Jim

METRO
Municipality of Metropolitan Seattle
Exchange Bldg. • 821 Second Ave., Seattle, Washington 98104

April 12, 1984

Ms. Jane Lee
Seattle-King County Health Department
MS 15-L
400 Yesler Building
Seattle, Washington 98104

Dear Ms. Lee:

Enclosed are the results of the samples taken from Alki in January. With completion of this analysis I believe that you have everything required to complete the permit renewal for the King County Airport project.

If you have any questions, please let me know as soon as possible. We are very anxious to get started with the sludge-fertilizer application.

Sincerely,

Mark Lucas

Mark Lucas
Land Reclamation Coordinator

ML:df
Enclosure
cc: Jack Frazel, King County Airport

MEMO

April 11, 1984

CC: Bill Burwell

TO: Mark Lucus (WP)

FROM: Dick Finger REF

SUBJECT: Alki Digested Sludge Analysis

A sample of Alki digested sludge was collected on 1/16/84 for chemical analyses in accordance with your request of 1/9/84. The results of these analyses are attached. Table 1 presents the conventional analyses performed by the Renton Process Control lab, except for the TOC which was performed by Laucks Testing Laboratories, Inc. Table 2 presents the heavy metal analyses which were performed by the Water Quality labs. Analyses for arsenic and selenium have not yet been completed. The results are, thus, not contained in Table 2. The values for these two parameters will be reported as soon as the analyses are completed.

Table 3 presents the priority pollutant analyses which were performed by the Toxicant laboratory. Table 4 presents the bacteriological analyses which were performed by Metro's Environmental Microbiology lab.

If you have any questions about these data, give me a call at 226-3683.

REF:hh
attachments 4

METRO

TABLE 1

ALKI DIGESTED SLUDGE CONVENTIONAL ANALYSES

Sample Date 1/16/84

Parameter	Concentration		mg/kg Dry Solids
pH	7.31		-
NH_3 -N	645	mg/l	46.8
Total N	2,693	mg/l	195.4
Organic N	2,048	mg/l	148.6
NO_3 -N	< 0.01	mg/l	< 0.001
NO_2 -N	0.07	mg/l	0.005
Total -P	695	mg/l	50.4
Sulfate	32.0	mg/l	2.32
Cr^{+6}	< 0.01	mg/l	< 0.001
TS	72,559	mg/l	-
TVS	27,956	mg/l	-
Mg	350	mg/l	25.4
TOC*	-		190,000

*Analysis by Laucks Testing Laboratories, Inc.

Richard E. Finger
April 3, 1984

REF:hh RLF

TABLE 2

ALKI DIGESTED SLUDGE HEAVY METAL DATA

Sample Date 1/16/84

Parameter	Concentration mg/l	mg/kg Dry Solids
Ag	0.86	0.062
Ba	26.4	1.92
Cd	.39	0.28
Total Cr	3.80	0.276
Cr IV	<.01	<.0007
Cu	27.8	2.02
Fe	1,290	93.60
Hg	.4500	0.0326
K	141	10.2
Mg	430	31.2
Mn	22.8	1.65
Ni	4.20	0.305
Pb	25.2	1.83
Zn	85.0	6.17
As		
Se		

Richard E. Finger
April 3, 1984

REF:hh REF

Table 3
Priority Pollutant Data

SAMPLE NO. Alk. Sludge (Digested)

NU		VALUE (ppb)	mg/kg digest	P.R. (%)
BZ13CL	1,3-Dichlorobenzene	ND	ND	
BZ12CL	1,2-Dichlorobenzene	ND	ND	
BZ14CL	1.4-Dichlorobenzene	<100	<1.38	
ET6-CL	Hexachloroethane	ND	ND	
BZN	Nitrobenzene			
BZ124CL	1,2,4-Trichlorobenzene			
ISPHOR	Isophorone			
ET2CL)O	Bis(2-chloroethyl)ether			
ME(CLETO)	Bis(2-chloroethoxy)methane			
IPRCL)O	Bix(2-chloroisopropyl)ethyl	ND	ND	
NAP	Naphthalene	<150	<2.07	
BU::6-CL	Hexachlorobutadiene	ND	ND	
CUP::6-CL	Hexachlorocyclopentadiene	ND	ND	
NAP2CL	2-Chloronaphthalene	ND	ND	
NAPA:E	Acenaphthylene	<100	<1.38	
TL24N	2,4-Dinitrotoluene	ND	ND	
MEPHT	Dimethylphthalate	ND	ND	
NAPAC	Acenaphthlene	<100	<1.38	
TL26N	2,6-Dinitrotoluene	ND	ND	
FLUOREN	Fluorene	<100	<1.38	
ETPHT	Diethylphthalate	ND	ND	
CLPHPH)O	4-Chlorophenylphenylether			
BPH)OPH	4-Bromophenylphenylether			
BZ6-CL	Hexachlorobenzene	ND	ND	
PHEANTH	Phenathrene	240	3.31	
ANTH	Anthracene	80	1.1	
FLUOANTH	Fluoranthene	130	1.79	
PYRENE	Pyrene	130	1.79	
BUPHT	Di-n-butylphthalate	<100	<1.38	
BUBETH	Butylbenzylphthalate	ND	ND	
BZ(A)AN	Benzo(a)anthracene	<100	<1.38	
CHRYSEN	Chrysene	<100	<1.38	
ETHEXPHT	Bix(2-ethlhexyl)phthalate	<100	<1.38	
OCPHT	Di-n-octylphthalate	ND	ND	
BZ(B)FL	Benzo(b)fluoranthene	<100	<1.38	
BZ(K)FL	Benzo(k)fluoranthene	<100	<1.38	
BZ(A)PY	Benzo(a)pyrene	<100	<1.38	
DIBZ(A,H)AN	Dibenzo(A,h)anthracene	<100	<1.38	
INDPYR	Indeno(1,2,3-c,d)pyrene	<100	<1.38	
BZPERYL	Benzo(g,h,i)perylene	<100	<1.38	
BU3CL	Trichlorobutadiene			
BU4CL	Tetrachlorobutadiene			
BU5CL	Pentachlorobutadiene			
		4-5-84		

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		(ppb) wet wt	mg/kg dry wt	(%)
HO	Phenol	<100	<1.38	
HO26ME	2,4-Dimethylphenol	<100	<1.38	
HO2CL	2-Chlorophenol	ND	ND	
HO4CL3ME	4-Chloro-3-methylphenol			
HO24CL	2,4-Dichlorophenol			
HO246CL	2,4,6-Trichlorophenol			
HO2N	2-Nitrophenol			
HO4N	4-Nitrophenol			
PHO5-CL	Pentachlorophenol			
PHO24N	2,4-Dinitrophenol			
PHO2ME46N	4,6-Dinitro-o-cresol	ND	ND	
	2 methylphenol			
	2 methoxyphenol			
	4 methylphenol			
	2,4,6 Trimethylphenol			
	4 methoxyphenol			
	2,3,5,6 TETRACHLOROPHENOL			
	2,4-D			
	SILVEX			
	2,4,5-T			
		4-5-84		

BA		VALUE (ppb) wet wt	mg/kg dry wt	P.R (%)
BNO2-ME	N-nitrosodimethylamine	ND	ND	
BNO2PR	N-nitrosodi-n-propylamine			
BNO2PH	N-nitrosodiphenylamine			
12DPH	1,2-Diphenylhydrazine			
BENZI	Benzidine			
BEZI2-CL	3,3'-Dichlorobenzidine	ND	ND	

NORMALIZED TO D_{10} PYRENE (%)			
D_1 1,4 Dichlorobenzene			
D_5 Phenol			
D_5 Nitrobenzene			
D_8 Naphthalene			
D_{14} Dimethylterephthalate			
D_{10} 1,2 Diphenylhydrazine			
D_{12} Perylene			
D_p Benzidine			

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SAMPLE NO. _____

Alki Sludge (Digested)

PP		VALUE (ppb) wet weight	mg/kg dry wt.	P.R. (%)
PCB1016	Aroclor 1016	ND	ND	
PCB1221	Aroclor 1221	ND	ND	
PCB1232	Aroclor 1232	ND	ND	
PCB1242	Aroclor 1242	8	0.11	
PCB1248	Aroclor 1248	8	0.11	
PCB1254	Aroclor 1254	19	0.26	
PCB1260	Aroclor 1260	16	0.22	
a-BHC	α - BHC	ND	ND	
b-BHC	β - BHC			
d-BHC	δ - BHC			
g-BHC	γ - BHC (Lindane)			
HEPTACL	Heptachlor			
ALDRIN	Aldrin			
HEPTAOX	Heptachlor epoxide			
CHLDANE	Chlordane	ND	ND	
DDE	4,4'-DDE	.5	0.07	
DDD	4,4'-DDD	ND	ND	
DDT	4,4'-DDT			
DIELDRIN	Dieldrin			
ENDRIN	Endrin			
END=O	Endrin Aldehyde			
a-ENSUL	α - Endosulfan			
b-ENSUL	β - Endosulfan			
ENSUL-S	Endosulfan sulfate			
TOXAPHEN	Toxaphene	ND	ND	
TCDD	2,3,7,8 - TCDD	NA	NA	
DEMETON	Demeton			
GUTHION	Guthion			
MALATHI	Malathion	NA	NA	
MEOXYCL	Methoxychlor	ND	ND	
MIREX	Mirex	ND	ND	
PARATHI	Parathion	NA	NA	
DICLOOX	Diohloropharenoxyacetic acid (2,4-D)			
SILVEX	Silvex (2,4,5-TP)			
SWEP	Swep			
CAFFEINE	Caffeine			
NICOTINE	Nicotine			
GCHLDENE	g-Chlordene			
CARBARYL	Carbaryl			
DIAZINON	Diazinon	NA	4.5-84 NA	
	o-Tri-Tolyl-Phosphate			
	m-Tri-tolyl-phosphate			
	p-Tri-tolyl-phosphate			

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TABLE 4

BACTERIOLOGICAL ANALYSES

Sample Date 1/16/84

Parameter	Value MPN/100 mls
Total Coliform	1.7×10^6
Fecal Coliform	3.3×10^5
Fecal Strep	3.3×10^5

Richard E. Finger
April 3, 1984

REF:hh REF