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September 22, 1994

94-RF-09807

Robert H Birk
Environmental Restoration Division
DOE/RFFO

OPERABLE UNIT 3 WIND TUNNEL STUDY SAMPLE ANALYSIS PLAN - MSB-043-94

Action None required

This letter presents an analysis plan for the particulate emission samples collected during the Operable Unit 3 (OU 3) wind tunnel study tests. The wind tunnel tests were performed in June and July of 1993 to quantify wind resuspension emissions of particulate matter from soils and sediments located within OU 3. Particulate samples were collected using simulated windspeeds from shoreline areas around Great Western Reservoir and Standley Lake (reservoir) and from terrestrial sites located between the reservoirs as shown on the attached Figure 1. Samples were collected from natural undisturbed locations as well as (manually) disturbed locations at sample sites of both reservoir shoreline areas and the terrestrial sample areas. In addition, stacked sample filters were used at selected sites to segregate collected particulate emissions according to particle size. A detailed description of the OU 3 wind tunnel study procedures and test results may be referenced in the "OU 3 Wind Tunnel Study Volume I Test Report" prepared by Midwest Research Institute, dated January 24, 1994.

The objective of the particulate emission sample analysis plan is to determine total plutonium concentrations in the resuspended particulate matter collected under the varied conditions described above and to determine the plutonium particle size. The planned analysis scheme will allow for a comparison of total plutonium in resuspended emissions collected from the reservoir shoreline and terrestrial undisturbed/disturbed sites. Samples collected using different simulated windspeeds will be analyzed to evaluate particle size and plutonium concentration. Using the available stacked sample filters, the analysis will indicate the amount of plutonium in resuspended material greater than 10 microns in size and the amount of plutonium in resuspended material less than 10 microns in size (i.e., the plutonium concentration in the respirable fraction of the collected resuspended material).

Many of the sample filters used at the undisturbed shoreline and terrestrial sample locations do not contain enough resuspended particulate material to meet analytical method requirements. It will therefore be necessary to combine these filters for plutonium analysis. Likewise, in order to determine plutonium concentrations in resuspended material above and below the 10 micron particle size it will be necessary to combine filters at certain terrestrial and shoreline sites. The sample filter combinations for the shoreline and terrestrial wind tunnel tests are summarized below using the sample location identifications illustrated on Figure 1.

T	ltr	ENC
VAL, M.E.		
INGAME A.H.	X	
BY WS		
NCH DB		
VIVAL, G.J.		
S J.G.		
TERA D.W.		
Y RE		
J.A.		
TER WS		
AN P.M.		
NI B.J.		
MAN L.K.		
Y T.J.		
PHL T.		
JIG J.G.		
CHINS N.M.		
XSON D.T.		
L, R.E.		
STER, A.W.		
X, G.E.		
ONALD M.M.		
ENNA F.G.		
THOSE J.K.		
GAN R.V.		
TER G.L.		
TTO G.L.		
VG T.L.		
OLIN N.B.		
WARTZ, J.K.		
OCK G.H.		
WART D.L.		
ER S.G.	X	
IN P.M.		
RHEIS G.M.		
SON J.M.		
ose A.L.	X	
WILL, M.S.B.	X	
RES CONTROL	X	X
IN RECORD/080		Z
FFIC		
S/T130G		
SSIFICATION		
CLASSIFIED		
IDENTIAL		
RET		
HORIZED CLASSIFIER SIGNATURE		

DOCUMENT CLASSIFICATION
= REVIEW WAIVER PER
CLASSIFICATION OFFICE
= APPLY TO RFP CC NO

NOTION ITEM STATUS
OPEN CLOSED
 PARTIAL
APPROVALS *JAN*
& TYPIST INITIALS

ADMIN RECORD

A-0003-0004 J3

The following wind tunnel study tests would be analyzed separately to provide total resuspended plutonium concentrations for terrestrial and shoreline sites under disturbed conditions

<u>Sample ID</u>	<u>Location</u>	<u>Site Condition¹</u>
RF12	T2	Disturbed
RF13	T2	Disturbed
RF20	T2	Disturbed
RF10	T3	Disturbed
RF22	T3	Disturbed
RF17	T4	Disturbed
RF15	S3	Disturbed
RF4	S4	Disturbed
RF5	S4	Disturbed
RF2	S6	Disturbed

The following tests would be combined to provide an average resuspended plutonium concentration value for terrestrial sites under undisturbed conditions

RF9	T3	Undisturbed
RF7	T1	Undisturbed
RF11	T2	Undisturbed
RF16	T4	Undisturbed

The following tests would be combined to provide an average resuspended plutonium concentration value for shoreline sites under undisturbed conditions

RF14	S3	Undisturbed
RF3	S4	Undisturbed
RF6	S6	Undisturbed

The following tests are for separate sample sites (terrestrial and shoreline) under both levels of disturbance (see Note below) The "a" and "b" tests were performed at the lower windspeed and would be combined to analyze for resuspended plutonium concentrations from a location tested under extra-disturbed conditions at the lower windspeed The "c" and "d" tests were performed at the higher windspeed and would be combined to analyze for plutonium in the resuspended material above and below the 10 micron particle size The "c" and "d" test analysis would provide plutonium concentrations in the resuspended material greater than 10 microns in size and plutonium concentration values for resuspended material less than 10 microns in size Sample filters for sample site S4 will not be combined for the a, b, c, and d tests (since enough material was collected on the sample filters to perform individual analyses)

RF23a	T3	x-disturbed
RF23b	T3	x-disturbed
RF21a	T2	x-disturbed
RF21b	T2	x-disturbed
RF19a	T1	x-disturbed
RF19b	T1	x-disturbed

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<u>Sample ID</u>	<u>Location</u>	<u>Site Condition¹</u>
RF6a	S4	x-disturbed
RF6b	S4	x-disturbed
RF23c	T3	x-disturbed
RF23d	T3	x-disturbed
RF21c	T2	x-disturbed
RF21d	T2	x-disturbed
RF19c	T1	x-disturbed
RF19d	T1	x-disturbed
RF6c	S4	x-disturbed
RF6d	S4	x-disturbed

Notes 1 Surface disturbance at most of the terrestrial sample locations consisted of cutting all vegetation to ground level and manually raking the surface to a depth of 1 to 2 inches. At the shoreline sample locations and at selected terrestrial sites, two levels of disturbance were imposed. The first involved manually raking the surface to a depth of 1 to 2 inches. This activity resulted in loosening of the surface "crust," but it left nonerodible chunks of material on the surface. The second level of disturbance involved driving over the surface with a minivan or light truck to create surface material that was pulverized to a depth of at least 1 inch.

EG&G Rocky Flats Inc, recommends that this information be forwarded to the regulatory agencies. Please contact me at extension 8551 or Mark Buddy at extension 8519 if you have any questions.

Tracey H Spence

Tracey H Spence
Operable Unit 3
Environmental Restoration Program Division
EG&G Rocky Flats, Inc

MSB tjr

Ong and 1 cc - R Birk

Attachment
As Stated

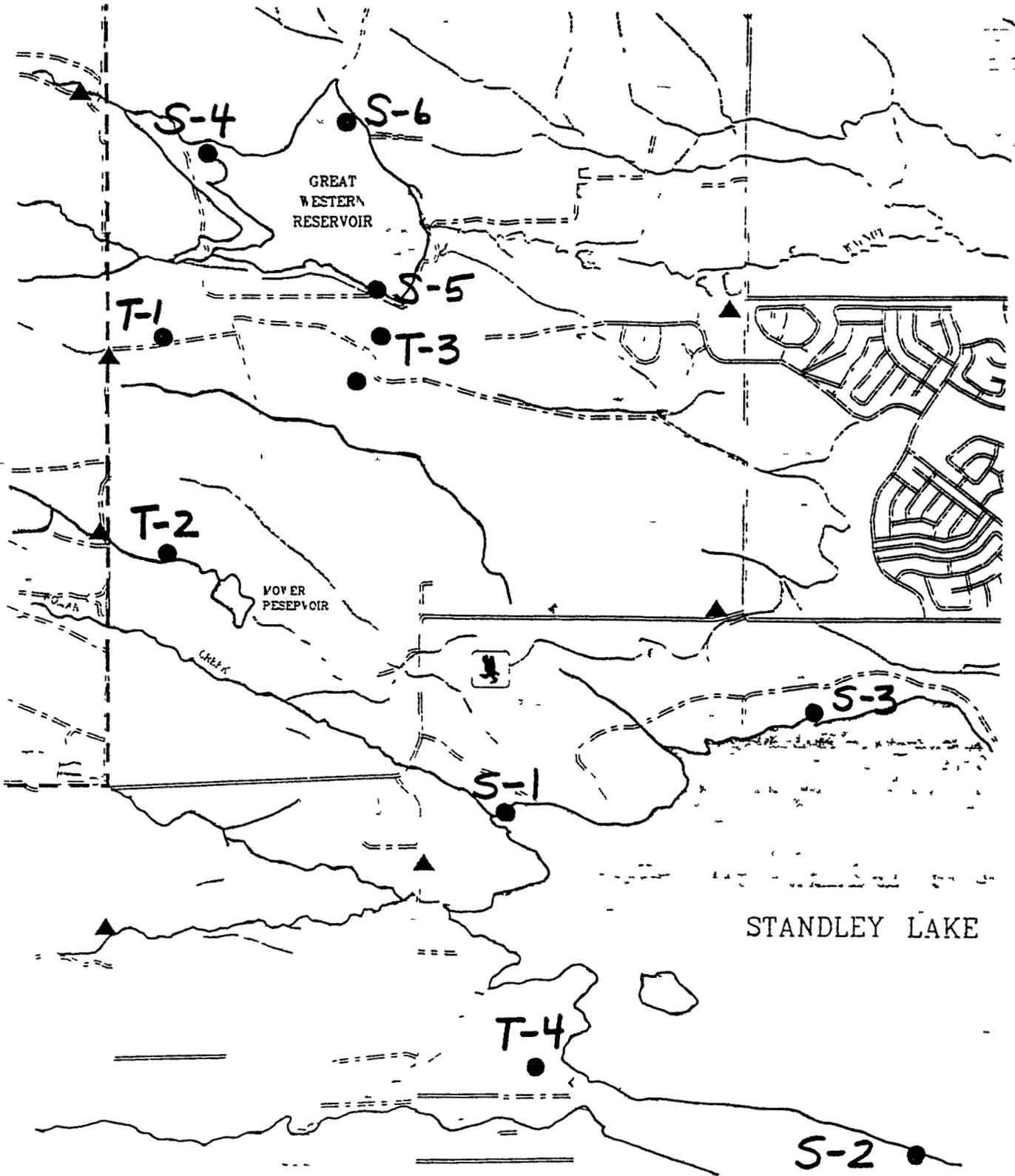


Figure 1-1 Rocky Flats OU3 air sampling test sites