

STATE OF OHIO
ADJUTANT GENERAL'S DEPARTMENT

2825 WEST GRANVILLE ROAD
WORTHINGTON, OHIO 43085

January 4, 1984

Ms. Kate Wilson
Ohio EPA
Northwest District
1035 Devlac
Bowling Green, Ohio 43402

Dear Kate,

Attached please find the laboratory results of the Red Water Samples removed from NASA Plumbrook. The analysis was performed by Battelle Columbus Laboratories.

The analyses were performed on (i) one pink water liquid sample, (ii) one pink water sediment sample, and (iii) per verbal instruction by the Adjutant General's Department one pink water soil sample. Each sample was analyzed for explosives and related materials, including TNT; 2,4-DNT; 2,6-DNT; and PETN. Additionally, the pink water liquid sample was assayed for the following priority metal pollutants: antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc. The analysis of the pink water liquid sample included fifteen additional elements as shown in Table 1.

Analysis of the liquid sample for each element listed in Table 1 (with the exception of mercury) was performed using Inductively Coupled Argon Plasma Spectrometry (ICAP). Mercury analysis was conducted using Cold Vapor Atomic Absorption Spectrophotometry. The elemental analyses were conducted according to the guidelines of EPA Method 200.7. The liquid samples for elemental analyses did not require special preparation prior to analysis. The concentrations of the analyzed elements in the pink water liquid sample are provided in Table 1.

Battelle's Columbus Laboratories Method No. 8 (revised January 23, 1981) was used to screen the liquid sample for explosives and related compounds. The analytical method used to make a preliminary characterization of the explosive and related material content of the sediment and soil samples was developed by Battelle in conjunction with the U. S. Army Toxic and Hazardous Materials Agency (BCL Method No. 6, revised January 23, 1981). Each of these methods utilizes High Pressure Liquid Chromatography for characterizing the explosive material content of the sample.

January 4, 1984

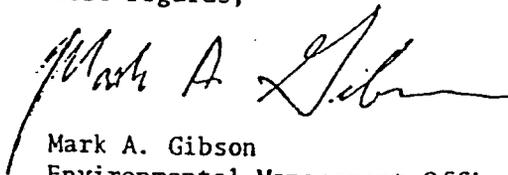
-2-

Table 2 presents the results of the analyses for TNT; 2,4-DNT; 2,6-DNT; and PETN. No explosive compounds were found above detection limits in the samples with the exception of the pink water soil sample where 0.2 and 11.6 ppm of 2,4-DNT and 2,6-DNT were found, respectively.

Once you have had time to review the analysis with your people, I would like to set up a meeting.

Give me a call at your earliest convenience. My phone number is (614) 889-7014.

Best regards,

A handwritten signature in cursive script that reads "Mark A. Gibson". The signature is written in dark ink and is positioned above the typed name.

Mark A. Gibson
Environmental Management Officer

TABLE 1. PRIORITY METAL POLLUTANT AND OTHER ELEMENTAL
CONTENT OF A PINK WATER LIQUID SAMPLE
COLLECTED AT NASA'S PLUMBROOK STATION

Element	Level (ppb)	Element	Level (ppb)
Aluminum ^(a)	<40 ^(b)	Mercury ^(a)	<0.3 ^(b)
Antimony ^(a)	<100 ^(b)	Molybdenum	<10 ^(b)
Arsenic ^(a)	<100 ^(b)	Nickel ^(a)	<50 ^(b)
Barium ^(a)	<10 ^(b)	Phosphorous	<110 ^(b)
Beryllium	2	Selenium ^(a)	<100 ^(b)
Boron ^(a)	52	Silver	<10 ^(b)
Cadmium ^(a)	<5 ^(b)	Sodium	130,000
Calcium	14,000	Strontium	43
Chromium ^(a)	<10 ^(b)	Thallium ^(a)	<200 ^(b)
Cobalt	<5 ^(b)	Tin	<30 ^(b)
Copper ^(a)	<10 ^(b)	Titanium	<5 ^(b)
Iron	<30 ^(b)	Vanadium	<5 ^(b)
Lead ^(a)	<50 ^(b)	Yttrium	<5 ^(b)
Magnesium	41,000	Zinc ^(a)	11
Manganese	49		

(a) Priority pollutants.

(b) Reported value is detection limit.

TABLE 2. RESULTS OF SCREENING ANALYSES FOR EXPLOSIVES AND RELATED MATERIALS COLLECTED FROM NASA'S PLUMBROOK STATION

Sample	TNT	2,4-DNT	2,6-DNT	PETN
Pink Water Liquid (ppb) ^(a)	< 2	< 2	< 2	< 2
Pink Water Sediment (ppm) ^(b)	< 0.1	< 0.1	< 0.1	< 0.1
Pink Water Soil (ppm) ^(c)	< 0.1	0.2	11.6	< 0.1

(a) Detection Limit - 2 ppb

(b) Detection Limit - 0.1 ppm

(c) Detection Limit - 0.1 ppm