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STATE OF WASHINGTON
Dixy Lee Ray
Governor

DEPARTMENT OF ECOLOGY
Olympia, Washington 98504 206/753-2800

MEMORANDUM

To: Frank Monahan

From: Bill Yake/Mike Morhous

Re: Standard Brands
Class II Inspection

Date: May 8, 1978

Findings and Conclusions:

A Class II inspection was carried out at Standard Brands Inc., Sumner, Washington on March 14-15, 1978. Bill Kaser is the plant manager; Mike Ripka, the technical director; and Tom Kalano, the lab supervisor. The plant's primary product is yeast, a byproduct is molasses condensed yeast extract (MYCS) which is shipped to the molasses suppliers. At the time of inspection the MYCS condensate was being fed to a storage tank and fed to the effluent line at a constant rate. All other process waters [(including first and second beer wastes and flushed cleaning solutions (sodium metasilicate)] were passing directly to the sewer. A continuous pH recorder probe was taped to a tapped-in effluent line which fed to a 5-gallon bucket. The trace from this pH recorder is attached. Based on this trace (which represents a somewhat equalized pH) and instantaneous pH, the pH of the waste varied from 4.8 to 9.2, which is within the 4 to 10 range allowed by the NPDES permit. The waste water pH appears to typically have a pH of about 5, with peaks of 9-10 when cleaning solutions (sodium metasilicate) is being flushed from the system. Residual chlorine in the non-contact cooling waters was detected at 1.5 mg/l. All other parameters were within NPDES Permit limitations.

Because Standard Brands provides such a large percentage of the BOD_5 loading to the Sumner STP (approximately 73% during the sampling period), the BOD_5:N:P ratios were calculated for each of the process waste samples. These are given below:

Sample	BOD_5/N/P
DOE Composite	100 / 4.3 / 0.24
Standard Brands Composite	100 / 4.7 / 0.37
Manhole Grab #1	100 / 2.0 / 0.20
Manhole Grab #2	100 / 3.4 / 0.23

Because the theoretical minimum ratio for successful secondary treatment is 100/5/1, this waste has the potential to create nutrient deficiencies at the Sumner STP if excess nutrients are not provided by other wastewaters.

Standard Brands is presently proceeding with plans to spray irrigate a portion of their wastewaters (including MYCE's condensate and second beer wastes) to grass fields. This will allow equalization of the entire remaining waste load and substantially decrease the organic loading on the Sumner STP. This should dampen pH fluctuations and allow improved operating conditions at the Sumner STP.

WY:MM:ee

cc: Central Files
Dick Cunningham

Sampler	Date and Time Installed	Location
1. Manning Composite aliquot - 250 ml/30 min.	3/14/78 (1055)	Manhole to cooling water effluent near loading dock
2. Manning composite aliquot - 250 ml/30 min.	3/14/78 (1150)	From plastic bucket filled by line tapped into process and wash water effluent line.
3. Flow proportional composite aliquot -	3/14/78 (0730)	Plant compositer, process and wash water.

Grab Samples

	Date and Time	Analysis	Sample Location
1.	3/14/78 (1045)	Fecal Coliform	Process & wash water line
2.	3/14/78 (1125)	COD, BOD, Solids, Nutr., pH, Cond., Turb.	Process water, city manhole in Fryar Ave
3.	3/14/78 (1325)	COD, BOD, Solids, Nutr., pH, Cond., Turb.	" " " " "
4.	3/14/78 (1545)	pH	" " " " " "

Flow Measuring Device

1. Type - In-line
2. Dimensions - unknown

a. Meets standard criteria ☐ Yes
☐ No Explain:

b. Accuracy check

	Actual Instan. Flow	Recorder Reading	Recorder Accuracy (% of inst. flow)
1.			
2.			
3.			

☐ is within accepted 15% error limitations
☐ is in need of calibration

Field Data

Parameter	Date and Time	Sample Location	Result
Temp	3/14/78 (1050)	Cooling water	19°C
Chlorine Res.	3/14/78 (1050)	Cooling water	1.5 mg/l
Temp.	3/14/78 (1150)	Process & wash waters	28°C
pH	3/14/78 (1150)	Process & wash waters	4.8
pH	3/14/78 (1125)	Process water, city manhole	8.6
pH	3/14/78 (1325)	Process water, city manhole	5.0
Temp.	3/15/78 (1140)	Process and wash waters	28°C

Review of Laboratory Procedures and Techniques

On March 15, 1978 laboratory procedures were reviewed with Mike Ripka, Technical Director and Tom Kalano, Laboratory Supervisor.

Total Residual Chlorine

Standard Brands uses the iodometric procedure to measure total chlorine.

BOD_5

Standard Brands basically uses acceptable procedures in their BOD_5 analyses. However, Standard Brands sets up BODs, from daily 24 hour composites, once a week. Standard Brands maintained that there was no significant difference in BOD_5 results when comparing data obtained from running BODs on a daily basis versus holding daily samples and setting them up once a week. Standard Brands presented the results of a study they conducted which appeared to substantiate their claim.

However, your office may wish to request a copy of these results together with the supportive raw laboratory data for departmental review. This request would be necessary in order to confirm the validity of the BOD_5 values reported in the study results. Confirmation of these results would be necessary prior to departmental approach of Standard Brands BOD_5 procedure incorporating a prolonged sample holding time.

TSS

Total suspended solids procedures were reviewed and procedures appeared to be acceptable. It was, however, recommended to Standard Brands that when they re-order filter papers they order either; Reeve Angel 934AH or Gelman type A/E. Both are glass fiber filters and meet current Standard Methods specifications.

The following table is a comparison of laboratory results from 24 hour composite(s) together with NPDES permit effluent limitations. Additional results pertinent to this inspection have also been included.

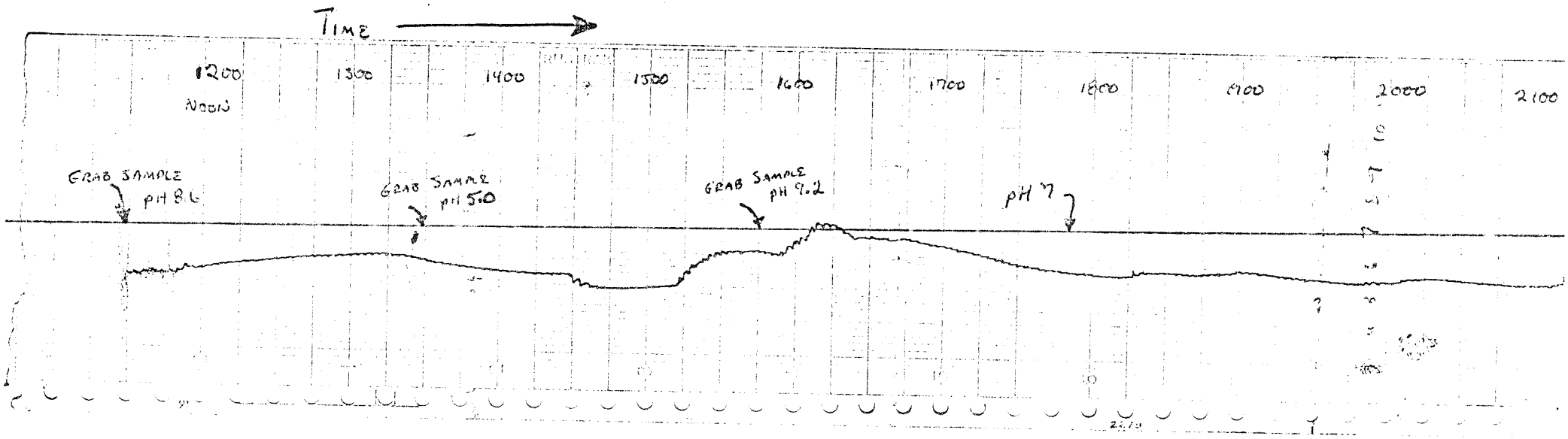
	DOE			STANDARD BRANDS			NPDES (Monthly average)
	DOE Composite Process Water	S.B. Composite Process Water	Cooling Water	DOE Composite Process Water	S.B. Composite Process Water	Cooling Water	
BOD_5 mg/l lbs/day	1230 1730	1100 1550	22	986 1390	901(1515[1]) 1270	90	1800
TSS mg/l lbs/day	130 183	260 366	4	100 141	180 254	4	370
Total Plant Flow MGD					.169		.256
pH	5.5 4.8*	6.6	7.4				4 - 10
Temp.	28°C* 28°C*		19°C*				30°C**
Conductivity (μmhos/cm)	1625*** 1840	2720	481				
COD (mg/l)	- -	1500	38	1636	1636	90	
Total Coli. (#/100 ml)		110 est.	< 10				
Fecal Coli. (#/100 ml)		< 5	< 4				
Turbidity (NTU's)	35	45	2				
NH_3-N (mg/l)	21.0	10.4	0.12				
NO_2-N (mg/l)	< .02	< .02	< .02				
NO_3-N (mg/l)	0.6	1.1	.05				
Org.-N (mg/l)	31	39.6	0.64				
Total-N (mg/l)	52.6	51.1	0.81				
Kjd-N (mg/l)	52	50	0.76				
O-PO_4-P (mg/l)	1.4	1.8	0.33				
T-PO_4-P (mg/l)	3.0	4.1	3.0				
Total Solids (mg/l)	1320	2270	210				
Tot. Non. Vol. Solids (mg/l)	824	1490	161				
Tot. Sus. Non-Vol. Solids (mg/l)	6	40	< 1				
Total Alkalinity (mg/l) as $CaCO_3$	200	220					
Chlorine Residual (mg/l)			1.5				(2)

* Field Analysis-grab "<" is "less than" and ">" is "greater than"
** Cooling water only
*** Field analysis - composite
1) Sample analyzed by Sumner STP
2) Chlorine residual in receiving water limited to 0.002 mg/l

	DOE (1125) City Sewer Grab #1	(1325) City Sewer Grab #2	(1545) City Sewer Grab #3				NPDES (Monthly Average)
pH	8.6*	5.0*	9.2**				4 - 10
Turb. (NTU's)	30	25					
Spc. Cond. (μmhos/cm)	8470	2760					
BOD_5 (mg/l)	>2,000	1320					
COD (mg/l)	2,890	1690					
NH_3-N (mg/l)	1.3	12.2					
NO_2-N (mg/l)	< .02	< .02					
NO_3-N (mg/l)	1.2	2.0					
Organic-N (mg/l)	36.7	30.8					
Total-N (mg/l)	39.2	45					
Kjd-N (mg/l)	38	43					
O-PO_4-P (mg/l)	2.3	1.6					
T-PO_4-P (mg/l)	4.0	3.1					
Tot. Solids (mg/l)	5770	1840					
Tot. Nov-Vol. Solids (mg/l)	4730	1240					
TSS (mg/l)	84	48					
TNVSS (mg/l)	33	10					

* Field Analysis - grab "<" is "less than" and ">" is "greater than"

** Field analysis - grab, by Sumner STP personnel.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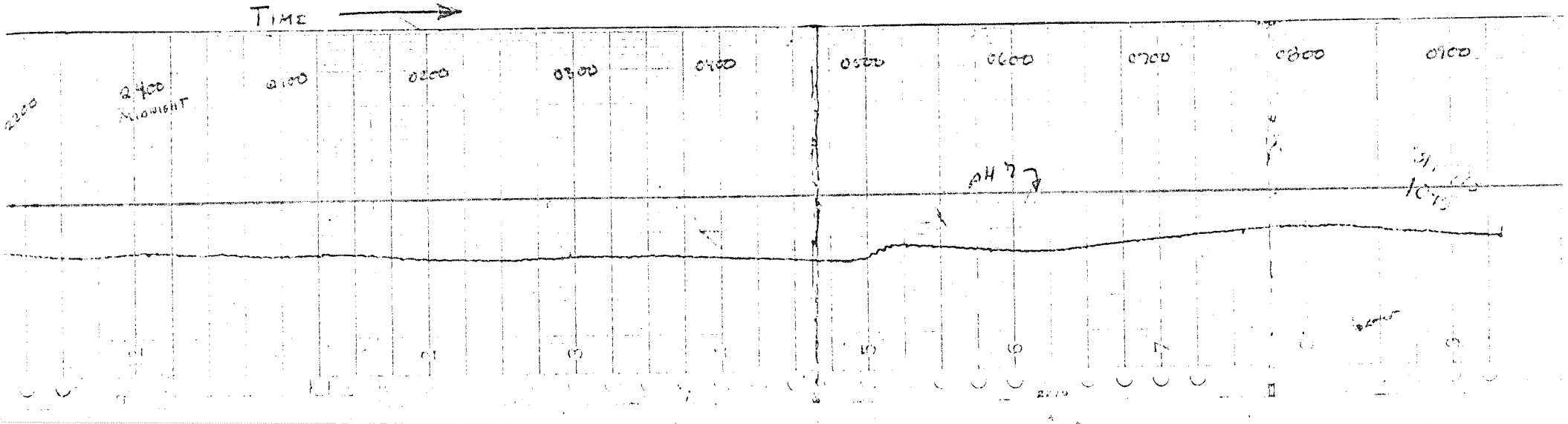
GRAB SAMPLE
pH 8.6
GRAB SAMPLE
pH 5.0
GRAB SAMPLE
pH 9.2
pH 7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pH 7