

Los Alamos

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

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memorandum

TO: J. L. Parkinson, WX-3, MS C930

DATE: October 8, 1986

FROM: J. F. Baytos

MAIL STOP/TELEPHONE: C920/7-3094

SYMBOL: M-1

SUBJECT: ANALYSES OF SOIL FOR RESIDUAL EXPLOSIVES FROM CORE SAMPLES TAKEN AT POND AT TA-16-92

Four samples were taken from the holding pond located at S-Site between TA-16-92 and TA-16-280. After analysis, the samples we took showed little or no explosive. The results are presented in Table I.

The pond received the process water from the old HE processing/casting buildings at S-Site. It has not been used as a holding pond for about 30 years.

The pond was sampled at four places with JMC Soil coring tools to a depth of 6 inches. Places of sampling were: 1) on the shore in line with the outfall and cut nearest to the pond, 2) on the shore diametrically opposite the outfall and cut, 3) knee deep in the water, two meters from the shore to the left of (2), and 4) knee deep in the water, five meters from shore to the right of (2). See attached map of the area. A control sample of clean soil from TA-16-460 was run also.

All cored samples were brought to the lab where they were dried, crushed, tumbled, and then extracted by acetone Soxhlet technique. The acetone solubles were about 1% and less. The residues were subject to the same tests we have used for our sump analyses and weathering tests.

To see if free barium nitrate is present we subjected the dried soil to extraction with distilled water to dissolve the barium nitrate. After making the solution slightly acidic, enough sodium sulfate was added to precipitate the barium sulfate. The solution remained clear. A control sample with added barium nitrate showed a precipitate. From the samples taken, no barium nitrate is present.

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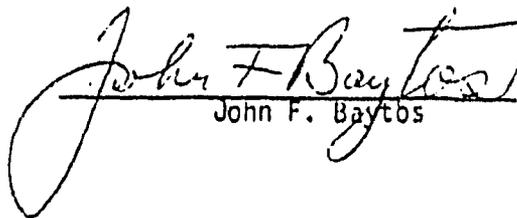
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In summary, no explosives were found at the places sampled according to our estimate of the worst case conditions.


John F. Baytos

JFB:egm

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M-1 File

TABLE 1

ANALYSES OF SOIL SAMPLES FOR RESIDUAL EXPLOSIVES FROM
TAILINGS POND LOCATED BETWEEN S-SITE OPERATING BUILDINGS TA-16-92 AND TA-16-280

<u>Location of Samples at Pond</u>	<u>Acetone^a Solubles (Wt%)</u>	<u>CCl₄^b Insolubles (Wt%)</u>	<u>CCl₄^c Solubles (Wt%)</u>	<u>HMX/d RDX (Wt%)</u>	<u>TNT^d (WT%)</u>	<u>Total Explosive (Wt%)</u>
1. On the shore in line with outfall and cut to the pond	0.20	0.00	0.14	0.00	0.02	0.02
2. On the shore diametrically opposite the outfall and cut	1.12	0.00	0.06	0.00	0.00	0.00
3. Knee deep in water, two meters from the shore to the left of (2)	0.16	0.00	0.13	0.00	0.01	0.01
4. Knee deep in water, five meters from the shore to the left of (2)	0.59	0.01	0.08	0.00	0.01	0.01
5. Control, soil sample from TA-16-460	0.07	0.00	0.05	0.00	0.00	0.00

^aThe filtrate comes from the acetone Soxhlet extract on a dried, crushed, 14-mesh sieved, rolled, and quartered sample. This filtrate includes explosives, decomposition products, plastic, lubrication oils, and other natural acetone soluble materials.

^bThe residue from the carbon tetrachloride wash includes the RDX and HMX fractions and other decomposition products from the acetone extract.

^cThe filtrate from the carbon tetrachloride wash includes the TNT fraction and other soluble products.

^dThese values have been run on a Perkin Elmer UV/Vis Model 554 ultraviolet spectrophotometer. The total explosives tend to be a fraction of the solubles and insolubles when determined by UV.

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POND SAMPLING PLAN.

- 1. Shore at outfall
- 2. Shore, opposite
- 3. In water, offshore
- 4. In water, offshore

PHYSICAL INSPECTION

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GATE 4
OLD S AREA

INERT STORAGE

RADIOGRAPHY

GATE 102

GATE 103

INCINERATOR

GATE 12

GATE 101

GATE 13

STN. 046

MACHINE TOOL MAINTENANCE

GATE 11

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