

Internal Letter



Rockwell International

Date October 29, 1984

No.

TO (Name, Organization, Internal Address)
D. D. Hornbacher
Program Manager
E&OH

FROM (Name, Organization, Internal Address, Phone)
.G. H. Setlock
.Env. Anal. & Control
.T452B
.x2453

SUBJECT GWR AND SL GEOCHEMICAL STUDIES

Per your CERCLA request, I have compiled the following information on Great Western Reservoir and Standley Lake. Hope this data meets your requirements.

George
George H. Setlock, Manager
Environmental Analysis & Control

Best Available Copy

ADMIN RECCRD

0000-55
BZ-B-00035

Standley Lake

A detailed geologic sampling effort was completed on Standley Lake during the period 7-31 to 8-9-84 by Rockwell International personnel. A total of 51 surficial sediment samples were collected from the lake in water depths ranging from 2'6" to 86'5". Four sediment cores were also collected in water depths ranging from 68'0" to 84'5". A water column profile was also sampled at three water depths (surface - 1'; mid - 37'; bottom - 70'). These various sediment/water sample locations are shown graphically on the attached scaled map of Standley Lake. All of these samples were precisely located (± 1 meter) relative to U.S.G.S. and geodetic survey coordinates using an infrared laser range finding instrumentation. This project closely paralleled the Great Western Reservoir Study in scope and purpose (update sparse decade old data). Prior to this geochemical study approximately 19 surficial sediment samples had been collected from Standley Lake with Pu-239, 240 concentrations ranging from 0.02 to 0.21 pCi/gram. The analyses from the recent Rockwell study are pending.

Great Western Reservoir

A comprehensive geochemical study was accomplished by Rockwell in May/June 1983 on Great Western Reservoir. This study was undertaken to update three previous, less extensive, dated studies in GWR (EPA in 1970, 1973; Battelle in 1974), and to assuage concerns on plutonium levels in GWR bottom sediments (the City of Broomfield is considering reservoir expansion/dredging options). Some of the highlights of this study include:

- Forty-eight surficial sediment samples were collected throughout the entire reservoir and analyzed for Pu-239, 240 at Rocky Flats. The samples were collected from water depths ranging from 2'4" to 42'0". Levels of Pu-239, 240 were found to be 25% or less of the EPA/Battelle values from the early 1970's, substantiating Rockwell's position that plutonium levels in GWR are at very low concentrations which do not hinder any of Broomfield's reservoir expansion plans or pose any health hazard. Previously, 40 dredged sediment samples from past EPA studies ranged in Pu-239, 240 levels from 0.10 to 4.10 pCi/gram. The highest plutonium in surface sediment reported by Battelle was 6.10 pCi/gram. These concentrations and locations along with the Rockwell sample locations are illustrated on the attached map of Great Western Reservoir.
- State-of-the-art sampling techniques were employed throughout this endeavor, which received considerable attention from the Denver news media and close scrutiny from the Broomfield City Council and Public Works Department. An infrared range finder was employed by a Rockwell civil engineering crew to precisely locate and plot all of the sampling stations in the reservoir.
- An innovative sediment sampling apparatus (pneumatic, bottom sediment trap for prolonged particulate monitoring) was designed and constructed especially for this study by Rockwell. This sampler was deployed for a one year sampling period in September, 1983 and recovered in September, 1984.
- Comparatively, the RFP plutonium data was statistically the same as the City of Broomfield data (obtained on split samples analyzed by a local radiochemistry laboratory - Acculabs, Inc.). The painstaking, low-level analyses done on the RFP samples confirmed that no environmental or health concern exists regarding plutonium levels in GWR surficial sediments.

Great Western Reservoir (cont)

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- Community/CDH relations were enhanced through this project by closely working with personnel from both the City of Broomfield and the Colorado Department of Health on sample collection and splitting.
- Releasing the results of this study to the local press (May, 1984) simultaneously satisfied the initial queries raised by the Denver news media, and informed neighboring residents about the types of environmental studies/responses that Rockwell International provides to questions and/or regulatory (CERCLA) concerns raised about the integrity of our surrounding environs.


George H. Setlock, Manager
Environmental Analysis & Control

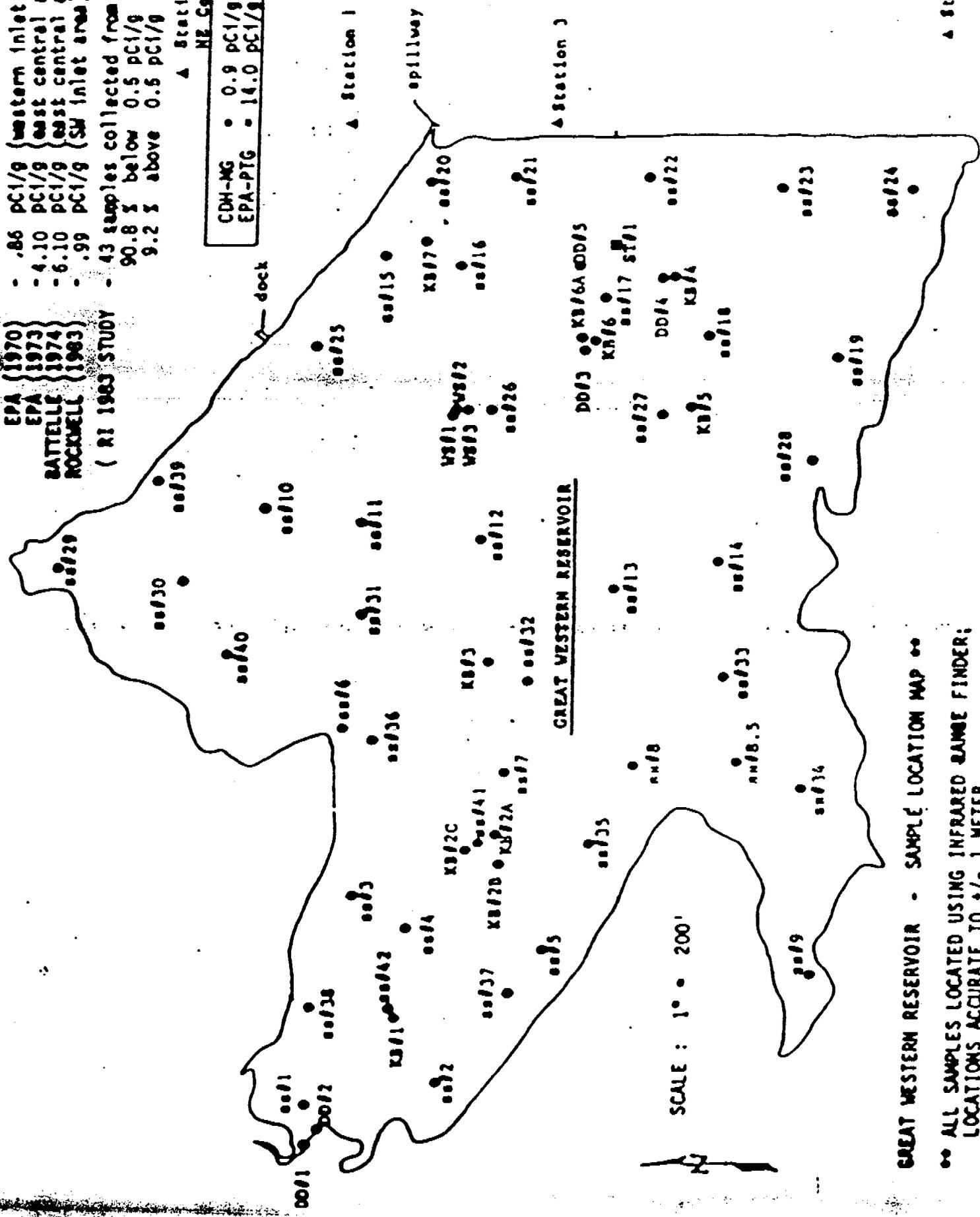
MAXIMUM PU-239,240 LEVELS IN GMR SURFICIAL SEDIMENTS

- .86 PC1/g { western inlet area }
- 4.10 PC1/g { east central area }
- 6.10 PC1/g { east central area }
- .99 PC1/g { SW inlet area }

(RI 1983 STUDY) - 43 samples collected from GMR)
 90.8 % below 0.5 PC1/g
 9.2 % above 0.5 PC1/g

CDH-MG • 0.9 PC1/g
 EPA-PTG • 14.0 PC1/g

▲ Station 4
 NE Cor. Sec.



SCALE : 1" = 200'

GREAT WESTERN RESERVOIR - SAMPLE LOCATION MAP

•• ALL SAMPLES LOCATED USING INFRARED RANGE FINDER;
 LOCATIONS ACCURATE TO +/- 1 METER

▲ Station 2

