

Report to Murphy Oil USA, Inc.

Hog Island - Newton Creek Sampling Project

Sampling and Field Measurements Conducted on October 16, 1990

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Report submitted on October 18, 1990

Hog Island and Newton Creek Sampling Project

This project involved the collection of water samples and field measurement of several water quality parameters from 10 locations in the vicinity of Hog Island and four locations on Newton Creek (maps attached). Field measurements were made using several field instruments. Water samples were collected at mid-depth in the water column using a brass kemmerer water sampler (Wildlife Supply Company, Model 1200) or by placing a plastic sample bottle at mid-depth and opening the bottle (site 11). The plastic bottle procedure was used where the water depth was not great enough to use the kemmerer sampler. Samples collected with the kemmerer were immediately transferred to plastic sample bottles which had been provided by ERA Labs. The samples were stored in a cooler until they were returned to the University of Wisconsin - Superior laboratories where they were placed into a refrigerator for overnight storage. Samples were delivered to Murphy Oil USA, Inc. at 9:00 AM the following morning. The samples were to be transported to ERA Labs by an employee of Murphy Oil USA, Inc.

Sampling occurred on Tuesday, October 16, 1990 between 10:50 AM and 3:00 PM. Water depths were measured using a calibrated measuring stick. Temperature and conductivity readings were made using a YSI Model 33 SCT meter. The meter had been calibrated by the manufacturer on July 27, 1990. Dissolved oxygen measurements were conducted using a YSI Model 54A dissolved oxygen meter which had been calibrated on October 8, 1990, using the Winkler titration method. The pH values were determined with an Orion Model SA 250 pH meter that was calibrated with pH 7 and 10 buffers just prior to use. The results of the field measurements are reported in Table 1.

Weather conditions can influence the results of sampling, thus some information is provided in this regard. Rainfall from October 14, 1990 through 3:00 PM on October 16, 1990 equaled 0.02 inches. The measured rainfall was recorded on October 14, 1990. Winds on the sampling date were light and variable. This information was obtained from monitors located at the Superior Wastewater Treatment Plant.

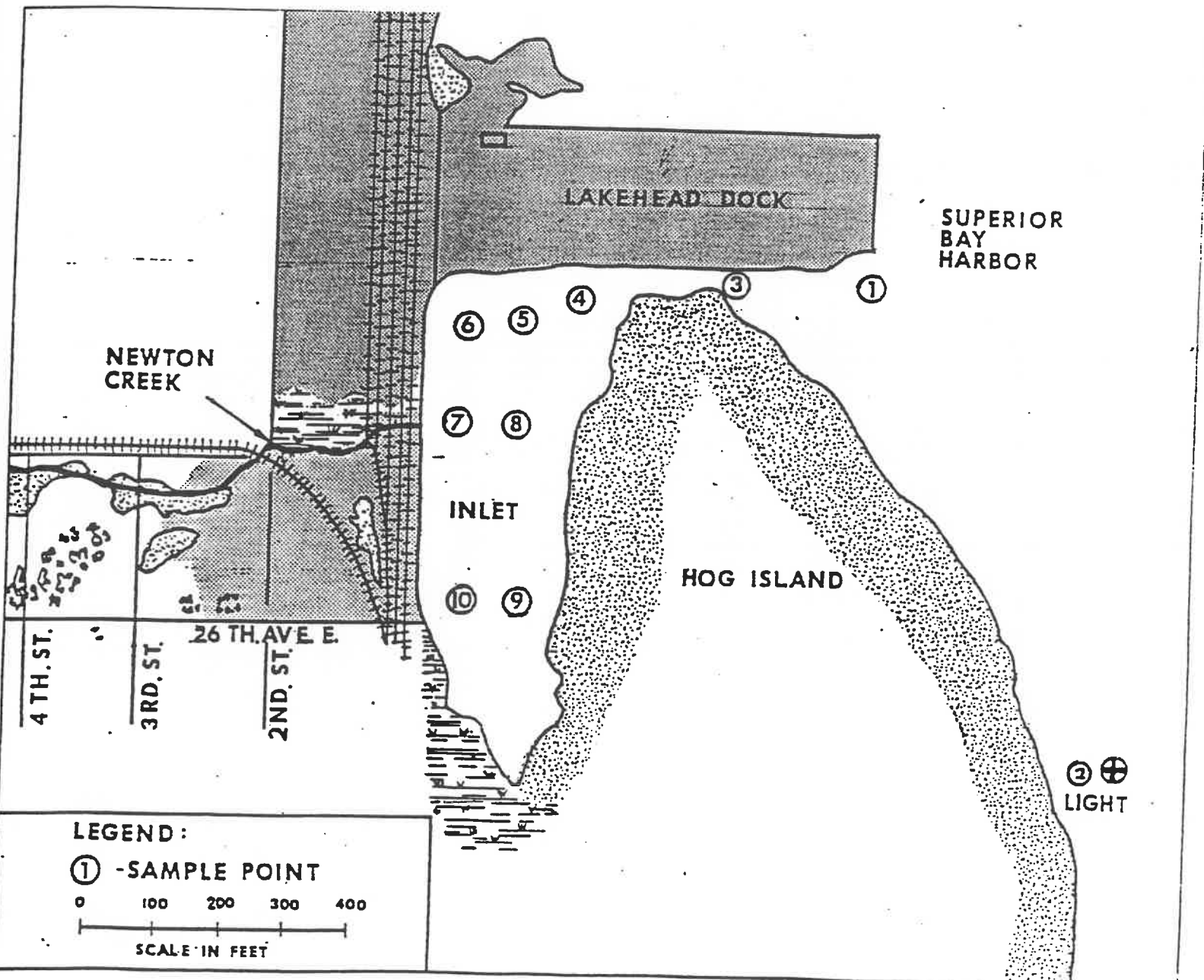
The data on the water samples delivered to ERA Labs for analysis will be provided directly to Murphy Oil USA, Inc. The samples were to be analyzed for ammonia-nitrogen, BOD and chloride.

Table 1

Water Quality Measurements from Hog Island and Newton Creek Sampling Project

Samples Collected October 16, 1990

Site #	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14
Water Depth (m)	1.7	1.3	0.6	0.6	1.6	0.9	0.5	0.7	0.4	0.5	0.1	0.4	0.6	1.5
Temperature (C)	12	11.1	12	11	11	11	11.5	10.8	11	11.5	9	9.4	12	10.2
Conductivity (umhos/cm)	140	138	153	172	170	185	182	210	275	282	1090	1210	1250	1300
Dissolved Oxygen (mg/L)	9.9	10.4	10.8	10.4	10.3	9.7	10.4	10.4	10.6	9.9	4.4	1.9	1.6	2.6
pH	7.43	7.56	7.43	7.36	7.4	7.4	7.38	7.42	7.46	7.43	7.38	7.44	7.24	7.13



LAKEHEAD DOCK

SUPERIOR BAY HARBOR

NEWTON CREEK

①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩

INLET

HOG ISLAND

⊕
LIGHT

4TH. ST.
3RD. ST.
26 TH. AVE E.
2ND. ST.

LEGEND:
Ⓛ - SAMPLE POINT
0 100 200 300 400
SCALE IN FEET

