
Lab Comments:
Field Comments: Bioassay backup

Analysis ID: W-BNA
base-neutral-acid water analysis
Analyzed: 27-FEB-1991 By: Laura Harrison
Authorized: 4-MAR-1991 By: Laura Harrison

Storet#	Analyte	Value	Units
34205	Acenaphthene	2 U	ug/L
34200	Acenaphthylene	2 U	ug/L
39330	Aldrin	8 U	ug/L
34220	Anthracene	2 U	ug/L
34526	Benzo(a)anthracene	2 U	ug/L
34230	Benzo(b)fluoranthene	2 U	ug/L
34242	Benzo(k)fluoranthene	2 U	ug/L
34247	Benzo(a)pyrene	4 U	ug/L
34521	Benzo(g,h,i)perylene	5 U	ug/L
34292	Benzyl butyl phthalate	2 U	ug/L
	a-BHC	8 U	ug/L
39337	b-BHC	8 U	ug/L
39340	d-BHC	8 U	ug/L
	g-BHC	8 U	ug/L
39120	Benzidine	25 U	ug/L
34273	Bis(2-chloroethyl)ether	2 U	ug/L
34278	Bis(2-chloroethoxy)methane	2 U	ug/L
34283	Bis(2-chloroisopropyl)ether	2 U	ug/L
39100	Bis(2-ethylhexyl)phthalate	2 U	ug/L
34636	4-Bromophenyl phenyl ether	2 U	ug/L
34581	2-Chloronaphthalene	2 U	ug/L
34641	4-Chlorophenyl phenyl ether	2 U	ug/L
34320	Chrysene	2 U	ug/L
39310	4,4'-DDD	8 U	ug/L
39320	4,4'-DDE	8 U	ug/L
39300	4,4'-DDT	8 U	ug/L
34556	Dibenzo(a,h)anthracene	5 U	ug/L
39110	Di-n-butyl phthalate	2 U	ug/L
34536	1,2-Dichlorobenzene	2 U	ug/L
34566	1,3-Dichlorobenzene	2 U	ug/L
34571	1,4-Dichlorobenzene	2 U	ug/L
34631	3,3'-Dichlorobenzidine	5 U	ug/L
39380	Dieldrin	8 U	ug/L
34336	Diethylphthalate	2 U	ug/L
34341	Dimethylphthalate	2 U	ug/L
34611	2,4-Dinitrotoluene	2 U	ug/L
34626	2,6-Dinitrotoluene	2 U	ug/L

Continued on Page 3

13930/91-FEB-25-01-01/W-BNA Continued from Page 2

Storet#	Analyte	Value	Units
34596	Di-n-octyl phthalate	2 U	ug/L
34361	Endosulfan-I	8 U	ug/L
34356	Endosulfan-II	8 U	ug/L
34351	Endosulfan-sulfate	8 U	ug/L
39390	Endrin	8 U	ug/L
34366	Endrin-aldehyde	8 U	ug/L
34376	Fluoranthene	2 U	ug/L
34381	Fluorene	2 U	ug/L
39410	Heptachlor	8 U	ug/L
39420	Heptachlor-epoxide	8 U	ug/L
39700	Hexachlorobenzene	2 U	ug/L
34391	Hexachlorobutadiene	2 U	ug/L
34396	Hexachloroethane	2 U	ug/L
34386	Hexachlorocyclypentadiene	5 U	ug/L
34403	Indeno(1,2,3-cd)pyrene	5 U	ug/L
34408	Isophorone	2 U	ug/L
34696	Naphthalene	2 U	ug/L
34447	Nitrobenzene	2 U	ug/L
34438	N-Nitrosodimethylamine	2 U	ug/L
34428	N-Nitrosodi-n-propylamine	2 U	ug/L
34433	N-Nitrosodiphenylamine	2 U	ug/L
34671	PCB-1016	1.0E+03 U	ug/L
39488	PCB-1221	1.0E+03 U	ug/L
39492	PCB-1232	1.0E+03 U	ug/L
39496	PCB-1242	1.0E+03 U	ug/L
39500	PCB-1248	1.0E+03 U	ug/L
39504	PCB-1254	1.0E+03 U	ug/L
39508	PCB-1260	1.0E+03 U	ug/L
	PCB-1262	1.0E+03 U	ug/L
34461	Phenanthrene	2 U	ug/L
34469	Pyrene	2 U	ug/L
39400	Toxaphene	1.0E+03 U	ug/L
34551	1,2,4-Trichlorobenzene	2 U	ug/L
34462	4-Chloro-3-methyl phenol	2 U	ug/L
34586	2-Chlorophenol	2 U	ug/L
34601	2,4-Dichlorophenol	2 U	ug/L
34606	2,4-Dimethylphenol	2 U	ug/L
34616	2,4-Dinitrophenol	15 U	ug/L
34657	2-Methyl-4,6-dinitrophenol	15 U	ug/L
34591	2-Nitrophenol	2 U	ug/L
34646	4-Nitrophenol	15 U	ug/L
39032	Pentachlorophenol	5 U	ug/L
34694	Phenol	2 U	ug/L
34621	2,4,6-Trichlorophenol	2 U	ug/L

Comments (1)
(2)
(3)
(4)
(5)
(6)

Sample ID: 13981/91-FEB-25-01-02 Matrix: W-EFFLUENT
Location: Auburndale Foods
Field ID: Perk Pond Discharge
Collected: 21-FEB-1991 12:00 By: R.B.Frydenborg
Authorized: 11-MAR-1991 By: Liang T. Lin
Type: Grab Sample
Lab Comments:
Field Comments: Bioassay backup

Analysis ID: W-BNA
base-neutral-acid water analysis
Analyzed: 27-FEB-1991 By: Laura Harrison
Authorized: 4-MAR-1991 By: Laura Harrison

Storet#	Analyte	Value	Units
34205	Acenaphthene	2 U	ug/L
34200	Acenaphthylene	2 U	ug/L
39330	Aldrin	8 U	ug/L
34220	Anthracene	2 U	ug/L
34526	Benzo(a)anthracene	2 U	ug/L
34230	Benzo(b)fluoranthene	2 U	ug/L
34242	Benzo(k)fluoranthene	2 U	ug/L
34247	Benzo(a)pyrene	4 U	ug/L
34521	Benzo(g,h,i)perylene	5 U	ug/L
34292	Benzyl butyl phthalate	2 U	ug/L
	a-BHC	8 U	ug/L
39337	b-BHC	8 U	ug/L
39340	d-BHC	8 U	ug/L
	g-BHC	8 U	ug/L
39120	Benzidine	25 U	ug/L
34273	Bis(2-chloroethyl)ether	2 U	ug/L
34278	Bis(2-chloroethoxy)methane	2 U	ug/L
34283	Bis(2-chloroisopropyl)ether	2 U	ug/L
39100	Bis(2-ethylhexyl)phthalate	2 U	ug/L
34636	4-Bromophenyl phenyl ether	2 U	ug/L
34581	2-Chloronaphthalene	2 U	ug/L
34641	4-Chlorophenyl phenyl ether	2 U	ug/L
34320	Chrysene	2 U	ug/L
39310	4,4'-DDD	8 U	ug/L
39320	4,4'-DDE	8 U	ug/L
39300	4,4'-DDT	8 U	ug/L
34556	Dibenzo(a,h)anthracene	5 U	ug/L
39110	Di-n-butyl phthalate	2 U	ug/L
34536	1,2-Dichlorobenzene	2 U	ug/L
34566	1,3-Dichlorobenzene	2 U	ug/L
34571	1,4-Dichlorobenzene	2 U	ug/L
34631	3,3'-Dichlorobenzidine	5 U	ug/L
39380	Dieldrin	8 U	ug/L
34336	Diethylphthalate	2 U	ug/L
34341	Dimethylphthalate	2 U	ug/L
34611	2,4-Dinitrotoluene	2 U	ug/L
34626	2,6-Dinitrotoluene	2 U	ug/L

Continued on Page 5

13981/91-FEB-25-01-02/W-BNA Continued from Page 4

Storet#	Analyte	Value	Units
34596	Di-n-octyl phthalate	2 U	ug/L
34361	Endosulfan-I	8 U	ug/L
34356	Endosulfan-II	8 U	ug/L
34351	Endosulfan-sulfate	8 U	ug/L
39390	Endrin	8 U	ug/L
34366	Endrin-aldehyde	8 U	ug/L
34376	Fluoranthene	2 U	ug/L
34381	Fluorene	2 U	ug/L
39410	Heptachlor	8 U	ug/L
39420	Heptachlor-epoxide	8 U	ug/L
39700	Hexachlorobenzene	2 U	ug/L
34391	Hexachlorobutadiene	2 U	ug/L
34396	Hexachloroethane	2 U	ug/L
34386	Hexachlorocyclypentadiene	5 U	ug/L
34403	Indeno(1,2,3-cd)pyrene	5 U	ug/L
34408	Isophorone	2 U	ug/L
34696	Naphthalene	2 U	ug/L
34447	Nitrobenzene	2 U	ug/L
34438	N-Nitrosodimethylamine	2 U	ug/L
34428	N-Nitrosodi-n-propylamine	2 U	ug/L
34433	N-Nitrosodiphenylamine	2 U	ug/L
34671	PCB-1016	1.0E+03 U	ug/L
39488	PCB-1221	1.0E+03 U	ug/L
39492	PCB-1232	1.0E+03 U	ug/L
39496	PCB-1242	1.0E+03 U	ug/L
39500	PCB-1248	1.0E+03 U	ug/L
39504	PCB-1254	1.0E+03 U	ug/L
39508	PCB-1260	1.0E+03 U	ug/L
	PCB-1262	1.0E+03 U	ug/L
34461	Phenanthrene	2 U	ug/L
34469	Pyrene	2 U	ug/L
39400	Toxaphene	1.0E+03 U	ug/L
34551	1,2,4-Trichlorobenzene	2 U	ug/L
34462	4-Chloro-3-methyl phenol	2 U	ug/L
34586	2-Chlorophenol	2 U	ug/L
34601	2,4-Dichlorophenol	2 U	ug/L
34606	2,4-Dimethylphenol	2 U	ug/L
34616	2,4-Dinitrophenol	15 U	ug/L
34657	2-Methyl-4,6-dinitrophenol	15 U	ug/L
34591	2-Nitrophenol	2 U	ug/L
34646	4-Nitrophenol	15 U	ug/L
39032	Pentachlorophenol	5 U	ug/L
34694	Phenol	2 U	ug/L
34621	2,4,6-Trichlorophenol	2 U	ug/L

Comments (1)
(2)
(3)
(4)
(5)
(6)

Sample ID: 13982/91-FEB-25-01-03 Matrix: W-TRIP-BLK
Location: Auburndale Foods
Field ID:
Collected: 21-FEB-1991 12:00 By:
Authorized: 11-MAR-1991 By: Liang T. Lin
Type: Grab Sample
Lab Comments:
Field Comments: BLANK

Analysis ID: W-BNA
base-neutral-acid water analysis
Analyzed: 27-FEB-1991 By: Laura Harrison
Authorized: 4-MAR-1991 By: Laura Harrison

Storet#	Analyte	Value	Units
34205	Acenaphthene	2 U	ug/L
34200	Acenaphthylene	2 U	ug/L
39330	Aldrin	8 U	ug/L
34220	Anthracene	2 U	ug/L
34526	Benzo(a)anthracene	2 U	ug/L
34230	Benzo(b)fluoranthene	2 U	ug/L
34242	Benzo(k)fluoranthene	2 U	ug/L
34247	Benzo(a)pyrene	4 U	ug/L
34521	Benzo(g,h,i)perylene	5 U	ug/L
34292	Benzyl butyl phthalate	2 U	ug/L
	a-BHC	8 U	ug/L
39337	b-BHC	8 U	ug/L
39340	d-BHC	8 U	ug/L
	g-BHC	8 U	ug/L
39120	Benzidine	25 U	ug/L
34273	Bis(2-chloroethyl)ether	2 U	ug/L
34278	Bis(2-chloroethoxy)methane	2 U	ug/L
34283	Bis(2-chloroisopropyl)ether	2 U	ug/L
39100	Bis(2-ethylhexyl)phthalate	2 U	ug/L
34636	4-Bromophenyl phenyl ether	2 U	ug/L
34581	2-Chloronaphthalene	2 U	ug/L
34641	4-Chlorophenyl phenyl ether	2 U	ug/L
34320	Chrysene	2 U	ug/L
39310	4,4'-DDD	8 U	ug/L
39320	4,4'-DDE	8 U	ug/L
39300	4,4'-DDT	8 U	ug/L
34556	Dibenzo(a,h)anthracene	5 U	ug/L
39110	Di-n-butyl phthalate	2 U	ug/L
34536	1,2-Dichlorobenzene	2 U	ug/L
34566	1,3-Dichlorobenzene	2 U	ug/L
34571	1,4-Dichlorobenzene	2 U	ug/L
34631	3,3'-Dichlorobenzidine	5 U	ug/L
39380	Dieldrin	8 U	ug/L
34336	Diethylphthalate	2 U	ug/L
34341	Dimethylphthalate	2 U	ug/L
34611	2,4-Dinitrotoluene	2 U	ug/L
34626	2,6-Dinitrotoluene	2 U	ug/L

Continued on Page 7

13982/91-FEB-25-01-03/W-BNA Continued from Page 6

Storet#	Analyte	Value	Units
34596	Di-n-octyl phthalate	2 U	ug/L
34361	Endosulfan-I	8 U	ug/L
34356	Endosulfan-II	8 U	ug/L
34351	Endosulfan-sulfate	8 U	ug/L
39390	Endrin	8 U	ug/L
34366	Endrin-aldehyde	8 U	ug/L
34376	Fluoranthene	2 U	ug/L
34381	Fluorene	2 U	ug/L
39410	Heptachlor	8 U	ug/L
39420	Heptachlor-epoxide	8 U	ug/L
39700	Hexachlorobenzene	2 U	ug/L
34391	Hexachlorobutadiene	2 U	ug/L
34396	Hexachloroethane	2 U	ug/L
34386	Hexachlorocyclypentadiene	5 U	ug/L
34403	Indeno(1,2,3-cd)pyrene	5 U	ug/L
34408	Isophorone	2 U	ug/L
34696	Naphthalene	2 U	ug/L
34447	Nitrobenzene	2 U	ug/L
34438	N-Nitrosodimethylamine	2 U	ug/L
34428	N-Nitrosodi-n-propylamine	2 U	ug/L
34433	N-Nitrosodiphenylamine	2 U	ug/L
34671	PCB-1016	1.0E+03 U	ug/L
39488	PCB-1221	1.0E+03 U	ug/L
39492	PCB-1232	1.0E+03 U	ug/L
39496	PCB-1242	1.0E+03 U	ug/L
39500	PCB-1248	1.0E+03 U	ug/L
39504	PCB-1254	1.0E+03 U	ug/L
39508	PCB-1260	1.0E+03 U	ug/L
	PCB-1262	1.0E+03 U	ug/L
34461	Phenanthrene	2 U	ug/L
34469	Pyrene	2 U	ug/L
39400	Toxaphene	1.0E+03 U	ug/L
34551	1,2,4-Trichlorobenzene	2 U	ug/L
34462	4-Chloro-3-methyl phenol	2 U	ug/L
34586	2-Chlorophenol	2 U	ug/L
34601	2,4-Dichlorophenol	2 U	ug/L
34606	2,4-Dimethylphenol	2 U	ug/L
34616	2,4-Dinitrophenol	15 U	ug/L
34657	2-Methyl-4,6-dinitrophenol	15 U	ug/L
34591	2-Nitrophenol	2 U	ug/L
34646	4-Nitrophenol	15 U	ug/L
39032	Pentachlorophenol	5 U	ug/L
34694	Phenol	2 U	ug/L
34621	2,4,6-Trichlorophenol	2 U	ug/L

Comments (1)
(2)
(3)
(4)
(5)
(6)

********** END OF REPORT **********

AUBURNDALE SEDIMENT

FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
CENTRAL LABORATORY
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

CHEMICAL ANALYSIS REPORT

Job ID: 91-FEB-25-05
Date Received: 25-FEB-1991
Authorized: 28-MAR-1991

Project: BIOASSAY
Customer ID: BIOLOGY
By: Bill Coppenger

Submitted By: DER Biology Lab

For Additional Information, Please Contact
G. William Coppenger, Ph.D.
Yuh-Hsu Pan, Ph.D.
Suncom 277-2571
(904) 487-2571

Certified By: GWC Date: 4-2-91

Abbreviations & Storet Codes:

A - Value reported is the mean of two or more determinations
E - Scientific notation
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Not analyzed for this compound
T - Value reported is less than the practical quantitation limit
U - Material was analyzed for but not detected;
The value reported is the minimum detection limit
NA - Not applicable
NR - Not requested

Sample ID: 13993/91-FEB-25-05-01 Matrix: S-FRHWTRSD
Location: Auburndale Foods
Field ID: Station 1 - upstream of cooling water
Collected: 21-FEB-1991 11:20 By: R.B. Frydenborg
Authorized: 22-MAR-1991 By: Liang T. Lin
Type: Grab Sample
Lab Comments:
Field Comments: SEDIMENT

Analysis ID: S-BNA
base-neutral-acid soil analysis
Analyzed: 20-MAR-1991 By: Ted Pye
Authorized: 20-MAR-1991 By: Laura Harrison

Storet#	Analyte	Value	Units
	Acenaphthene	150 U	ug/kg
	Acenaphthylene	150 U	ug/kg
	Aldrin	200 U	ug/kg
	Anthracene	150 U	ug/kg
	Benzo(a)anthracene	150 U	ug/kg
	Benzo(b)fluoranthene	150 U	ug/kg
	Benzo(k)fluoranthene	150 U	ug/kg
	Benzo(a)pyrene	150 U	ug/kg
	Benzo(g,h,i)perylene	300 U	ug/kg
	Benzyl butyl phthalate	150 U	ug/kg
	a-BHC	200 U	ug/kg
	b-BHC	200 U	ug/kg
	d-BHC	200 U	ug/kg
	g-BHC	200 U	ug/kg
	Benzidine	150 U	ug/kg
	Bis(2-chloroethyl)ether	150 U	ug/kg
	Bis(2-chloroethoxy)methane	300 U	ug/kg
	Bis(2-chloroisopropyl)ether	300 U	ug/kg
	Bis(2-ethylhexyl)phthalate	150 U	ug/kg
	4-Bromophenyl phenyl ether	150 U	ug/kg
	2-Chloronaphthalene	150 U	ug/kg
	4-Chlorophenyl phenyl ether	150 U	ug/kg
	Chrysene	150 K	ug/kg
	4,4'-DDD	200 U	ug/kg
	4,4'-DDE	200 U	ug/kg
	4,4'-DDT	200 U	ug/kg
	Dibenzo(a,h)anthracene	350 U	ug/kg
	Di-n-butyl phthalate	150 U	ug/kg
	1,2-Dichlorobenzene	150 U	ug/kg
	1,3-Dichlorobenzene	150 U	ug/kg
	1,4-Dichlorobenzene	150 U	ug/kg
	3,3'-Dichlorobenzidine	150 U	ug/kg
	Dieldrin	200 U	ug/kg
	Diethylphthalate	150 U	ug/kg
	Dimethylphthalate	150 U	ug/kg
	2,4-Dinitrotoluene	150 U	ug/kg
	2,6-Dinitrotoluene	150 U	ug/kg

Continued on Page 3

Sample ID: 13994/91-FEB-25-05-02 Matrix: S-FRHWTRSD
Location: Auburndale Foods
Field ID: Station 2 - above perk pond discharge
Collected: 21-FEB-1991 01:15 By: R.B. Frydenborg
Authorized: 22-MAR-1991 By: Liang T. Lin
Type: Grab Sample
Lab Comments:
Field Comments: SEDIMENT

Analysis ID: S-BNA
base-neutral-acid soil analysis
Analyzed: 20-MAR-1991 By: Ted Pye
Authorized: 20-MAR-1991 By: Laura Harrison

Storet#	Analyte	Value	Units
	Acenaphthene	150 U	ug/kg
	Acenaphthylene	150 U	ug/kg
	Aldrin	200 U	ug/kg
	Anthracene	150 U	ug/kg
	Benzo(a)anthracene	150 U	ug/kg
	Benzo(b)fluoranthene	150 U	ug/kg
	Benzo(k)fluoranthene	150 U	ug/kg
	Benzo(a)pyrene	150 U	ug/kg
	Benzo(g,h,i)perylene	300 U	ug/kg
	Benzyl butyl phthalate	150 U	ug/kg
	a-BHC	200 U	ug/kg
	b-BHC	200 U	ug/kg
	d-BHC	200 U	ug/kg
	g-BHC	200 U	ug/kg
	Benzidine	150 U	ug/kg
	Bis(2-chloroethyl)ether	150 U	ug/kg
	Bis(2-chloroethoxy)methane	300 U	ug/kg
	Bis(2-chloroisopropyl)ether	300 U	ug/kg
	Bis(2-ethylhexyl)phthalate	150 U	ug/kg
	4-Bromophenyl phenyl ether	150 U	ug/kg
	2-Chloronaphthalene	150 U	ug/kg
	4-Chlorophenyl phenyl ether	150 U	ug/kg
	Chrysene	150 U	ug/kg
	4,4'-DDD	200 U	ug/kg
	4,4'-DDE	200 U	ug/kg
	4,4'-DDT	200 U	ug/kg
	Dibenzo(a,h)anthracene	350 U	ug/kg
	Di-n-butyl phthalate	150 U	ug/kg
	1,2-Dichlorobenzene	150 U	ug/kg
	1,3-Dichlorobenzene	150 U	ug/kg
	1,4-Dichlorobenzene	150 U	ug/kg
	3,3'-Dichlorobenzidine	150 U	ug/kg
	Dieldrin	200 U	ug/kg
	Diethylphthalate	150 U	ug/kg
	Dimethylphthalate	150 U	ug/kg
	2,4-Dinitrotoluene	150 U	ug/kg
	2,6-Dinitrotoluene	150 U	ug/kg

Continued on Page 5

 Continued from Page 2

Storet#	Analyte	Value	Units
	Di-n-octyl phthalate	150 U	ug/kg
	Endosulfan-I	200 U	ug/kg
	Endosulfan-II	200 U	ug/kg
	Endosulfan-sulfate	200 U	ug/kg
	Endrin	200 U	ug/kg
	Endrin-aldehyde	200 U	ug/kg
	Fluoranthene	150 K	ug/kg
	Fluorene	150 U	ug/kg
	Heptachlor	200 U	ug/kg
	Heptachlor-epoxide	200 U	ug/kg
	Hexachlorobenzene	300 U	ug/kg
	Hexachlorobutadiene	150 U	ug/kg
	Hexachloroethane	800 U	ug/kg
	Hexachlorocyclypentadiene	150 U	ug/kg
	Indeno(1,2,3-cd)pyrene	150 U	ug/kg
	Isophorone	150 U	ug/kg
	Naphthalene	150 U	ug/kg
	Nitrobenzene	150 U	ug/kg
	N-Nitrosodimethylamine	1.0E+04 U	ug/kg
	N-Nitrosodi-n-propylamine	150 U	ug/kg
	N-Nitrosodiphenylamine	2.0E+03 U	ug/kg
	PCB-1016	200 U	ug/kg
	PCB-1221	200 U	ug/kg
	PCB-1232	200 U	ug/kg
	PCB-1242	200 U	ug/kg
	PCB-1248	200 U	ug/kg
	PCB-1254	200 U	ug/kg
	PCB-1260	200 U	ug/kg
	PCB-1262	200 U	ug/kg
	Phenanthrene	150 U	ug/kg
	Pyrene	150 K	ug/kg
	Toxaphene	200 U	ug/kg
	1,2,4-Trichlorobenzene	150 U	ug/kg
	4-Chloro-3-methyl phenol	400 U	ug/kg
	2-Chlorophenol	400 U	ug/kg
	2,4-Dichlorophenol	400 U	ug/kg
	2,4-Dimethylphenol	400 U	ug/kg
	2,4-Dinitrophenol	500 U	ug/kg
	2-Methyl-4,6-dinitrophenol	500 U	ug/kg
	2-Nitrophenol	500 U	ug/kg
	4-Nitrophenol	500 U	ug/kg
	Pentachlorophenol	500 U	ug/kg
	Phenol	400 U	ug/kg
	2,4,6-Trichlorophenol	400 U	ug/kg

Comments (1) Tentative identification of
(2) aliphatic compounds; est. concentration
(3) 2700 ug/kg.
(4)
(5)
(6)

Sample ID: 13995/91-FEB-25-05-03 Matrix: S-FRHWTRSD
Location: Auburndale Foods
Field ID: Station 3 - below perk pond discharge
Collected: 21-FEB-1991 12:45 By: R.B. Frydenborg
Authorized: 22-MAR-1991 By: Liang T. Lin
Type: Grab Sample
Lab Comments:
Field Comments: SEDIMENT

Analysis ID: S-BNA
base-neutral-acid soil analysis
Analyzed: 20-MAR-1991 By: Ted Pye
Authorized: 20-MAR-1991 By: Laura Harrison

Storet#	Analyte	Value	Units
	Acenaphthene	150 U	ug/kg
	Acenaphthylene	150 U	ug/kg
	Aldrin	200 U	ug/kg
	Anthracene	150 U	ug/kg
	Benzo(a)anthracene	150 U	ug/kg
	Benzo(b)fluoranthene	150 U	ug/kg
	Benzo(k)fluoranthene	150 U	ug/kg
	Benzo(a)pyrene	150 U	ug/kg
	Benzo(g,h,i)perylene	300 U	ug/kg
	Benzyl butyl phthalate	150 U	ug/kg
	a-BHC	200 U	ug/kg
	b-BHC	200 U	ug/kg
	d-BHC	200 U	ug/kg
	g-BHC	200 U	ug/kg
	Benzidine	150 U	ug/kg
	Bis(2-chloroethyl)ether	150 U	ug/kg
	Bis(2-chloroethoxy)methane	300 U	ug/kg
	Bis(2-chloroisopropyl)ether	300 U	ug/kg
	Bis(2-ethylhexyl)phthalate	150 U	ug/kg
	4-Bromophenyl phenyl ether	150 U	ug/kg
	2-Chloronaphthalene	150 U	ug/kg
	4-Chlorophenyl phenyl ether	150 U	ug/kg
	Chrysene	150 U	ug/kg
	4,4'-DDD	200 U	ug/kg
	4,4'-DDE	200 U	ug/kg
	4,4'-DDT	200 U	ug/kg
	Dibenzo(a,h)anthracene	350 U	ug/kg
	Di-n-butyl phthalate	150 U	ug/kg
	1,2-Dichlorobenzene	150 U	ug/kg
	1,3-Dichlorobenzene	150 U	ug/kg
	1,4-Dichlorobenzene	150 U	ug/kg
	3,3'-Dichlorobenzidine	150 U	ug/kg
	Dieldrin	200 U	ug/kg
	Diethylphthalate	150 U	ug/kg
	Dimethylphthalate	150 U	ug/kg
	2,4-Dinitrotoluene	150 U	ug/kg
	2,6-Dinitrotoluene	150 U	ug/kg

Continued on Page 7

13994/91-FEB-25-05-02/S-BNA Continued from Page 4

Storet#	Analyte	Value	Units
	Di-n-octyl phthalate	150 U	ug/kg
	Endosulfan-I	200 U	ug/kg
	Endosulfan-II	200 U	ug/kg
	Endosulfan-sulfate	200 U	ug/kg
	Endrin	200 U	ug/kg
	Endrin-aldehyde	200 U	ug/kg
	Fluoranthene	150 U	ug/kg
	Fluorene	150 U	ug/kg
	Heptachlor	200 U	ug/kg
	Heptachlor-epoxide	200 U	ug/kg
	Hexachlorobenzene	300 U	ug/kg
	Hexachlorobutadiene	150 U	ug/kg
	Hexachloroethane	800 U	ug/kg
	Hexachlorocyclypentadiene	150 U	ug/kg
	Indeno(1,2,3-cd)pyrene	150 U	ug/kg
	Isophorone	150 U	ug/kg
	Naphthalene	150 U	ug/kg
	Nitrobenzene	150 U	ug/kg
	N-Nitrosodimethylamine	1.0E+04 U	ug/kg
	N-Nitrosodi-n-propylamine	150 U	ug/kg
	N-Nitrosodiphenylamine	2.0E+03 U	ug/kg
	PCB-1016	200 U	ug/kg
	PCB-1221	200 U	ug/kg
	PCB-1232	200 U	ug/kg
	PCB-1242	200 U	ug/kg
	PCB-1248	200 U	ug/kg
	PCB-1254	200 U	ug/kg
	PCB-1260	200 U	ug/kg
	PCB-1262	200 U	ug/kg
	Phenanthrene	150 U	ug/kg
	Pyrene	150 U	ug/kg
	Toxaphene	200 U	ug/kg
	1,2,4-Trichlorobenzene	150 U	ug/kg
	4-Chloro-3-methyl phenol	400 U	ug/kg
	2-Chlorophenol	400 U	ug/kg
	2,4-Dichlorophenol	400 U	ug/kg
	2,4-Dimethylphenol	400 U	ug/kg
	2,4-Dinitrophenol	500 U	ug/kg
	2-Methyl-4,6-dinitrophenol	500 U	ug/kg
	2-Nitrophenol	500 U	ug/kg
	4-Nitrophenol	500 U	ug/kg
	Pentachlorophenol	500 U	ug/kg
	Phenol	400 U	ug/kg
	2,4,6-Trichlorophenol	400 U	ug/kg

Comments (1) Tentative identification of
(2) aliphatic compounds; est. concentration
(3) 330 ug/kg.
(4)
(5)
(6)

13995/91-FEB-25-05-03/S-BNA Continued from Page 6

Storet#	Analyte	Value	Units
	Di-n-octyl phthalate	150 U	ug/kg
	Endosulfan-I	200 U	ug/kg
	Endosulfan-II	200 U	ug/kg
	Endosulfan-sulfate	200 U	ug/kg
	Endrin	200 U	ug/kg
	Endrin-aldehyde	200 U	ug/kg
	Fluoranthene	150 U	ug/kg
	Fluorene	150 U	ug/kg
	Heptachlor	200 U	ug/kg
	Heptachlor-epoxide	200 U	ug/kg
	Hexachlorobenzene	300 U	ug/kg
	Hexachlorobutadiene	150 U	ug/kg
	Hexachloroethane	800 U	ug/kg
	Hexachlorocyclypentadiene	150 U	ug/kg
	Indeno(1,2,3-cd)pyrene	150 U	ug/kg
	Isophorone	150 U	ug/kg
	Naphthalene	150 U	ug/kg
	Nitrobenzene	150 U	ug/kg
	N-Nitrosodimethylamine	1.0E+04 U	ug/kg
	N-Nitrosodi-n-propylamine	150 U	ug/kg
	N-Nitrosodiphenylamine	2.0E+03 U	ug/kg
	PCB-1016	200 U	ug/kg
	PCB-1221	200 U	ug/kg
	PCB-1232	200 U	ug/kg
	PCB-1242	200 U	ug/kg
	PCB-1248	200 U	ug/kg
	PCB-1254	200 U	ug/kg
	PCB-1260	200 U	ug/kg
	PCB-1262	200 U	ug/kg
	Phenanthrene	150 U	ug/kg
	Pyrene	150 U	ug/kg
	Toxaphene	200 U	ug/kg
	1,2,4-Trichlorobenzene	150 U	ug/kg
	4-Chloro-3-methyl phenol	400 U	ug/kg
	2-Chlorophenol	400 U	ug/kg
	2,4-Dichlorophenol	400 U	ug/kg
	2,4-Dimethylphenol	400 U	ug/kg
	2,4-Dinitrophenol	500 U	ug/kg
	2-Methyl-4,6-dinitrophenol	500 U	ug/kg
	2-Nitrophenol	500 U	ug/kg
	4-Nitrophenol	500 U	ug/kg
	Pentachlorophenol	500 U	ug/kg
	Phenol	400 U	ug/kg
	2,4,6-Trichlorophenol	400 U	ug/kg

Comments (1) Tent. ids. & est. conc. of
(2) camphor 70 ug/kg, alkyl sub. phenol 170 ug/kg,
(3) benzeneacetic acid 130 ug/kg, aromatics 100 ug/kg,
(4) C15H24 aliphatics 1000 ug/kg,
(5) C8-44 aliphatics 3300 ug/kg.
(6)

********** END OF REPORT **********

FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
CENTRAL LABORATORY
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

CHEMICAL ANALYSIS REPORT

Job ID: 91-FEB-25-04
Date Received: 25-FEB-1991
Authorized: 10-APR-1991
Submitted By: Ross Prudenborg DER Biology Lab

Project: BIOASSAY
Customer ID: BIOLOGY
By: Bill Coppenger

For Additional Information, Please Contact
G. William Coppenger, Ph.D.
Yuh-Hsu Pan, Ph.D.
Suncom 277-2571
(904) 487-2571

Certified By: _____ Date: 4-11-91

Abbreviations & Storet Codes:

A - Value reported is the mean of two or more determinations
E - Scientific notation
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Not analyzed for this compound
T - Value reported is less than the practical quantitation limit
U - Material was analyzed for but not detected;
The value reported is the minimum detection limit
NA - Not applicable
NR - Not requested

Sample ID: 13990/91-FEB-25-04-01 Matrix: S-FRHWTRSD
Location: Auburndale Foods
Field ID: Station 1 - upstream of cooling water
Collected: 21-FEB-1991 11:20 By: R.B. Frydenborg
Authorized: 9-APR-1991 By: Tim Fitzpatrick
Type: Grab Sample
Lab Comments:
Field Comments: SEDIMENTS

Analysis ID: HG-H-S
Mercury in sediment by cold vapor system
Analyzed: 20-MAR-1991 By: Laurie Roughton
Authorized: 28-MAR-1991 By: Yuh-Hsu Pan

Storet#	Analyte	Value	Units
71921	Mercury	0.07	mg/kg

Analysis ID: S-ICP
ICP multielement analysis for soil samples
Analyzed: 11-MAR-1991 By: Kate Brackett
Authorized: 9-APR-1991 By: Tim Fitzpatrick

Storet#	Analyte	Value	Units
01108	Aluminum	2190	mg/Kg
01003	Arsenic	2.2 U	mg/Kg
01098	Antimony	NR	mg/Kg
01008	Barium	NR	mg/Kg
01013	Beryllium	NR	mg/Kg
01028	Cadmium	0.3 U	mg/Kg
00917	Calcium	NR	mg/Kg
01029	Chromium	7.3	mg/Kg
01038	Cobalt	NR	mg/Kg
01043	Copper	6.5	mg/Kg
01170	Iron	652	mg/Kg
01052	Lead	17.8 * ENRICHMENT	mg/Kg
00924	Magnesium	NR	mg/Kg
01053	Manganese	NR	mg/Kg
01068	Nickel	1.3	mg/Kg
00938	Potassium	NR	mg/Kg
01148	Selenium	3.3 U	mg/Kg
01078	Silver	0.3 U	mg/Kg
00934	Sodium	NR	mg/Kg
01083	Strontium	NR	mg/Kg
34480	Thallium	NR	mg/Kg
01088	Vanadium	NR	mg/Kg
01093	Zinc	32.8 * ENRICHMENT	mg/Kg
Comment	NONE		

Sample ID: 13991/91-FEB-25-04-02 Matrix: S-FRHWTRSD
Location: Auburndale Foods
Field ID: Station 2 - above perk pond discharge
Collected: 21-FEB-1991 01:15 By: R.B. Frydenborg
Authorized: 9-APR-1991 By: Tim Fitzpatrick
Type: Grab Sample
Lab Comments:
Field Comments: SEDIMENT

Analysis ID: HG-H-S
Mercury in sediment by cold vapor system
Analyzed: 20-MAR-1991 By: Laurie Roughton
Authorized: 28-MAR-1991 By: Yuh-Hsu Pan

Storet#	Analyte	Value	Units
71921	Mercury	0.01	mg/kg

Analysis ID: S-ICP
ICP multielement analysis for soil samples
Analyzed: 11-MAR-1991 By: Kate Brackett
Authorized: 9-APR-1991 By: Tim Fitzpatrick

Storet#	Analyte	Value	Units
01108	Aluminum	513 A	mg/Kg
01003	Arsenic	2.1 U	mg/Kg
01098	Antimony	NR	mg/Kg
01008	Barium	NR	mg/Kg
01013	Beryllium	NR	mg/Kg
01028	Cadmium	0.3 U	mg/Kg
00917	Calcium	NR	mg/Kg
01029	Chromium	1.1 T	mg/Kg
01038	Cobalt	NR	mg/Kg
01043	Copper	1.4 A	mg/Kg
01170	Iron	122 A	mg/Kg
01052	Lead	2.3 T	mg/Kg
00924	Magnesium	NR	mg/Kg
01053	Manganese	NR	mg/Kg
01068	Nickel	0.5 U	mg/Kg
00938	Potassium	NR	mg/Kg
01148	Selenium	3.2 U	mg/Kg
01078	Silver	0.3 U	mg/Kg
00934	Sodium	NR	mg/Kg
01083	Strontium	NR	mg/Kg
34480	Thallium	NR	mg/Kg
01088	Vanadium	NR	mg/Kg
01093	Zinc	5.8 A * BORDERLINE ENRICHMENT	mg/Kg
Comment	NONE		

Sample ID: 13992/91-FEB-25-04-03 Matrix: S-FRHWTRSD
Location: Auburndale Foods
Field ID: Station 3 - below perk pond discharge
Collected: 21-FEB-1991 12:45 By: R.B. Frydenborg
Authorized: 9-APR-1991 By: Tim Fitzpatrick
Type: Grab Sample
Lab Comments:
Field Comments: SEDIMENTS

Analysis ID: HG-H-S
Mercury in sediment by cold vapor system
Analyzed: 20-MAR-1991 By: Laurie Roughton
Authorized: 28-MAR-1991 By: Yuh-Hsu Pan

Storet#	Analyte	Value	Units
71921	Mercury	0.06	mg/kg

Analysis ID: S-ICP
ICP multielement analysis for soil samples
Analyzed: 11-MAR-1991 By: Kate Brackett
Authorized: 9-APR-1991 By: Tim Fitzpatrick

Storet#	Analyte	Value	Units
01108	Aluminum	4220	mg/Kg
01003	Arsenic	2.9 U	mg/Kg
01098	Antimony	NR	mg/Kg
01008	Barium	NR	mg/Kg
01013	Beryllium	NR	mg/Kg
01028	Cadmium	0.4 U	mg/Kg
00917	Calcium	NR	mg/Kg
01029	Chromium	7.2	mg/Kg
01038	Cobalt	NR	mg/Kg
01043	Copper	12	mg/Kg
01170	Iron	1660	mg/Kg
01052	Lead	8.7 * BOAT PERLING ENRICHMENT	mg/Kg
00924	Magnesium	NR	mg/Kg
01053	Manganese	NR	mg/Kg
01068	Nickel	1.9	mg/Kg
00938	Potassium	NR	mg/Kg
01148	Selenium	4.4 U	mg/Kg
01078	Silver	0.4 U	mg/Kg
00934	Sodium	NR	mg/Kg
01083	Strontium	NR	mg/Kg
34480	Thallium	NR	mg/Kg
01088	Vanadium	NR	mg/Kg
01093	Zinc	49.6 * ENRICHMENT	mg/Kg
Comment	NONE		

Sample ID: 13983/91-FEB-25-02-01 Matrix: W-EFFLUENT
Location: Coca Cola Auburndale Foods
Field ID: 002-Cooling water
Collected: 21-FEB-1991 11:00 By: R.B.Frydenborg
Authorized: 7-MAY-1991 By: Tim Fitzpatrick
Type: Grab Sample
Lab Comments:
Field Comments: Bioassay backup

Analysis ID: AG-G-W
Silver in water by furnace AA
Analyzed: 4-APR-1991 By: Jack Merritt
Authorized: 16-APR-1991 By: Tim Fitzpatrick

Storet#	Analyte	Value	Units
01077	Silver	0.1 U	ug/L

Analysis ID: CD-G-W
Cadmium by graphite furnace for water samples
Analyzed: 11-APR-1991 By: Jack Merritt
Authorized: 18-APR-1991 By: Tim Fitzpatrick

Storet#	Analyte	Value	Units
01027	Cadmium	0.2 U	ug/L

Analysis ID: HG-H-W
Mercury by cold vapor using hydride sys.-water
Analyzed: 20-MAR-1991 By: Laurie Roughton
Authorized: 28-MAR-1991 By: Yuh-Hsu Pan

Storet#	Analyte	Value	Units
71900	Mercury	0.1 U	ug/L

Analysis ID: SE-G-W
Selenium in water by furnace AA
Analyzed: 8-APR-1991 By: Jack Merritt
Authorized: 18-APR-1991 By: Tim Fitzpatrick

Storet#	Analyte	Value	Units
01147	Selenium	3 U	ug/L

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FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
CENTRAL LABORATORY
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

CHEMICAL ANALYSIS REPORT

Job ID: 91-FEB-25-02
Date Received: 25-FEB-1991
Authorized: 9-MAY-1991
Submitted By: DER Biology Lab Russ Frydenborg

Project: BIOASSAY
Customer ID: BIOLOGY
By: Bill Coppenger

For Additional Information, Please Contact
G. William Coppenger, Ph.D.
Yuh-Hsu Pan, Ph.D.
Suncom 277-2571
(904) 487-2571

Certified By: _____ Date: 5-11-91

Abbreviations & Storet Codes:

A - Value reported is the mean of two or more determinations
E - Scientific notation
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Not analyzed for this compound
T - Value reported is less than the practical quantitation limit
U - Material was analyzed for but not detected;
The value reported is the minimum detection limit
Q - Evidence that analyte was present in sample is equivocal
NA - Not applicable
NR - Not requested

13983/91-FEB-25-02-01 Continued from Page 2

Analysis ID: W-ICP-23
ICP multielement analysis for water samples
Analyzed: 2-APR-1991 By: Kate Brackett
Authorized: 7-MAY-1991 By: Tim Fitzpatrick

Storet#	Analyte	Value	Units
01106	Aluminum	15 U	ug/L
01002	Arsenic	20 U	ug/L
01097	Antimony	NR	ug/L
01007	Barium	NR	ug/L
01012	Beryllium	NR	ug/L
01027	Cadmium	3 U	ug/L
00916	Calcium	NR	mg/L
01034	Chromium	10 U	ug/L
01037	Cobalt	NR	ug/L
01042	Copper	5 U	ug/L
01045	Iron	30	ug/L
01051	Lead	15 U	ug/L
00927	Magnesium	NR	mg/L
01055	Manganese	NR	ug/L
01067	Nickel	5 U	ug/L
00937	Potassium	NR	mg/L
01147	Selenium	30 U	ug/L
01077	Silver	3 U	ug/L
00929	Sodium	NR	mg/L
01082	Strontium	NR	ug/L
01059	Thallium	NR	ug/L
01087	Vanadium	NR	ug/L
01092	Zinc	5 U	ug/L
Comment	NONE		

Sample ID: 13984/91-FEB-25-02-02 Matrix: W-EFFLUENT
Location: Auburndale Foods
Field ID: Perk Pond Discharge
Collected: 21-FEB-1991 12:00 By: R.B.Frydenborg
Authorized: 7-MAY-1991 By: Tim Fitzpatrick
Type: Grab Sample
Lab Comments:
Field Comments: Bioassay backup

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Analysis ID: AG-G-W
Silver in water by furnace AA
Analyzed: 4-APR-1991 By: Jack Merritt
Authorized: 16-APR-1991 By: Tim Fitzpatrick

Storet#	Analyte	Value	Units
01077	Silver	0.1 U	ug/L

Analysis ID: CD-G-W
Cadmium by graphite furnace for water samples
Analyzed: 11-APR-1991 By: Jack Merritt
Authorized: 18-APR-1991 By: Tim Fitzpatrick

Storet#	Analyte	Value	Units
01027	Cadmium	0.2 U	ug/L

Analysis ID: HG-H-W
Mercury by cold vapor using hydride sys.-water
Analyzed: 20-MAR-1991 By: Laurie Roughton
Authorized: 28-MAR-1991 By: Yuh-Hsu Pan

Storet#	Analyte	Value	Units
71900	Mercury	0.1 U	ug/L

Analysis ID: SE-G-W
Selenium in water by furnace AA
Analyzed: 8-APR-1991 By: Jack Merritt
Authorized: 18-APR-1991 By: Tim Fitzpatrick

Storet#	Analyte	Value	Units
01147	Selenium	3 U	ug/L

13984/91-FEB-25-02-02 Continued on Page 5

13984/91-FEB-25-02-02 Continued from Page 4

Analysis ID: W-ICP-23
ICP multielement analysis for water samples
Analyzed: 2-APR-1991 By: Kate Brackett
Authorized: 7-MAY-1991 By: Tim Fitzpatrick

Storet#	Analyte	Value	Units
01106	Aluminum	711	ug/L
01002	Arsenic	20 U	ug/L
01097	Antimony	NR	ug/L
01007	Barium	NR	ug/L
01012	Beryllium	NR	ug/L
01027	Cadmium	3 U	ug/L
00916	Calcium	NR	mg/L
01034	Chromium	10 U	ug/L
01037	Cobalt	NR	ug/L
01042	Copper	5 U	ug/L
01045	Iron	589	ug/L
01051	Lead	15 U	ug/L
00927	Magnesium	NR	mg/L
01055	Manganese	NR	ug/L
01067	Nickel	5 U	ug/L
00937	Potassium	NR	mg/L
01147	Selenium	30 U	ug/L
01077	Silver	3 U	ug/L
00929	Sodium	NR	mg/L
01082	Strontium	NR	ug/L
01059	Thallium	NR	ug/L
01087	Vanadium	NR	ug/L
01092	Zinc	26	ug/L
Comment	NONE		

Sample ID: 13985/91-FEB-25-02-03 Matrix: W-TRIP-BLK
Location: Auburndale Foods
Field ID:
Collected: 21-FEB-1991 12:00 By:
Authorized: 7-MAY-1991 By: Tim Fitzpatrick
Type: Grab Sample
Lab Comments:
Field Comments:

13985/91-FEB-25-02-03 Continued on Page 6

13985/91-FEB-25-02-03 Continued from Page 5

Analysis ID: AG-G-W
Silver in water by furnace AA
Analyzed: 4-APR-1991 By: Jack Merritt
Authorized: 16-APR-1991 By: Tim Fitzpatrick

Storet#	Analyte	Value	Units
01077	Silver	0.1 U	ug/L

Analysis ID: CD-G-W
Cadmium by graphite furnace for water samples
Analyzed: 11-APR-1991 By: Jack Merritt
Authorized: 18-APR-1991 By: Tim Fitzpatrick

Storet#	Analyte	Value	Units
01027	Cadmium	0.2 U	ug/L

Analysis ID: HG-H-W
Mercury by cold vapor using hydride sys.-water
Analyzed: 20-MAR-1991 By: Laurie Roughton
Authorized: 28-MAR-1991 By: Yuh-Hsu Pan

Storet#	Analyte	Value	Units
71900	Mercury	0.1 U	ug/L

Analysis ID: SE-G-W
Selenium in water by furnace AA
Analyzed: 8-APR-1991 By: Jack Merritt
Authorized: 18-APR-1991 By: Tim Fitzpatrick

Storet#	Analyte	Value	Units
01147	Selenium	3 U	ug/L

13985/91-FEB-25-02-03 Continued on Page 7

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

2846 Industrial Plaza Drive (32301) • P.O. Box 13056 • Tallahasse, FL 32317-3056 • (904) 878-3994 • Fax (904) 878-9504

LOG NO: T1-00512

Received: 01 MAR 91

Dr. Yuh-Hsu Pan
DER-Chemistry Section
2600 Blairstone Road
Tallahassee, Florida 32399-2400

Project: T150/District/Ground

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	SAMPLED BY
00512-19	C-253 AUBURNDALE FOODS STA 1	Client
00512-20	C-254 STA 2	
00512-21	C-255 STA 3	
00512-22	C-256	
00512-23	C-257	

PARAMETER	00512-19	00512-20	00512-21	00512-22	00512-23
Ammonia-N, mg/l	0.14	0.16	0.13	<0.030	10
Total Kjeldahl Nitrogen-N, mg/l	0.24	0.42	0.60	0.12	10
Total Phosphorus, mg/l	<0.10	<0.10	0.22	<0.10	120
Nitrate + Nitrite-N, mg/l	0.39	0.41	0.36	<0.10*	<0.10*

Sample ID: 13986/91-FEB-25-03-01 Matrix: W-SURF-FRH
Location: Auburndale Foods
Field ID: Station 1 - upstream of cooling water
Collected: 21-FEB-1991 11:20 By: R.B. Frydenborg
Authorized: 11-APR-1991 By: Tim Fitzpatrick
Type: Grab Sample
Lab Comments:
Field Comments:

Analysis ID: W-PO4
Orthophosphate analysis for water samples
Analyzed: 26-FEB-1991 By: Lei Wei
Authorized: 11-APR-1991 By: Tim Fitzpatrick
Sample exceeded holding time prior to analysis.

Storet#	Analyte	Value	Units
70507	O-Phosphate-P	0.21 A	mg P/L

Analysis ID: W-SULFIDE
Sulfide analysis for water sample
Analyzed: 5-MAR-1991 By: Jin-Chaun Liu
Authorized: 11-APR-1991 By: Tim Fitzpatrick
Sample exceeded holding time prior to analysis.

Storet#	Analyte	Value	Units
	Sulfide	0.020 U	

Sample ID: 13987/91-FEB-25-03-02 Matrix: W-SURF-FRH
Location: Auburndale Foods
Field ID: Station 2 - above perk pond discharge
Collected: 21-FEB-1991 01:15 By: R.B. Frydenborg
Authorized: 11-APR-1991 By: Tim Fitzpatrick
Type: Grab Sample
Lab Comments:
Field Comments:

Analysis ID: W-PO4
Orthophosphate analysis for water samples
Analyzed: 26-FEB-1991 By: Lei Wei
Authorized: 11-APR-1991 By: Tim Fitzpatrick
Sample exceeded holding time prior to analysis.

Storet#	Analyte	Value	Units
70507	O-Phosphate-P	0.091 A	mg P/L

FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
CENTRAL LABORATORY
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

CHEMICAL ANALYSIS REPORT

Job ID: 91-FEB-25-03
Date Received: 25-FEB-1991
Authorized: 22-APR-1991
Submitted By: Russ Frydenborg DER Biology Lab

Project: BIOASSAY
Customer ID: BIOLOGY
By: Bill Coppenger

For Additional Information, Please Contact
G. William Coppenger, Ph.D.
Yuh-Hsu Pan, Ph.D.
Suncom 277-2571
(904) 487-2571

Certified By: _____ Date: 4-22-91

Abbreviations & Storet Codes:

A - Value reported is the mean of two or more determinations
E - Scientific notation
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Not analyzed for this compound
T - Value reported is less than the practical quantitation limit
U - Material was analyzed for but not detected;
The value reported is the minimum detection limit
NA - Not applicable
NR - Not requested

13987/91-FEB-25-03-02 Continued from Page 2

Analysis ID: W-SULFIDE
Sulfide analysis for water sample
Analyzed: 5-MAR-1991 By: Jin-Chaun Liu
Authorized: 11-APR-1991 By: Tim Fitzpatrick
Sample exceeded holding time prior to analysis.

Storet#	Analyte	Value	Units
	Sulfide	0.020 T	

Sample ID: 13988/91-FEB-25-03-03 Matrix: W-SURF-FRH
Location: Auburndale Foods
Field ID: Station 3 - below perk pond discharge
Collected: 21-FEB-1991 12:45 By: R.B. Frydenborg
Authorized: 11-APR-1991 By: Tim Fitzpatrick
Type: Grab Sample
Lab Comments:
Field Comments:

Analysis ID: W-PO4
Orthophosphate analysis for water samples
Analyzed: 26-FEB-1991 By: Lei Wei
Authorized: 11-APR-1991 By: Tim Fitzpatrick
Sample exceeded holding time prior to analysis.

Storet#	Analyte	Value	Units
70507	O-Phosphate-P	0.33 A	mg P/L

Analysis ID: W-SULFIDE
Sulfide analysis for water sample
Analyzed: 5-MAR-1991 By: Jin-Chaun Liu
Authorized: 11-APR-1991 By: Tim Fitzpatrick
Sample exceeded holding time prior to analysis.

Storet#	Analyte	Value	Units
	Sulfide	0.020 T	

Sample ID: 13989/91-FEB-25-03-04 Matrix: W-TRIP-BLK
Location: Auburndale Foods
Field ID: station 1 upstream of cooling water
Collected: 21-FEB-1991 12:45 By:
Authorized: 11-APR-1991 By: Tim Fitzpatrick
Type: Grab Sample
Lab Comments:
Field Comments:

Analysis ID: W-PO4
Orthophosphate analysis for water samples
Analyzed: 26-FEB-1991 By: Lei Wei
Authorized: 11-APR-1991 By: Tim Fitzpatrick
Sample exceeded holding time prior to analysis.

Storet#	Analyte	Value	Units
70507	O-Phosphate-P	0.030 T	mg P/L

Analysis ID: W-SULFIDE
Sulfide analysis for water sample
Analyzed: 5-MAR-1991 By: Jin-Chaun Liu
Authorized: 11-APR-1991 By: Tim Fitzpatrick
Sample exceeded holding time prior to analysis.

Storet#	Analyte	Value	Units
	Sulfide	0.020 U	

********** END OF REPORT **********

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Auburndale Foods - Cooling water (1 sample)
Address/City:
County: Polk
Contact/District: SW District
NPDES Permit #: FL0000418 **Outfall #:** 002

Sample Collection: Date 2/22/91 Time 1100
Test Beginning: Date 2/23/91 Time 1100
Test Ending: Date 2/25/91 Time 1100
Test Organism: N. leeckii / D. pulex
Life Stage/Age: 14 days / 24 hr

Test Number: 1 of 1 **Test Type:** Screening | Definitive
Static | Static Renewal | Flow-through

Remarks:

Instrument Calibrations:

	pH	DO	Cond	Temp
0 hr				
24 hr				
48 hr				

Conc.	Chamber #	Number Live 0	24	48	DO (mg/l) 0	24	48	pH 0	24	48	Temp. (°C) 0	24	48	Cond. (µmhos/cm) 0	24	48
Control	19	5	5	5												
"	75	5	5	5												
"	33	5	5	5												
"	41	5	5	5												
100%	78	5	5	5	9.7		8.2	7.6		8.1	22.0		21°			
"	79	5	5	5	9.6		8.4	7.6		8.2				230		226
Control	1	5	5	5												
"	2	5	5	4												
"	3	5	5	5												
"	4	5	5	5												
"	5	5	5	5												
"	6	5	4	3												
"	7	5	5	5												
"	8	5	5	5												
100%	9	5	2	0	9.6		8.5	7.6		8.4	22.0		22.5			
"	10	5	4	0												
"	11	5	5	0												
"	12	5	3	2										230		222
Measured/Loaded by:		KML RBF	KML	KML	RBF		SMC	RBF		SMC	RBF		SMC	RBF		SMC
Recorded by:		RBF	KML	KML	KML		RBF	KML		RBF	KML		RBF	KML		RBF

Investigators' Signatures

Russel Fryderyng
Sandy McClure
[illegible]
[illegible]

Reviewer

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:					
Lab Tot. Resid. Cl2:					
Alkalinity:			94	HACH	KML
Hardness:			105	HACH	KML
Total Ammonia:					

Ammonia meter slope:

Sample Source: Auburndale Foods - perc pond discharge
Address/City:
County: Polk
Contact/District: SWD District
NPDES Permit #: FL0000418 Outfall #: 001 ?

Sample Collection: Date 2/22/91 Time 1200
Test Beginning: Date 2/23/91 Time 1100
Test Ending: Date 2/25/91 Time 1100
Test Organism: N. leedsi / D. quillx
Life Stage/Age: 14 days / 24 hr

Test Number: 1 of 1 Test Type: Screening | Definitive
Static | Static Renewal | Flow-through

Remarks:

Instrument Calibrations:

	pH	DO	Cond	Temp
0 hr				
24 hr				
48 hr				

Conc.	Chamber #	Number Live 0	24	48	DO (mg/l) 0	24	48	pH 0	24	48	Temp. (°C) 0	24	48	Cond. (µmhos/cm) 0	24	48
Control	190	5	5	5												
"	75	5	5	5												
"	33	5	5	5												
"	86	5	5	5												
100%	47	6	6	6	9.6		8.1	6.9		7.5	20.3		21.0			
"	37	7	7	7	9.5		8.0	6.9		7.5				358		361
Control	1	5	5	5												
"	2	5	5	4												
"	3	5	5	5												
"	4	5	5	5												
"	5	5	5	5												
"	6	5	4	3												
"	7	5	5	5												
"	8	5	5	5												
100%	9	5	3	1	9.5		8.3	6.9		7.8	20.3		20.5			
"	10	5	2	1												
"	11	5	3	3												
"	12	5	1	1										358		358
Measured/Loaded by:		KML RBF	KML	SMC	RBF		SMC	RBF		SMC	RBF		SMC	RBF		SMC
Recorded by:		RBF	KML	KML	KML		RJH	KML		RJH	KML		RJH	KML		RJH

Investigators' Signatures

Russell Frydenborg
Sandy McClure
Kathy Ludwig
Ron Hall

Reviewer

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:					
Lab Tot. Resid. Cl2:					
Alkalinity:			39	HACH	KML
Hardness:			50	HACH	KML
Total Ammonia:					

Ammonia meter slope:

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Florida Distillers at Lena Plus
Address/City: _____
County: Polk
Contact/District: SWD District
NPDES Permit #: — **Outfall #:** 1

Sample Collection: Date 2-22-91 Time 1200
Test Beginning: Date 2-23-91 Time 1100
Test Ending: Date 2-25-91 Time 1100
Test Organism: D. Pulex - 24 HR
Life Stage/Age: N Ledsi - 14 DAY

Test Number: 1 of 1 **Test Type:** Screening | Definitive
Static | Static Renewal | Flow-through

Remarks:

Instrument Calibrations:

	pH	DO	Cond	Temp
0 hr				
24 hr				
48 hr				

N. ledsi

Conc.	Chamber #	Number Live 0	24	48	DO (mg/l) 0	24	48	pH 0	24	48	Temp. (°C) 0	24	48	Cond. (µmhos/cm) 0	24	48
Control	190	5	5	5												
"	75	5	5	5												
"	33	5	5	5												
"	86	5	5	5												
100%	26	5	5	5	9.5		7.5	7.5		7.9	21.1		21.0			
"	25	5	5	5	9.4		7.7	7.5		8.1				268		278
Control	1	5	5	5												
"	2	5	5	4												
"	3	5	5	5												
"	4	5	5	5												
"	5	5	5	5												
"	6	5	4	3												
"	7	5	5	5												
"	8	5	5	5												
100%	9	4	4	4	9.4		8.4	7.5		8.3	21.1		20.5			
"	10	5	4	3												
"	11	5	5	5												
"	12	4	4	4										266		272
Measured/Loaded by:		KML RBF	KML	SMC	RBF		SMC	RBF		SMC	RBF		SMC	RBF		SMC
Recorded by:		RBF	KML	KML	KML		RH	KML		RH KML			RH	KML		

D. pulex

Investigators' Signatures

Russell Frydenborg
Saundra McClean
K Hardin
_____
_____
Reviewer

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:					
Lab Tot. Resid. Cl2:					
Alkalinity:			98	HACH	KML
Hardness:			108	HACH	KML
Total Ammonia:					

Ammonia meter slope: _____

LAB ID: 34

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
BIOLOGY LABORATORY SEDIMENT BENCH SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	RECEIVING BODY OF WATER:	DEPTH, FEET:

REMARKS:	LOCATION: Auburndale upstream of cooling water	FIELD ID/NAME:

Aliquot #1

Sediment Wet Weight: (for 2 aliquot method of wet sieving) (a) _____

Sediment Dry Weight (105°C): (for 1 aliquot method of wet or dry sieving, or for calculating dry wt. of aliquot #2) (b) 25.32

Aliquot #2

Sediment Wet Weight: (for 2 aliquot method of wet sieving) (c) _____

Aliquot #3 (for % organics)

Crucible Weight: (d) [illegible]

Crucible + Dry Sediment (105°C) Wt.: (e) [illegible]

Crucible + Ashed Sediment (550°C) Wt.: (f) [illegible]

Percent Organics Calculation:

Sediment Dry (105°C) Weight: (e) - (d) = [illegible] − [illegible] = (g) [illegible]

Sediment Ash (550°C) Weight: (f) - (d) = [illegible] − [illegible] = (h) [illegible]

$$\text{Percent Organics} = \frac{((g) - (h)) \times 100}{(g)} = \frac{(25.32 - [illegible]) \times 100}{[illegible]} = 2.33$$

Size Fraction Determination:

Dry Weight Calculation:
(for 2 aliquot method of wet sieving)

$$\frac{(b)}{(a)} \times (c) = \frac{\quad}{\quad} \times \quad = (i)$$

weight (gms.) of material retained by:

			% composition
#10 sieve	(>2.0 mm)	(j) [illegible]	1.94
#35 sieve	(0.5-2.0 mm)	(k) [illegible]	6.75
#60 sieve	(0.25-0.5 mm)	(l) [illegible]	56.2
#120 sieve	(0.125-0.25 mm)	(m) [illegible]	13.11
#230 sieve	(0.063-0.125 mm)	(n) [illegible]	1.11
Pan (dry sieve only)	(<0.063 mm)	(o) _____	
Total (dry sieve) (j) + (k)...+ (o))		(p) _____	
Total Retained (wet sieve) (j) + (k)...+ (n))		(q) [illegible]	
Wet sieve fines ((b) - (q)) [1 aliquot method], or ((i) - (q)) [2 aliquots]	(<0.063 mm)	[illegible]	20.99
Wet sieve coarse fraction (after fines removal)	(>0.063 mm)	[illegible]	

(divide 1st column by (n) [dry sieve] or by (b) [wet sieve; 1 aliquot] or by (i) [wet sieve; 2 aliquot], and multiply by 100)

ANALYSIS DATE:	ANALYST:	SIGNATURE:
4-24-91	Lyn Burton	[signature]

LAB ID: 4d

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
BIOLOGY LABORATORY SEDIMENT BENCH SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y): 2 21 91	RECEIVING BODY OF WATER:	DEPTH, FEET:

REMARKS:	LOCATION: Auburndale upstream of perc pond	FIELD ID/NAME:

Aliquot #1

Sediment Wet Weight: (for 2 aliquot mothod of wet sieving) (a) _____

Sediment Dry Weight (105°C): (for 1 aliquot method of wet or dry sieving, or for calculating dry wt. of aliquot #2) (b) 23.45

Aliquot #2

Sediment Wet Weight: (for 2 aliquot method of wet sieving) (c) _____

Aliquot #3 (for % organics)

Crucible Weight: (d) 51.32

Crucible + Dry Sediment (105°C) Wt.: (e) 74.13

Crucible + Ashed Sediment (550°C) Wt.: (f) 74.05

Percent Organics Calculation:

Sediment Dry (105°C) Weight: (e) - (d) = 74.13 − 51.32 = (g) 22.81

Sediment Ash (550°C) Weight: (f) - (d) = 74.05 − 51.32 = (h) 22.73

Percent Organics: $\frac{((g) - (h)) \times 100}{(g)} = \frac{(22.81 - 22.73) \times 100}{22.81} =$ .19

Size Fraction Determination:

Dry Weight Calculation:
(for 2 aliquot method of wet sieving)

$\frac{(b)}{(a)} \times (c) = \frac{____}{____} \times ____ =$ (i) _____

			weight (gms.) of material retained by:	% composition (divide 1st column by (n) [dry sieve] or by (b) [wet sieve; 1 aliquot] or by (i) [wet sieve; 2 aliquot], and multiply by 100)
#10 sieve	(>2.0 mm)	(j)	.01	.04
#35 sieve	(0.5-2.0 mm)	(k)	1.00	4.28
#60 sieve	(0.25-0.5 mm)	(l)	21.21	74.47
#120 sieve	(0.125-0.25 mm)	(m)	1.55	5.44
#230 sieve	(0.063-0.125 mm)	(n)	.18	.63
Pan (dry sieve only)	(<0.063 mm)	(o)		
Total (dry sieve) ((j) + (k)...+ (o))		(p)		
Total Retained (wet sieve) ((j) + (k)...+ (n))		(q)	24.17	
Wet sieve fines ((b) - (q)) [1 aliquot method], or ((i) - (q)) [2 aliquots]	(<0.063 mm)		4.31	15.13
Wet sieve coarse fraction (after fines removal)	(>0.063 mm)		19.86	

ANALYSIS DATE:	ANALYST:	SIGNATURE:
4 - 24 - 91	Lyn Burton	Lyn Burton

LAB ID: 5d1

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
BIOLOGY LABORATORY SEDIMENT BENCH SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y): 4-11-91	RECEIVING BODY OF WATER:	DEPTH, FEET:

REMARKS:	LOCATION: Auburndale downstream of Pere pond	FIELD ID/NAME: 3

Aliquot #1

Sediment Wet Weight: (for 2 aliquot method of wet sieving) (a) _____

Sediment Dry Weight (105°C): (for 1 aliquot method of wet or dry sieving, or for calculating dry wt. of aliquot #2) (b) 25.18

Aliquot #2

Sediment Wet Weight: (for 2 aliquot method of wet sieving) (c) _____

Aliquot #3 (for % organics)

Crucible Weight: (d) 51.35

Crucible + Dry Sediment (105°C) Wt.: (e) 79.70

Crucible + Ashed Sediment (550°C) Wt.: (f) 77.09

Percent Organics Calculation:

Sediment Dry (105°C) Weight: (e) - (d) = 79.70 − 51.35 = (g) 28.35

Sediment Ash (550°C) Weight: (f) - (d) = 77.09 − 51.35 = (h) 25.74

Percent Organics $\frac{((g) - (h)) \times 100}{(g)} = \frac{(28.35 - 25.74) \times 100}{28.35} =$ **5.87**

Size Fraction Determination:

Dry Weight Calculation: (for 2 aliquot method of wet sieving)

$\frac{(b)}{(a)} \times (c) = \frac{\quad}{\quad} \times \quad = (i)$ _____

weight (gms.) of material retained by:

				% composition (divide 1st column by (n) [dry sieve] or by (b) [wet sieve; 1 aliquot] or by (i) [wet sieve; 2 aliquot], and multiply by 100)
#10 sieve	(>2.0 mm)	(j)	1.26	5.00
#35 sieve	(0.5-2.0 mm)	(k)	1.37	5.44
#60 sieve	(0.25-0.5 mm)	(l)	11.04	43.92
#120 sieve	(0.125-0.25 mm)	(m)	9.17	36.42
#230 sieve	(0.063-0.125 mm)	(n)	1.50	5.96
Pan (dry sieve only)	(<0.063 mm)	(o)	---	---
Total (dry sieve) ((j) + (k)...+ (o))		(p)	---	
Total Retained (wet sieve) ((j) + (k)...+ (n))		(q)	24.36	
Wet sieve fines ((b) - (q)) [1 aliquot method], or ((i) - (q)) [2 aliquots]	(<0.063 mm)		.82	3.26
Wet sieve coarse fraction (after fines removal)	(>0.063 mm)		24.54	

ANALYSIS DATE:	ANALYST:	SIGNATURE:
4-25-91	Lyn Burton	Lyn Burton

Taxa list for Auburndale Foods (Coca-cola) Inc., collected via Hester-Dendy samplers on 21 March, 1991, in Lake Lena Run.

	Abundance (#/m^2)		
	Station 1	Station 2	Station 3
Coleoptera			
Dineutus sp.	–	15	8
Hygrotus sp.	–	–	3
Diptera			
Ablabesmyia mallochi	–	–	24
Ablabesmyia rhamphe grp.	–	–	6
Chironomus decorus grp.	–	–	4
Cricotopus bicinctus	1	–	–
Cryptochironomus sp.	–	–	2
Endotribelos hesperium	–	16	–
Goeldichironomus amazonicus	4	16	1
Hemerodromia sp.	–	1	–
Kiefferulus dux	–	16	2
Labrundinia sp.	–	–	1
Meropelopia sp.	–	–	3
Monopelopia sp.	–	–	1
Nanocladius sp.	–	16	–
Pentaneura inconspicua	–	113	–
Paralauterborniella nigrohalteralis	–	–	1
Polypedilum convictum grp.	–	242	–
Polypedilum illinoense	4	469	12
Polypedilum scalaenum	–	388	42
Paratanytarsus sp.	–	–	1
Undetermined dipteran pupae	–	6	13
Tanytarsus sp.	–	–	1
Thienemaniella fusca	–	16	1
Tribelos fuscicorne	–	16	1
Tribelos jucundum	–	–	10
Ephemeroptera			
Caenis sp.	–	2	2
Stenacron interpunctatum	–	1	–
Gastropoda			
Hebetancyclus excentricus	8	2	16
Melanoides tuberculata	9	5	12
Micromenetus dilatus	–	–	2
Micromenetes floridensis	4	–	–
Physella heterostropha pomila	1	–	10
Planorbella duryi	4	–	–
Hirudinea			
Helobdella elongata	–	–	1
Helobdella fusca	2	–	–
Helobdella stagnalis	5	–	1
Helobdella triserialis	1	–	–
Mooreobdella tetragon	4	–	–

Placobdella ornata	1	–	1
Malacostraca			
Hyalella azteca	1	2	64
Odonata			
Pachydiplax longipennis	22	–	–
Oligochaeta			
Dero digitata	13	–	–
Limnodrilus hoffmeisteri	13	–	4
Lumbriculus inconstans	–	–	1
Pelecypoda			
Undetermined sphaeriid	–	–	2
Platyhelminthes			
Dugesia sp.	1	–	–
Trichoptera			
Cheumatopsyche sp.	–	27	–

Taxa list for Auburndale Foods (Coca-cola) Inc., collected via timed qualitative methods (dip net) on 21 February, 1991, in Lake Lena Run.

	Relative Abundance		
	Station 1	Station 2	Station 3
Coleoptera			
Cybister fimbriolatus	1	–	–
Dineutes serrulatus serrulatus	–	3	1
Dineutus sp.	–	–	1
Enochrus blatchleyi	–	–	2
Peltodytes muticus	12	–	–
Peltodytes sexmaculata	4	–	–
Peltodytes sp.	2	–	–
Tropisternus blatchleyi	2	–	–
Tropisternus natator	–	–	2
Diptera			
Ablabesmyia mallochi	–	1	–
Chironomus decorus grp.	75	–	–
Chironomus stigmaterus	2	–	–
Endochironomus nigricans	–	1	–
Endotribelos hesperium	–	–	1
Goeldichironomus holoprasinus	55	–	–
Palpomyia grp.	1	–	–
Polypedilum illinoense	1	3	4
Polypedilum scalaenum	–	–	1
Undetermined dipteran pupae	2	1	–
Undetermined dipteran species	–	–	1
Tanytarsus sp.	2	–	–
Tanypus carinatus	4	–	–
Ephemeroptera			
Callibaetis floridanus	2	–	1
Gastropoda			
Melanoides tuberculata	51	28	29
Physella heterostropha pomila	2	–	–
Planorbella duryi	24	–	1
Pseudosuccinia columella	–	–	1
Hemiptera			
Abedus immaculatus	1	–	–
Belostoma testaceum	3	2	1
Mesovelia mulsanti	1	–	–
Pelocoris femoratus	–	–	1
Sigara sp.	1	–	–
Lepidoptera			
Undetermined lepidopteran	1	–	–
Malacostraca			
Hyalella azteca	9	3	56
Procambarus alleni	7	1	2

Odonata			
Anax junius	3	–	–
Aphylla williamsoni	–	3	–
Brachymesia gravida	1	–	–
Calopteryx maculata	–	–	1
Enallagma cardenium	–	8	17
Erythemis simplicicollis	2	–	–
Gomphus minutus	–	–	2
Ischnura posita	–	1	–
Ischnura ramburii	5	–	–
Libellula incesta	–	–	2
Macromia taeniolata	–	6	10
Pachydiplax longipennis	1	–	–
Perithemis tenera seminole	1	–	–
Oligochaeta			
Dero digitata	19	–	–
Limnodrilus hoffmeisteri	8	1	–
Lumbriculus inconstans	–	28	17
Pelecypoda			
Corbicula manilensis	–	5	7
Elliptio buckleyi	–	–	1
Undetermined sphaeriid	6	–	–
Trichoptera			
Cheumatopsyche sp.	–	–	2

Periphyton taxa list for Auburndale Foods, Polk County, Florida, collected 21 March 1991.

	Control Site	Test Site
Diatoms		
Achnanthes exigua	7997	27487
Achnanthes hauckiana	–	91
Achnanthes hungarica	34	91
Achnanthes hustedtii	–	91
Achnanthes lanceolata v. *apicul*ata	34	–
Cocconeis placentula	269	3084
Cyclotella meneghiniana	34	91
Eunotia pectinalis	34	–
Gomphonema parvulum	–	91
Navicula accomoda	1512	2903
Navicula radiosa	–	272
Navicula seminulum	538	–
Nitzschia palea	34	91
Nitzschia romana	–	91
Synedra ulna	168	181
Chlorophyta		
Characium sp.	134	–
Pediastrum sp.	–	91
Pithophora sp.	–	91
Stigeocolonium sp.	874	2086
Cyanophyta		
Chroococcus sp.	1781	1451

Department of Environmental Regulation
Results of Fifth Year Inspections

Discharger: Auburndale Foods, Div. of Coca-Cola, Inc.
County: Polk
NPDES Number: FL0000418
State Permit Expiration Date:

Toxics Sampling Inspection (XSI)

Date Sampled: 21 February 1991

Results: No organic priority pollutants detected in either discharge. Zinc was found in the perc pond discharge at 26 µg/l (toxicity to *Daphnia* begins at 40 µg/l). Other metals were below problem levels. Several organic constituents were found in the sediments downstream of the perc pond discharge: camphor (70 µg/kg), alkyl sub. phenol (170 µg/kg), benzeneacetic acid (130 µg/kg), aromatics (100 µg/kg), C_{15} H_{44} aliphatics (1000 µg/kg) and C_{8-44} aliphatics (3300 µg/kg). Sediment concentrations of zinc and lead appeared to be anthropogenically elevated throughout Lake Lena Run.

Compliance Biomonitoring Inspection (CBI)

Date Sampled: 21 February 1991

Results: Cooling water discharge (outfall #002) and unpermitted perc pond discharge were both acutely toxic to *Daphnia pulex*. Neither discharge caused toxicity to *Notropis leedsi*.

Impact Bioassessment Inspection (IBI)

Date Sampled: 21 February and 21 March 1991

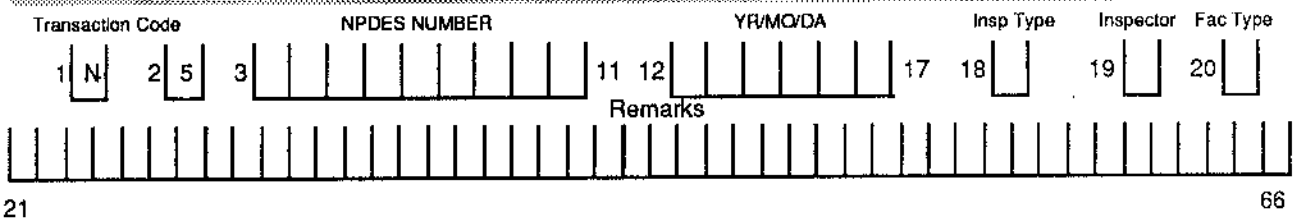
Results: Benthic macroinvertebrates were not stressed by the perc pond discharge, however, attached algae community showed signs of nutrient induced degradation. Algal growth potential tests indicated that all stations in Lena Run were above the AGP "problem threshold", with the area below the perc pond discharge most affected.

Water Quality Inspection (WQI)

Date Sampled: 21 February 1991

Results: Bioreactive nitrogen was moderately enriched throughout Lena Run. Phosphorus enrichment noted below the perc pond discharge.

Fill Out This Section For All Surface Water Discharger Inspections (CEI, CSI, CBI, PAI, XSI - RI Optional)



These fifth year inspections provide the necessary information to evaluate the facility's impact on its receiving waters and to provide specific condition recommendations for renewal to resolve any concerns.