MAY BRANCH
FT. SMITH, ARKANSAS

HTRW INVESTIGATIONS REPORT

FEBRUARY 2000

US ARMY CORPS OF ENGINEERS
LITTLE ROCK DISTRICT

1 Executive Summary:

Borings were made along the proposed channel alignments for the May Branch flood damage reduction project, which traverses the industrial area of Ft. Smith, Arkansas. Soil and water samples were analyzed for contaminants which could have originated from the industries in the area. The soil and water analyses showed that the suspected contamination exists. However, for the proposed route (C), contamination is minimal, and the Arkansas Department of Environmental Quality did not see any problems with the project.

2 1992 Site Inspection:

The May Branch Small Flood Control Project site at Ft. Smith, Arkansas was originally visually inspected, on 9 December 1992, for the surface evidence of the presence of Hazardous, Toxic, and Radioactive Waste HTRW). This investigation determined that the existing May Branch, the proposed channel alignments, and the proposed site of the deep bored tunnel encounter residential areas and light to moderate industrial areas. The initial site inspection revealed the potential for HTRW contamination in the industrialized area. This was taken into consideration for the selection of the most suitable route. See Attachment A: 1992 Inspection of May Branch.

3 1999 Site Inspection:

The industrial area of Ft. Smith, Arkansas was again inspected on 13-15 April 1999, since the channel must flow through a portion of the area to reach the Arkansas river. Historical documents were provided by the city of Ft. Smith on 13 April 1999. Data from existing maps and reports were combined to correlate historical data with present industry in the inspected area. Historical and aerial photos of the industrial area that were provided by some of the local industry representatives, the city of Ft. Smith, and Corps of Engineers were used to help characterize the area. Specific information on the individuals interviewed and businesses contacted is given in Attachment B: 1999 Site Inspection.

4 Subsurface Investigations – First Phase:

Subsurface investigations were performed to obtain geotechnical information and to obtain soil samples for hazardous waste analyses. Soil samples obtained during the subsurface investigations were analyzed to determine the presence of the suspected contaminants. The first phase of the subsurface investigation was performed starting 14 May 1999. During the first phase, the borings from which soil samples were obtained for chemical analysis were: MB-1, MB-2, MB-2A, MB-3, MB-3A, MB-4, MB-5, MB-6, MB-7, MB-8, MB-11, MB-13, MB-14, MB-21, MB-22, MB-23, MB-24.

The second phase of subsurface investigations was performed during 5-9 October 1999. The borings from which soil and water samples were obtained for chemical analysis were: MB-25, MB-26, MB-27,

MB-28, MB-29, MB-30, MB-31. Surface water samples were also obtained from standing water around the landfill.

Refer to plate G-1 for locations. The data from the investigation is summarized in Attachment C: Table of May Branch HTRW Investigation Results. The analysis of the results is presented as Attachment D: Analysis of results.

5 ADEQ Review Meeting:

Representatives of the Corps of Engineers (Julia Smethurst & Max Frauenthal) met with representatives from the Arkansas Department of Environmental Quality (ADEQ) (Mike Bates, Tammy Hynum, & Dianna Kilburn) on 24 August 1999 to present the subsurface investigation findings and request advice from the ADEQ. The analytical results of the sub-surface samples and drawings showing the proposed channel pathways were presented. ADEQ also requested zoning maps of Ft. Smith, surface water and groundwater samples, the Chemical Data Assurance Report (CQAR), the sampling methodology, the Site Safety & Health Plan, the Chain of Custody form, and the Scope of Work. Zoning maps were obtained from the city of Ft. Smith and the ground water samples were obtained during the second phase of sampling. The CQAR was produced by Ft. Worth District Corps of Engineers. All requested items were transmitted to the ADEQ.

6 SWD Review Meeting:

On 25 August 1999 representatives from Little Rock District held an in-progress review meeting at Southwestern Division. The SWD representatives reiterated the importance of water samples and mentioned that the Chemical Quality Assurance Report should be produced. Details of the topics discussed are presented in Attachment E: Notes from SWD Meeting.

7 Subsurface Investigations – Second Phase:

Borings for the second phase of the HTRW investigations at May Branch, Ft. Smith soil were made 5-9 October 1999. The drilling/sampling contractor was GEOTEK Drilling company, Inc. from Nashville, TN (615) 331-2088. The geologist was Tom McGill and the driller was Steve Johnson. The driller's assistant was John Duncan. During the second phase, monitoring wells were installed at seven locations (MB-25, MB-26, MB-27, MB-28, MB-29, MB-30, and MB-31). Refer to plate G-1 for locations. Groundwater samples were analyzed from each monitoring well. Soil samples were analyzed from MB-30 and MB-31. Soil samples were not obtained from the other monitoring well locations since soil from these areas had been analyzed previously. Surface water samples were obtained from the old channel and the ponds by the pallet factory and the landfill. The data from the investigation is summarized in Attachment C: Table of May Branch HTRW Investigation Results.

The contract laboratory that analyzed the soil and water HTRW samples was: Environmental Testing and Consulting, Inc. (ETC), 2924 Walnut Grove Rd., Memphis, TN 38111. The point of contact at the lab was: Dr. Richard Medina or Randy Thomas. The telephone number was (800) 494-2750 or (817) 978-3221 ext. 1639.

8 Analysis of Investigation Results:

Expected contamination was confirmed in the landfill. The contaminant concentrations of several species exceeded the EPA screening levels. However, the concentrations of contaminants were below the industrial soil levels for surface contamination. If the channel were to be installed through the landfill, additional costs would be incurred for exposure monitoring, personnel protection, isolation of the landfill from the channel, and perhaps remediation. Ft. Worth District Corps of Engineers performed the Chemical Quality Assurance Report. The point of contact was Janet (Roxanne) Welch.

9 ADEQ Concurrence:

Per letters dated January 11, 2000 and June 18, 2004, ADEQ approved the selected route which does not intersect the landfill. (See Attachment F: ADEQ Memorandum) According to the ADEQ, the data available does not show cause for a hazardous waste concern. If further data becomes available in the future, this decision may require reconsideration.

Attachment A
1992 Inspection of May Branch

CESWL-ED-GH 15 December 1992

MEMORANDUM THRU
Acting Chief, HTRW Section
Chief, Geotechnical Branch
Chief, Engineering Division
FOR Chief, Planning Division

SUBJECT: Inspection of May Branch, Ft. Smith, Arkansas

1. Per Request from Planning Division by Ms. Julia Smethurst the May Branch Small Flood Control Project site at Ft. Smith, Arkansas was investigated, on 9 December 1992, for the presence of Hazardous, Toxic, and Radioactive Waste (HTRW). The existing May Branch, the proposed paths of channels, and the proposed site of the deep bored tunnel encounter residential and light to moderate industrial areas.

2. The P Street area between the Clayton Expressway and Highway 64 is moderately industrialized and HTRW contamination in this area is probable. The db Paper Company has barrels of corrosive material stored improperly and has a dump site near the channel. The Willard Mirrors company has a dump site on the edge of the channel. Contamination in the area of the db Paper Company and the Willard Mirror Company is probable.

3. The project area from Highway 64 to the beginning of the storm sewer consists of lightly industrialized and residential areas. Contamination is possible in this area from small industry, but unlikely.

4. The project area of the D Street Tunnel is residential except for the industrial area near the Clayton Expressway. Contamination in the residential area is not probable. The Clayton Expressway area has been discussed above.

5. Since the potential exists for HTRW contamination in the industrialized area, care should be taken in selecting the channel route in this area. If additional information is needed please contact Max Frauenthal in the Geotechnical Branch, Ext. 7133.

MAX FRAUENTHAL, P.E.
HTRW Section

Attachment B
1999 Site Inspection

Information on the following businesses was obtained:

1. Wastewater Treatment Plant
The City of Fort Smith, Arkansas
Wastewater Treatment Plant, Utility Department
Gerald Plank, Supervisor of Wastewater Operations
13 North "P" Street
Fort Smith, Arkansas 72904
(479) 784-2333
Wastewater treatment sludges are presently taken to a Class A landfill and this procedure has been followed since at least 1982.

2. Dave Brown Paper Company
The Dave Brown Paper Company formerly owned the rectangular building across the bridge, southeast, (toward town) from the wastewater treatment plant. He transferred ownership of the building to Chester Kerpovich of Butler & Cook. Across the street (southwest) was the location of the Riverside Furniture Company. The Riverside building was destroyed by the tornado in 1996. The building did not appear to be in use at the date of the inspection. The possibility of hazardous wastes emanating from this building could not be determined, but it appeared improbable.

3. Crawford County Pallets
Crawford County Pallets presently occupies the building southeast of the former Dave Brown Paper Company. (This is the long building across from Color Tex and the Bradley Machine Company.) Lynn Merechka owns Crawford County Pallets. The address is: 1701 Ballman Rd. Ft. Smith, AR 72901 (479) 783-5659. Or P.O. Box 1623, Van Buren, AR 72956 (479) 474-8810. The building now occupied by Crawford County Pallets was built by Hickory Springs Furniture. Hickory Springs sold the building to Crane. Crane (partner with Steve Bradley) bought and sold machinery. Crane sold to Dave Brown. Dave Brown leased to several businesses including Wisenfeld-Stampco Pallet Co, Industrial Linen Co., a cabinet shop, and a poultry industry tools & equipment supplier. The Crawford County Pallets Co. obtained the building in 1993.

4. Color Tex
Color Tex is across the street from Crawford County Pallets. ColorTex (479-783-2120) manufactures childrens furniture, such as bean bags, and they distribute foam cushions for furniture. ColorTex, at this location, is the end product manufacturer. No chemical processes are involved at this location. Therefore, the potential for hazardous waste generation is low. For information contact: The Jeffrey Smith Group, 101 N. Second Street, Ft. Smith; Mr. Smith or Mr. Joyce; Phone Number: 783-2120.

5. Bradley Machine Shop

The Bradley Machine Shop is across the street from Crawford County Pallets. Steve Bradley owns the business and has owned it since 1987. Steve Bradley has some historical photos. His photos show the historical location of ACME Spring & Mattress Co. (Riverside Furniture), Mitchell Manufacturing Co., Old Fort Line-Springs for the Furniture Industries, Williard Mirror, and the Ft. Smith Abattoir. Hickory Springs originally had operations in the building which is not the Bradley Machine Shop. Hickory Springs transferred ownership to Leggett & Platt, a steel hide-a-bed manufacturer. Steve Bradley's phone Number: 785-2925. Steve Bradley reported that Mr. Jay Gibson reported to him that the stormwater drainage tunnel runs under Bradley Machine Shop.

6. H.J. Baker & Bro., Inc.

H.J. Baker & Bro, Inc. is located behind (north) Crawford County Pallets. Tom Scott is the Plant Manager. The address is: H. J. Baker & Bro., Inc.; Pro-Pak Division, North First & P Streets, Fort Smith, Arkansas 72901. The phone number is: (479) 782-5705. Carnation Albers operated the site before H.J. Baker. H.J. Baker has operated the site since ~1970. The original processing plant burned and was replaced by H.J. Baker. H.J. Baker provides a protein mix that is used for feed by the poultry industries. Fish and chicken by-products comprise the mix, and an odor emanates from the plant.

The pond/swamp adjacent to H.J. Baker and Crawford County Pallets is increasing in area according to Tom Scott, Plant Manager for H.J. Baker. The water is getting higher and starting to infringe on the H.J. Baker property. It appears more debris is being dumped into the pond/swamp in addition to the tornado deposited debris. (Subsequent Note: It appeared that the scrap automobile lot operator has added fill to the low area through which this ponded area formerly discharged. This decrease in size of this local drainage storage area should not affect the proposed C May Branch channel alignment.

7. Williard Mirror Company

The Williard Mirror Company is in bankruptcy. The ownership is unknown and disputed. The mirror manufacturer went out of business in 1994. Although this facility had the potential to release heavy metals into the environment, high levels of heavy metals were not identified by the chemical analyses of soil near the site.

8. Arkansas Protein Company

The former Arkansas Protein Company passed ownership to Simmons and then to Mr. Jay Gibson.

9. Jeffrey Smith

Jeffrey Smith owns the land between the site of the former Williard Mirror Company and the Calvin Alley Cabinet Shop.

10. Calvin Alley Cabinet Shop

Calvin Alley of the Calvin Alley Cabinet Shop owns several historical photos which are labeled with the date. The October 1967 photo accurately depicts the location of the Ft. Smith landfill. Although the Calvin Alley Cabinet Shop was not in operation at the time, one of Calvin Alley's employees was

formerly responsible for the disposal of wastes from the furniture manufacturing industry into the Ft. Smith landfill. Drums, or truck loads of the waste solvents were dumped onto the landfill, or into the water. This was the approved disposal method at the time providing it was ignited. The employee recalled one instance in which an unusually large load of the solvent had been dumped and ignited. The fire extended into the Arkansas river where the fire damaged a fisherman's nets.

11. Bailes Best Dog Food
Bailes Best Dog Food is across the railroad tracks form the area of the former Williard Mirror Company. Bailes Best is owned by Chick Borum.

12. Ft. Smith Wood Truss Company
Tom Moore owns Ft. Smith Wood Truss Company which is located next to Bailes Best Dog Food.

13. Hickory Springs Furniture
A Division of Hickory Springs Furniture out of Hickory Springs, North Carolina operates a fiber plant in the former Buster Brown Store in the building across the railroad tracks (southeast) from Crawford County Pallets. The plant manager is Betty Selph, phone number: 479-783-4440. Hickory Springs has operated the site since 1987.

14. Jack Grober
Jack Grober owns the property southwest of the Calvin Alley Cabinet Shop.

15. City Landfill
The city landfill was in operation until 1973. The Arkansas Department of Pollution Control & Ecology permitted the closing of the landfill. The landfill was closed in January 1974. Following ADPC&E's direction, the landfill was graded and covered with a two foot thick clay liner.

16. Arkansas Protein
The former Arkansas Protein production facility is now owned by Mr. Jay Gipson. He has done extensive landfilling. Suspect materials, such as sulfuric acid barrels, remain at the production facility.

17. Potential sources of HTRW contamination are companies such as United Refrigeration Services, tire dumps, Arkhola Concrete, Kraus Construction, an autobody paint shop, Sunbelt Chemical Company, and cleaners.

18. Other industries in the area such as Arkansas Proteins, H.J. Baker and Bro. Inc., and the sewage treatment plant may be contributing to the deterioration of air quality.

19. Contaminant Assessment
Because of the industries that exist or have existed in the area such as the city landfill, mirror manufacturing, metal plating, furniture manufacturing, and animal feed production, contamination in the industrial area is highly probable. Leachate from the landfill could flow into the branch. Heavy metal

contamination from the mirror manufacturing operation and from the coatings applied to furniture could pose a problem. Process chemicals could have been discharged from any of the industries. Sulfuric acid barrels were observed at the former Arkansas Protein facility. Automobiles and tires have been accumulated on or near the landfill area. Petroleum products could have leaked from the cars. Railroad cross ties have been dumped into a pond between the railroad tracks. Creosote contamination from the ties was considered possible.

Attachment C
Table of May Branch HTRW Investigation Results

May Branch HTRW Investigation Results

Nov-99

Boring Number										MB #1			MB #2			MB #2A			MB #3					MB #3A			MB #4					MB #5
Depth (ft.)	Key : C=CANCER, N=NONCANCER, sat=SOIL SATURATION, max=CEILING LIMIT									1.5	10	19	3	12	25	3	12	25	5	15	20	29	3	12	25	3.5	10	17	25	1.5
	Contaminants		Screening Levels,		Screening Levels		Screening Levels		Screening Levels	mg/Kg	mg/Kg	NS	mg/Kg	mg/Kg	mg/Kg	NS	mg/Kg	NS	mg/Kg	NS	mg/Kg	NS	NS	mg/Kg	NS	mg/Kg	NS	mg/Kg	NS	mg/Kg
		CAS No.	Residential Soil(mg/Kg)	Key	Industrial Soil(mg/Kg)	Key	Tap Water (ug/l)	Key	DAF1 (mg/Kg)																							
Silver	Silver & Compounds	7440-22-4	370.00	N	9400.00	N	180.000	N	2.00																							
Arsenic	Arsenic (noncancer endpoint)	7440-38-2	21.00	N	480.00	N				4.28	2.34		2.54	1.49	0.446		2.3		4.11		1.67			2.49		2.13		3.01		3.49
	Arsenic (cancer endpoint)	7440-38-2	0.38	C	3.00	C	0.00045	C	1.00																							
Barium	Barium and compounds	7440-39-3	5200.00	N	100000.00	max	0.520	N	82.00	149	71		83.8	101	26.1		16.7		108		45.7			142		46.7		25.1		185
Cadmium	Cadmium and compounds	7440-43-9	37.00	N	930.00	N	0.0011	C	0.40					6.72																		
Chromium	Total Chromium (1/6 ratio Cr V	n/a	210.00	C	450.00	C		C	2.00	18.7	11.2		40.9	17.6	5.36		2.22		13.3		7.39			14.2		5.64		8.15		15.6
Mercury	Mercury and compounds	7487-94-7	22.00	N	560.00	N	11.000	N		0.034			0.358				0.058							0.051				0.051		
Lead	Lead	7439-92-1	400.00		2000.00		15.000			51.2	5.25		48.1	3.96	1.6		55.9		15.5		5.87			114		4.74		10.5		27.8
Selenium	Selenium	7782-49-2	370.00	N	9400.00	N	180.000	N	0.30	0.378																						
VOAs/SVOAs										NS	ND	ND	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ND	ug/Kg	ug/Kg	ND	ug/Kg	ND	ug/Kg	ND	ug/Kg	ug/Kg	ug/Kg	ug/Kg	NS
Acetone	Acetone	67-64-1	1400.00	N	6100.00	N	610.000	N	0.80								69.5							145			2440E			
Acetonitrile	Acetonitrile	75-05-8	200	N	1400	N	71	N																						
Benzene	Benzene	71-43-2	0.62	C	1.40	C	0.390	C	0.002								3.05										19.1			
Bromodichloromethane	Bromodichloromethane	75-27-4	0.98	C	2.3	C	0.18	C	0.03																					
n-Butylbenzene	n-Butylbenzene	104-51-8	130.00	N	240.00	sat	61.000	N																					20.3	
sec-Butylbenzene	sec-Butylbenzene	135-9-88	110.00	N	220.00	sat	61.000	N									10.7							0.656J						
tert-Butylbenzene	tert-Butylbenzene	104-5-18	120.00	N	390.00	sat	61.000	N																					19.8	
2-Butanone (MEK)	Methyl ethyl ketone	78-93-3	6900.00	N	27000.00	N	1000.000	N																			3550E			
Carbon Disulfide	Carbon disulfide	75-15-0	350.00	N	720.00	sat	1000.000	N	2.00								3.11													
Bis (2-etyhylhexyl) Phthalate	Bis(2-ethylhexyl)phthalate (DE	117-81-7	32.00	C	210.00	C	0.480	C					47400			446B								343B		834		2300		
Chlorobenzene	Chlorobenzene	108-90-7	54.00	N	180.00	N	39.000	N	0.07								9.23										17.4			
Chlorodibromomethane	Dibromochloromethane	124-48-1	5.3	C	36	C	0.8	C	0.02																					
Chloroform	Chloroform	67-66-3	0.24	C	0.52	C	0.16	C	0.03																					
2-Chlorotoluene	o-Chlorotoluene	95-49-8	150.00	N	510.00	sat	120.000	N																2.48						
1,2-Dichlorobenzene	1,2-Dichlorobenzene	95-50-1	370.00	sat	370.00	sat	370.000	N	0.90															3.9					33.7	
1,4-Dichlorobenzene	1,4-Dichlorobenzene	106-46-7	3.00	C	7.30	C	0.470	C	0.10					3.37			22							2.01					53.1	
1,1-Dichloroethane	1,1-Dichloroethane	75-34-3	570	N	2000	N	810	N	1																					
1,1-Dichloroethene	1,1-Dichloroethylene	75-35-4	0.53	C	1.2	C	0.46	C	0.003																					
cis-1,2-Dichloroethene	1,2-Dichloroethylene (cis)	156-59-2	42.00	N	150.00	N	61.000	N	0.02																		108			
trans-1,2-Dichloroethene	1,2-Dichloroethylene (trans)	156-60-5	62	N	210	N	120	N	0.03																					
Ethylbenzene	Ethylbenzene	100-41-4	230.00	sat	230.00	sat	1300.000	N	0.70					8.59	3.82									31.6			2730		136	
2-Hexanone (MBK)	SURROGATE	Cyclohexanor	100000	max	100000	max	180000	N																			438			
Isopropylbenzene	iso-Propylbenzene	104-5-18	120.00	N	390.00	sat	61.000	N									11.7							1.67J			122		14.9	
4-Isopropyltoluene	SURROGATE	Toluene	520.00	sat	520.00	sat	720.000	N									26.5										514		37.4	
Methylene Chloride	Methylene chloride	75-09-2	8.50	C	20.00	C	4.300	C	0.001																					
4-Methyl-2-pentanone (MIBK)	Methyl ethyl ketone	78-93-3	6900.00	N	27000.00	N	160.000	N																			1040		152	
Naphthalene	Naphthalene	91-20-3	55.00	N	190.00	N	6.200	N	4.00				1200				48							2.52			1220	65.9J	974	
n-Propylbenzene	n-Propylbenzene	104-51-8	130.00	N	240.00	sat	61.000	N									14.6							1.01J			298		18.5	
Styrene	Styrene	100-42-5	1700.00	sat	1700.00	sat	1600.000	N																			435		26.7	
Tetrachloroethene	Tetrachloroethylene (PCE)	127-18-4	4.70	C	16.00	C	1.100	C																			801		35.7	
Toluene	Toluene	108-88-3	520.00	sat	520.00	sat	720.000	N						5.47			4.91			2.74		3.01		5.22			29000		1590	
1,2,3-Trichlorobenzene	SURROGATE	1,2,4-Trichlorc	480.00	N	3000.00	sat	190.000	N																			4.99			
1,2,4-Trichlorobenzene	1,2,4-Trichlorobenzene	120-82-1	480.00	N	3000.00	sat	190.000	N																			16.2			
Trichloroethene	Trichloroethylene (TCE)	79-01-6	2.70	C	6.10	C	1.600	C																			23.1		9.59	
Trichlorofluoromethane	Trichlorofluoromethane	75-69-4	380	N	1300	N	1300	N																						
1,2,4-Trimethylbenzene	1,2,4-Trimethylbenzene	95-63-6	51.00	N	170.00	N	12.000	N									132							3.77			1730		155	
1,3,5-Trimethylbenzene	1,3,5-Trimethylbenzene	108-67-8	21.00	N	70.00	N	12.000	N									13.2							3.73			752		51.9	
Xylenes-m,p	m-Xylene	108-38-3	210.00	sat	210.00	sat	1400.000	N						7	3.12		15.8							28.4			9530		828	
	p-Xylene	106-42-3	370.00	sat	370.00	sat																								
Xylene-o	o-Xylene	95-47-6	280.00	sat	280.00	sat	1400.000	N									3.47							7.5			2520		361	
BNA																														
Benzo (a) anthracene	Benzo[a]anthracene	56-55-3	0.56	C	3.60	C	0.092	C																63.2J						
Benzo (b) fluoranthene	Benzo[b]fluoranthene	205-99-2	0.56	C	3.60	C	0.092	C																82						
Benzo (g,h,I) perylene	SURROGATE	Benzo (b) fluo	0.56	C	3.60	C	0.092	C																44.9J						
Benzo (a) pyrene	Benzo[a]pyrene	50-32-8	0.06	C	0.36	C	0.0092	C																119						
Carbazole	Carbazole	86-74-8	22.00	C	150.00	C	0.340	C	0.03				637J																	
Chrysene	Chrysene	218-01-9	56.00	C	360.00	C	9.200	C																66.6J						
Dibenzo (a,h) anthracene	Dibenz[ah]anthracene	53-70-3	0.06	C	0.36	C	0.0092	C																						
Fluoranthene	Fluoranthene	206-44-0	2000.00	N	37000.00	N	1500.000	N																106						
Indeno (1,2,3-cd) pyrene	Indeno(1,2,3-cd)pyrene	193-39-5	0.56	C	3.60	C	0.092	C																235						
2-Methylnaphthalene	SURROGATE	Naphthalene	55.00	N	190.00	N	6.200	N	4.00				1090J																	
Phenanthrene	SURROGATE	Anthracene	14000	N	100000	max	1800	N	590				650J																	
Pyrene	Pyrene	129-00-0	1500.00	N	26000.00	N	180.000	N																73.7						

ND = Not Detected

NS = Not Sampled

Region 6 Human Health Medium-Specific Screening Levels (updated October 8, 1998) were obtained from the web site of the Environmental Protection Agency: http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/r6scrval.htm

																																				Swamp	Swamp Ne	Swamp
		MB #6			MB #7			MB #8			MB #11	MB #13	MB #14	MB #21		MB #22		MB #23		MB #24		MB #25	MB #26	MB #27	MB #28	MB # 29	MB #30	MB #30	MB #30	MB #31	MB #31	MB #31	MB #31	Near	Treatment	Near
10	19	1.5	10	19	1.5	10	19	1.5	10	19	5	9	5	1.5	12	1.5	12	3	12	1.5	12	Water	Water	Water	Water	Water	5	15	Water	5	15	25	Water	MB #29	Plant	MB #26
mg/Kg	NS	mgKg	mg/Kg	mgKg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	NS	mg/Kg	ug/L	ug/L	ug/L	ug/L	ug/L	mg/Kg	mg/Kg	ug/L	mg/Kg	mg/Kg	mg/Kg	ug/L	ug/L	ug/L	ug/L
4.63		6.7	6.28	2.69	6.7	4.66	5.78	43.2	4.47	5.05	2.31	8.15	5.26	3.47	1.95	4.27	6.34	3.45	5.34	1.25	0.884		4	99	31	7	2.39	1.25	5	3.23	1.92	3.84	5	4	7	5
99.4		189	98.5	106	98	102	130	85.5	219	154	96.5	215	49.7	93.1	70.3	168	129	133	206	41.6	23	336	926	1980	447	288	78.7	33.7	168	125	125	106	224	92	54	21J
											5.42																												
17.3		21.3	24.6	17.5	19.8	18.2	21.3	20.9	18.4	19.4	18.8	42.6	38.1	17	8.54	18.1	20.8	14	13	4.64	2.33			120	33	24	8.03	3.3	26	19	17.9	17.1	17				
0.028							0.03	0.077				0.022	0.03											0.2						0.021							
41.6		20.9	5.01	4.82	24.1	17.4	2.95	20	17.7	16.8	9.55	16.8	14.4	9.6	4.48	11.7	14.4	9.83	16.3	7.54	2.39	10		90	17	3	7.85	3.77	14	20.1	8.88	11.8	3	4			
		0.532	1.3			0.711	0.415	0.35	0.532	0.777		0.272				0.432		0.228				3		3								0.305					
ug/Kg	ug/Kg	NS	ug/Kg	ug/Kg	NS	ug/Kg	ug/Kg	NS	ND	ND	ug/Kg	ND	ND	NS	ND	ug/Kg	ug/Kg	NS	ND	NS	ug/Kg	ND	ug/L	ug/L	ug/L	ug/L	ug/Kg	ug/Kg	ug/L	ug/Kg	ug/Kg	ND	ug/L	ug/L	ug/L	ND
118	170						42.6																13.8J	6.24J										12.2J		
																																			4.55J	
																							7.52													
																								0.62J	0.55J				4.3							
4.26																							0.98J													
																							0.75J													
2220																	178B					12.1		30.2	18.6									22.8		5.33J
																							20.8													
																													0.95J							
																								3.3	2.51				21.4							
3.59																							4.57													
																																	2.73			
																																	14.6			
																															0.63J		30.4			
6.37																																				
6.68																							3.98		0.55J											
3.82																31.4B							0.89J		2.45											
21.5B	26.8B		36.4B	28.5B		34.2B	33.2B										27.0B																			
38.3	5.14																						139													
4.51																							1.95													
																											1.47J	0.90J		0.52J						
9.46																																				
																											1.00J				2.79		25.4			
																																	0.90J			
28.6																							9.78													
																							0.40J													
57.3																							2.31													
9.67																							0.66J													
																										ND	ND	ND	ND		ND	ND	ND			
						60.6J																														
						88.6																														
						77.2																														
						129																														
																							1.57J													
						95.9																														
						181																														
																							2.45							45.6J						
						245																														
																							12.4							31.8J						
																							1.95J							47.2J						

Attachment D
Analysis of Results

May Branch
HTRW Investigation
Analysis of Results

The U.S. Army Corps of Engineers, Little Rock District, is proposing a drainage improvement project in conjunction with the city of Ft. Smith. The project will include routing the May Branch stormwater channel through the Ft. Smith industrial area to the Arkansas River. To be environmentally proactive, the Corps of Engineers investigated the site, which included several proposed routings, for hazardous wastes. RCRA metals, volatile, and semivolatile analytes were assayed from 43 samples from 17 boring locations during the initial investigation. During the second investigation, 36 samples from 7 borings plus three groundwater samples were analyzed. The results of the investigation are presented in Attachment C, May Branch HTRW Investigation Results.

The proposed route C would pass over MB-24, MB-21, MB-22, MB-31 toward MB-9. The analyses showed that this route contained the lowest contaminant concentrations.

As directed by the Arkansas Department of Environmental Quality (ADEQ), the concentrations of contaminants detected were compared with the Environmental Protection Agency's Human Health Screening Levels. The Region 6 Human Health Medium-Specific Screening Levels (updated October 8, 1998) were obtained from the web site of the Environmental Protection Agency: http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/r6scrval.htm. Since the soil from the industrial area in which the investigation took place has been disturbed, and since the area is industrialized and is likely to remain an industrial area, the Corps of Engineers proposed to the ADEQ that the Industrial Soil Screening levels are the only levels that are applicable. The analyte concentrations were also compared with the Residential Soil Screening levels, Tap Water Screening (TWS) levels and the Dilution Attenuation Factor (DAF).

The concentrations of all compounds detected were below the Industrial Soil Screening levels.

The Residential Soil Screening levels were exceeded five times. In MB#8 at 1.5 ft. Arsenic was detected at 43.2 mg/kg. In MB#2, bis (2-ethylhexyl) phthalate was detected at 47,400 mg/kg. Although this typical lab contaminant was detected in the method blanks, the concentration was not this high. The semi-volatile compound benzo (a) pyrene was detected above the Residential Soil Screening level at boring MB#3A at 12 ft. and MB#7 at 10 ft. Also in MB#7 at 10 ft., dibenzo (a,h) anthracene was detected above the Residential Soil Screening level.

Soil samples were analyzed from MB-30 between 5 and 7 feet and between 15 and 17 feet. Soil samples were analyzed from MB-31 from these depths, and from between 25 and 27 feet. The concentrations of all compounds detected in MB-30 were below the Industrial and Residential Soil Screening levels. One of the compounds detected from MB-31 (Trichloroethene) exceeded the Residential Soil Screening level, but was below the Industrial Soil Screening level.

Almost all of the barium levels are above the Dilution Attenuation Factor of 1 (DAF1). The sample which most accurately depicts the naturally occurring background concentration, sample MB #13, contained the most barium. Therefore the barium is assumed to be naturally occurring.

Two samples, MB #2 at 12 ft. and MB #11 at 5 ft., contained cadmium levels in excess of the DAF1, but less than DAF20 (twenty times the DAF). Since sample MB #2 is from disturbed soil in the landfilled area, and sample MB #11 was taken beside the railroad tracks in an industrialized area, the Industrial Soil Screening levels are more applicable.

All samples (including the background sample) exceeded the DAF1 for chromium. All concentrations are close to the background concentration. Therefore the chromium is assumed to be naturally occurring.

Some of the selenium concentrations near the railroad in the industrial area exceed the DAF1 concentration. However, all are below the DAF10 concentration (ten times the DAF). All concentrations detected are near the background concentration.

The lead concentrations detected were consistent, and assumed to be naturally occurring.

Volatiles/Semivolatiles:

On sample, MB #4 at 10 ft., contained a value of acetone which exceeded the established method calibration range of the analytical instrument. This concentration was in excess of the DAF1, but below the DAF10.

Benzene was detected in two samples (MB #2A at 12 ft. and MB #4 at 10 ft.) in excess of the DAF1. Both concentrations were below a DAF10. Both sampling locations were from the closed landfill. Since the operation of the landfill included burning solvents, some solvent residues and combustion byproducts are expected. Additional analytes, described below, are solvents and combustion by-products from compounds that were burned in the landfill before the landfill was closed and capped.

Carbon disulfide was detected in sample MB #2A at 12 ft. slightly in excess of a DAF1 (but below a DAF2). This sample came from the closed landfill.

Sample MB #4 at 10 ft. contained cis-1,2-dichloroethene in excess of the DAF1. This sample came from the closed landfill. In the same sample, ethylbenzene was detected in excess of the DAF1 (but below the DAF10).

Although several samples appeared to contain concentrations of methylene chloride in excess of the DAF1, the analyte was also detected in the method blanks. The methylene chloride was a laboratory contaminant.

Sample MB #2 at 3 ft. contained carbazole in excess of the DAF1. The laboratory value was an estimated value. The presence of the compound was confirmed but it was less than the reported detection limit. There were several other problems with sample MB #2 at 3 ft. Three of the analytes were estimated values which were present in concentrations that were less than the detection limits. Also the sample contained a high value for bis (2-ethylhexyl) phthalate, the plasticizer that is a typical lab contaminant.

Tap Water Screening Levels:

The concentrations of the analytes in the soil matrix were determined on a weight basis (mg/Kg), not on a liquid basis (mg/l). The Tap Water Screening levels are not applicable to this investigation. However considering the concentrations as parts per billion, some of the analytes exceed the Tap Water Screening levels.

All barium, cadmium, mercury, lead, and selenium concentrations exceeded the Tap Water Screening (TWS) levels. One estimated acetone and one estimated 2-butanone concentrations, the two benzene concentrations, exceeded the Tap Water Screening levels. All concentrations of the laboratory contaminants, bis (2-ethylhexyl) phthalate and methylene chloride, exceeded the Tap Water Screening levels. All the 1,4-dichloro benzene concentrations from the landfill area exceeded the TWS levels. One cis-1,2-dichloroethene concentration from the landfill exceeded the TWS level. One ethylbenzene concentration from the landfill exceeded the TWS level. One 4-methyl-2-pentanone concentration from the landfill exceeded the TWS level. Several naphthalene concentrations from the landfill exceeded the TWS level. One n-propylbenzene concentration from the landfill exceeded the TWS level. Two tetrachloroethene and two toluene and two trichloroethene concentrations from one boring (MB #4) in the landfill exceeded the TWS level. Trimethylbenzene was detected in excess of the TWS level in three borings in or near the landfill. Xylenes were detected in excess of the TWS level in one boring (MB #4) in the landfill. Concentrations of Benzo (a) anthracene were estimated in one boring from the landfill (MB #3A)and one near the railroad track (MB #7). Concentrations of Benzo (b) fluoranthene were detected in one boring from the landfill (MB #3A) and one near the railroad track (MB #7). Concentrations of Benzo (a) anthracene were estimated in one boring from the landfill (MB #3A) and detected in excess of the TWS level near the railroad track (MB #7). Concentrations of Benzo (a) pyrene were detected in one boring from the landfill (MB #3A)and one near the railroad track (MB #7). An estimated concentration was reported for carbazole from one boring in the landfill (MB #2). An estimated concentration was reported for chrysene from one boring in the landfill (MB #3A). One dibenzo (a,h) anthracene concentration from near the railroad track (MB #7) exceeded the TWS level. Concentrations of indeno (1,2,3-cd) pyrene were detected in one boring from the landfill (MB #3A) and one near the railroad track (MB #7). Concentrations which were less than the laboratory's detection limits were estimated for 2-methylnaphthalene and phenanthrene from one boring (MB #2) in the landfill. These estimated values exceeded the surrogate TWS levels for these compounds.

The groundwater and surface water samples were compared with the Tap Water Screening levels. The concentrations of barium exceeded the TWSL. Two of the lead concentrations (MB-27 & MB-28) exceeded the TWSL. The concentrations of Benzene, Carbazole, 1,4-Dichlorobenzene, and Naphthalene in the groundwater from MB-26 exceeded the TWSL. Bromodichloromethane and Chloroform were detected in the groundwater from MB-27, MB-28, and MB-30 in excess of the TWSLs. Bis (2-etyhylhexyl) Phthalate was detected in the groundwater in five of the water samples in excess of the TWSL. The estimated value of Chlorodibromomethane from MB-30 exceeded the TWSL. Trichloroethene was detected in the groundwater from MB-31 in excess of the TWSL.

The sewage treatment plant is built on the landfill. Soil excavated for the plant would have the same typical concentrations as the soil analyses reported herein. This construction should follow similar precautions to the precautions followed during the sewage treatment plant construction.

The construction of the channel may involve removing soil. Bank stabilization will be applied at suspected point of erosion.

ABBREVIATIONS

ND: Not Detected
NS: Not Sampled
J: Estimated Value. Below the detection limit.
B: The compound was also found in the blank.
E: The calibration of the instrument was exceeded.

TIC: Tentatively identified compounds. There is no standard so the lab is not sure what the compound is.

Methylene Chloride and Bis (2-ethylhexyl) phthalate are probably lab contaminants.

MS: Matrix Spike
MSD: Matrix Spike Duplicate
RPD: Relative percent difference: The difference between the MS and the MSD expressed as a difference.
TWSL: Tap Water Screening Level

Attachment E
Notes from SWD Meeting.

CESWL-ET-WP 1 September 1999

MEMORANDUM FOR RECORD

SUBJECT: August 25, 1999, In Progress Review Meeting, May Branch, Ft. Smith, Arkansas Feasibility Study

1. A meeting was held at the Corps of Engineers, Southwestern Division Office, in Dallas, Texas on 25 August 1999 to share information pertaining to HTRW and landfill concerns with the proposed May Branch channel drainage project, Ft. Smith, Arkansas.
2. Attendees: SWD Representatives: Bud Gerrity, Charles Armstrong, Larry Donovan, Gene Kastenek, Brian Condike, Patty Taylor, Bill Pearson; SWL Representatives: Bruce Watson, Chris Hicklin, Julia Smethurst, Randy Hathaway, Max Frauenthal.
3. SWD had accrued recent experience with a project similar to the May Branch project. The Dallas Floodway Extension project, as proposed by Ft. Worth District, crossed a former Dallas municipal landfill. The preliminary analytical testing showed that the contamination in the leachate exceeded the Toxicity Characteristics Leaching Procedure (TCLP) limit for lead. Headquarters, Corps of Engineers wanted the sponsor (Dallas, TX) to clean up the whole landfill. The soil contaminant concentrations were not high and the leachate concentration is decreasing with time. The Texas Natural Resources Conservation Commission (TNRCC) required monitoring every 200 feet. The policy of the Corps of Engineers is to clean up contamination before a project is performed at a location. Over $100,000 have been spent to date for the ongoing analytical testing at the landfill site.
4. In addition to the soil samples that have been analyzed at May Branch, SWD recommended that SWL obtain and analyze groundwater and surface water samples. These should be compared to any existing river water quality data and results from monitoring wells at the wastewater treatment plant.
5. SWD recommended that we obtain a copy of the Chemical Quality Assurance Report from J. Roxanne Welch at Ft. Worth District. (This has been requested.) Ms. Welch sends the CQAR to the HTRW Center of Expertise at CEMRD.
6. EM200-1-2, Technical Project Planning (TPP), should be used in planning projects such as May Branch. According to the TPP, Chemical Quality Data Objectives (CQDOs) should be established. This means that chemical analyses are picked to look for the contaminants that are expected to occur. (We did this although we didn't call it CQDOs.) The TPP should take into account the receiver(s) of the data, (such as the Arkansas Department of Environmental Quality), and what they want (which analyses).

7. The following suggestions were also offered: The use of Tulsa District's SCAPS unit for the subsurface investigations was promoted. The cost for groundwater monitoring should be borne 100% by the sponsor. Solid disposal is a project cost. Dioxin was mentioned as an additional analyte.

MAX D.FRAUENTHAL, P.E.

CF: Julia Smethurst
Bruce Watson

Attachment F
ADEQ Memorandums

ADEQ
ARKANSAS
Department of Environmental Quality

January 11, 2000

Attn: CESWL-ET-WP (Frauenthal)
Little Rock Corps of Engineers
P.O. Box 897
Little Rock AR 72203

Mr. Frauenthal:

After review of the materials submitted on the May Channel Project, Fort Smith, and in light of the proposal to use the B route instead of the A route, which is adjacent to the old landfill, the Hazardous Waste Division of ADEQ does not see any problems with the project. There is limited data for proposed route B, but the data we have received does not show cause for a hazardous waste concern. Should further data become available that you wish us to consider, please let us know. Any future analytical submittals should include all Quality Assurance and Quality Control information. A review fee may be charged at that time as stated in APC&EC Regulation 23.

With regards to your question on soil disposal, all soil removed should be disposed of properly based on knowledge of the material.

Because of the change in location for this project, as with any new project, the Water Division and the Environmental Preservation Division will need to be contacted.

If you have any questions regarding this letter or our evaluation of your submittals, please contact Dianna Kilburn of my staff or myself at 501-682-0833.

Sincerely,

Mike Bates

Mike Bates, Chief
Hazardous Waste Division

cc: Joe Hoover, Manager, Active Sites Branch, HWD, ADEQ
Tammie Hynum, Manager, Technical and Administrative Branch, HWD, ADEQ
Jim Rigg, Geologist Supervisor, Active Sites Branch, HWD, ADEQ
Dianna Kilburn, Geologist, P.G., Active Sites Branch, HWD, ADEQ
Steve Drown, Program Support Manager, State Permits Branch, Water Div., ADEQ
Greg Patterson, Chief, Environmental Preservation Division, ADEQ

HAZARDOUS WASTE DIVISION
8001 NATIONAL DRIVE / POST OFFICE BOX 8913 / LITTLE ROCK, ARKANSAS 72219-8913 / TELEPHONE 501-682-0833 / FAX 501-682-0565
www.adeq.state.ar.us

ADEQ
ARKANSAS
Department of Environmental Quality

June 18, 2004

Attn: CESWL-ET-WP (Frauenthal)
Little Rock Corps of Engineers
P.O. Box 897
Little Rock, AR 72203

Mr. Frauenthal,

We have reviewed the data submitted previously concerning the May Branch Channel Project in Fort Smith and the track of route C. This information and information discussed during phone conversations with my staff do not indicate a Hazardous Waste Concern. Should any material appear suspect during the excavation, samples should be collected for analysis to determine if there is a risk to human health or the environment. Any soil removed should be disposed of properly based on knowledge of the material.

Because of the potential regulatory complexity of the project, a request for review should be sent to the Environmental Preservation Division with a letter stating the purpose of requesting a review, a project proposal, and a contact name, phone number and address for more information if it is needed. The Environmental Preservation Division will route your request to all appropriate divisions for review.

If you have any questions regarding this letter or our evaluation of your submittal, please contact Dianna Kilburn or Tammie Hynum of my staff or myself at 501-682-0833.

Sincerely,

Mike Bates, Chief
Hazardous Waste Division, ADEQ

cc: Joe Hoover, Technical Assistance Manager, Active Sites Branch, HWD
Tammie Hynum, Technical Assistance Manager, Tech. and Administrative Support Branch, HWD
Jim Rigg, Geologist Supervisor, Active Sites Branch, HWD
Dianna Kilburn, P.G., Geologist P.G., Active Sites Branch, HWD
Audree Miller, Pollution Prevention Program Coordinator, Environmental Preservation Division, ADEQ

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