

## **Tables**

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TABLE 3-1

Wildlife Species Potentially Occurring and Habitat Associations  
Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Species	Cover Types			
	Streams, Rivers & Small Ponds	Wetland Areas Including Edges of Ponds and Creeks	Meadows or Open Areas	Upland Woods
<b>Birds</b>				
Great Blue Heron/ <i>Ardea herodias</i> *	U	U		
Great Egret/ <i>Casmerodius albus</i>	U	U		
Green-Backed Heron/ <i>Butorides straitus</i>	F	F		
Black-Crowned Night Heron/ <i>Nycticorax nycticorax</i>	U	U		
Canada Goose/ <i>Branta canadensis</i> *	A	A	A	
Wood Duck/ <i>Aix sponsa</i> *	F	F		
Mallard/ <i>Anas platyrhynchos</i> *	A	A		
Killdeer/ <i>Charadrius vociferus</i> *	C	C	C	
Spotted Sandpiper/ <i>Actitis macularia</i>	U	U		
Chimney Swift/ <i>Chaetura pelagica</i>	F		F	
Belted Kingfisher/ <i>Ceryle alcyon</i>	U	U		
Purple Martin/ <i>Progne subis</i>		U	U	
Tree Swallow/ <i>Tachycineta bicolor</i>	F	F	F	
N. Rough-Winged Swallow/ <i>Stelgidopteryx serripennis</i>	U	U	U	
Bank Swallow/ <i>Riparia riparia</i>		U	U	
Barn Swallow/ <i>Hirundo rustica</i> *	C	C	C	
American Crow/ <i>Corvus racyrhynchos</i> *			C	C
Cedar Waxwing/ <i>Bombycilla cedrorum</i> *				U
Blue Winged Teal/ <i>Anas discors</i>	U	U		
Red-Tailed Hawk/ <i>Buteo jamaicensis</i> *		F	F	F
American Kestrel/ <i>Falco sparverius</i>		F	F	
Ring-Necked Pheasant/ <i>Phasianus colchicus</i> *			F	
Sora/ <i>Porzana carolina</i>		U	U	
American Coot/ <i>Fulica americana</i>		U	U	
Mourning Dove/ <i>Zenaida macroura</i> *		C	C	C
Eastern Screech-Owl/ <i>Otus asio</i>				F
Great Horned Owl/ <i>Bubo virginianus</i>		F	F	F
Common Nighthawk/ <i>Chordeiles minor</i>		F	F	
Chimney Swift/ <i>Chaetura pelagica</i>		F	F	F
Red-Headed Woodpecker/ <i>Melanerpes erthrocephalus</i>			F	F
Willow Flycatcher/ <i>Empidonax traillii</i>		U		
Eastern Kingbird/ <i>Tyrannus tyrannus</i>		C	C	C
Common Yellowthroat/ <i>Geothlypis trichas</i> *		C	C	

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Species	Cover Types			
	Streams, Rivers & Small Ponds	Wetland Areas Including Edges of Ponds and Creeks	Meadows or Open Areas	Upland Woods
<b>Birds (Cont'd)</b>				
Song Sparrow/Melospiza melodia*		C	C	
Northern Oriole/Icterus galbula*	C	C		
Common Grackle/Quiscalus quiscula		C	A	A
Brown-Headed Cowbird/Molothrus ater		C	C	C
Rock Dove/Columba livia			A	
Northern Flicker/Colaptes auratus*			C	C
Eastern Bluebird/Sialia sialis			R	R
American Robin/Turdus migratorius*			A	A
Brown Thrasher/Toxostoma rufum			C	C
Dickcissel/Spiza americana			U	
Field Sparrow/Spizella pusilla			F	
Savannah Sparrow/Passerculus sandwichensis			U	
Grasshopper Sparrow/Ammodrammus savannarum			U	
Bobolink/Dolichonyx oryzivorus			F	
Red-Winged Blackbird/Agelaius phoeniceus*	A	A	A	
Eastern Meadowlark/Sturnella magna*			F	
American Goldfinch/Carduelis tristis*			C	
House Sparrow/Passer domesticus*			A	A
American Woodcock/Scolopax minor		U		
Black-Billed Cuckoo/Coccyzus erythrophthalmus				U
Yellow-Billed Cuckoo/Coccyzus americanus				U
Red-Bellied Woodpecker/Melanerpes carolinus				U
Downy Woodpecker/Picoides pubescens*				F
Hairy Woodpecker/Picoides villosus				U
Eastern Wood-Pewee/Contopus virens*				U
Eastern Phoebe/Sayornis phoebe				U
Great Crested Flycatcher/Myiarchus crinitus*				F
Blue Jay/Cyanocitta cristata*				C
Black-Capped Chickadee/Parus atricapillus*				C
Tufted Titmouse/Parus bicolor				R
White-Breasted Nuthatch/Sitta carolinensis				U
House Wren/Troglodytes aedon*				C
Blue-Gray Gnatcatcher/Poliophtila caerulea				R
Veery/Catharus fuscescens				R

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 Wildlife Species Potentially Occurring and Habitat Associations  
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Species	Cover Types			
	Streams, Rivers & Small Ponds	Wetland Areas Including Edges of Ponds and Creeks	Meadows or Open Areas	Upland Woods
<b>Birds (Cont'd)</b>				
Wood Thrush/Hylocichla mustelina*				U
Gray Catbird/Dumetella carolinensis*				C
Indigo Bunting/Passerina cyanea*			F	
Brown Thrasher/Toxostoma rufum				C
Red-Eyed Vireo/Vireo olivaceus*				F
Yellow Warbler/Dendroica petechia		F		F
Common Yellowthroat/Geothlypis trichas*		C		C
Scarlet Tanager/Piranga olivacea				U
Northern Cardinal/Cardinalis cardinalis*				C
<b>Amphibians</b>				
Bullfrog/Rana catesbeiana*	C	C		
Eastern Tiger Salamander/Ambystoma tigrinum		U	U	U
American Toad/Bufo americanus		F	F	F
Western Chorus Frog/Pseudacris t. triseriata	F	F	F	
Green Frog/Rana calmitans melanota*	C	C		
Northern Leopard Frog/Rana pipiens pipiens	U	U		
<b>Reptiles</b>				
Common Snapping Turtle/Cheyldra serpentina	C	C		
Midland Painted Turtle/Chrysemys picta marginata	A	A		
Red-Eared Slider/Trachemys scripta elegans	U	U		
Eastern Spiny Softshell/Apolone s. spinifera	R	R		
Northern Water Snake/Neroida sipedon	R	R		
Western Fox Snake/Elaphe vulpina vulpina			F	F
E. Plains Garter Snake/Thamnophis radix radix			F	F
Midland BrownSnake/Storeria dekayi wrightorum			U	U
Eastern Garter Snake/Thamnophis s. semifaciata*			F	F
<b>Mammals</b>				
Raccoon/Procyon lotor*	C	C	C	C
Beaver/Castor canadensis*	U	U		
Muskrat/Ondatra zibethicus	F	F		
Virginia Opossum/Didelophis virginiana*		F	F	F
Masked Shrew/Blarina brevicauda		U	U	U
Mink/Mustela vison		U		U

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 Wildlife Species Potentially Occurring and Habitat Associations  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Species	Cover Types			
	Streams, Rivers & Small Ponds	Wetland Areas Including Edges of Ponds and Creeks	Meadows or Open Areas	Upland Woods
<b>Mammals (Cont'd)</b>				
Striped Skunk/Mephitis mephitis*		F	F	F
Red Fox/Vulpes vulpes		U	U	U
Short-Tailed Shrew/Blarina brevicauda			U	U
Least Weasel/Mustela nivalis			R	R
Coyote/Canis latrans		R	R	R
Woodchuck/Marmota monax*			F	F
13-Lined Ground Squirrel/Spermophilus tridecemlineatus			F	
White -Footed Mouse/Peromyscus leucopus			C	C
Meadow Vole/Microtus pennsylvanicus*			C	
Eastern Cottontail/Sylvilagus floridanus*		F	F	F
White-Tailed Deer/Odocoileus virginianus		F	F	F
Eastern Mole/Scalopus aquaticus*			U	U
Little Brown Myotis/Nyotis lucifugus				U
Silver-Haired Bat/Lasionycteris noctivagans				R
Red Bat/Lasiurus borealis				U
Big Brown Bat/Eptesicus fuscus				U
Hoary Bat/Lasiurus cinereus				R
Eastern Chipmunk/Tamias striatus			C	C
Gray Squirrel/Sciurus carolinensis*				F
Fox Squirrel/Sciurus niger*			F	F
Southern Flying Squirrel/Glaucomys volans				U

Status Codes:  
 Introduced=I, Abundant=A, Common =C, Fairly Common=F, Uncommon=U, Unknown=N, Rare=R or Watch list=W,  
 Threatened=T, and Endangered=E

Source: FPDDC 1991

TABLE 3-2  
 Macroinvertebrate Inventory Results - WBDR  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Species	GBK-07 (Upstream of Kress Creek)	GBK-05 (Downstream of Kress Creek)
<b>Chironomidae</b>		
<i>Ablabesmyia</i> sp.		1
<i>Ablabesmyia mallochi</i>	18	
<i>Chironomus</i> sp.		2
<i>Cryptochisaromus fulves</i>	6	
<i>Dicrotendipes neounodestus</i>	28	
<i>Glyptotendipes</i> sp.		10
<i>Glyptotendipes lobiferus</i>	57	
<i>Nanocladius</i> sp.		1
<i>Orthocladius</i> sp.	14	
<i>Polypedilum</i> sp.		2
<i>Polypedilum illinoense</i>	21	
<i>Procladius</i> sp.	2	
<i>Thienemannimyia</i> gr.	28	2
<b>Tabanidae</b>		
<i>Chrysops</i> sp.		1
<b>Mollusca</b>		
<i>Ferrissia</i> sp.		1
<i>Physo</i> sp.	1	3
<b>Hirudinea</b>		
		21
<b>Isopoda</b>		
<i>Caecidotea</i> sp.		3
<i>Caecidotes intermedia</i>		1
<b>Decapoda</b>		
<i>Cambarida</i>		1
<b>Ephemeroptera</b>		
<i>Baetis</i> sp.	26	
<i>Baetis flavistriga</i>	4	
<i>Caenis</i> sp.	6	7
<i>Stenacron</i> sp.	1	
<i>Stenacron interpunctatum</i>		4
<i>Stenacron minnetonka</i>	2	
<i>Stenonema</i> sp.	2	
<i>Tricorythodes</i> sp.	1	
<b>Odonata</b>		
<i>Argia</i> sp.	2	
<i>Argia tibialis</i>		3
<i>Enallagma signatum</i>		1
<i>Ischnura</i> sp.		4
<b>Trichoptera</b>		
<i>Cheumatopsyche</i> sp.	194	
<b>Coleoptera</b>		
<i>Stenelmis</i> sp.	3	
<i>Stenelmis crenata</i>		5
<i>Stenelmis vittipennis</i>	46	
<b>Total Number of Organisms</b>	<b>462</b>	<b>73</b>
<b>Total Number of Taxa</b>	<b>17</b>	<b>18</b>

IEPA/WPC/88-010, 1988

TABLE 3-3  
 Fish Survey Results  
*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

Species	Kress Creek	W. Branch Du Page River
Goldfish		—*
Carp x Goldfish		—*
Carp	X	X
Golden Shiner	X	X
Sand Shiner	—	—*
Bluntnose Minnow	X	X
Fathead Minnow	—	—*
Creek Chub	X	—*
Quillback		—*
White Sucker	X	X
Black Bullhead	X	X
Green Sunfish	X	X
Bluegill		—*
Hybrid Sunfish	X	—*
Largemouth Bass	X	—*
White Crappie		—*
Black Crappie	X	X
Gizzard Shad		X

\*Reported by IEPA/WPC/88-010, 1988.

X = observed by CH2M HILL

— = not observed by CH2M HILL

**TABLE 3-4**  
 Identification of Constituents of Potential Concern  
 Process Summary - Sediment/Floodplain Soil - Kress Creek  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

List of Positively Detected Constituents in Sediment/Floodplain Soil	Constituents preceded by " → " were removed because they are considered essential nutrients (Ca, Mg, K, Na) or daughter products (radiological)	Constituents preceded by " → " were removed due to low frequency of detection (<5% of samples)	Constituents preceded by " → " result of background comparison (Max < Bkgd)	Constituents preceded by " → " were removed because no applicable screening criteria exist	Constituents preceded by " → " were removed based on the result of screening level comparison (Max < SL)	Final Constituents of Potential Concern (COPCs) in Sediment/Floodplain Soil
Surface Sediment/Floodplain Soil (< 24")						
<b>INORGANICS</b>	<b>INORGANICS</b>	<b>INORGANICS</b>	<b>INORGANICS</b>	<b>INORGANICS</b>	<b>INORGANICS</b>	<b>INORGANICS</b>
Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	→ <i>Aluminum</i>	--
Antimony	Antimony	→ <i>Antimony</i>	--	--	--	--
Arsenic	Arsenic	Arsenic	Arsenic	Arsenic	Arsenic	Arsenic
Barium	Barium	Barium	Barium	→ <i>Barium</i>	--	--
Beryllium	Beryllium	Beryllium	Beryllium	→ <i>Beryllium</i>	--	--
Cadmium	Cadmium	Cadmium	Cadmium	Cadmium	Cadmium	Cadmium
Calcium	→ <i>Calcium</i>	--	--	--	--	--
Chromium, Total	Chromium, Total	Chromium, Total	Chromium, Total	Chromium, Total	Chromium, Total	Chromium, Total
Cobalt	Cobalt	Cobalt	Cobalt	→ <i>Cobalt</i>	--	--
Copper	Copper	Copper	Copper	Copper	Copper	Copper
Iron	Iron	Iron	Iron	Iron	→ <i>Iron</i>	--
Lead	Lead	Lead	Lead	Lead	Lead	Lead
Magnesium	→ <i>Magnesium</i>	--	--	--	--	--
Manganese	Manganese	Manganese	Manganese	Manganese	Manganese	Manganese
Mercury	Mercury	Mercury	Mercury	Mercury	Mercury	Mercury
Nickel	Nickel	Nickel	Nickel	Nickel	Nickel	Nickel
Potassium	→ <i>Potassium</i>	--	--	--	--	--
Selenium	Selenium	Selenium	Selenium	→ <i>Selenium</i>	--	--
Silver	Silver	Silver	Silver	Silver	→ <i>Silver</i>	--
Sodium	→ <i>Sodium</i>	--	--	--	--	--
Thallium	Thallium	Thallium	Thallium	→ <i>Thallium</i>	--	--
Vanadium	Vanadium	Vanadium	Vanadium	→ <i>Vanadium</i>	--	--
Zinc	Zinc	Zinc	Zinc	Zinc	Zinc	Zinc



TABLE 3-4

Identification of Constituents of Potential Concern  
 Process Summary - Sediment/Floodplain Soil - Kress Creek  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

List of Positively Detected Constituents in Sediment/Floodplain Soil	Constituents preceded by " → " were removed because they are considered essential nutrients (Ca, Mg, K, Na) or daughter products (radiological)	Constituents preceded by " → " were removed due to low frequency of detection (<5% of samples)	Constituents preceded by " → " result of background comparison (Max < Bkgd)	Constituents preceded by " → " were removed because no applicable screening criteria exist	Constituents preceded by " → " were removed based on the result of screening level comparison (Max < SL)	Final Constituents of Potential Concern (COPCs) in Sediment/Floodplain Soil
Surface Sediment/Floodplain Soil (< 24")						
<b>PESTICIDES/PCBs</b> p,p'-DDD Aroclor 1260	<b>PESTICIDES/PCBs</b> p,p'-DDD Aroclor 1260	<b>PESTICIDES/PCBs</b> p,p'-DDD Aroclor 1260	<b>PESTICIDES/PCBs</b> p,p'-DDD Aroclor 1260	<b>PESTICIDES/PCBs</b> p,p'-DDD Aroclor 1260	<b>PESTICIDES/PCBs</b> p,p'-DDD Aroclor 1260	<b>PESTICIDES/PCBs</b> p,p'-DDD Aroclor 1260
<b>SEMIVOLATILES</b> 1,2,4-Trichlorobenzene 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene Benzo(A)Anthracene Benzo(A)Pyrene Benzo(B)Fluoranthene Benzo(K)Fluoranthene Bis(2-Ethylhexyl) Phthalate Carbazole Chrysene Dibenzofuran Di-N-Butyl Phthalate Fluoranthene Fluorene Indeno(1,2,3-C,D)Pyrene Naphthalene Phenanthrene Pyrene	<b>SEMIVOLATILES</b> 1,2,4-Trichlorobenzene 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene Benzo(A)Anthracene Benzo(A)Pyrene Benzo(B)Fluoranthene Benzo(K)Fluoranthene Bis(2-Ethylhexyl) Phthalate Carbazole Chrysene Dibenzofuran Di-N-Butyl Phthalate Fluoranthene Fluorene Indeno(1,2,3-C,D)Pyrene Naphthalene Phenanthrene Pyrene	<b>SEMIVOLATILES</b> 1,2,4-Trichlorobenzene 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene Benzo(A)Anthracene Benzo(A)Pyrene Benzo(B)Fluoranthene Benzo(K)Fluoranthene Bis(2-Ethylhexyl) Phthalate Carbazole Chrysene Dibenzofuran Di-N-Butyl Phthalate Fluoranthene Fluorene Indeno(1,2,3-C,D)Pyrene Naphthalene Phenanthrene Pyrene	<b>SEMIVOLATILES</b> 1,2,4-Trichlorobenzene 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene Benzo(A)Anthracene Benzo(A)Pyrene Benzo(B)Fluoranthene Benzo(K)Fluoranthene Bis(2-Ethylhexyl) Phthalate Carbazole Chrysene Dibenzofuran Di-N-Butyl Phthalate Fluoranthene Fluorene Indeno(1,2,3-C,D)Pyrene Naphthalene Phenanthrene Pyrene	<b>SEMIVOLATILES</b> 1,2,4-Trichlorobenzene 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene Benzo(A)Anthracene Benzo(A)Pyrene → Benzo(B)Fluoranthene → Benzo(K)Fluoranthene Bis(2-Ethylhexyl) Phthalate → Carbazole Chrysene Dibenzofuran Di-N-Butyl Phthalate Fluoranthene Fluorene Indeno(1,2,3-C,D)Pyrene Naphthalene Phenanthrene Pyrene	<b>SEMIVOLATILES</b> → 1,2,4-Trichlorobenzene 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene Benzo(A)Anthracene Benzo(A)Pyrene -- -- → Bis(2-Ethylhexyl) Phthalate -- Chrysene → Dibenzofuran → Di-N-Butyl Phthalate Fluoranthene Fluorene Indeno(1,2,3-C,D)Pyrene Naphthalene Phenanthrene Pyrene	<b>SEMIVOLATILES</b> -- 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene Benzo(A)Anthracene Benzo(A)Pyrene -- -- -- -- Chrysene -- -- Fluoranthene Fluorene Indeno(1,2,3-C,D)Pyrene Naphthalene Phenanthrene Pyrene

TABLE 3-4

Identification of Constituents of Potential Concern  
 Process Summary - Sediment/Floodplain Soil - Kress Creek  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

List of Positively Detected Constituents in Sediment/Floodplain Soil	Constituents preceded by " → " were removed because they are considered essential nutrients (Ca, Mg, K, Na) or daughter products (radiological)	Constituents preceded by " → " were removed due to low frequency of detection (<5% of samples)	Constituents preceded by " → " result of background comparison (Max < Bkgd)	Constituents preceded by " → " were removed because no applicable screening criteria exist	Constituents preceded by " → " were removed based on the result of screening level comparison (Max < SL)	Final Constituents of Potential Concern (COPCs) in Sediment/Floodplain Soil
Surface Sediment/Floodplain Soil (< 24")						
<b>RADIOLOGICAL</b>	<b>RADIOLOGICAL</b>	<b>RADIOLOGICAL</b>	<b>RADIOLOGICAL</b>	<b>RADIOLOGICAL</b>	<b>RADIOLOGICAL</b>	<b>RADIOLOGICAL</b>
Actinium-228	Actinium-228	Actinium-228	Actinium-228	→ Actinium-228	--	--
Bismuth-212	Bismuth-212	Bismuth-212	Bismuth-212	→ Bismuth-212	Bismuth-212	--
Bismuth-214	Bismuth-214	Bismuth-214	Bismuth-214	→ Bismuth-214	--	--
Cesium-137	Cesium-137	Cesium-137	Cesium-137	Cesium-137	Cesium-137	Cesium-137
Lead-211	Lead-211	Lead-211	Lead-211	→ Lead-211	Lead-211	--
Lead-212	Lead-212	Lead-212	Lead-212	→ Lead-212	--	--
Lead-214	Lead-214	Lead-214	Lead-214	→ Lead-214	--	--
Potassium-40	Potassium-40	Potassium-40	Potassium-40	→ Potassium-40	--	--
Protactinium-234	Protactinium-234	Protactinium-234	Protactinium-234	→ Protactinium-234	--	--
Radium-223	Radium-223	Radium-223	Radium-223	→ Radium-223	--	--
Radium-224	Radium-224	Radium-224	Radium-224	→ Radium-224	--	--
Radium-226	Radium-226	Radium-226	Radium-226	Radium-226	Radium-226	Radium-226
Radium-228	Radium-228	Radium-228	Radium-228	Radium-228	Radium-228	Radium-228
Rhenium-226	Rhenium-226	Rhenium-226	Rhenium-226	→ Rhenium-226	--	--
Rhenium-228	Rhenium-228	Rhenium-228	Rhenium-228	→ Rhenium-228	--	--
Rhenium-total	Rhenium-total	Rhenium-total	Rhenium-total	→ Rhenium-total	--	--
Thallium-208	Thallium-208	Thallium-208	Thallium-208	→ Thallium-208	--	--
Thorium-227	Thorium-227	Thorium-227	Thorium-227	→ Thorium-227	--	--
Thorium-228	Thorium-228	Thorium-228	Thorium-228	→ Thorium-228	--	--
Thorium-230	Thorium-230	Thorium-230	Thorium-230	→ Thorium-230	--	--
Thorium-232	Thorium-232	Thorium-232	Thorium-232	Thorium-232	Thorium-232	Thorium-232
Thorium-234	Thorium-234	Thorium-234	Thorium-234	→ Thorium-234	--	--
Uranium-234	Uranium-234	Uranium-234	Uranium-234	Uranium-234	Uranium-234	Uranium-234
Uranium-235	Uranium-235	Uranium-235	Uranium-235	Uranium-235	Uranium-235	Uranium-235
Uranium-238	Uranium-238	Uranium-238	Uranium-238	Uranium-238	Uranium-238	Uranium-238

TABLE 3-5

Identification of Constituents of Potential Concern

Process Summary - Surface Water - Kress Creek

Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

List of Positively Detected Constituents in Surface Water	Constituents preceded by " → " were removed because they are considered essential nutrients (Ca, Mg, K, Na)	Constituents preceded by " → " were removed due to low frequency of detection (<5% of samples)	Constituents preceded by " → " result of background comparison (Max < Bkgd)	Constituents preceded by " → " were removed because no applicable screening criteria exist	Constituents preceded by " → " were removed based on the result of screening level comparison (Max < SL)	Final Constituents of Potential Concern (COPCs) in Surface Water
<b>INORGANICS</b>	<b>INORGANICS</b>	<b>INORGANICS</b>	<b>INORGANICS</b>		<b>INORGANICS</b>	<b>INORGANICS</b>
Aluminum	Aluminum	Aluminum	→ <i>Aluminum</i>	--	--	--
Arsenic	Arsenic	Arsenic	→ <i>Arsenic</i>	--	--	--
Barium	Barium	Barium	Barium	Barium	Barium	Barium
Calcium	→ <i>Calcium</i>	--	--	--	--	--
Chromium, Total	Chromium, Total	Chromium, Total	→ <i>Chromium, Total</i>	--	--	--
Cobalt	Cobalt	Cobalt	Cobalt	Cobalt	Cobalt	Cobalt
Copper	Copper	Copper	Copper	Copper	Copper	Copper
Iron	Iron	Iron	→ <i>Iron</i>	--	--	--
Lead	Lead	Lead	Lead	Lead	→ <i>Lead</i>	--
Magnesium	→ <i>Magnesium</i>	--	--	--	--	--
Manganese	Manganese	Manganese	→ <i>Manganese</i>	--	--	--
Nickel	Nickel	Nickel	Nickel	Nickel	Nickel	Nickel
Potassium	→ <i>Potassium</i>	--	--	--	--	--
Selenium	Selenium	Selenium	→ <i>Selenium</i>	--	--	--
Sodium	→ <i>Sodium</i>	--	--	--	--	--
Vanadium	Vanadium	Vanadium	Vanadium	Vanadium	→ <i>Vanadium</i>	--
Zinc	Zinc	Zinc	→ <i>Zinc</i>	--	--	--

TABLE 3-6

Identification of Constituents of Potential Concern

Process Summary - Sediment/Floodplain Soil - STP River

Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

List of Positively Detected Constituents in Sediment/Floodplain Soil	Constituents preceded by " → " were removed because they are considered essential nutrients (Ca, Mg, K, Na)	Constituents preceded by " → " were removed due to low frequency of detection (<5% of samples)	Constituents preceded by " → " result of background comparison (Max < Bkgd)	Constituents preceded by " → " were removed because no applicable screening criteria exist	Constituents preceded by " → " were removed based on the result of screening level comparison (Max < SL)	Final Constituents of Potential Concern (COPCs) in Sediment/Floodplain Soil
Surface Sediment/Floodplain Soil (< 24")						
<b>INORGANICS</b>	<b>INORGANICS</b>	<b>INORGANICS</b>	<b>INORGANICS</b>	<b>INORGANICS</b>	<b>INORGANICS</b>	<b>INORGANICS</b>
Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	→ <i>Aluminum</i>	--
Antimony	Antimony	Antimony	Antimony	Antimony	→ <i>Antimony</i>	--
Arsenic	Arsenic	Arsenic	Arsenic	Arsenic	Arsenic	Arsenic
Barium	Barium	Barium	Barium	Barium	→ <i>Barium</i>	--
Beryllium	Beryllium	Beryllium	Beryllium	→ <i>Beryllium</i>	--	--
Cadmium	Cadmium	Cadmium	Cadmium	Cadmium	Cadmium	Cadmium
Calcium	→ <i>Calcium</i>	--	--	--	--	--
Chromium, Total	Chromium, Total	Chromium, Total	Chromium, Total	Chromium, Total	Chromium, Total	Chromium, Total
Cobalt	Cobalt	Cobalt	Cobalt	→ <i>Cobalt</i>	--	--
Copper	Copper	Copper	Copper	Copper	Copper	Copper
Iron	Iron	Iron	Iron	Iron	→ <i>Iron</i>	--
Lead	Lead	Lead	→ <i>Lead</i>	--	--	--
Magnesium	→ <i>Magnesium</i>	--	--	--	--	--
Manganese	Manganese	Manganese	Manganese	Manganese	Manganese	Manganese
Mercury	Mercury	Mercury	Mercury	Mercury	Mercury	Mercury
Nickel	Nickel	Nickel	Nickel	Nickel	Nickel	Nickel
Potassium	→ <i>Potassium</i>	--	--	--	--	--
Selenium	Selenium	Selenium	→ <i>Selenium</i>	--	--	--
Silver	Silver	Silver	Silver	Silver	Silver	Silver
Sodium	→ <i>Sodium</i>	--	--	--	--	--
Thallium	Thallium	Thallium	Thallium	→ <i>Thallium</i>	→ <i>Thallium</i>	--
Vanadium	Vanadium	Vanadium	Vanadium	→ <i>Vanadium</i>	→ <i>Vanadium</i>	--
Zinc	Zinc	Zinc	Zinc	Zinc	Zinc	Zinc

**TABLE 3-6**

Identification of Constituents of Potential Concern

Process Summary - Sediment/Floodplain Soil - STP River

Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

List of Positively Detected Constituents in Sediment/Floodplain Soil	Constituents preceded by " → " were removed because they are considered essential nutrients (Ca, Mg, K, Na)	Constituents preceded by " → " were removed due to low frequency of detection (<5% of samples)	Constituents preceded by " → " result of background comparison (Max < Bkgd)	Constituents preceded by " → " were removed because no applicable screening criteria exist	Constituents preceded by " → " were removed based on the result of screening level comparison (Max < SL)	Final Constituents of Potential Concern (COPCs) in Sediment/Floodplain Soil
Surface Sediment/Floodplain Soil (< 24")						
<b>SEMIVOLATILES</b> Benzo(A)Anthracene Benzo(A)Pyrene Benzo(B)Fluoranthene Benzo(G,H,I)Perylene Benzo(K)Fluoranthene Carbazole Chrysene Fluoranthene Fluorene Indeno(1,2,3-C,D)Pyrene Phenanthrene Pyrene	<b>SEMIVOLATILES</b> Benzo(A)Anthracene Benzo(A)Pyrene Benzo(B)Fluoranthene Benzo(G,H,I)Perylene Benzo(K)Fluoranthene Carbazole Chrysene Fluoranthene Fluorene Indeno(1,2,3-C,D)Pyrene Phenanthrene Pyrene	<b>SEMIVOLATILES</b> Benzo(A)Anthracene Benzo(A)Pyrene Benzo(B)Fluoranthene Benzo(G,H,I)Perylene Benzo(K)Fluoranthene Carbazole Chrysene Fluoranthene Fluorene Indeno(1,2,3-C,D)Pyrene Phenanthrene Pyrene	<b>SEMIVOLATILES</b> Benzo(A)Anthracene Benzo(A)Pyrene Benzo(B)Fluoranthene Benzo(G,H,I)Perylene Benzo(K)Fluoranthene Carbazole Chrysene Fluoranthene Fluorene Indeno(1,2,3-C,D)Pyrene Phenanthrene Pyrene	<b>SEMIVOLATILES</b> Benzo(A)Anthracene Benzo(A)Pyrene → Benzo(B)Fluoranthene → Benzo(G,H,I)Perylene → Benzo(K)Fluoranthene → Carbazole Chrysene Fluoranthene Fluorene Indeno(1,2,3-C,D)Pyrene Phenanthrene Pyrene	<b>SEMIVOLATILES</b> Benzo(A)Anthracene → Benzo(A)Pyrene -- -- -- -- → Chrysene → Fluoranthene Fluorene Indeno(1,2,3-C,D)Pyrene Phenanthrene → Pyrene	<b>SEMIVOLATILES</b> Benzo(A)Anthracene -- -- -- -- -- -- -- Fluorene Indeno(1,2,3-cd)pyrene Phenanthrene --
<b>VOLATILES</b> 2-Butanone Acetone Carbon Disulfide Toluene	<b>VOLATILES</b> 2-Butanone Acetone Carbon Disulfide Toluene	<b>VOLATILES</b> 2-Butanone Acetone Carbon Disulfide Toluene	<b>VOLATILES</b> 2-Butanone Acetone Carbon Disulfide Toluene	<b>VOLATILES</b> → 2-Butanone → Acetone → Carbon Disulfide Toluene	<b>VOLATILES</b> -- -- -- → Toluene	<b>VOLATILES</b> -- -- -- --
<b>RADIOLOGICAL</b> Potassium-40 Radium-226 Radium-228 Thorium-227 Thorium-228 Thorium-230 Thorium-232 Uranium-234 Uranium-235 Uranium-238	<b>RADIOLOGICAL</b> → Potassium-40 Radium-226 Radium-228 Thorium-227 Thorium-228 Thorium-230 Thorium-232 Uranium-234 Uranium-235 Uranium-238	<b>RADIOLOGICAL</b> -- Radium-226 Radium-228 Thorium-227 Thorium-228 Thorium-230 Thorium-232 Uranium-234 Uranium-235 Uranium-238	<b>RADIOLOGICAL</b> -- Radium-226 Radium-228 Thorium-227 Thorium-228 Thorium-230 Thorium-232 Uranium-234 Uranium-235 Uranium-238	<b>RADIOLOGICAL</b> -- Radium-226 Radium-228 -- → Thorium-228 -- Thorium-232 Uranium-234 Uranium-235 Uranium-238	<b>RADIOLOGICAL</b> -- Radium-226 Radium-228 -- Thorium-228 -- Thorium-232 Uranium-234 Uranium-235 Uranium-238	<b>RADIOLOGICAL</b> -- Radium-226 Radium-228 -- Thorium-228 -- Thorium-232 Uranium-234 Uranium-235 Uranium-238

**TABLE 3-7**

Identification of Constituents of Potential Concern

Process Summary - Surface Water - STP River

Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

List of Positively Detected Constituents in Surface Water	Constituents preceded by " → " were removed because they are considered essential nutrients (Ca, Mg, K, Na)	Constituents preceded by " → " were removed due to low frequency of detection (<5% of samples)	Constituents preceded by " → " result of background comparison (Max < Bkgd)	Constituents preceded by " → " were removed because no applicable screening criteria exist	Constituents preceded by " → " were removed based on the result of screening level comparison (Max < SL)	Final Constituents of Potential Concern (COPCs) in Surface Water
<b>INORGANICS</b> Aluminum Antimony Arsenic Barium Beryllium Calcium Chromium, Total Iron Lead Magnesium Manganese Nickel Potassium Selenium Sodium Thallium Vanadium Zinc	<b>INORGANICS</b> Aluminum Antimony Arsenic Barium Beryllium → Calcium Chromium, Total Iron Lead → Magnesium Manganese Nickel → Potassium Selenium → Sodium Thallium Vanadium Zinc	<b>INORGANICS</b> Aluminum Antimony Arsenic Barium Beryllium -- Chromium, Total Iron Lead -- Manganese Nickel -- Selenium -- Thallium Vanadium Zinc	<b>INORGANICS</b> Aluminum Antimony Arsenic Barium Beryllium -- → Chromium, Total Iron Lead -- Manganese Nickel -- → Selenium -- Thallium Vanadium Zinc	<b>INORGANICS</b> Aluminum Antimony Arsenic Barium Beryllium -- -- Iron Lead -- Manganese Nickel -- -- Thallium Vanadium Zinc	<b>INORGANICS</b> Aluminum → Antimony Arsenic Barium → Beryllium -- -- Iron Lead -- Manganese Nickel -- -- → Thallium → Vanadium Zinc	<b>INORGANICS</b> -- -- Arsenic -- -- -- Iron -- -- Manganese Nickel -- -- Thallium -- Zinc
<b>RADIOLOGICAL</b> Radium-226 Radium-228 Thorium-227 Thorium-228 Thorium-230 Thorium-232 Uranium-234 Uranium-235 Uranium-238	<b>RADIOLOGICAL</b> Radium-226 Radium-228 Thorium-227 Thorium-228 Thorium-230 Thorium-232 Uranium-234 Uranium-235 Uranium-238	<b>RADIOLOGICAL</b> Radium-226 Radium-228 Thorium-227 Thorium-228 Thorium-230 Thorium-232 Uranium-234 Uranium-235 Uranium-238	<b>RADIOLOGICAL</b> Radium-226 Radium-228 Thorium-227 Thorium-228 Thorium-230 Thorium-232 Uranium-234 Uranium-235 Uranium-238	Radium-226 Radium-228 → Thorium-227 → Thorium-228 → Thorium-230 Thorium-232 Uranium-234 Uranium-235 Uranium-238	<b>RADIOLOGICAL</b> Radium-226 Radium-228 -- -- -- Thorium-232 Uranium-234 Uranium-235 Uranium-238	<b>RADIOLOGICAL</b> Radium-226 Radium-228 -- -- -- Thorium-232 Uranium-234 Uranium-235 Uranium-238

TABLE 3-8

Identification of Constituents of Potential Concern

Process Summary - STP Upland Soil

Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

List of Positively Detected Constituents in On-site Soil	Constituents preceded by " → " were removed because they are considered essential nutrients (Ca, Mg, K, Na)	Constituents preceded by " → " were removed due to low frequency of detection (<5% of samples)	Constituents preceded by " → " result of background comparison (Max < Bkgd)	Constituents preceded by " → " were removed because no applicable screening criteria exist	Constituents preceded by " → " were removed based on the result of screening level comparison (Max < SL)	Final Constituents of Potential Concern (COPCs) in On-site Soil
<b>INORGANICS</b>	<b>INORGANICS</b>	<b>INORGANICS</b>	<b>INORGANICS</b>	<b>INORGANICS</b>	<b>INORGANICS</b>	<b>INORGANICS</b>
Aluminum	Aluminum	Aluminum	→ Aluminum	--	--	--
Antimony	Antimony	Antimony	Antimony	Antimony	→ Antimony	--
Arsenic	Arsenic	Arsenic	Arsenic	Arsenic	Arsenic	Arsenic
Barium	Barium	Barium	Barium	Barium	Barium	Barium
Beryllium	Beryllium	Beryllium	Beryllium	Beryllium	→ Beryllium	--
Cadmium	Cadmium	Cadmium	Cadmium	Cadmium	→ Cadmium	--
Calcium	→ Calcium	--	--	--	--	--
Chromium, Total	Chromium, Total	Chromium, Total	Chromium, Total	Chromium, Total	Chromium, Total	Chromium
Cobalt	Cobalt	Cobalt	Cobalt	Cobalt	Cobalt	Cobalt
Copper	Copper	Copper	Copper	Copper	Copper	Copper
Iron	Iron	Iron	Iron	Iron	Iron	Iron
Lead	Lead	Lead	Lead	Lead	Lead	Lead
Magnesium	→ Magnesium	--	--	--	--	--
Manganese	Manganese	Manganese	Manganese	Manganese	Manganese	Manganese
Mercury	Mercury	Mercury	Mercury	Mercury	Mercury	Mercury
Nickel	Nickel	Nickel	Nickel	Nickel	Nickel	Nickel
Potassium	→ Potassium	--	--	--	--	--
Selenium	Selenium	Selenium	Selenium	Selenium	Selenium	Selenium
Silver	Silver	Silver	Silver	Silver	Silver	Silver
Sodium	→ Sodium	--	--	--	--	--
Thallium	Thallium	→ Thallium	--	--	--	--
Vanadium	Vanadium	Vanadium	Vanadium	Vanadium	Vanadium	Vanadium
Zinc	Zinc	Zinc	Zinc	Zinc	Zinc	Zinc

TABLE 3-8

Identification of Constituents of Potential Concern

Process Summary - STP Upland Soil

Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

List of Positively Detected Constituents in On-site Soil	Constituents preceded by " → " were removed because they are considered essential nutrients (Ca, Mg, K, Na)	Constituents preceded by " → " were removed due to low frequency of detection (<5% of samples)	Constituents preceded by " → " result of background comparison (Max < Bkgd)	Constituents preceded by " → " were removed because no applicable screening criteria exist	Constituents preceded by " → " were removed based on the result of screening level comparison (Max < SL)	Final Constituents of Potential Concern (COPCs) in On-site Soil
<b>SEMIVOLATILES</b> 4-Nitrophenol Acenaphthylene Anthracene Benzo(A)Anthracene Benzo(A)Pyrene Benzo(B)Fluoranthene Benzo(G,H,I)Perylene Benzo(K)Fluoranthene Butylbenzylphthalate Bis(2-Ethylhexyl) Phthalate Chrysene Dibenz(A,H)Anthracene Di-N-Butyl Phthalate Di-N-Octylphthalate Fluoranthene Fluorene Indeno(1,2,3-C,D)Pyrene Phenanthrene Pyrene	<b>SEMIVOLATILES</b> 4-Nitrophenol Acenaphthylene Anthracene Benzo(A)Anthracene Benzo(A)Pyrene Benzo(B)Fluoranthene Benzo(G,H,I)Perylene Benzo(K)Fluoranthene Butylbenzylphthalate Bis(2-Ethylhexyl) Phthalate Chrysene Dibenz(A,H)Anthracene Di-N-Butyl Phthalate Di-N-Octylphthalate Fluoranthene Fluorene Indeno(1,2,3-C,D)Pyrene Phenanthrene Pyrene	<b>SEMIVOLATILES</b> 4-Nitrophenol → <i>Acenaphthylene</i> Anthracene Benzo(A)Anthracene Benzo(A)Pyrene Benzo(B)Fluoranthene Benzo(G,H,I)Perylene Benzo(K)Fluoranthene Butylbenzylphthalate Bis(2-Ethylhexyl) Phthalate Chrysene Dibenz(A,H)Anthracene Di-N-Butyl Phthalate Di-N-Octylphthalate Fluoranthene → <i>Fluorene</i> Indeno(1,2,3-C,D)Pyrene Phenanthrene Pyrene	<b>SEMIVOLATILES</b> 4-Nitrophenol -- Anthracene Benzo(A)Anthracene Benzo(A)Pyrene Benzo(B)Fluoranthene Benzo(G,H,I)Perylene Benzo(K)Fluoranthene Butylbenzylphthalate Bis(2-Ethylhexyl) Phthalate Chrysene Dibenz(A,H)Anthracene Di-N-Butyl Phthalate Di-N-Octylphthalate Fluoranthene -- Indeno(1,2,3-C,D)Pyrene Phenanthrene Pyrene	<b>SEMIVOLATILES</b> -- -- Anthracene Benzo(A)Anthracene Benzo(A)Pyrene Benzo(B)Fluoranthene Benzo(G,H,I)Perylene Benzo(K)Fluoranthene Butylbenzylphthalate Bis(2-Ethylhexyl) Phthalate Chrysene Dibenz(A,H)Anthracene Di-N-Butyl Phthalate Di-N-Octylphthalate Fluoranthene -- Indeno(1,2,3-C,D)Pyrene Phenanthrene Pyrene	<b>SEMIVOLATILES</b> -- -- Anthracene Benzo(A)Anthracene Benzo(A)Pyrene Benzo(B)Fluoranthene Benzo(G,H,I)Perylene Benzo(K)Fluoranthene → Butylbenzylphthalate → <i>Bis(2-Ethylhexyl)Phthalate</i> Chrysene → <i>Dibenz(A,H)Anthracene</i> → <i>Di-N-Butyl Phthalate</i> → <i>Di-N-Octylphthalate</i> Fluoranthene -- Indeno(1,2,3-C,D)Pyrene Phenanthrene Pyrene	<b>SEMIVOLATILES</b> -- -- Anthracene Benzo(A)Anthracene Benzo(A)Pyrene Benzo(B)Fluoranthene Benzo(G,H,I)Perylene Benzo(K)Fluoranthene -- Chrysene -- -- Fluoranthene -- Indeno(1,2,3-CD)Pyrene Phenanthrene Pyrene
<b>VOLATILES</b> Acetone Chloroform Toluene	<b>VOLATILES</b> Acetone Chloroform Toluene	<b>VOLATILES</b> → <i>Acetone</i> Chloroform Toluene	<b>VOLATILES</b> -- Chloroform Toluene	<b>VOLATILES</b> -- → <i>Chloroform</i> Toluene	<b>VOLATILES</b> -- -- Toluene	<b>VOLATILES</b> -- -- Toluene



TABLE 3-8

Identification of Constituents of Potential Concern

Process Summary - STP Upland Soil

Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

List of Positively Detected Constituents in On-site Soil	Constituents preceded by " → " were removed because they are considered essential nutrients (Ca, Mg, K, Na)	Constituents preceded by " → " were removed due to low frequency of detection (<5% of samples)	Constituents preceded by " → " result of background comparison (Max < Bkgd)	Constituents preceded by " → " were removed because no applicable screening criteria exist	Constituents preceded by " → " were removed based on the result of screening level comparison (Max < SL)	Final Constituents of Potential Concern (COPCs) in On-site Soil
<b>RADIOLOGICAL</b>	<b>RADIOLOGICAL</b>	<b>RADIOLOGICAL</b>	<b>RADIOLOGICAL</b>	<b>RADIOLOGICAL</b>	<b>RADIOLOGICAL</b>	<b>RADIOLOGICAL</b>
Alpha, Gross	Alpha, Gross	Alpha, Gross	Alpha, Gross	Alpha, Gross	--	--
Bismuth-214	Bismuth-214	Bismuth-214	Bismuth-214	Bismuth-214	--	--
Cesium-137	Cesium-137	Cesium-137	Cesium-137	Cesium-137	--	--
Lead-212	Lead-212	Lead-212	Lead-212	Lead-212	--	--
Lead-214	Lead-214	Lead-214	Lead-214	Lead-214	--	--
Potassium-40	→ Potassium-40	--	--	--	--	--
Protactinium 234	Protactinium 234	Protactinium 234	Protactinium 234	Protactinium 234	--	--
Radium-226	Radium-226	Radium-226	Radium-226	Radium-226	Radium-226	Radium-226
Radium-228	Radium-228	Radium-228	Radium-228	Radium-228	Radium-228	Radium-228
Thallium-208	Thallium-208	Thallium-208	Thallium-208	Thallium-208	--	--
Thorium-227	Thorium-227	Thorium-227	Thorium-227	Thorium-227	--	--
Thorium-228	Thorium-228	Thorium-228	Thorium-228	Thorium-228	Thorium-228	Thorium-228
Thorium-230	Thorium-230	Thorium-230	Thorium-230	Thorium-230	--	--
Thorium-232	Thorium-232	Thorium-232	Thorium-232	Thorium-232	Thorium-232	Thorium-232
Uranium-234	Uranium-234	Uranium-234	Uranium-234	Uranium-234	--	--
Uranium-235	Uranium-235	Uranium-235	Uranium-235	Uranium-235	Uranium-235	Uranium-235
Uranium-238	Uranium-238	Uranium-238	Uranium-238	Uranium-238	Uranium-238	Uranium-238

TABLE 3-9

Comparison of Maximum Detections with Background Concentrations, Kress Creek  
Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Analyte	Units	Number of Detections	Number of Analyses	Frequency of Detection	Minimum Detected Concentration	Maximum Detected Concentration	Maximum Background Concentration	Exceed Maximum Background Level?
<i>Surface Sediment/Floodplain Soil (&lt; 24")</i>								
<b>INORGANICS</b>								
Aluminum	mg/kg	93	93	100%	5.98E+02	1.73E+04	1.32E+04	Yes
Antimony	mg/kg	3	85	4%	5.50E+00	3.03E+01		Yes
Arsenic	mg/kg	86	93	92%	9.50E-01	1.77E+02	2.06E+01	Yes
Barium	mg/kg	93	93	100%	1.34E+01	6.28E+02	1.53E+02	Yes
Beryllium	mg/kg	45	93	48%	2.60E-01	2.40E+00	9.10E-01	Yes
Cadmium	mg/kg	5	93	5%	3.60E-01	2.60E+00		Yes
Calcium	mg/kg	93	93	100%	1.89E+03	1.72E+05	8.79E+04	Yes
Chromium, Total	mg/kg	83	93	89%	1.20E+00	4.34E+01	2.95E+01	Yes
Cobalt	mg/kg	85	93	91%	1.80E+00	2.10E+01	1.40E+01	Yes
Copper	mg/kg	66	93	71%	2.30E+00	2.87E+03	2.46E+01	Yes
Iron	mg/kg	93	93	100%	3.90E+03	4.67E+04	2.64E+04	Yes
Lead	mg/kg	93	93	100%	1.50E+00	3.10E+03	1.23E+02	Yes
Magnesium	mg/kg	93	93	100%	2.00E+03	1.06E+05	5.04E+04	Yes
Manganese	mg/kg	93	93	100%	1.25E+02	2.69E+03	9.97E+02	Yes
Mercury	mg/kg	31	93	33%	6.00E-02	2.00E+00	1.20E-01	Yes
Nickel	mg/kg	74	93	80%	1.20E+00	5.42E+01	2.62E+01	Yes
Potassium	mg/kg	92	93	99%	1.93E+02	3.12E+03	1.72E+03	Yes
Selenium	mg/kg	19	93	20%	6.40E-01	2.40E+00	1.40E+00	Yes
Silver	mg/kg	10	82	12%	8.50E-01	3.00E+00	2.10E+00	Yes
Sodium	mg/kg	78	93	84%	1.12E+02	1.86E+03	6.18E+02	Yes
Thallium	mg/kg	5	93	5%	4.10E-01	8.80E-01		Yes
Vanadium	mg/kg	78	93	84%	4.60E+00	7.03E+01	2.87E+01	Yes
Zinc	mg/kg	89	93	96%	7.60E+00	2.48E+03	1.62E+02	Yes
<b>PESTICIDES/PCBs</b>								
p,p'-DDD	mg/kg	2	6	33%	1.50E-02	2.80E-01		NA
Aroclor 1260	mg/kg	1	6	17%	2.00E+00	2.00E+00		NA

TABLE 3-9

Comparison of Maximum Detections with Background Concentrations, Kress Creek  
Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Analyte	Units	Number of Detections	Number of Analyses	Frequency of Detection	Minimum Detected Concentration	Maximum Detected Concentration	Maximum Background Concentration	Exceed Maximum Background Level?
<i>Surface Sediment/Floodplain Soil (&lt; 24")</i>								
<b>SEMIVOLATILES</b>								
1,2,4-Trichlorobenzene	mg/kg	1	6	17%	5.80E-02	5.80E-02		NA
2-Methylnaphthalene	mg/kg	1	6	17%	9.70E-02	9.70E-02		NA
Acenaphthene	mg/kg	1	6	17%	5.10E-02	5.10E-02		NA
Acenaphthylene	mg/kg	1	6	17%	4.80E-01	4.80E-01		NA
Anthracene	mg/kg	3	6	50%	1.10E-01	9.20E-01		NA
Benzo(A)Anthracene	mg/kg	2	6	33%	3.00E-01	1.80E+00		NA
Benzo(A)Pyrene	mg/kg	1	6	17%	6.90E-01	6.90E-01		NA
Benzo(B)Fluoranthene	mg/kg	1	6	17%	1.90E+00	1.90E+00		NA
Benzo(K)Fluoranthene	mg/kg	1	6	17%	4.90E-01	4.90E-01		NA
Bis(2-Ethylhexyl) Phthalate	mg/kg	1	6	17%	7.80E-02	7.80E-02		NA
Carbazole	mg/kg	2	6	33%	5.50E-02	3.20E-01		NA
Chrysene	mg/kg	3	6	50%	7.70E-02	1.60E+00		NA
Dibenzofuran	mg/kg	1	6	17%	2.90E-01	2.90E-01		NA
Di-N-Butyl Phthalate	mg/kg	1	6	17%	1.80E-01	1.80E-01		NA
Fluoranthene	mg/kg	3	6	50%	1.80E-01	2.70E+00		NA
Fluorene	mg/kg	2	6	33%	8.70E-02	7.40E-01		NA
Indeno(1,2,3-C,D)Pyrene	mg/kg	1	6	17%	7.70E-01	7.70E-01		NA
Naphthalene	mg/kg	1	6	17%	1.10E-01	1.10E-01		NA
Phenanthrene	mg/kg	3	6	50%	1.00E-01	2.90E+00		NA
Pyrene	mg/kg	3	6	50%	6.30E-02	1.90E+00		NA

TABLE 3-9

Comparison of Maximum Detections with Background Concentrations, Kress Creek  
Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Analyte	Units	Number of Detections	Number of Analyses	Frequency of Detection	Minimum Detected Concentration	Maximum Detected Concentration	Maximum Background Concentration	Exceed Maximum Background Level?
<i>Surface Sediment/Floodplain Soil (&lt; 24")</i>								
<b>RADIOLOGICAL</b>								
Actinium 228	pCi/g	27	27	100%	9.84E-01	8.40E+02	1.16E+00	Yes
Bismuth-212	pCi/g	28	28	100%	1.05E+00	7.96E+02	1.32E+00	Yes
Bismuth-214	pCi/g	28	28	100%	4.48E-01	1.35E+01	1.05E+00	Yes
Cesium-137	pCi/g	21	21	100%	1.35E-03	7.30E-01	4.99E-01	Yes
Lead 211	pCi/g	5	5	100%	2.64E-03	2.31E+00	9.47E-02	Yes
Lead-212	pCi/g	28	28	100%	8.49E-01	8.01E+02	9.65E-01	Yes
Lead-214	pCi/g	28	28	100%	4.34E-01	1.53E+01	9.80E-01	Yes
Potassium-40	pCi/g	63	63	100%	3.12E+00	4.31E+01	1.76E+01	Yes
Protactinium 234	pCi/g	25	25	100%	6.33E-02	7.32E+01	9.15E-01	Yes
Radium-223	pCi/g	28	28	100%	4.32E-01	3.37E+02	6.63E-01	Yes
Radium-224	pCi/g	28	28	100%	9.11E-01	3.37E+03	1.28E+00	Yes
Radium-226	pCi/g	116	153	76%	3.00E-01	5.36E+01	2.97E+00	Yes
Radium-228	pCi/g	114	114	100%	4.13E-01	6.53E+02	5.39E+00	Yes
Rhenium-226	pCi/g	28	28	100%	4.41E-01	1.33E+01	9.87E-01	Yes
Rhenium-228	pCi/g	28	28	100%	9.48E-01	8.32E+02	1.09E+00	Yes
Rhenium-total	pCi/g	28	28	100%	1.53E+00	8.44E+02	2.08E+00	Yes
Thallium-208	pCi/g	28	28	100%	8.82E-01	8.13E+02	9.51E-01	Yes
Thorium-227	pCi/g	59	89	66%	3.72E-02	3.27E+01	2.36E-01	Yes
Thorium-228	pCi/g	118	118	100%	1.55E-01	9.97E+02	2.68E+00	Yes
Thorium-230	pCi/g	82	90	91%	2.42E-01	1.06E+02	1.24E+00	Yes
Thorium-232	pCi/g	125	125	100%	2.57E-01	6.54E+02	2.30E+00	Yes
Thorium-234	pCi/g	20	20	100%	3.36E-01	8.03E+01	6.25E-01	Yes
Uranium-234	pCi/g	73	90	81%	3.08E-01	4.71E+01	1.32E+00	Yes
Uranium-235	pCi/g	115	115	100%	4.30E-03	4.38E+00	1.90E-01	Yes
Uranium-238	pCi/g	125	125	100%	2.00E-01	4.26E+01	2.10E+00	Yes

TABLE 3-9

Comparison of Maximum Detections with Background Concentrations, Kress Creek  
Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Analyte	Units	Number of Detections	Number of Analyses	Frequency of Detection	Minimum Detected Concentration	Maximum Detected Concentration	Maximum Background Concentration	Exceed Maximum Background Level?
<i>Surface Water</i>								
<b>INORGANICS</b>								
Aluminum	µg/L	12	12	100%	5.19E+02	3.31E+03	3.98E+03	No
Arsenic	µg/L	5	12	42%	1.70E+00	2.70E+00	2.70E+00	No
Barium	µg/L	12	12	100%	6.05E+01	1.07E+02	8.77E+01	Yes
Calcium	µg/L	12	12	100%	4.38E+04	6.99E+04	6.62E+04	Yes
Chromium, Total	µg/L	3	12	25%	5.90E+00	6.70E+00	8.40E+00	No
Cobalt	µg/L	1	12	8%	4.30E+00	4.30E+00		Yes
Copper	µg/L	10	12	83%	7.10E+00	1.45E+01	7.40E+00	Yes
Iron	µg/L	12	12	100%	7.57E+02	4.50E+03	6.07E+03	No
Lead	µg/L	5	12	42%	5.60E+00	1.04E+01	1.03E+01	Yes
Magnesium	µg/L	12	12	100%	1.80E+04	3.27E+04	3.16E+04	Yes
Manganese	µg/L	12	12	100%	5.51E+01	1.51E+02	1.84E+02	No
Nickel	µg/L	1	12	8%	7.00E+00	7.00E+00	5.90E+00	Yes
Potassium	µg/L	12	12	100%	4.57E+03	6.72E+03	1.15E+04	Yes
Selenium	µg/L	1	12	8%	2.80E+00	2.80E+00	3.20E+00	No
Sodium	µg/L	12	12	100%	2.32E+04	7.46E+04	9.63E+04	Yes
Vanadium	µg/L	11	12	92%	2.60E+00	9.00E+00	7.20E+00	Yes
Zinc	µg/L	12	12	100%	4.20E+00	3.34E+01	3.72E+01	No

NA -- Not applicable; no background data for organic constituents

TABLE 3-10

Comparison of Maximum Detections with Background Concentrations, STP River  
Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Analyte	Units	Number of Detections	Number of Analyses	Frequency of Detection	Minimum Detected Concentration	Maximum Detected Concentration	Maximum Background Concentration	Exceed Maximum Background Level?
<i>Surface Sediment/Floodplain Soil (&lt; 24")</i>								
<b>INORGANICS</b>								
Aluminum	mg/kg	39	39	100%	7.34E+02	1.35E+04	1.32E+04	Yes
Antimony	mg/kg	4	31	13%	5.80E+00	1.21E+01		Yes
Arsenic	mg/kg	39	39	100%	1.20E+00	3.16E+01	2.06E+01	Yes
Barium	mg/kg	39	39	100%	1.49E+01	2.03E+02	1.53E+02	Yes
Beryllium	mg/kg	2	39	5%	7.80E-01	1.20E+00	9.10E-01	Yes
Cadmium	mg/kg	6	39	15%	1.90E-01	7.50E-01		
Calcium	mg/kg	39	39	100%	1.50E+03	1.39E+05	8.79E+04	Yes
Chromium, Total	mg/kg	30	39	77%	2.90E+00	3.69E+01	2.95E+01	Yes
Cobalt	mg/kg	32	39	82%	1.70E+00	1.95E+01	1.40E+01	Yes
Copper	mg/kg	32	39	82%	3.50E+00	7.93E+01	2.46E+01	Yes
Iron	mg/kg	39	39	100%	3.70E+03	5.17E+04	2.64E+04	Yes
Lead	mg/kg	39	39	100%	2.10E+00	6.40E+01	1.23E+02	No
Magnesium	mg/kg	39	39	100%	1.94E+03	8.79E+04	5.04E+04	Yes
Manganese	mg/kg	39	39	100%	1.70E+02	1.63E+03	9.97E+02	Yes
Mercury	mg/kg	8	39	21%	9.20E-02	3.70E+00	1.20E-01	Yes
Nickel	mg/kg	39	39	100%	1.90E+00	2.81E+01	2.62E+01	Yes
Potassium	mg/kg	39	39	100%	1.84E+02	1.30E+03	1.72E+03	No
Selenium	mg/kg	2	39	5%	8.30E-01	1.20E+00	1.40E+00	No
Silver	mg/kg	7	39	18%	1.10E+00	2.40E+00	2.10E+00	Yes
Sodium	mg/kg	30	39	77%	4.60E+01	7.94E+02	6.18E+02	Yes
Thallium	mg/kg	2	39	5%	4.00E-01	6.70E-01		NA
Vanadium	mg/kg	39	39	100%	3.90E+00	2.95E+01	2.87E+01	Yes
Zinc	mg/kg	36	39	92%	9.60E+00	2.07E+02	1.62E+02	Yes

TABLE 3-10

Comparison of Maximum Detections with Background Concentrations, STP River  
Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Analyte	Units	Number of Detections	Number of Analyses	Frequency of Detection	Minimum Detected Concentration	Maximum Detected Concentration	Maximum Background Concentration	Exceed Maximum Background Level?
<i>Surface Sediment/Floodplain Soil (&lt; 24")</i>								
<b>SEMIVOLATILES</b>								
Benzo(A)Anthracene	mg/kg	2	3	67%	1.50E-01	1.70E-01		NA
Benzo(A)Pyrene	mg/kg	2	3	67%	6.60E-02	9.90E-02		NA
Benzo(B)Fluoranthene	mg/kg	2	3	67%	1.40E-01	1.50E-01		NA
Benzo(G,H,I)Perylene	mg/kg	1	2	50%	7.60E-02	7.60E-02		NA
Benzo(K)Fluoranthene	mg/kg	2	3	67%	1.20E-01	1.50E-01		NA
Carbazole	mg/kg	1	2	50%	4.70E-02	4.70E-02		NA
Chrysene	mg/kg	2	3	67%	1.70E-01	1.80E-01		NA
Fluoranthene	mg/kg	2	3	67%	4.60E-01	5.60E-01		NA
Fluorene	mg/kg	1	2	50%	5.00E-02	5.00E-02		NA
Indeno(1,2,3-C,D)Pyrene	mg/kg	2	3	67%	7.80E-02	7.90E-02		NA
Phenanthrene	mg/kg	2	3	67%	3.70E-01	4.10E-01		NA
Pyrene	mg/kg	2	3	67%	4.10E-01	4.60E-01		NA
<b>VOLATILES</b>								
2-Butanone	mg/kg	1	3	33%	4.80E-02	4.80E-02		NA
Acetone	mg/kg	1	3	33%	2.60E-01	2.60E-01		NA
Carbon Disulfide	mg/kg	1	3	33%	4.00E-03	4.00E-03		NA
Toluene	mg/kg	3	3	100%	3.00E-03	1.70E-02		NA
<b>RADIONUCLIDES</b>								
Potassium-40	pCi/g	8	8	100%	5.80E+00	1.84E+01	1.76E+01	Yes
Radium-226	pCi/g	33	47	70%	6.00E-01	4.80E+00	2.97E+00	Yes
Radium-228	pCi/g	43	43	100%	2.43E-01	1.09E+02	5.39E+00	Yes
Thorium-227	pCi/g	38	38	100%	9.66E-03	1.31E+01	2.36E-01	Yes
Thorium-228	pCi/g	39	39	100%	2.11E-01	1.03E+02	2.68E+00	Yes
Thorium-230	pCi/g	39	39	100%	2.75E-01	1.46E+01	1.24E+00	Yes
Thorium-232	pCi/g	47	47	100%	1.85E-01	9.92E+01	2.30E+00	Yes
Uranium-234	pCi/g	38	39	97%	2.43E-01	9.60E+00	1.32E+00	Yes
Uranium-235	pCi/g	38	38	100%	5.16E-03	2.83E-01	1.90E-01	Yes
Uranium-238	pCi/g	47	47	100%	2.48E-01	6.00E+00	2.10E+00	Yes

TABLE 3-10

Comparison of Maximum Detections with Background Concentrations, STP River  
Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Analyte	Units	Number of Detections	Number of Analyses	Frequency of Detection	Minimum Detected Concentration	Maximum Detected Concentration	Maximum Background Concentration	Exceed Maximum Background Level?
<i>Surface Water</i>								
<b>INORGANICS</b>								
Aluminum	µg/L	6	6	100%	8.83E+02	4.50E+03	3.98E+03	Yes
Antimony	µg/L	1	6	17%	1.13E+01	1.13E+01		NA
Arsenic	µg/L	5	6	83%	1.90E+00	3.90E+00	2.70E+00	Yes
Barium	µg/L	6	6	100%	6.78E+01	9.30E+01	8.77E+01	Yes
Beryllium	µg/L	3	6	50%	3.70E-01	4.50E-01	3.70E-01	Yes
Calcium	µg/L	6	6	100%	3.84E+04	6.71E+04	6.62E+04	Yes
Chromium, Total	µg/L	1	6	17%	4.90E+00	4.90E+00	8.40E+00	Yes
Iron	µg/L	6	6	100%	1.33E+03	6.72E+03	6.07E+03	Yes
Lead	µg/L	6	6	100%	3.60E+00	1.31E+01	1.03E+01	Yes
Magnesium	µg/L	6	6	100%	1.60E+04	2.77E+04	3.16E+04	Yes
Manganese	µg/L	6	6	100%	4.14E+01	1.52E+02	1.34E+02	Yes
Nickel	µg/L	3	6	50%	9.20E+00	1.18E+01	5.90E+00	Yes
Potassium	µg/L	6	6	100%	6.06E+03	1.25E+04	1.15E+04	Yes
Selenium	µg/L	1	6	17%	2.60E+00	2.60E+00	3.20E+00	Yes
Sodium	µg/L	6	6	100%	3.64E+04	1.38E+05	9.63E+04	Yes
Thallium	µg/L	1	6	17%	2.20E+00	2.20E+00		NA
Vanadium	µg/L	6	6	100%	3.20E+00	8.70E+00	7.20E+00	Yes
Zinc	µg/L	3	6	50%	4.12E+01	4.86E+01	3.72E+01	Yes
<b>RADIONUCLIDES</b>								
Radium-226	pCi/L	3	6	50%	6.46E-01	8.22E-01		NA
Radium-228	pCi/L	6	6	100%	2.57E-02	1.25E+00	5.90E-01	Yes
Thorium-227	pCi/L	6	6	100%	7.50E-03	5.56E-02	2.65E-02	Yes
Thorium-228	pCi/L	5	5	100%	4.35E-02	2.02E-01		NA
Thorium-230	pCi/L	6	6	100%	5.43E-02	3.22E-01	2.39E-02	Yes
Thorium-232	pCi/L	6	6	100%	2.10E-02	1.73E-01	8.05E-03	Yes
Uranium-234	pCi/L	6	6	100%	5.79E-02	5.72E-01	5.54E-01	Yes
Uranium-235	pCi/L	6	6	100%	3.26E-03	3.64E-02	3.46E-02	Yes
Uranium-238	pCi/L	6	6	100%	1.88E-02	5.82E-01	3.60E-01	Yes

NA -- Not applicable; no background data exist



TABLE 3-11

Comparison of Maximum Detections with Background Concentrations, STP Upland Soil  
Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Analyte	Units	Number of Detections	Number of Analyses	Frequency of Detection	Minimum Detected Concentration	Maximum Detected Concentration	Maximum Background Concentration	Exceed Maximum Background Level?
<b>INORGANICS</b>								
Aluminum	mg/kg	161	161	100%	1.35E+03	1.91E+04	2.00E+04	No
Antimony	mg/kg	8	121	7%	4.10E+00	1.20E+01	1.10E+01	Yes
Arsenic	mg/kg	161	161	100%	2.80E+00	9.07E+01	2.92E+01	Yes
Barium	mg/kg	161	161	100%	8.10E+00	5.14E+02	2.08E+02	Yes
Beryllium	mg/kg	28	161	17%	4.30E-01	2.20E+00		Yes
Cadmium	mg/kg	18	161	11%	5.30E-01	3.40E+00	1.10E+00	Yes
Calcium	mg/kg	161	161	100%	1.74E+03	1.59E+05	1.58E+05	Yes
Chromium, Total	mg/kg	161	161	100%	2.30E+00	6.89E+01	2.51E+01	Yes
Cobalt	mg/kg	155	161	96%	2.30E+00	3.50E+01	1.45E+01	Yes
Copper	mg/kg	161	161	100%	6.20E+00	5.91E+02	2.62E+01	Yes
Iron	mg/kg	161	161	100%	5.64E+03	6.75E+04	4.98E+04	Yes
Lead	mg/kg	161	161	100%	4.40E+00	1.16E+03	5.37E+01	Yes
Magnesium	mg/kg	161	161	100%	2.23E+03	9.52E+04	9.54E+04	Yes
Manganese	mg/kg	161	161	100%	1.80E+02	2.14E+03	1.26E+03	Yes
Mercury	mg/kg	66	161	41%	6.30E-02	2.70E+00		Yes
Nickel	mg/kg	151	161	94%	7.00E+00	4.71E+01	3.61E+01	Yes
Potassium	mg/kg	151	161	94%	5.09E+02	3.01E+03	2.02E+03	Yes
Selenium	mg/kg	11	161	7%	6.00E-01	1.50E+00		Yes
Silver	mg/kg	10	161	6%	9.40E-01	1.97E+01		Yes
Sodium	mg/kg	97	161	60%	7.54E+01	7.25E+02	3.84E+02	Yes
Thallium	mg/kg	2	161	1%	8.10E-01	2.20E+00		Yes
Vanadium	mg/kg	161	161	100%	4.80E+00	4.17E+01	4.03E+01	Yes
Zinc	mg/kg	161	161	100%	1.45E+01	1.40E+03	1.05E+02	Yes

TABLE 3-11

Comparison of Maximum Detections with Background Concentrations, STP Upland Soil  
Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Analyte	Units	Number of Detections	Number of Analyses	Frequency of Detection	Minimum Detected Concentration	Maximum Detected Concentration	Maximum Background Concentration	Exceed Maximum Background Level?
<b>SEMIVOLATILES</b>								
4-Nitrophenol	mg/kg	1	22	5%	6.40E-02	6.40E-02	4.70E-02	Yes
Acenaphthylene	mg/kg	1	22	5%	4.80E-02	4.80E-02		NA
Anthracene	mg/kg	2	22	9%	4.80E-02	1.30E-01		NA
Benzo(A)Anthracene	mg/kg	10	22	45%	5.60E-02	4.60E-01	5.30E-02	Yes
Benzo(A)Pyrene	mg/kg	5	22	23%	4.70E-02	3.10E-01		NA
Benzo(B)Fluoranthene	mg/kg	9	22	41%	5.70E-02	7.40E-01	9.40E-02	Yes
Benzo(G,H,I)Perylene	mg/kg	2	22	9%	2.00E-01	2.40E-01		NA
Benzo(K)Fluoranthene	mg/kg	7	22	32%	4.70E-02	7.40E-01	9.40E-02	Yes
Benzyl Butyl Phthalate	mg/kg	3	22	14%	4.30E-02	5.30E-02		NA
Bis(2-Ethylhexyl) Phthalate	mg/kg	7	22	32%	3.00E-01	1.50E+00	2.90E+00	No
Chrysene	mg/kg	8	22	36%	4.80E-02	3.60E-01	4.80E-02	Yes
Dibenz(A,H)Anthracene	mg/kg	2	22	9%	6.00E-02	7.20E-02		NA
Di-N-Butyl Phthalate	mg/kg	2	22	9%	4.50E-02	5.20E-02	7.20E-02	No
Di-N-Octylphthalate	mg/kg	3	22	14%	8.90E-02	2.00E-01	5.00E-02	Yes
Fluoranthene	mg/kg	10	22	45%	8.40E-02	9.20E-01	8.30E-02	Yes
Fluorene	mg/kg	1	22	5%	5.70E-02	5.70E-02		NA
Indeno(1,2,3-C,D)Pyrene	mg/kg	2	22	9%	1.80E-01	2.80E-01		NA
Phenanthrene	mg/kg	10	22	45%	4.50E-02	4.40E-01	4.20E-02	Yes
Pyrene	mg/kg	10	22	45%	6.50E-02	6.30E-01	7.10E-02	Yes
<b>VOLATILES</b>								
Acetone	mg/kg	1	22	5%	1.90E-02	1.90E-02		NA
Chloroform	mg/kg	3	22	14%	1.00E-03	2.00E-03		NA
Toluene	mg/kg	18	22	82%	1.00E-03	5.20E-01	1.00E-01	Yes

TABLE 3-11

Comparison of Maximum Detections with Background Concentrations, STP Upland Soil  
Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Analyte	Units	Number of Detections	Number of Analyses	Frequency of Detection	Minimum Detected Concentration	Maximum Detected Concentration	Maximum Background Concentration	Exceed Maximum Background Level?
<b>RADIOLOGICAL</b>								
Alpha, Gross	pCi/g	10	10	100%	4.49E+00	1.88E+02		NA
Bismuth-214	pCi/g	10	10	100%	7.60E-01	1.50E+00		NA
Cesium-137	pCi/g	6	6	100%	2.92E-02	1.47E-01		NA
Lead-212	pCi/g	10	10	100%	9.73E-01	1.38E+01		NA
Lead-214	pCi/g	10	10	100%	8.13E-01	1.60E+00		NA
Potassium-40	pCi/g	10	10	100%	1.13E+01	1.84E+01		NA
Protactinium 234	pCi/g	2	2	100%	2.19E+00	2.26E+00		NA
Radium-226	pCi/g	144	156	92%	5.58E-01	9.86E+00	1.73E+00	Yes
Radium-228	pCi/g	149	156	96%	4.42E-01	4.46E+02	4.99E+00	Yes
Thallium-208	pCi/g	10	10	100%	3.07E-01	4.68E+00		NA
Thorium-227	pCi/g	118	142	83%	1.05E-02	3.83E+01	1.12E-01	Yes
Thorium-228	pCi/g	146	146	100%	2.27E-01	3.35E+02	1.33E+00	Yes
Thorium-230	pCi/g	144	146	99%	4.26E-01	1.06E+02	1.25E+00	Yes
Thorium-232	pCi/g	146	146	100%	2.25E-01	3.02E+02	1.73E+00	Yes
Uranium-234	pCi/g	136	146	93%	4.02E-01	1.28E+01	1.01E+00	Yes
Uranium-235	pCi/g	142	148	96%	5.32E-03	8.11E-01	1.26E-01	Yes
Uranium-238	pCi/g	143	146	98%	3.76E-01	1.20E+01	1.19E+00	Yes

NA -- Not applicable; no background data exist

TABLE 3-12

Comparison of Maximum Detections with Background Concentrations, Fish Tissues  
*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

Analyte	Units	Number of Detection	Number of Sample	FOD	Minimum Detected Concentration	Maximum Detected Concentration	Maximum Background Concentration	Exceed Maximum Background Level?
<b>INORGANICS</b>								
Arsenic	mg/kg	1	15	1 / 15	3.50E-01	3.50E-01	5.00E-02	Yes
Barium	mg/kg	1	15	1 / 15	1.80E+00	1.80E+00	4.00E+00	No
Calcium	mg/kg	7	15	7 / 15	9.13E+02	1.15E+04	2.09E+04	--
Chromium, Total	mg/kg	1	15	1 / 15	1.10E+00	1.10E+00	4.80E-01	Yes
Iron	mg/kg	1	15	1 / 15	4.70E+00	4.70E+00	1.38E+01	No
Lead	mg/kg	3	15	3 / 15	1.70E-01	3.80E-01	2.00E-01	Yes
Magnesium	mg/kg	15	15	15 / 15	2.46E+02	4.54E+02	5.46E+02	No
Mercury	mg/kg	10	15	10 / 15	8.00E-02	2.20E-01	1.00E-01	Yes
Nickel	mg/kg	1	15	1 / 15	1.64E+02	1.64E+02	1.20E-01	Yes
Potassium	mg/kg	15	15	15 / 15	2.77E+03	3.95E+03	3.89E+03	--
Selenium	mg/kg	7	15	7 / 15	5.90E-01	9.60E-01	2.10E-01	Yes
Sodium	mg/kg	15	15	15 / 15	4.58E+02	9.11E+02	1.26E+03	--
Thallium	mg/kg	1	15	1 / 15	2.60E-01	2.60E-01	2.90E-02	Yes
<b>RADIOLOGICAL</b>								
Radium-228	pCi/g	12	12	12 / 12	5.36E-03	1.34E-01	1.03E-01	Yes
Thorium-227	pCi/g	11	11	11 / 11	1.11E-04	2.41E-02	4.80E-03	Yes
Thorium-228	pCi/g	12	12	12 / 12	4.36E-04	2.69E-02	1.37E-03	Yes
Thorium-232	pCi/g	12	12	12 / 12	3.29E-04	4.91E-03	1.37E-03	Yes
Uranium-234	pCi/g	1	12	1 / 12	4.61E-03	4.61E-03	5.16E-03	No
Uranium-235	pCi/g	9	9	9 / 9	3.43E-05	1.37E-03	2.65E-03	No
Uranium-238	pCi/g	5	12	5 / 12	6.36E-04	6.51E-03	6.27E-03	Yes

**Note:**

-- Indicates an essential nutrient and therefore, background comparison is irrelevant

TABLE 3-13

Constituents Not Evaluated Quantitatively for Ecological Risk (No Benchmarks)

*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

Site Location	Medium	Units	Constituent	Detection Frequency	Maximum Detection	Arithmetic Mean
KCK	Sediment	mg/kg	Beryllium	45 / 93	2.40E+00	6.99E-01
		mg/kg	Cobalt	85 / 93	2.10E+01	7.59E+00
		mg/kg	Selenium	19 / 93	2.40E+00	1.13E+00
		mg/kg	Thallium	5 / 93	8.80E-01	6.20E-01
		mg/kg	Vanadium	78 / 93	7.03E+01	2.38E+01
		pCi/g	Actinium-228	27 / 27	8.40E+02	9.35E+01
		pCi/g	Bismuth-212	28 / 28	7.96E+02	8.66E+01
		pCi/g	Bismuth-214	28 / 28	1.35E+01	2.56E+00
		pCi/g	Lead-211	5 / 5	2.31E+00	5.30E-01
		pCi/g	Lead-212	28 / 28	8.01E+02	8.60E+01
		pCi/g	Lead-214	28 / 28	1.53E+01	2.79E+00
		pCi/g	Potassium-40	63 / 63	4.31E+01	1.30E+01
		pCi/g	Proactinium-234	25 / 25	7.32E+01	1.06E+01
		pCi/g	Radium-223	28 / 28	3.37E+02	3.46E+01
		pCi/g	Radium-224	28 / 28	3.37E+03	3.61E+02
		pCi/g	Rhenium-226	28 / 28	1.33E+01	2.68E+00
		pCi/g	Rhenium-228	28 / 28	8.32E+02	8.80E+01
		pCi/g	Thallium-208	28 / 28	8.13E+02	8.48E+01
		pCi/g	Thorium-227	59 / 89	3.27E+01	1.64E+00
		pCi/g	Thorium-228	118 / 118	9.97E+02	4.94E+01
		pCi/g	Thorium-230	82 / 90	1.06E+02	4.03E+00
		pCi/g	Thorium-234	20 / 20	8.03E+01	1.23E+01
		mg/kg	Carbazole	2 / 6	3.20E-01	1.88E-01
STP River	Sediment	mg/kg	Barium	39 / 39	2.03E+02	9.34E+01
		mg/kg	Beryllium	2 / 39	1.20E+00	9.90E-01
		mg/kg	Cobalt	39 / 39	1.95E+01	8.33E+00
		mg/kg	Selenium	2 / 39	1.20E+00	1.02E+00
		mg/kg	Thallium	2 / 39	6.70E-01	5.35E-01
		mg/kg	Vanadium	39 / 39	2.95E+01	1.45E+01
		pCi/g	Potassium-40	9 / 9	1.84E+01	1.41E+01
		pCi/g	Thorium-227	38 / 38	1.31E+01	5.13E-01
		pCi/g	Thorium-228	39 / 39	1.03E+02	5.16E+00
		pCi/g	Thorium-230	39 / 39	1.46E+01	1.49E+00
		mg/kg	2-Butanone	1 / 3	4.80E-02	NA
		mg/kg	Acetone	1 / 3	2.60E-01	NA
		mg/kg	Benzo(g,h,i)perylene	1 / 2	7.60E-02	NA
		mg/kg	Benzo(k)fluoranthene	2 / 3	1.50E-01	1.35E-01
		mg/kg	Carbazole	1 / 2	4.70E-02	NA
		mg/kg	Carbon disulfide	1 / 3	4.00E-03	NA

TABLE 3-13  
 Constituents Not Evaluated Quantitatively for Ecological Risk (No Benchmarks)  
*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

Site Location	Medium	Units	Constituent	Detection Frequency	Maximum Detection	Arithmetic Mean
STP River	Surface Water	pCi/L	Thorium-227	6 / 6	5.60E-02	3.14E-02
		pCi/L	Thorium-228	5 / 5	2.02E-01	1.19E-01
		pCi/L	Thorium-230	6 / 6	3.22E-01	1.80E-01
STP Upland	Soil	pCi/g	Bismuth-214	10 / 10	1.50E+00	1.00E+00
		pCi/g	Lead-212	10 / 10	1.38E+01	3.89E+00
		pCi/g	Lead-214	10 / 10	1.60E+00	1.09E+00
		pCi/g	Potassium-40	10 / 10	1.84E+01	1.54E+01
		pCi/g	Proactinium-234	2 / 2	2.26E+00	2.23E+00
		pCi/g	Thallium-208	10 / 10	4.68E+00	1.29E+00
		pCi/g	Thorium-227	118 / 142	3.83E+01	6.33E-01
		pCi/g	Thorium-228	146 / 146	3.35E+02	6.57E+00
		pCi/g	Thorium-230	144 / 146	1.06E+02	2.89E+00
		mg/kg	Chloroform	3 / 22	2.00E-03	1.33E-03

**TABLE 3-14**  
 Summary of Radiological Parameters  
*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

Constituent	Ra-226	Ra-228	Th-227	Th-228	Th-230	Th-232	U-234	U-235	U-238
Half Life (yr)	1,600	5.7	18.7	1.9	77,000	14 billion	244,000	$7 \times 10^8$	$4.5 \times 10^9$
Nuclide Parent	U-238	Th-232		Ac-228	U-234	NA	Pa-234	NA	NA
Decay Mode	$\alpha, \gamma$	$\beta, \gamma$		$\alpha$	$\alpha$	$\alpha$	$\alpha$	$\alpha, \gamma$	$\alpha, \gamma$
Distribution Coefficient	250	250	60,000	60,000	60,000	60,000	45	45	45

From: Languir, D., Aqueous Environmental Geochemistry: Prentice Hall, New Jersey. 1997 and Ozuntali, O. I., and G. W. Roles. De Minimus Waste Impacts Analysis Methodology. U. S. Nuclear Regulatory Commission. NUREG/CR-3585. 1984.

TABLE 3-15  
 Distribution Coefficients for Inorganic Constituents Detected in KCK/STP Media  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Chemical Name	$K_{oc}/K_d$	Ref	Chemical Name	$K_{oc}/K_d$	Ref
<b>Metals</b>					
Aluminum			Lead	4.5–7640	2
Antimony	45–550	1	Manganese	0.2–10,000	2
Arsenic	1–18	2	Nickel	0.2–929	3
Barium	60–16,000	1	Selenium	1.2–8.6	2
Cobalt	0.2–3800	3	Thallium	2,000–510,000	3
Copper	1.4–333	3	Vanadium	50–1000	1
Iron	1.4–1000	2	Zinc	0.1–8000	2

- 1 USEPA. Soil Screening Guidance: Technical Background Document, Office of Solid Waste and Emergency Response. EPA/540/R-95/128. May 1996.
- 2 C. Baes and R. Sharp. "A Proposal for Estimation of Soil Leaching and Leaching Constants for Use in Assessment Models." *Journal of Environmental Quality*. Vol. 12, No. 1, 1983.
- 3 J. Dragun. *The Soil Chemistry of Hazardous Materials*. 2nd ed. Amhurst Scientific Publishers. 1998.



**TABLE 4-1**  
 Bioaccumulative Chemicals List and Log  $K_{ow}$  Values  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Chemical	Log $K_{ow}$ Range	Selected log $K_{ow}$	Reference	Evaluate for Food Web Exposures?
<b>Volatile Organics</b>				
1,1,1-Trichloroethane	2.47 to 2.51	2.48	USEPA 1995b	NO
1,1,2,2-Tetrachloroethane	2.31 to 2.64	2.39	USEPA 1995b	NO
1,1,2-Trichloroethane	2.03 to 2.07	2.05	USEPA 1995b	NO
1,1-Dichloroethane	1.78 to 1.85	1.79	USEPA 1995b	NO
1,1-Dichloroethene	2.13 to 2.37	2.13	USEPA 1995b	NO
1,2-Dibromo-3-Chloropropane	2.26 to 2.41	2.34	USEPA 1995b	NO
1,2-Dibromoethane	Not reported	2.00	USEPA 1996a	NO
1,2-Dichloroethane	1.40 to 1.48	1.47	USEPA 1995b	NO
1,2-Dichloropropane	1.94 to 1.99	1.97	USEPA 1995b	NO
2-Butanone	0.26 to 0.69	0.28	USEPA 1995b	NO
2-Hexanone	Not reported	1.40	USEPA 1996a	NO
4-Methyl-2-Pentanone	1.17 to 1.25	1.19	USEPA 1995b	NO
Acetone	-0.21 to -0.24	-0.24	USEPA 1995b	NO
Benzene	1.83 to 2.50	2.13	USEPA 1995b	NO
Bromochloromethane	Not reported	1.41	SRC 1998	NO
Bromodichloromethane	1.88 to 2.14	2.10	USEPA 1995b	NO
Bromoform	2.30 to 2.38	2.35	USEPA 1995b	NO
Bromomethane	1.08 to 1.19	1.19	USEPA 1995b	NO
Carbon disulfide	1.84 to 2.16	2.00	USEPA 1995b	NO
Carbon tetrachloride	2.03 to 3.10	2.73	USEPA 1995b	YES
Chlorobenzene	2.46 to 3.79	2.86	USEPA 1995b	YES
Chloroethane	Not reported	1.43	USEPA 1996a	NO
Chloroform	1.81 to 3.04	1.92	USEPA 1995b	YES
Chloromethane	0.90 to 0.94	0.91	USEPA 1995b	NO
Cis-1,2-Dichloroethene	1.77 to 2.10	1.86	USEPA 1995b	NO
Cis-1,3-Dichloropropene	1.76 to 2.10	2.00	USEPA 1995b	NO
Dibromochloromethane	2.13 to 2.24	2.17	USEPA 1995b	NO
Ethylbenzene	3.07 to 3.57	3.14	USEPA 1995b	YES
Methylene chloride	1.22 to 1.40	1.25	USEPA 1995b	NO
Styrene	2.76 to 3.16	2.94	USEPA 1995b	YES
Tetrachloroethene	2.53 to 3.70	2.67	USEPA 1995b	YES
Toluene	2.21 to 3.13	2.75	USEPA 1995b	YES
Trans-1,2-Dichloroethene	1.77 to 2.10	2.07	USEPA 1995b	NO
Trans-1,3-Dichloropropene	1.76 to 2.10	2.00	USEPA 1995b	NO
Trichloroethene	2.53 to 3.14	2.71	USEPA 1995b	YES
Vinyl chloride	1.23 to 1.52	1.50	USEPA 1995b	NO
Xylenes (total)	2.77 to 3.68	3.20	USEPA 1995b	YES

**TABLE 4-1**  
 Bioaccumulative Chemicals List and Log  $K_{ow}$  Values  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Chemical	Log $K_{ow}$ Range	Selected log $K_{ow}$	Reference	Evaluate for Food Web Exposures?
<b>Semivolatile Organics</b>				
1,2,4-Trichlorobenzene	3.89 to 4.23	4.01	USEPA 1995b	YES
1,2-Dichlorobenzene	3.20 to 3.61	3.43	USEPA 1995b	YES
1,3-Dichlorobenzene	Not reported	3.50	USEPA 1996a	YES
1,4-Dichlorobenzene	3.26 to 3.78	3.42	USEPA 1995b	YES
2,2'-Oxybis(1-Chloropropane)	Not reported	2.50	USEPA 1996a	NO
2,4,5-Trichlorophenol	2.39 to 4.19	3.90	USEPA 1995b	YES
2,4,6-Trichlorophenol	3.29 to 4.05	3.70	USEPA 1995b	YES
2,4-Dichlorophenol	2.80 to 3.30	3.08	USEPA 1995b	YES
2,4-Dimethylphenol	1.99 to 2.49	2.36	USEPA 1995b	NO
2,4-Dinitrophenol	1.40 to 1.79	1.55	USEPA 1995b	NO
2,4-Dinitrotoluene	1.98 to 2.05	2.01	USEPA 1995b	NO
2,6-Dinitrotoluene	1.72 to 2.03	1.87	USEPA 1995b	NO
2-Chloronaphthalene	Not reported	4.10	USEPA 1996a	YES
2-Chlorophenol	0.83 to 2.32	2.15	USEPA 1995b	NO
2-Methylnaphthalene	Not reported	3.90	USEPA 1996a	YES
2-Methylphenol	1.90 to 2.04	1.99	USEPA 1995b	NO
2-Nitroaniline	Not reported	1.90	USEPA 1996a	NO
2-Nitrophenol	Not reported	1.80	USEPA 1996a	NO
3,3'-Dichlorobenzidine	3.51 to 3.95	3.51	USEPA 1995b	YES
3-Nitroaniline	Not reported	1.40	USEPA 1996a	NO
4,6-Dinitro-2-Methylphenol	Not reported	2.10	USEPA 1996a	NO
4-Bromophenyl-Phenylether	4.89 to 5.24	5.00	USEPA 1995b	YES
4-Chloro-3-Methylphenol	Not reported	3.10	USEPA 1996a	YES
4-Chloroaniline	1.57 to 2.02	1.85	USEPA 1995b	NO
4-Chlorophenyl-Phenylether	4.08 to 5.09	4.95	USEPA 1995b	YES
4-Methylphenol	1.38 to 2.04	1.95	USEPA 1995b	NO
4-Nitroaniline	Not reported	1.40	USEPA 1996a	NO
4-Nitrophenol	Not reported	1.90	USEPA 1996a	NO
Acenaphthene	3.77 to 4.49	3.92	USEPA 1995b	YES
Acenaphthylene	Not reported	4.10	USEPA 1996a	YES
Anthracene	3.45 to 4.80	4.55	USEPA 1995b	YES
Benzo(a)anthracene	4.00 to 5.79	5.70	USEPA 1995b	YES

**TABLE 4-1**  
 Bioaccumulative Chemicals List and Log  $K_{ow}$  Values  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Chemical	Log $K_{ow}$ Range	Selected log $K_{ow}$	Reference	Evaluate for Food Web Exposures?
<b>Semivolatiles Organics</b>				
Benzo(a)pyrene	5.98 to 6.42	6.11	USEPA 1995b	YES
Benzo(b)fluoranthene	5.79 to 6.40	6.20	USEPA 1995b	YES
Benzo(g,h,i)perylene	6.63 to 7.05	6.70	USEPA 1995b	YES
Benzo(k)fluoranthene	6.12 to 6.27	6.20	USEPA 1995b	YES
Bis-(2-Chloroethoxy)methane	Not reported	0.75	USEPA 1996a	NO
Bis-(2-Chloroethyl)ether	1.00 to 1.29	1.21	USEPA 1995b	NO
Bis-(2-Ethylhexyl)phthalate	4.20 to 8.61	7.30	USEPA 1995b	YES
Butylbenzylphthalate	3.57 to 5.02	4.84	USEPA 1995b	YES
Carbazole	3.01 to 3.76	3.59	USEPA 1995b	YES
Chrysene	5.41 to 5.79	5.70	USEPA 1995b	YES
Dibenz(a,h)anthracene	6.50 to 6.88	6.69	USEPA 1995b	YES
Dibenzofuran	Not reported	4.20	USEPA 1996a	YES
Diethylphthalate	1.40 to 3.00	2.50	USEPA 1995b	YES
Dimethylphthalate	1.34 to 1.90	1.57	USEPA 1995b	NO
Di-n-butylphthalate	3.74 to 4.79	4.61	USEPA 1995b	YES
Di-n-octylphthalate	8.03 to 9.49	8.06	USEPA 1995b	YES
Fluoranthene	4.31 to 5.39	5.12	USEPA 1995b	YES
Fluorene	4.04 to 4.40	4.21	USEPA 1995b	YES
Hexachloro-1,3-butadiene	4.74 to 5.16	4.81	USEPA 1995b	YES
Hexachlorobenzene	5.00 to 7.42	5.89	USEPA 1995b	YES
Hexachlorocyclopentadiene	5.04 to 5.51	5.39	USEPA 1995b	YES
Hexachloroethane	3.82 to 4.14	4.00	USEPA 1995b	YES
Indeno(1,2,3-cd)pyrene	6.58 to 6.72	6.65	USEPA 1995b	YES
Isophorone	1.67 to 1.90	1.70	USEPA 1995b	NO
Naphthalene	3.01 to 4.70	3.36	USEPA 1995b	YES
Nitrobenzene	1.70 to 2.93	1.84	USEPA 1995b	NO
N-Nitrosodi-n-propylamine	1.31 to 1.49	1.40	USEPA 1995b	NO
N-Nitrosodiphenylamine	3.13 to 3.45	3.16	USEPA 1995b	YES
Pentachlorophenol	3.29 to 5.24	5.09	USEPA 1995b	YES
Phenanthrene	4.28 to 4.57	4.55	USEPA 1995b	YES
Phenol	0.79 to 1.55	1.48	USEPA 1995b	NO
Pyrene	4.76 to 5.52	5.11	USEPA 1995b	YES

**TABLE 4-1**  
 Bioaccumulative Chemicals List and Log  $K_{ow}$  Values  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Chemical	Log $K_{ow}$ Range	Selected log $K_{ow}$	Reference	Evaluate for Food Web Exposures?
<b>Pesticides/PCBs</b>				
4,4'-DDD	4.73 to 6.65	6.10	USEPA 1995b	YES
4,4'-DDE	5.63 to 6.96	6.76	USEPA 1995b	YES
4,4'-DDT	3.98 to 7.01	6.53	USEPA 1995b	YES
Aldrin	5.11 to 7.50	6.50	USEPA 1995b	YES
Alpha-BHC	3.75 to 3.81	3.80	USEPA 1995b	YES
Alpha-Chlordane	5.80 to 6.41	6.32	USEPA 1995b	YES
Aroclor-1016	Not reported	5.60	Sample et al. 1996	YES
Aroclor-1221	Not reported	4.70	Jones et al. 1997	YES
Aroclor-1232	Not reported	5.10	Jones et al. 1997	YES
Aroclor-1242	Not reported	5.60	Jones et al. 1997	YES
Aroclor-1248	Not reported	6.20	Jones et al. 1997	YES
Aroclor-1254	Not reported	6.50	Jones et al. 1997	YES
Aroclor-1260	Not reported	6.80	Jones et al. 1997	YES
Beta-BHC	3.75 to 3.84	3.81	USEPA 1995b	YES
Delta-BHC	Not reported	4.10	USEPA 1996a	YES
Dieldrin	3.63 to 6.20	5.37	USEPA 1995b	YES
Endosulfan I	3.83 to 3.85	3.83	USEPA 1995b	YES
Endosulfan II	4.45 to 4.52	4.52	USEPA 1995b	YES
Endosulfan sulfate	Not reported	3.70	USEPA 1996a	YES
Endrin	2.92 to 5.20	5.06	USEPA 1995b	YES
Endrin aldehyde	--	4.00	USEPA 1995b	YES
Endrin ketone	--	4.00	Endrin aldehyde	YES
Gamma-BHC (Lindane)	3.00 to 4.95	3.73	USEPA 1995b	YES
Gamma-Chlordane	5.80 to 6.41	6.32	USEPA 1995b	YES
Heptachlor	4.93 to 6.26	6.26	USEPA 1995b	YES
Heptachlor epoxide	3.50 to 5.40	5.00	USEPA 1995b	YES
Methoxychlor	3.31 to 5.60	5.08	USEPA 1995b	YES
Toxaphene	3.23 to 5.56	5.50	USEPA 1995b	YES
PCBs (total)	Not reported	6.00	USEPA 1996a	YES

**TABLE 4-1**  
 Bioaccumulative Chemicals List and Log  $K_{ow}$  Values  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Chemical	Log $K_{ow}$ Range	Selected log $K_{ow}$	Reference	Evaluate for Food Web Exposures?
<b>Inorganics</b>				
Aluminum	--	--	--	YES
Antimony	--	--	--	YES
Arsenic	--	--	--	YES
Barium	--	--	--	YES
Beryllium	--	--	--	YES
Cadmium	--	--	--	YES
Calcium	--	--	--	NO
Chromium	--	--	--	YES
Cobalt	--	--	--	YES
Copper	--	--	--	YES
Cyanide	--	--	--	NO
Iron	--	--	--	YES
Lead	--	--	--	YES
Magnesium	--	--	--	NO
Manganese	--	--	--	YES
Mercury	--	--	--	YES
Nickel	--	--	--	YES
Potassium	--	--	--	NO
Selenium	--	--	--	YES
Silver	--	--	--	YES
Sodium	--	--	--	NO
Thallium	--	--	--	YES
Vanadium	--	--	--	YES
Zinc	--	--	--	YES

TABLE 4-2  
Soil Bioconcentration Factors For Plants, Soil Invertebrates and Small Mammals  
Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Chemical	Soil-Plant BCF (dry weight)		Soil-Invertebrate BAF (dry weight)		Soil-Mouse BAF (dry weight)		Soil-Shrew BAF (dry weight)	
	Value	Reference	Value	Reference	Value	Reference	Value	Reference
<b>Inorganics</b>								
Aluminum	0.004	Baes et al. 1984	0.118	Sample et al. 1998a	0.093	Sample et al. 1998b	0.073	Sample et al. 1998b
Antimony	0.200	Baes et al. 1984	0.063	Helmke et al. 1979	--	see text	--	see text
Arsenic	1.103	Bechtel Jacobs 1998a	0.523	Sample et al. 1998a	0.014	Sample et al. 1998b	0.015	Sample et al. 1998b
Barium	0.150	Baes et al. 1984	0.160	Sample et al. 1998a	0.069	Sample et al. 1998b	0.112	Sample et al. 1998b
Beryllium	0.010	Baes et al. 1984	1.182	Sample et al. 1998a	--	see text	--	see text
Cadmium	3.250	Bechtel Jacobs 1998a	40.69	Sample et al. 1998a	0.462	Sample et al. 1998b	7.017	Sample et al. 1998b
Chromium	0.084	Bechtel Jacobs 1998a	3.162	Sample et al. 1998a	0.349	Sample et al. 1998b	0.333	Sample et al. 1998b
Cobalt	0.020	Baes et al. 1984	0.291	Sample et al. 1998a	0.025	Sample et al. 1998b	0.100	Sample et al. 1998b
Copper	0.625	Bechtel Jacobs 1998a	1.531	Sample et al. 1998a	0.554	Sample et al. 1998b	1.117	Sample et al. 1998b
Iron	0.004	Baes et al. 1984	0.078	Sample et al. 1998a	0.015	Sample et al. 1998b	0.017	Sample et al. 1998b
Lead	0.468	Bechtel Jacobs 1998a	1.522	Sample et al. 1998a	0.286	Sample et al. 1998b	0.339	Sample et al. 1998b
Manganese	0.250	Baes et al. 1984	0.124	Sample et al. 1998a	0.037	Sample et al. 1998b	0.059	Sample et al. 1998b
Mercury	5.000	Bechtel Jacobs 1998a	20.63	Sample et al. 1998a	0.130	Sample et al. 1998b	0.192	Sample et al. 1998b
Nickel	1.411	Bechtel Jacobs 1998a	4.730	Sample et al. 1998a	0.589	Sample et al. 1998b	0.578	Sample et al. 1998b
Selenium	3.012	Bechtel Jacobs 1998a	1.340	Sample et al. 1998a	1.263	Sample et al. 1998b	1.187	Sample et al. 1998b
Silver	0.037	Bechtel Jacobs 1998a	15.34	Sample et al. 1998a	0.810	Sample et al. 1998b	0.501	Sample et al. 1998b
Thallium	0.004	Baes et al. 1984	1.000	--	0.123	Sample et al. 1998b	0.123	Sample et al. 1998b
Vanadium	0.006	Baes et al. 1984	0.088	Sample et al. 1998a	0.013	Sample et al. 1998b	0.018	Sample et al. 1998b
Zinc	1.820	Bechtel Jacobs 1998a	12.89	Sample et al. 1998a	2.782	Sample et al. 1998b	2.901	Sample et al. 1998b
<b>Pesticides/PCBs</b>								
4,4'-DDD	0.0151	Travis and Arms 1988	2.00	Menzie et al. 1992	--	see text	--	see text
Aroclor-1260	0.0045	Travis and Arms 1988	15.9	Sample et al. 1998a	--	see text	--	see text
<b>Semivolatile Organics</b>								
4-Nitrophenol	3.0889	Travis and Arms 1988	1.00	--	--	see text	--	see text
Acenaphthene	0.2564	Travis and Arms 1988	0.30	Beyer and Stafford 1993	--	see text	--	see text
Acenaphthylene	0.1653	Travis and Arms 1988	0.22	Beyer and Stafford 1993	--	see text	--	see text
Anthracene	0.1051	Travis and Arms 1988	0.32	Beyer and Stafford 1993	--	see text	--	see text
Benzo(a)anthracene	0.0222	Travis and Arms 1988	0.27	Beyer and Stafford 1993	--	see text	--	see text
Benzo(a)pyrene	0.0135	Travis and Arms 1988	0.34	Beyer and Stafford 1993	--	see text	--	see text
Benzo(b)fluoranthene	0.0174	Travis and Arms 1988	0.21	Beyer and Stafford 1993	--	see text	--	see text
Benzo(g,h,i)perylene	0.0061	Travis and Arms 1988	0.15	Beyer and Stafford 1993	--	see text	--	see text
Benzo(k)fluoranthene	0.0112	Travis and Arms 1988	0.21	Beyer and Stafford 1993	--	see text	--	see text
bis(2-Ethylhexyl)phthalate	0.0029	Travis and Arms 1988	1.00	--	--	see text	--	see text
Chrysene	0.0289	Travis and Arms 1988	0.44	Beyer and Stafford 1993	--	see text	--	see text
Dibenz(a,h)anthracene	0.0068	Travis and Arms 1988	0.49	Beyer and Stafford 1993	--	see text	--	see text
Di-n-butylphthalate	0.1124	Travis and Arms 1988	1.00	--	--	see text	--	see text
Di-n-octylphthalate	0.0009	Travis and Arms 1988	1.00	--	--	see text	--	see text
Fluoranthene	0.0617	Travis and Arms 1988	0.37	Beyer and Stafford 1993	--	see text	--	see text
Fluorene	0.1790	Travis and Arms 1988	0.20	Beyer and Stafford 1993	--	see text	--	see text
Indeno(1,2,3-cd)pyrene	0.0061	Travis and Arms 1988	0.41	Beyer and Stafford 1993	--	see text	--	see text
Naphthalene	0.5261	Travis and Arms 1988	0.21	Beyer and Stafford 1993	--	see text	--	see text
Phenanthrene	0.1154	Travis and Arms 1988	0.28	Beyer and Stafford 1993	--	see text	--	see text
Pyrene	0.0687	Travis and Arms 1988	0.39	Beyer and Stafford 1993	--	see text	--	see text
<b>Volatile Organics</b>								
1,2,4-Trichlorobenzene	0.2186	Travis and Arms 1988	0.56	Beyer 1996	--	see text	--	see text
Toluene	2.0447	Travis and Arms 1988	1.00	--	--	see text	--	see text

**TABLE 4-3**  
 Exposure Parameters for Upper Trophic Level Ecological Receptors  
*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

Receptor	Body Weight (kg)		Water Ingestion Rate (L/day)		Food Ingestion Rate (kg/day - dry)	
	Value	Reference	Value	Reference	Value	Reference
<b>Birds</b>						
American robin	0.064	USEPA 1993	0.0129	allometric equation	0.0057	Levey and Karasov 1989
Great blue heron	2.10	Butler 1992	0.1090	allometric equation	0.4389	allometric equation
Mallard	0.612	Bellrose 1980	0.0850	allometric equation	0.0830	allometric equation
<b>Mammals</b>						
Deer mouse	0.012	Silva and Downing 1995	0.0040	USEPA 1993a	0.0007	USEPA 1993a
Mink	0.726	Silva and Downing 1995	0.0286	USEPA 1993a	0.0317	USEPA 1993a
Raccoon	4.23	Silva and Downing 1995	0.6092	allometric equation	0.1245	Conover 1989
Least shrew	0.013	USEPA 1993	0.0048	USEPA 1993a	0.0019	USEPA 1993a

Receptor	Dietary Composition (percent)						Soil/ Sediment Ingestion (percent)	
	Terr. Plants	Soil Invert.	Small Mammals	Fish/ Frogs	Aquatic Plants	Benthic Invert.	Value	Reference
<b>Birds</b>								
American robin	12	78	0	0	0	0	10	Beyer et al. 1994
Great blue heron	0	0	0	90	0	5	5	Based on average minimum for birds in Beyer et al. 1994
Mallard	0	0	0	0	40.7	56.0	3.3	Beyer et al. 1994
<b>Mammals</b>								
Deer mouse	84.0	14.0	0	0	0	0	2.0	Based on similar species in Beyer et al, 1994
Mink	17	0	2.5	63.0	0.0	11.0	2.8	Based on value reported in Beyer et al. 1994 for raccoon
Raccoon	34.4	27.2	3.6	2.7	0.0	22.7	9.42	Beyer et al. 1994
Least shrew	0	82.3	0	0	0	0	2.0	Based on similar species in Beyer et al. 1994

TABLE 4-4  
 Ingestion Screening Values for Mammals  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Chemical	Test Organism	Body Weight (kg)	Duration	Exposure Route	Effect/Endpoint	LOAEL (mg/kg/d)	NOAEL (mg/kg/d)	Reference
<b>Inorganics</b>								
Aluminum	mouse	0.03	390 days	oral in water	reproduction	193	19.3	ATSDR 1990a
	dog	10	6 months	oral	reproduction	600	60	ATSDR 1990a
Antimony	mouse	0.03	lifetime	oral in water	lifespan/longevity	1.25	0.125	Sample et al. 1996
Arsenic	mouse	0.03	3 generations	oral in water	reproduction	1.26	0.126	Sample et al. 1996
Barium	rat	0.435	16 months	oral in water	growth/hypertension	19.8	5.1	Sample et al. 1996
Beryllium	rat	0.35	lifetime	oral in water	longevity/weight loss	6.6	0.66	Sample et al. 1996
Cadmium	rat	0.303	6 weeks	oral (gavage)	reproduction	10	1	Sample et al. 1996
	dog	10	3 months	oral	reproduction	7.5	0.75	ATSDR 1993a
Chromium	rat	0.35	3 months	oral in water	mortality	131.4	13.14	Sample et al. 1996
Cobalt	rat	0.35	69 days	oral in diet	reproduction	50	5	ATSDR 1992a
Copper	mink	1	357 days	oral in diet	reproduction	15.14	11.7	Sample et al. 1996
Iron	rabbit	3.8	?	oral in diet	tolerance level	500	50	NAS 1980
Lead	rat	0.35	3 generations	oral in diet	reproduction	80	8	Sample et al. 1996
Manganese	rat	0.35	224 days	oral in diet	reproduction	284	88	Sample et al. 1996
Mercury	rat	0.35	3 generations	oral in diet	reproduction	0.16	0.032	Sample et al. 1996
	mink	1	93 days	oral in diet	mortality/weight loss	0.25	0.15	Sample et al. 1996
Nickel	rat	0.35	3 generations	oral in diet	reproduction	80	40	Sample et al. 1996
Selenium	rat	0.35	1 year	oral in water	reproduction	0.33	0.2	Sample et al. 1996
Silver	rat	0.35	2 weeks	oral in water	mortality	181	18.1	ATSDR 1990b
Thallium	rat	0.35	60 days	oral in water	reproduction	0.74	0.074	Sample et al. 1996
Vanadium	rat	0.26	60 days +	oral intubation	reproduction	2.1	0.21	Sample et al. 1996
Zinc	rat	0.35	GD 1-16	oral in diet	reproduction	320	160	Sample et al. 1996
	mink	1	25 weeks	oral	reproduction	208	20.8	ATSDR 1992b



**TABLE 4-4**  
 Ingestion Screening Values for Mammals  
*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

Chemical	Test Organism	Body Weight (kg)	Duration	Exposure Route	Effect/Endpoint	LOAEL (mg/kg/d)	NOAEL (mg/kg/d)	Reference
<b>PCB/Pesticides</b>								
4,4'-DDD	rat	0.35	2 years	oral in diet	reproduction	4	0.8	Sample et al. 1996
	dog	10	2 generations	oral	reproduction	5	1	ATSDR 1994
4,4'-DDE	rat	0.35	2 years	oral in diet	reproduction	4	0.8	Sample et al. 1996
	dog	10	2 generations	oral	reproduction	5	1	ATSDR 1994
4,4'-DDT	rat	0.35	2 years	oral in diet	reproduction	4	0.8	Sample et al. 1996
	dog	10	2 generations	oral	reproduction	5	1	ATSDR 1994
Aldrin	rat	0.35	3 generations	oral in diet	reproduction	1	0.2	Sample et al. 1996
alpha-BHC	rat	0.35	4 generations	oral in diet	reproduction	3.2	1.6	Sample et al. 1996
alpha-Chlordane	mouse	0.03	6 generations	oral in diet	reproduction	9.16	4.58	Sample et al. 1996
Aroclor-1016	mink	1	18 months	oral in diet	reproduction	3.43	1.37	Sample et al. 1996
Aroclor-1221	mink	1	7 months	oral in diet	reproduction	0.69	0.069	Sample et al. 1996
Aroclor-1232	mink	1	7 months	oral in diet	reproduction	0.69	0.069	Sample et al. 1996
Aroclor-1242	mink	1	7 months	oral in diet	reproduction	0.69	0.069	Sample et al. 1996
Aroclor-1248	mouse	0.03	5 weeks	oral in diet	immunological	13	1.3	ATSDR 1995a
Aroclor-1254	oldfield mouse	0.014	12 months	oral in diet	reproduction	0.68	0.068	Sample et al. 1996
	mink	1	4.5 months	oral in diet	reproduction	0.69	0.14	Sample et al. 1996
Aroclor-1260	oldfield mouse	0.014	12 months	oral in diet	reproduction	0.68	0.068	Sample et al. 1996
	mink	1	4.5 months	oral in diet	reproduction	0.69	0.14	Sample et al. 1996
beta-BHC	rat	0.35	13 weeks	oral in diet	growth/systemic	20	4	Sample et al. 1996
delta-BHC	rat	0.35	4 generations	oral in diet	reproduction	3.2	1.6	Sample et al. 1996
Dieldrin	rat	0.35	3 generations	oral in diet	reproduction	0.2	0.02	Sample et al. 1996
Endosulfan I	rat	0.35	30 days	oral (intubation)	reproduction	15	1.5	Sample et al. 1996
Endosulfan II	rat	0.35	30 days	oral (intubation)	reproduction	15	1.5	Sample et al. 1996
Endosulfan Sulfate	rat	0.35	30 days	oral (intubation)	reproduction	15	1.5	Sample et al. 1996
Endrin	mouse	0.03	120 days	oral in diet	reproduction	0.92	0.092	Sample et al. 1996
Endrin Aldehyde	mouse	0.03	120 days	oral in diet	reproduction	0.92	0.092	Sample et al. 1996
Endrin Ketone	mouse	0.03	120 days	oral in diet	reproduction	0.92	0.092	Sample et al. 1996
Gamma-BHC (Lindane)	rat	0.35	3 generations	oral in diet	reproduction	80	8	Sample et al. 1996
Gamma-Chlordane	mouse	0.03	6 generations	oral in diet	reproduction	9.16	4.58	Sample et al. 1996
Heptachlor	mink	1	181 days	oral in diet	reproduction	1	0.1	Sample et al. 1996
Heptachlor Epoxide	mink	1	181 days	oral in diet	reproduction	1	0.1	Sample et al. 1996
Methoxychlor	rat	0.35	11 months	oral in diet	reproduction	8	4	Sample et al. 1996
Toxaphene	rat	0.35	3 generations	oral in diet	reproduction	80	8	Sample et al. 1996

**TABLE 4-4**  
 Ingestion Screening Values for Mammals  
*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

Chemical	Test Organism	Body Weight (kg)	Duration	Exposure Route	Effect/Endpoint	LOAEL (mg/kg/d)	NOAEL (mg/kg/d)	Reference
<b>Semivolatile Organics</b>								
1,2,4-Trichlorobenzene	rat	0.35	3 generations	oral in water	reproduction	106	53	Coulston and Kolbye 1994
1,2-Dichlorobenzene	rat	0.35	chronic	oral (gavage)	liver/kidney	857	85.7	Coulston and Kolbye 1994
1,3-Dichlorobenzene	rat	0.35	chronic	oral (gavage)	liver/kidney	857	85.7	Coulston and Kolbye 1994
1,4-Dichlorobenzene	rat	0.35	GD 6-15	oral (gavage)	reproduction	500	250	Coulston and Kolbye 1994
2,4,5-Trichlorophenol	rat	0.35	98 days	oral in diet	hepatic/renal	800	80	McCullister et al. 1961
2,4,6-Trichlorophenol	rat	0.35	98 days	oral in diet	hepatic/renal	800	80	McCullister et al. 1961
2,4-Dichlorophenol	rat	0.35	103 weeks	oral in diet	reproduction	4400	440	NTP 1989
2-Chloronaphthalene	--	--	--	--	--	NA	NA	--
2-Methylnaphthalene	mouse	0.03	81 weeks	oral in diet	systemic	1437	143.7	ATSDR 1995b
3,3'-Dichlorobenzidine	--	--	--	--	--	NA	NA	--
4-Bromophenyl-Phenylether	--	--	--	--	--	NA	NA	--
4-Chloro-3-Methylphenol	--	--	--	--	--	NA	NA	--
4-Chlorophenyl-Phenylether	--	--	--	--	--	NA	NA	--
Acenaphthene	mouse	0.03	13 weeks	oral (gavage)	reproduction	3500	350	ATSDR 1995b
Acenaphthylene	mouse	0.03	13 weeks	oral (gavage)	reproduction	3500	350	ATSDR 1995b
Anthracene	mouse	0.03	13 weeks	oral (gavage)	reproduction	10000	1000	ATSDR 1995b
Benzo(a)anthracene	mouse	0.03	GD 7-16	oral (intubation)	reproduction	10	1	Sample et al. 1996
Benzo(a)pyrene	mouse	0.03	GD 7-16	oral (intubation)	reproduction	10	1	Sample et al. 1996
Benzo(b)fluoranthene	mouse	0.03	GD 7-16	oral (intubation)	reproduction	10	1	Sample et al. 1996
Benzo(g,h,i)perylene	mouse	0.03	19 to 29 days	oral in diet	reproduction	1330	133	ATSDR 1995b
Benzo(k)fluoranthene	mouse	0.03	GD 7-16	oral (intubation)	reproduction	10	1	Sample et al. 1996
Bis-(2-Ethylhexyl)phthalate	mouse	0.03	105 days	oral in diet	reproduction	183.3	18.3	Sample et al. 1996
Butylbenzylphthalate	rat	0.35	2 years	oral in diet	hepatic	2400	240	NTP 1997
Carbazole	mouse	0.03	19 to 29 days	oral in diet	reproduction	1330	133	ATSDR 1995b
Chrysene	mouse	0.03	GD 7-16	oral (intubation)	reproduction	10	1	Sample et al. 1996
Dibenz(a,h)anthracene	mouse	0.03	GD 7-16	oral (intubation)	reproduction	10	1	Sample et al. 1996
Dibenzofuran	mouse	0.03	19 to 29 days	oral in diet	reproduction	1330	133	ATSDR 1995b
Diethylphthalate	mouse	0.03	105 days	oral in diet	reproduction	45830	4583	Sample et al. 1996
Di-n-butylphthalate	mouse	0.03	105 days	oral in diet	reproduction	1833	550	Sample et al. 1996
Di-n-octylphthalate	mouse	0.03	105 days	oral in diet	reproduction	550	55	Sample et al. 1996
Fluoranthene	mouse	0.03	13 weeks	oral (gavage)	hepatic	1250	125	ATSDR 1995b
Fluorene	mouse	0.03	13 weeks	oral (gavage)	hematological	1250	125	ATSDR 1995b
Hexachloro-1,3-butadiene	rat	0.35	90 days +	oral	reproduction	20	2	IPCS 1994
Hexachlorobenzene	rat	0.35	2 years	oral	reproduction	16	1.6	ATSDR 1989
Hexachlorocyclopentadiene	rat	0.35	GD 6-15	oral	reproduction	30	10	USEPA 1984

**TABLE 4-4**  
 Ingestion Screening Values for Mammals  
*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

Chemical	Test Organism	Body Weight (kg)	Duration	Exposure Route	Effect/Endpoint	LOAEL (mg/kg/d)	NOAEL (mg/kg/d)	Reference
<b>Semivolatile Organics</b>								
Hexachloroethane	--	--	--	--	--	NA	NA	--
Indeno(1,2,3-cd)pyrene	mouse	0.03	GD 7-16	oral (intubation)	reproduction	10	1	Sample et al. 1996
Naphthalene	mouse	0.03	13 weeks	oral (gavage)	reproduction	1400	140	ATSDR 1995c
N-Nitrosodiphenylamine	rat	0.35	8 to 11 weeks	oral in diet	systemic	1500	150	ATSDR 1993b
Pentachlorophenol	rat	0.35	up to 24 months	oral in diet	reproduction	30	3	Coulston and Kolbye 1994
Phenanthrene	mouse	0.03	19 to 29 days	oral in diet	reproduction	1330	133	ATSDR 1995b
Pyrene	mouse	0.03	19 to 29 days	oral in diet	reproduction	1330	133	ATSDR 1995b
<b>Volatile Organics</b>								
Carbon Tetrachloride	rat	0.35	2 years	oral in diet	reproduction	160	16	Sample et al. 1996
Chlorobenzene	dog	12.7	chronic	?	liver	273	27.3	IRIS 1998
Chloroform	rat	0.35	13 weeks	oral (intubation)	systemic	410	150	Sample et al. 1996
Ethylbenzene	rat	0.35	chronic	?	liver/kidney	971	97.1	Wolf et al. 1956
Styrene	rat	0.35	?	?	?	350	35	Beliles et al. 1985
	dog	12.7	chronic	?	blood/liver	400	200	IRIS 1998
Tetrachloroethene	mouse	0.03	6 weeks	oral (gavage)	hepatotoxicity	70	14	Sample et al. 1996
Toluene	mouse	0.03	GD 6-12	oral (gavage)	reproduction	260	26	Sample et al. 1996
Trichloroethene	rat	0.35	?	oral	reproduction	10000	1000	Coulston and Kolbye 1994
Xylenes (total)	mouse	0.03	GD 6-15	oral (gavage)	reproduction	2.6	2.1	Sample et al. 1996

TABLE 4-5  
 Ingestion Screening Values for Birds  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Chemical	Test Organism	Body Weight (kg)	Duration	Exposure Route	Effect/Endpoint	LOAEL (mg/kg/d)	NOAEL (mg/kg/d)	Reference
<b>Inorganics</b>								
Aluminum	ringed dove	0.155	4 months	oral in diet	reproduction	1097	109.7	Sample et al. 1996
Antimony	northern bobwhite	0.19	6 weeks	oral	?	47400	4740	Opresko et al. 1993
Arsenic	brown-headed cowbird	0.049	7 months	oral in diet	mortality	7.38	2.46	Sample et al. 1996
	mallard	1	128 days	oral in diet	mortality	12.84	5.14	Sample et al. 1996
Barium	chicks	0.121	4 weeks	oral in diet	mortality	417	208	Sample et al. 1996
Beryllium	--	--	--	--	--	NA	NA	--
Cadmium	mallard	1.153	90 days	oral in diet	reproduction	20	1.45	Sample et al. 1996
Chromium	American black duck	1.25	10 months	oral in diet	reproduction	5	1	Sample et al. 1996
Cobalt	chicken	1.8	14 days	oral in diet	growth	14.7	1.47	Diaz et al. 1994
Copper	chicks	0.534	10 weeks	oral in diet	growth/mortality	61.7	47	Sample et al. 1996
Iron	chicken	1.6	?	oral	maximum tolerance level	1000	100	NAS 1980
Lead	Japanese quail	0.15	12 weeks	oral in diet	reproduction	11.3	1.13	Sample et al. 1996
	American kestrel	0.13	7 months	oral in diet	reproduction	38.5	3.85	Sample et al. 1996
Manganese	Japanese quail	0.072	75 days	oral in diet	growth/behavior	9770	977	Sample et al. 1996
Mercury	Japanese quail	0.15	1 year	oral in diet	reproduction	0.9	0.45	Sample et al. 1996
	mallard	1	3 generations	oral in diet	reproduction	0.064	0.0064	Sample et al. 1996
Nickel	mallard	0.782	90 days	oral in diet	growth/mortality	107	77.4	Sample et al. 1996
Selenium	mallard	1	100 days	oral in diet	reproduction	0.8	0.4	Sample et al. 1996
	screech owl	0.2	13.7 weeks	oral in diet	reproduction	1.5	0.44	Sample et al. 1996
Silver	--	--	--	--	--	NA	NA	--
Thallium	--	--	--	--	--	NA	NA	--
Vanadium	mallard	1.17	12 weeks	oral in diet	growth/mortality	114	11.4	Sample et al. 1996
Zinc	chicken	1.935	44 weeks	oral in diet	reproduction	131	14.5	Sample et al. 1996

TABLE 4-5  
 Ingestion Screening Values for Birds  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Chemical	Test Organism	Body Weight (kg)	Duration	Exposure Route	Effect/Endpoint	LOAEL (mg/kg/d)	NOAEL (mg/kg/d)	Reference
<b>PCB/Pesticides</b>								
4,4'-DDD	mallard	1.134	chronic	oral	reproduction	5.2	0.52	Stickel 1973
	American kestrel	0.115	2 years	oral	reproduction	0.5	0.05	McLane and Hall 1972
4,4'-DDE	brown pelican	3.5	chronic	oral	reproduction	1.31	0.131	Beyer et al. 1996
	American kestrel	0.115	2 years	oral	reproduction	0.5	0.05	McLane and Hall 1972
4,4'-DDT	mallard	1.134	chronic	oral	reproduction	1.04	0.104	Davison and Sell 1974
	American kestrel	0.115	2 years	oral	reproduction	0.5	0.05	McLane and Hall 1972
Aldrin	mallard	1.134	chronic	oral	mortality	5	0.5	Tucker and Crabtree 1970
alpha-BHC	Japanese quail	0.15	90 days	oral in diet	reproduction	2.25	0.56	Sample et al. 1996
alpha-Chlordane	red-winged blackbird	0.064	84 days	oral in diet	mortality	10.7	2.14	Sample et al. 1996
Aroclor-1016	screech owl	0.181	2 generations	oral in diet	reproduction	4.1	0.41	Sample et al. 1996
Aroclor-1221	screech owl	0.181	2 generations	oral in diet	reproduction	4.1	0.41	Sample et al. 1996
Aroclor-1232	screech owl	0.181	2 generations	oral in diet	reproduction	4.1	0.41	Sample et al. 1996
Aroclor-1242	screech owl	0.181	2 generations	oral in diet	reproduction	4.1	0.41	Sample et al. 1996
Aroclor-1248	ring-necked pheasant	1	17 weeks	oral	reproduction	1.8	0.18	Sample et al. 1996
Aroclor-1254	ring-necked pheasant	1	17 weeks	oral	reproduction	1.8	0.18	Sample et al. 1996
Aroclor-1260	ring-necked pheasant	1	17 weeks	oral	reproduction	1.8	0.18	Sample et al. 1996
beta-BHC	Japanese quail	0.15	90 days	oral in diet	reproduction	2.25	0.56	Sample et al. 1996
delta-BHC	Japanese quail	0.15	90 days	oral in diet	reproduction	2.25	0.56	Sample et al. 1996
Dieldrin	barn owl	0.466	2 years	oral in diet	reproduction	0.77	0.077	Sample et al. 1996
Endosulfan I	gray partridge	0.4	4 weeks	oral in diet	reproduction	100	10	Sample et al. 1996
Endosulfan II	gray partridge	0.4	4 weeks	oral in diet	reproduction	100	10	Sample et al. 1996
Endosulfan Sulfate	gray partridge	0.4	4 weeks	oral in diet	reproduction	100	10	Sample et al. 1996
Endrin	mallard	1.15	>200 days	oral in diet	reproduction	3	0.3	Sample et al. 1996
	screech owl	0.181	>83 days	oral in diet	reproduction	0.1	0.01	Sample et al. 1996
Endrin Aldehyde	mallard	1.15	>200 days	oral in diet	reproduction	3	0.3	Sample et al. 1996
	screech owl	0.181	>83 days	oral in diet	reproduction	0.1	0.01	Sample et al. 1996
Endrin Ketone	mallard	1.15	>200 days	oral in diet	reproduction	3	0.3	Sample et al. 1996
	screech owl	0.181	>83 days	oral in diet	reproduction	0.1	0.01	Sample et al. 1996
Gamma-BHC (Lindane)	mallard	1	8 weeks	oral (intubation)	reproduction	20	2	Sample et al. 1996
Gamma-Chlordane	red-winged blackbird	0.064	84 days	oral in diet	mortality	10.7	2.14	Sample et al. 1996
Heptachlor	quail	0.191	5 days	oral in diet	mortality	4.05	0.405	Hill et al. 1975
Heptachlor Epoxide	quail	0.191	5 days	oral in diet	mortality	4.05	0.405	Hill et al. 1975
Methoxychlor	quail	0.191	5 days	oral in diet	mortality	4050	405	Hill and Camardese 1986
Toxaphene	mallard	1.043	5 days	oral in diet	mortality	3.07	0.307	Hill and Camardese 1986

TABLE 4-5  
 Ingestion Screening Values for Birds  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Chemical	Test Organism	Body Weight (kg)	Duration	Exposure Route	Effect/Endpoint	LOAEL (mg/kg/d)	NOAEL (mg/kg/d)	Reference
<b>Semivolatile Organics</b>								
1,2,4-Trichlorobenzene	--	--	--	--	--	NA	NA	--
1,2-Dichlorobenzene	northern bobwhite	0.157	14 days	oral (gavage)	growth/mortality	2500	250	Grimes and Jaber 1989
1,3-Dichlorobenzene	northern bobwhite	0.157	14 days	oral (gavage)	growth/mortality	2500	250	Grimes and Jaber 1989
1,4-Dichlorobenzene	northern bobwhite	0.157	14 days	oral (gavage)	growth/mortality	2500	250	Grimes and Jaber 1989
2,4,5-Trichlorophenol	--	--	--	--	--	NA	NA	--
2,4,6-Trichlorophenol	--	--	--	--	--	NA	NA	--
2,4-Dichlorophenol	--	--	--	--	--	NA	NA	--
2-Chloronaphthalene	--	--	--	--	--	NA	NA	--
2-Methylnaphthalene	--	--	--	--	--	NA	NA	--
3,3'-Dichlorobenzidine	--	--	--	--	--	NA	NA	--
4-Bromophenyl-Phenylether	--	--	--	--	--	NA	NA	--
4-Chloro-3-Methylphenol	--	--	--	--	--	NA	NA	--
4-Chlorophenyl-Phenylether	--	--	--	--	--	NA	NA	--
Acenaphthene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Acenaphthylene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Anthracene	mallard	1.043	7 months	oral in diet	hepatic	228	22.8	Patton and Dieter 1980
Benzo(a)anthracene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Benzo(a)pyrene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Benzo(b)fluoranthene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Benzo(g,h,i)perylene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Benzo(k)fluoranthene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Bis-(2-Ethylhexyl)phthalate	ringed dove	0.155	4 weeks	oral in diet	reproduction	11	1.1	Sample et al. 1996
Butylbenzylphthalate	--	--	--	--	--	NA	NA	--
Carbazole	--	--	--	--	--	NA	NA	--
Chrysene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Dibenz(a,h)anthracene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Dibenzofuran	--	--	--	--	--	NA	NA	--
Diethylphthalate	--	--	--	--	--	NA	NA	--
Di-n-butylphthalate	ringed dove	0.155	4 weeks	oral in diet	reproduction	1.1	0.11	Sample et al. 1996
Di-n-octylphthalate	ring-necked pheasant	1	?	?	mortality	500	50	TERRETOX 1998

**TABLE 4-5**  
 Ingestion Screening Values for Birds  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Chemical	Test Organism	Body Weight (kg)	Duration	Exposure Route	Effect/Endpoint	LOAEL (mg/kg/d)	NOAEL (mg/kg/d)	Reference
<b>Semivolatile Organics</b>								
Fluoranthene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Fluorene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Hexachloro-1,3-butadiene	Japanese quail	0.19	90 days	oral	reproduction	8	2.5	Coulston and Kolbye 1994; IPCS 1994
Hexachlorobenzene	Japanese quail	0.19	?	oral	reproduction	0.8	0.08	Coulston and Kolbye 1994
Hexachlorocyclopentadiene	--	--	--	--	--	NA	NA	--
Hexachloroethane	--	--	--	--	--	NA	NA	--
Indeno(1,2,3-cd)pyrene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Naphthalene	mallard	1.04	7 months	oral in diet	hepatic	228	22.8	Patton and Dieter 1980
N-Nitrosodiphenylamine	--	--	--	--	--	NA	NA	--
Pentachlorophenol	chicken	1.5	8 weeks	oral	growth	200	100	Eisler 1989
Phenanthrene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Pyrene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
<b>Volatile Organics</b>								
Carbon Tetrachloride	--	--	--	--	--	NA	NA	--
Chlorobenzene	--	--	--	--	--	NA	NA	--
Chloroform	--	--	--	--	--	NA	NA	--
Ethylbenzene	--	--	--	--	--	NA	NA	--
Styrene	--	--	--	--	--	NA	NA	--
Tetrachloroethene	--	--	--	--	--	NA	NA	--
Toluene	--	--	--	--	--	NA	NA	--
Trichloroethene	--	--	--	--	--	NA	NA	--
Xylenes (total)	quail	0.191	subacute	?	"toxicity"	405	40.5	Hill and Camardese 1986

TABLE 4-6  
 Results of Rad-BCG Screening, KCK Sediment Maximum Concentrations  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Nuclide	Water (pCi/L)		Sediment (pCi/g)	
	Partial Fraction	Source of Calculation	Partial Fraction	Source of Calculation
Am-241				
Ce-144				
Cs-135				
Cs-137	3.4E-02	RA-Lumped, Default	2.3E-04	RA-Lumped, Default
Co-60				
Eu-154				
Eu-155				
H-3				
I-129				
I-131				
Pu-239				
Ra-226	1.9E+02	RA-Lumped, Default	5.3E-01	RA-Lumped, Default
Ra-228	2.8E+03	RA-Lumped, Default	7.5E+00	RA-Lumped, Default
Sb-125				
Sr-90				
Tc-99				
Th-232	3.6E-02	AA Default BiV	5.0E-01	RA-Lumped, Default
U-233				
U-234	4.7E-01	AA Default BiV	8.9E-03	RA-Lumped, Default
U-235	4.0E-01	AA Default BiV	1.2E-03	RA-Lumped, Default
U-238	3.8E+00	AA Default BiV	1.7E-02	RA-Lumped, Default
Zn-65				
Zr-95				
Partial fractions	2.9E+03		8.5E+00	
Total sum of fractions (water and sediment):				3.0E+03
Result:	You have failed the site screen			

RA: Riparian Animal  
 AA: Aquatic Animal  
 BiV: Bioaccumulation value



TABLE 4-7  
 Results of Rad-BCG Screening, KCK Sediment Mean Concentrations  
*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

Nuclide	Water (pCi/L)		Sediment (pCi/g)	
	Partial Fraction	Source of Calculation	Partial Fraction	Source of Calculation
Am-241				
Ce-144				
Cs-135				
Cs-137	6.5E-03	RA-Lumped, Default	4.4E-05	RA-Lumped, Default
Co-60				
Eu-154				
Eu-155				
H-3				
I-129				
I-131				
Pu-239				
Ra-226	1.4E+01	RA-Lumped, Default	3.9E-02	RA-Lumped, Default
Ra-228	1.2E+02	RA-Lumped, Default	3.2E-01	RA-Lumped, Default
Sb-125				
Sr-90				
Tc-99				
Th-232	1.5E-03	AA Default BiV	2.1E-02	RA-Lumped, Default
U-233				
U-234	3.5E-01	AA Default BiV	6.6E-04	RA-Lumped, Default
U-235	3.2E-02	AA Default BiV	9.4E-05	RA-Lumped, Default
U-238	3.1E-01	AA Default BiV	1.4E-03	RA-Lumped, Default
Zn-65				
Zr-95				
Partial fractions	1.3E+02		3.9E-01	
Total sum of fractions (water and sediment):				1.3E+02
Result:	You have failed the site screen			

RA: Riparian Animal  
 AA: Aquatic Animal  
 BiV: Bioaccumulation value

TABLE 4-8  
 Comparison of Concentrations of Detected Analytes in KCK Sediment to Ecological Benchmark Values  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

ParamName	Units	Maximum Detection	Arithmetic Mean Concentration (1/2 ND)	Screening Criteria	Number of Analyses	Number of Detections	Number of Detections Exceeding Criteria	Detection Frequency (%)	Maximum Hazard Quotient	Mean Hazard Quotient	COPC?	Criteria Source
<b>Metals</b>												
Aluminum	mg/kg	17300	7406.32	58030	93	93	0	100	0.30	0.13	No	PEC <sup>a</sup>
Arsenic	mg/kg	177	13.16	6	93	86	47	92	29.50	2.19	Yes	LEL <sup>a</sup>
Cadmium	mg/kg	2.6	0.24	0.59	93	5	2	5	4.41	0.41	Yes	TEC <sup>a</sup>
Chromium, Total	mg/kg	43.4	14.07	26	93	83	11	89	1.67	0.54	Yes	LEL <sup>a</sup>
Copper	mg/kg	2870	84.85	16	93	66	35	71	179.38	5.30	Yes	LEL <sup>a</sup>
Iron	mg/kg	46700	16139.35	188400	93	93	0	100	0.25	0.09	No	Lowest ARCs TEL (NOAA SQRT)
Lead	mg/kg	3096	80.96	31	93	93	32	100	99.87	2.61	Yes	LEL <sup>a</sup>
Manganese	mg/kg	2690	640.43	460	93	93	59	100	5.85	1.39	Yes	LEL <sup>a</sup>
Mercury	mg/kg	2	0.09	0.15	93	31	10	33	13.33	0.57	Yes	ER-L <sup>b</sup>
Nickel	mg/kg	54.2	12.22	16	93	74	24	80	3.39	0.76	Yes	LEL <sup>a</sup>
Silver	mg/kg	3	0.67	1	82	10	6	12	3.00	0.67	Yes	ER-L <sup>b</sup>
Zinc	mg/kg	2480	137.66	120	93	89	24	96	20.67	1.15	Yes	LEL <sup>a</sup>
<b>Semivolatiles</b>												
2-Methylnaphthalene	mg/kg	0.097	0.19	0.07	6	1	1	17	1.39	2.73	Yes	ER-L <sup>a</sup>
Acenaphthene	mg/kg	0.051	0.18	0.016	6	1	1	17	3.19	11.47	Yes	ER-L <sup>b</sup>
Acenaphthylene	mg/kg	0.48	0.26	0.044	6	1	1	17	10.91	5.80	Yes	ER-L <sup>a</sup>
Anthracene	mg/kg	0.92	0.30	0.027	6	3	3	50	34.07	11.05	Yes	LCV <sup>a</sup>
Benzo(a)Anthracene	mg/kg	1.8	0.49	0.11	6	2	2	33	16.36	4.42	Yes	SCV <sup>a</sup>
Benzo(a)Pyrene	mg/kg	0.69	0.29	0.14	6	1	1	17	4.93	2.07	Yes	SCV <sup>a</sup>
Bis(2-Ethylhexyl) Phthalate	mg/kg	0.078	0.19	890	6	1	0	17	0.00	0.00	No	ORNL
Chrysene	mg/kg	1.6	0.43	0.34	6	3	1	50	4.71	1.25	Yes	LEL <sup>a</sup>
Dibenzofuran	mg/kg	0.29	0.22	2	6	1	0	17	0.15	0.11	No	SQB <sup>b</sup>
Di-n-Butyl Phthalate	mg/kg	0.18	0.21	11	6	1	0	17	0.02	0.02	No	SCV <sup>a</sup>
Fluoranthene	mg/kg	2.7	0.69	0.6	6	3	2	50	4.50	1.15	Yes	ER-L <sup>b</sup>
Fluorene	mg/kg	0.74	0.27	0.019	6	2	2	33	38.95	14.40	Yes	ER-L <sup>b</sup>
Indeno(1,2,3-c,d)Pyrene	mg/kg	0.77	0.30	0.078	6	1	1	17	9.87	3.89	Yes	TEC <sup>a</sup>
Naphthalene	mg/kg	0.11	0.19	0.033	6	1	1	17	3.33	5.86	Yes	TEC <sup>a</sup>
Phenanthrene	mg/kg	2.9	0.71	0.24	6	3	2	50	12.08	2.95	Yes	ER-L <sup>b</sup>
Pyrene	mg/kg	1.9	0.48	0.49	6	3	1	50	3.88	0.99	Yes	LEL <sup>a</sup>

TABLE 4-8  
 Comparison of Concentrations of Detected Analytes in KCK Sediment to Ecological Benchmark Values  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

ParamName	Units	Maximum Detection	Arithmetic Mean Concentration (1/2 ND)	Screening Criteria	Number of Analyses	Number of Detections	Number of Detections Exceeding Criteria	Detection Frequency (%)	Maximum Hazard Quotient	Mean Hazard Quotient	COPC?	Criteria Source
<b>Volatiles</b>												
1,2,4-Trichlorobenzene	mg/kg	0.058	0.18	9.6	6	1	0	17	0.01	0.02	No	SCV <sup>a</sup>
<b>Pesticides/PCBs</b>												
p,p'-DDD	mg/kg	0.28	0.05	0.002	6	2	2	33	140.00	25.26	Yes	ER-L <sup>a</sup>
Aroclor 1260	mg/kg	2	0.35	0.0023	6	1	1	17	869.57	152.54	Yes	ER-L <sup>a</sup> - Total PCB
<b>Radionuclides</b>												
Cs-137	pCi/g	0.73	0.14	NA	21	21	NA	100	NA	NA	NA	NA
Ra-226	pCi/g	53.6	3.97	NA	153	116	NA	76	NA	NA	NA	NA
Ra-228	pCi/g	653	28.30	NA	114	114	NA	100	NA	NA	NA	NA
Th-232	pCi/g	654	27.40	NA	125	125	NA	100	NA	NA	NA	NA
U-234	pCi/g	47.1	3.50	NA	90	73	NA	81	NA	NA	NA	NA
U-235	pCi/g	4.38	0.35	NA	115	115	NA	100	NA	NA	NA	NA
U-238	pCi/g	42.6	3.51	NA	125	125	NA	100	NA	NA	NA	NA

NA: Not applicable; radionuclides were screened using DOE's RAD-BCG model

<sup>a</sup> As reported in Jones et al. 1997; SCV - Secondary Chronic Value, LCV - Lowest Chronic Value (Suter and Tsao 1996), LEL - Lowest Effect Level (Persaud et al. 1993), ER-L - Effects Range - Low (Long et al. 1995), TEC - Threshold Effect Concentration, PEC - Possible Effects Concentration (USEPA 1996)

<sup>b</sup> As reported in U.S. EPA Ecotox, 1996; SQC - Sediment Quality Criteria, SQB - Sediment Quality Benchmark (U.S. EPA, 1995), ER-L (Long et al., 1995)

NOAA SQRT -- Screening Quick Reference Tables NOAA 1999.

TABLE 4-9

Comparison of Concentrations of Detected Analytes in KCK Surface Water to Ecological Benchmark Values  
*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

ParamName	Units	Maximum Detection	Arithmetic Mean Concentration (1/2 ND)	Screening Criteria	Number of Analyses	Number of Detections	Number of Detections Exceeding Criteria	Detection Frequency	Maximum Hazard Quotient	Mean Hazard Quotient	COPC?	Criteria Source
<b>Metals</b>												
Barium	ug/L	107	80.57	3.9	12	12	12	100	27.44	20.66	Yes	Tier II <sup>a</sup>
Cobalt	ug/L	4.3	1.50	3	12	1	1	8	1.43	0.50	Yes	Tier II <sup>a</sup>
Copper	ug/L	14.5	7.85	0.23	12	10	10	83	63.04	34.13	Yes	LCV <sup>b</sup>
Lead	ug/L	10.4	5.00	3.2	12	5	5	42	3.25	1.56	Yes	AWQC <sup>a</sup>
Nickel	ug/L	7	3.21	5	12	1	1	8	1.40	0.64	Yes	LCV <sup>b</sup>
Vanadium	ug/L	9	5.68	19	12	11	0	92	0.47	0.30	No	Tier II <sup>a</sup>

<sup>a</sup> USEPA 1996; AWQC = National ambient water quality criteria; Tier II = Values calculated using Great Lakes Water Quality Initiative Tier II methodology.

<sup>b</sup> ORNL = Oak Ridge National Laboratory (Suter and Tsao 1996); LCV - Lowest Chronic Value; Tier II = Values calculated using GLWQI Tier II methodology.

TABLE 4-10

SERA Food Web Model Results for KCK

*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

Chemical	Raccoon			Mink			Great Blue heron			Mallard		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
<b>Inorganics</b>												
Aluminum	0.74	0.15	0.33	<b>10.26</b>	2.05	4.59	<b>31.43</b>	<b>6.29</b>	<b>14.06</b>	1.57	0.31	0.70
Antimony	<b>1.01</b>	0.20	0.45	<b>4.06</b>	0.81	<b>1.82</b>	NA	NA	NA	NA	NA	NA
Arsenic	0.18	0.04	0.08	0.72	0.14	0.32	<b>1.19</b>	0.48	0.75	<b>2.37</b>	0.95	<b>1.50</b>
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.01	<0.01	<0.01	0.03	<0.01	0.01	0.08	<0.01	0.02	0.39	0.03	0.10
Chromium	0.03	<0.01	0.01	0.04	<0.01	0.02	0.85	0.17	0.38	<b>1.01</b>	0.20	0.45
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	0.29	0.22	0.25	<b>1.02</b>	0.79	0.90	<b>1.81</b>	<b>1.38</b>	<b>1.58</b>	<b>2.56</b>	<b>1.95</b>	<b>2.24</b>
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	<b>1.19</b>	0.12	0.37	<b>1.82</b>	0.18	0.58	<b>21.73</b>	<b>4.35</b>	<b>9.72</b>	<b>150.81</b>	<b>15.08</b>	<b>47.69</b>
Manganese	0.25	0.08	0.14	<b>1.03</b>	0.32	0.57	0.58	0.12	0.26	0.26	0.05	0.12
Mercury	0.32	0.19	0.24	<b>1.88</b>	<b>1.13</b>	<b>1.46</b>	<b>69.39</b>	<b>23.13</b>	<b>40.06</b>	<b>38.31</b>	<b>12.77</b>	<b>22.12</b>
Nickel	<0.01	<0.01	<0.01	0.06	0.03	0.04	0.14	0.10	0.12	0.07	0.05	0.06
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	0.23	0.05	0.10	0.71	0.14	0.32	<b>6.78</b>	0.75	<b>2.25</b>	<b>19.82</b>	<b>2.19</b>	<b>6.60</b>
<b>Pesticides/PCBs</b>												
4,4'-DDD	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.42	0.04	0.13	0.26	0.05	0.12
Aroclor-1260	<b>2.25</b>	0.46	<b>1.01</b>	<b>6.60</b>	<b>1.34</b>	<b>2.97</b>	<b>3.56</b>	0.71	<b>1.59</b>	<b>2.22</b>	0.44	0.99

TABLE 4-10

SERA Food Web Model Results for KCK

*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

Chemical	Raccoon			Mink			Great Blue heron			Mallard		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
<b>Semivolatile Organics</b>												
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.01	<0.01	<0.01
Anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene	0.05	0.01	0.02	0.06	0.01	0.03	0.07	0.01	0.03	0.17	0.03	0.08
Benzo(a)pyrene	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.02	<0.01	<0.01
bis(2-Ethylhexyl)phthalate	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene	<b>109.12</b>	<b>21.82</b>	<b>48.80</b>	<b>78.47</b>	<b>15.69</b>	<b>35.09</b>	<b>48.13</b>	<b>9.63</b>	<b>21.52</b>	<b>349.31</b>	<b>69.86</b>	<b>156.22</b>
Di-n-butylphthalate	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.17	0.03	0.08	0.07	0.01	0.03
Fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.17	0.03	0.07	0.66	0.13	0.30
Fluorene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthalene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.08	0.02	0.04	0.02	<0.01	0.01
Pyrene	<b>283.50</b>	<b>56.70</b>	<b>126.78</b>	<b>203.84</b>	<b>40.77</b>	<b>91.16</b>	<b>124.98</b>	<b>25.00</b>	<b>55.89</b>	<b>907.49</b>	<b>181.50</b>	<b>405.84</b>
<b>Volatile Organics</b>												
1,2,4-Trichlorobenzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Bolded HQs indicate exceedance of 1.0

TABLE 4-11

Results of Rad-BCG Screening, STP River Sediments and Surface Water Maximum Concentrations  
*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

Nuclide	Water (pCi/L)		Sediment (pCi/g)	
	Partial Fraction	Source of Calculation	Partial Fraction	Source of Calculation
Ce-144				
Cs-135				
Cs-137				
Co-60				
Eu-154				
Eu-155				
H-3				
I-129				
I-131				
Pu-239				
Ra-226	2.0E-01	RA-Lumped, Default	4.7E-02	RA-Lumped, Default
Ra-228	3.7E-01	RA-Lumped, Default	1.2E+00	RA-Lumped, Default
Sb-125				
Sr-90				
Tc-99				
Th-232	5.7E-04	AA Default BiV	7.6E-02	RA-Lumped, Default
U-233				
U-234	2.8E-03	AA Default BiV	1.8E-03	RA-Lumped, Default
U-235	1.7E-04	AA Default BiV	7.6E-05	RA-Lumped, Default
U-238	2.6E-03	AA Default BiV	2.4E-03	RA-Lumped, Default
Zn-65				
Zr-95				
Partial fractions	5.8E-01		1.4E+00	
Total sum of fractions (water and sediment):				2.0E+00
Result:	You have failed the site screen			

RA: Riparian Animal

AA: Aquatic Animal

BiV: Bioaccumulation value

TABLE 4-12

Results of Rad-BCG Screening, STP River Sediments and Surface Water Mean Concentrations  
*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

Nuclide	Water (pCi/L)		Sediment (pCi/g)	
	Partial Fraction	Source of Calculation	Partial Fraction	Source of Calculation
Ce-144				
Cs-135				
Cs-137				
Co-60				
Eu-154				
Eu-155				
H-3				
I-129				
I-131				
Pu-239				
Ra-226	1.1E-01	RA-Lumped, Default	1.3E-02	RA-Lumped, Default
Ra-228	1.8E-01	RA-Lumped, Default	7.3E-02	RA-Lumped, Default
Sb-125				
Sr-90				
Tc-99				
Th-232	3.3E-04	AA Default BiV	5.1E-03	RA-Lumped, Default
U-233				
U-234	1.9E-03	AA Default BiV	2.0E-04	RA-Lumped, Default
U-235	9.2E-05	AA Default BiV	1.3E-05	RA-Lumped, Default
U-238	1.5E-03	AA Default BiV	4.6E-04	RA-Lumped, Default
Zn-65				
Zr-95				
Partial fractions	2.9E-01		9.2E-02	
Total sum of fractions (water and sediment):				3.8E-01
Result:	You have passed the site screen			

RA: Riparian Animal

AA: Aquatic Animal

BiV: Bioaccumulation value



TABLE 4-13

Comparison of Concentrations of Detected Analytes in STP River Sediment to Ecological Benchmark Values

Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

ParamName	Units	Maximum Detection	Arithmetic Mean Concentration	Screening Criteria	Number of Analyses	Number of Detections	Number of Detections Exceeding Criteria	Detection Frequency (%)	Maximum Hazard Quotient	Mean Hazard Quotient	COPC?	Criteria Source
<b>Metals</b>												
Aluminum	mg/kg	13500	5040.51	58030	39	39	0	100	0.23	0.09	No	PEC <sup>a</sup>
Antimony	mg/kg	12.1	2.93	3000	31	4	0	13	0.00	0.00	No	UET (NOAA SQRT)
Arsenic	mg/kg	31.6	8.60	6	39	39	24	100	5.27	1.43	Yes	LEL <sup>a</sup>
Cadmium	mg/kg	0.75	0.20	0.59	39	6	2	15	1.27	0.33	Yes	TEC <sup>a</sup>
Chromium, Total	mg/kg	36.9	11.29	26	39	30	2	77	1.42	0.43	Yes	LEL <sup>a</sup>
Copper	mg/kg	79.3	21.17	16	39	32	15	82	4.96	1.32	Yes	LEL <sup>a</sup>
Iron	mg/kg	51700	17368.21	188400	39	39	0	100	0.27	0.09	No	Lowest ARCs TEL (NOAA SQRT)
Manganese	mg/kg	1630	580.26	460	39	39	22	100	3.54	1.26	Yes	LEL <sup>a</sup>
Mercury	mg/kg	3.7	0.15	0.15	39	8	4	21	24.67	1.00	Yes	ER-L <sup>b</sup>
Nickel	mg/kg	28.1	12.15	16	39	39	14	100	1.76	0.76	Yes	LEL <sup>a</sup>
Silver	mg/kg	2.4	0.74	1	39	7	7	18	2.40	0.74	Yes	ER-L <sup>b</sup>
Zinc	mg/kg	207	70.11	120	39	36	11	92	1.73	0.58	Yes	LEL <sup>a</sup>
<b>Semivolatiles</b>												
Benzo(a)Anthracene	mg/kg	0.17	0.17	0.11	3	2	2	67	1.55	1.56	Yes	SCV <sup>a</sup>
Benzo(a)Pyrene	mg/kg	0.099	0.12	0.14	3	2	0	67	0.71	0.86	No	SCV <sup>a</sup>
Chrysene	mg/kg	0.18	0.18	0.34	3	2	0	67	0.53	0.53	No	LEL <sup>a</sup>
Fluoranthene	mg/kg	0.56	0.41	0.6	3	2	0	67	0.93	0.68	No	ER-L <sup>b</sup>
Fluorene	mg/kg	0.05	0.12	0.019	2	1	1	50	2.63	6.45	Yes	ER-L <sup>b</sup>
Indeno(1,2,3-c,d)Pyrene	mg/kg	0.079	0.12	0.078	3	2	1	67	1.01	1.50	Yes	TEC <sup>a</sup>
Phenanthrene	mg/kg	0.41	0.33	0.24	3	2	2	67	1.71	1.35	Yes	ER-L <sup>b</sup>
Pyrene	mg/kg	0.46	0.36	0.49	3	2	0	67	0.94	0.72	No	LEL <sup>a</sup>
<b>Volatiles</b>												
Toluene	mg/kg	0.017	0.01	0.67	3	3	0	100	0.03	0.01	No	EPA SQB
<b>Radionuclides</b>												
Ra-226	pCi/g	4.8	1.29	NA	48	34	NA	71	NA	NA	NA	
Ra-228	pCi/g	108.5	6.12	NA	44	44	NA	100	NA	NA	NA	
Th-232	pCi/g	99.2	6.41	NA	48	48	NA	100	NA	NA	NA	
U-234	pCi/g	9.6	1.04	NA	39	38	NA	97	NA	NA	NA	
U-235	pCi/g	0.28	0.05	NA	38	38	NA	100	NA	NA	NA	
U-238	pCi/g	6	1.14	NA	48	48	NA	100	NA	NA	NA	

NA: Not applicable; radionuclides were screened using DOE's RAD-BCG model

<sup>a</sup> As reported in Jones et al. 1997; SCV - Secondary Chronic Value, LCV - Lowest Chronic Value (Suter and Tsao 1996), LEL - Lowest Effect Level (Persaud et al. 1993), ER-L - Effects Range - Low (Long et al. 1995), TEC - Threshold Effect Concentration, PEC - Possible Effects Concentration (USEPA 1996)<sup>b</sup> As reported in USEPA Ecotox 1996; SQC - Sediment Quality Criteria, SQB - Sediment Quality Benchmark (USEPA 1995), ER-L (Long et al. 1995)

NOAA SQRT: Screening Quick Reference Tables, NOAA 1999.

EPA SQB: Sediment quality benchmarks by equilibrium partitioning. Assumes 1 percent organic carbon (USEPA 1995)

TABLE 4-14

Comparison of Concentrations of Detected Analytes in STP River Surface Water to Ecological Benchmark Values  
*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

ParamName	Units	Maximum Detection	Arithmetic Mean Concentration	Screening Criteria	Number of Analyses	Number of Detections	Number of Detections Exceeding Criteria	Detection Frequency (%)	Maximum Hazard Quotient	Mean Hazard Quotient	COPC?	Criteria Source
<b>Metals</b>												
Barium	ug/L	93	78.30	3.9	6	6	6	100	23.85	20.08	Yes	Tier II <sup>a</sup>
Iron	ug/L	6720	3968.33	1000	6	6	6	100	6.72	3.97	Yes	AWQC <sup>a</sup>
Lead	ug/L	13.1	7.22	3.2	6	6	6	100	4.09	2.26	Yes	AWQC <sup>a</sup>
Manganese	ug/L	152	95.20	80	6	6	3	100	1.90	1.19	Yes	Tier II <sup>a</sup>
Nickel	ug/L	11.8	7.23	5	6	3	3	50	2.36	1.45	Yes	LCV <sup>b</sup>
Selenium	ug/L	2.6	1.48	5	6	1	0	17	0.52	0.30	No	AWQC <sup>a</sup>
Thallium	ug/L	2.2	1.10	40	6	1	0	17	0.06	0.03	No	NOAA SQRT
Vanadium	ug/L	8.7	5.85	19	6	6	0	100	0.46	0.31	No	Tier II <sup>a</sup>
Zinc	ug/L	48.6	30.04	30	6	3	3	50	1.62	1.00	Yes	LCV <sup>b</sup>
<b>Radionuclides</b>												
Ra-226	pCi/L	0.822	0.43	NA	6	6	NA	100	NA	NA	NA	
Ra-228	pCi/L	1.247	0.60	NA	5	5	NA	100	NA	NA	NA	
Th-232	pCi/L	0.17	0.10	NA	6	6	NA	100	NA	NA	NA	
U-234	pCi/L	0.572	0.39	NA	6	6	NA	100	NA	NA	NA	
U-235	pCi/L	0.036	0.02	NA	6	6	NA	100	NA	NA	NA	
U-238	pCi/L	0.582	0.34	NA	6	6	NA	100	NA	NA	NA	

NA: Not applicable; radionuclides were screened using DOE's RAD-BCG model

<sup>a</sup> USEPA 1996; AWQC = National ambient water quality criteria; Tier II = Values calculated using Great Lakes Water Quality Initiative Tier II methodology.

<sup>b</sup> ORNL = Oak Ridge National Laboratory (Suter and Tsao 1996); LCV - Lowest Chronic Value; Tier II = Values calculated using GLWQI Tier II methodology.

NOAA SQRT: Screening Quick Reference Tables, NOAA 1999.

TABLE 4-15

SERA Food Web Model Results for STP River

*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

Chemical	Raccoon			Mink			Great blue heron			Mallard		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
<b>Inorganics</b>												
Aluminum	0.57	0.11	0.26	<b>8.01</b>	<b>1.60</b>	<b>3.58</b>	<b>24.53</b>	<b>4.91</b>	<b>10.97</b>	1.22	0.24	0.55
Antimony	0.40	0.08	0.18	<b>1.62</b>	0.32	0.73	NA	NA	NA	NA	NA	NA
Arsenic	0.03	<0.01	0.01	0.13	0.03	0.06	0.21	0.09	0.13	0.42	0.17	0.27
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.11	<0.01	0.03
Chromium	0.02	<0.01	0.01	0.04	<0.01	0.02	0.72	0.14	0.32	0.86	0.17	0.38
Copper	<0.01	<0.01	<0.01	0.03	0.02	0.02	0.05	0.04	0.04	0.07	0.05	0.06
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.02	<0.01	<0.01	0.04	<0.01	0.01	0.45	0.09	0.20	3.12	0.31	0.99
Manganese	0.15	0.05	0.09	0.62	0.19	0.35	0.35	0.07	0.16	0.16	0.03	0.07
Mercury	0.58	0.35	0.45	<b>3.48</b>	<b>2.09</b>	<b>2.69</b>	<b>128.36</b>	<b>42.79</b>	<b>74.11</b>	<b>70.88</b>	<b>23.63</b>	<b>40.92</b>
Nickel	<0.01	<0.01	<0.01	0.03	0.01	0.02	0.07	0.05	0.06	0.04	0.03	0.03
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	0.02	<0.01	<0.01	0.06	0.01	0.03	0.57	0.06	0.19	1.65	0.18	0.55
<b>Semivolatile Organics</b>												
Benzo(a)anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01
Benzo(a)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene	<b>12.28</b>	<b>2.46</b>	<b>5.49</b>	<b>8.83</b>	<b>1.77</b>	<b>3.95</b>	<b>5.41</b>	<b>1.08</b>	<b>2.42</b>	<b>39.30</b>	<b>7.86</b>	<b>17.57</b>
Fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	0.02	0.14	0.03	0.06
Fluorene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene	<b>68.64</b>	<b>13.73</b>	<b>30.70</b>	<b>49.35</b>	<b>9.87</b>	<b>22.07</b>	<b>30.26</b>	<b>6.05</b>	<b>13.53</b>	<b>219.71</b>	<b>43.94</b>	<b>98.26</b>
<b>Volatile Organics</b>												
Toluene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NA	NA	NA	NA	NA	NA

Bolded HQs indicate exceedance of 1.0

TABLE 4-16  
 Results of Rad-BCG Screening, STP Upland Soils Maximum Concentrations  
*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

Nuclide	Water (pCi/L)		Sediment (pCi/g)	
	Partial Fraction	Source of Calculation	Partial Fraction	Source of Calculation
Ce-144				
Cs-135				
Cs-137			7.1E-03	TA-Lumped, Default
Co-60				
Eu-154				
Eu-155				
H-3				
I-129				
I-131				
Pu-239				
Ra-226			2.0E-01	TA-Lumped, Default
Ra-228			1.0E+01	TA-Lumped, Default
Sb-125				
Sr-90				
Tc-99				
Th-232			2.0E-01	TA-Lumped, Default
U-233				
U-234			2.5E-03	TA-Lumped, Default
U-235			2.9E-04	TA-Lumped, Default
U-238			7.6E-03	TA-Lumped, Default
Zn-65				
Zr-95				
Partial fractions			1.1E+01	
Result:	1.1E+01			
You have failed the terrestrial site screen				

TA: Terrestrial Animal

TABLE 4-17  
 Results of Rad-BCG Screening, STP Upland Soils Mean Concentrations  
*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

Nuclide	Water (pCi/L)		Sediment (pCi/g)	
	Partial Fraction	Source of Calculation	Partial Fraction	Source of Calculation
Ce-144				
Cs-135				
Cs-137			2.9E-03	TA-Lumped, Default
Co-60				
Eu-154				
Eu-155				
H-3				
I-129				
I-131				
Pu-239				
Ra-226			3.3E-02	TA-Lumped, Default
Ra-228			1.8E-01	TA-Lumped, Default
Sb-125				
Sr-90				
Tc-99				
Th-232			4.3E-03	TA-Lumped, Default
U-233				
U-234			2.4E-04	TA-Lumped, Default
U-235			2.8E-05	TA-Lumped, Default
U-238			8.3E-04	TA-Lumped, Default
Zn-65				
Zr-95				
Partial fractions			2.2E-01	
Total sum of fractions:	2.2E-01			
You have passed the terrestrial site screen				

TA: Terrestrial Animal

TABLE 4-18

Comparison of Concentrations of Detected Analytes in STP Upland Surface Soil to Ecological Benchmark Values

*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

ParamName	Units	Maximum Detection	Arithmetic Mean Concentration (1/2 ND)	Screening Criteria	Number of Analyses	Number of Detections	Number of Detections Exceeding Criteria	Detection Frequency (%)	Maximum Hazard Quotient	Mean Hazard Quotient	COPC?	Criteria Source
<b>Metals</b>												
Aluminum	mg/kg	19100	9306.40	50	161	161	161	100	382.00	186.13	No*	ORNL
Antimony	mg/kg	12	5.27	5	121	8	7	7	2.40	1.05	No*	ORNL
Arsenic	mg/kg	90.7	16.84	9.9	161	161	103	100	9.16	1.70	Yes	ORNL
Barium	mg/kg	514	105.79	283	161	161	5	100	1.82	0.37	Yes	ORNL
Beryllium	mg/kg	2.2	0.47	10	161	28	0	17	0.22	0.05	No	ORNL
Cadmium	mg/kg	3.4	0.67	4	161	18	0	11	0.85	0.17	No	ORNL
Chromium, Total	mg/kg	68.9	16.00	0.4	161	161	161	100	172.25	40.01	Yes	ORNL
Cobalt	mg/kg	35	7.48	20	161	155	1	96	1.75	0.37	Yes	ORNL
Copper	mg/kg	591	48.18	60	161	161	29	100	9.85	0.80	Yes	ORNL
Iron	mg/kg	67500	22561.30	200	161	161	161	100	337.50	112.81	Yes	ORNL
Lead	mg/kg	1160	52.37	40.5	161	161	47	100	28.64	1.29	Yes	ORNL
Manganese	mg/kg	2140	540.66	100	161	161	161	100	21.40	5.41	Yes	ORNL
Mercury	mg/kg	2.7	0.17	0.0005	161	66	66	41	5400.00	349.12	Yes	ORNL
Nickel	mg/kg	47.1	18.51	30	161	151	6	94	1.57	0.62	Yes	ORNL
Selenium	mg/kg	1.5	0.42	0.21	161	11	11	7	7.14	1.99	Yes	ORNL
Silver	mg/kg	19.7	1.09	2	161	10	6	6	9.85	0.55	Yes	ORNL
Thallium	mg/kg	2.2	0.40	1	161	2	1	1	2.20	0.40	No	ORNL
Vanadium	mg/kg	41.7	22.48	2	161	161	161	100	20.85	11.24	Yes	ORNL
Zinc	mg/kg	1400	115.95	8.5	161	161	161	100	164.71	13.64	Yes	ORNL
<b>Semivolatiles</b>												
Anthracene	mg/kg	0.13	0.19	0.1	22	2	1	9	1.30	1.86	Yes	Beyer 1990
Benzo(a)Anthracene	mg/kg	0.46	0.18	0.1	22	10	3	45	4.60	1.79	Yes	Beyer 1990 (surrogate)
Benzo(a)Pyrene	mg/kg	0.31	0.18	0.1	22	5	2	23	3.10	1.83	Yes	Beyer 1990
Benzo(b)Fluoranthene	mg/kg	0.74	0.22	0.1	22	9	6	41	7.40	2.19	Yes	Beyer 1990 (surrogate)
Benzo(g,h,i)Perylene	mg/kg	0.24	0.20	0.1	22	2	2	9	2.40	1.98	Yes	Beyer 1990 (surrogate)
Benzo(k)Fluoranthene	mg/kg	0.74	0.22	0.1	22	7	6	32	7.40	2.19	Yes	Beyer 1990 (surrogate)
Butyl benzyl phthalate	mg/kg	0.053	0.18	100	22	3	0	14	0.00	0.00	No	ORNL
Bis(2-Ethylhexyl) Phthalate	mg/kg	1.5	0.44	100	22	7	0	32	0.02	0.00	No	ORNL
Chrysene	mg/kg	0.36	0.18	0.1	22	8	3	36	3.60	1.79	Yes	Beyer 1990 (surrogate)
Dibenz(a,h)Anthracene	mg/kg	0.072	0.18	0.1	22	2	0	9	0.72	1.84	No	Beyer 1990 (surrogate)
Di-N-Butyl Phthalate	mg/kg	0.052	0.18	200	22	2	0	9	0.000	0.001	No	ORNL
Di-N-Octylphthalate	mg/kg	0.2	0.19	200	22	3	0	14	0.001	0.001	No	ORNL (surrogate)
Fluoranthene	mg/kg	0.92	0.23	0.1	22	10	7	45	9.20	2.28	Yes	Beyer 1990 (surrogate)
Indeno(1,2,3-c,d)Pyrene	mg/kg	0.28	0.20	0.1	22	2	2	9	2.80	1.98	Yes	Beyer 1990 (surrogate)
Phenanthrene	mg/kg	0.44	0.16	0.1	22	10	2	45	4.40	1.58	Yes	Beyer 1990
Pyrene	mg/kg	0.63	0.19	0.1	22	10	5	45	6.30	1.94	Yes	Beyer 1990

TABLE 4-18

Comparison of Concentrations of Detected Analytes in STP Upland Surface Soil to Ecological Benchmark Values

*Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL*

ParamName	Units	Maximum Detection	Arithmetic Mean Concentration (1/2 ND)	Screening Criteria	Number of Analyses	Number of Detections	Number of Detections Exceeding Criteria	Detection Frequency (%)	Maximum Hazard Quotient	Mean Hazard Quotient	COPC?	Criteria Source
<b>Volatiles</b>												
4-Nitrophenol	mg/kg	0.064	0.46	7	22	1	0	5	0.01	0.07	No	ORNL
Toluene	mg/kg	0.52	0.05	0.05	22	18	5	82	10.40	1.06	Yes	Beyer 1990
<b>Radionuclides</b>												
Cs-137	pCi/g	0.147	0.06	NA	6	6	NA	100	NA	NA	NA	
Ra-226	pCi/g	9.86	1.76	NA	156	144	NA	92	NA	NA	NA	
Ra-228	pCi/g	445.9	7.55	NA	156	149	NA	96	NA	NA	NA	
Th-232	pCi/g	302.16	6.47	NA	146	146	NA	100	NA	NA	NA	
U-234	pCi/g	12.8	1.24	NA	146	136	NA	93	NA	NA	NA	
U-235	pCi/g	0.81	0.08	NA	148	142	NA	96	NA	NA	NA	
U-238	pCi/g	12	1.30	NA	146	143	NA	98	NA	NA	NA	

No: constituent eliminated due to high background concentrations

NA: Not applicable; radionuclides were screened using DOE's RAD-BCG model

ORNL: Oak Ridge National Laboratory (Efroymson et al. 1997); Beyer 1990 -- from Friday, G.P., November, 1998. Ecological Screening Values for Surface Water, Sediment, and Soil.

Westinghouse Savannah River Company, Savannah River Technology Center (WSRC-TR-98-001), Aiken, SC 29808

(Beyer, W.N. 1990. Evaluating soil contamination. U.S. Fish Wildl. Serv., Biol. Rep. 90(2). 25 p.)

TABLE 4-19

SERA Food Web Model Results for STP Upland  
 Kress Creek and Sewage Treatment Plant Sites - West Chicago, IL

Chemical	Least shrew			Deer mouse			American robin		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
<b>Inorganics</b>									
Aluminum	<b>6.49</b>	<b>1.30</b>	<b>2.90</b>	0.84	0.17	0.38	<b>3.00</b>	0.60	<b>1.34</b>
Antimony	0.49	0.10	0.22	0.51	0.10	0.23	NA	NA	NA
Arsenic	<b>23.05</b>	<b>4.61</b>	<b>10.31</b>	<b>19.83</b>	<b>3.97</b>	<b>8.87</b>	<b>2.11</b>	0.70	<b>1.22</b>
Barium	<b>2.17</b>	0.56	<b>1.10</b>	0.92	0.24	0.47	0.54	0.27	0.38
Beryllium	0.47	0.09	0.21	0.03	<0.01	0.02	NA	NA	NA
Cadmium	<b>16.20</b>	<b>1.62</b>	<b>5.12</b>	<b>1.55</b>	0.16	0.49	<b>6.76</b>	0.49	<b>1.82</b>
Chromium	<b>7.83</b>	<b>1.57</b>	<b>3.50</b>	0.61	0.12	0.27	<b>15.87</b>	<b>3.17</b>	<b>7.10</b>
Cobalt	0.26	0.06	0.13	0.03	<0.01	0.01	NA	NA	NA
Copper	<b>1.38</b>	<b>1.03</b>	<b>1.19</b>	0.31	0.23	0.27	<b>1.54</b>	<b>1.17</b>	<b>1.34</b>
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	<b>26.23</b>	<b>2.62</b>	<b>8.30</b>	<b>4.91</b>	0.49	<b>1.55</b>	<b>36.18</b>	<b>7.24</b>	<b>16.18</b>
Manganese	0.42	0.13	0.23	0.33	0.10	0.18	0.04	<0.01	0.02
Mercury	<b>203.86</b>	<b>40.77</b>	<b>91.17</b>	<b>32.41</b>	<b>6.48</b>	<b>14.49</b>	<b>8.27</b>	<b>3.38</b>	<b>5.28</b>
Nickel	0.66	0.33	0.46	0.12	0.06	0.08	0.22	0.16	0.18
Selenium	<b>1.20</b>	0.73	0.93	<b>1.11</b>	0.67	0.86	0.46	0.13	0.25
Silver	<b>3.91</b>	0.78	1.75	0.26	0.05	0.12	3.04	0.61	<b>1.36</b>
Thallium	<b>7.13</b>	<b>1.43</b>	3.19	0.52	0.10	0.23	0.49	0.10	0.22
Vanadium	<b>1.30</b>	0.26	0.58	0.20	0.04	0.09	0.06	0.01	0.02
Zinc	<b>13.22</b>	<b>6.61</b>	<b>9.35</b>	<b>1.59</b>	<b>0.79</b>	<b>1.12</b>	<b>89.49</b>	<b>9.91</b>	<b>29.77</b>
<b>Semivolatile Organics</b>									
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(g,h,i)perylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
bis(2-Ethylhexyl)phthalate	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.11	0.02	0.05
Chrysene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dibenz(a,h)anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Di-n-butylphthalate	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01
Di-n-octylphthalate	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NA	NA	NA
Fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<b>Volatile Organics</b>									
Toluene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NA	NA	NA

Bolded HQs indicate exceedance of 1.0