



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
726 MINNESOTA AVENUE
KANSAS CITY, KANSAS 66101

DEC 11 1996

SEARCHED	INDEXED
SERIALIZED	FILED
Fulbright Sac River	
NOV 29 1996	
84	
0713	
12-11-96	

U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII (EPA)

Five-Year Review of Remedial Action

Fulbright/Sac River Landfills, Springfield, Missouri

I. Introduction

A. Statutory Authority

The EPA conducted this five-year review of a Superfund remedial action at the Fulbright/Sac River Landfills site pursuant to Section 121(c) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 (CERCLA); to Section 300.430(f)(4)(ii) of the National Oil and Hazardous Substances Contingency Plan (NCP); and pursuant to EPA/Office of Solid Waste and Emergency Response (OSWER) Directives 9355.7-02 (May 23, 1991), 9355.7-02A (July 26, 1994) and 9355.7-03A (December 21, 1995).

The purpose of a five-year review is to ensure that a remedial action remains protective of public health and the environment and that the remedial action is functioning as designed or planned. This five-year review was a "Type I" review, which is the most basic or simple, and which is appropriate for relatively simple or straightforward remedial actions for which construction has been completed. On June 4, 1992, EPA completed a Preliminary Close-Out Report, documenting the completion of the remedial action construction by potentially responsible parties (PRPs) for this site. This five-year review report will be made part of EPA's file and administrative record on this site.

No specific site inspection was conducted as part of this five-year review. However, city personnel are frequently at the site related to some of their activities on other nearby city facilities, including a wastewater treatment plant, a drinking water treatment plant, a police department firing range and an animal control shelter. The EPA has also visited this site on a frequent, but irregular, basis in oversight of the remedial action implemented and in followup to other events or activities, including some flooding and in our reassessment of ground water

40207414



SUPERFUND RECORDS



flow. The most recent EPA site visit was on September 6, 1995. The Missouri Department of Natural Resources (MDNR) visited the site on August 1, 1996, to inspect repairs that had been made to correct erosion of landfilled wastes into the adjacent river.

B. Site Characteristics

The EPA placed the Fulbright Landfill on the National Priorities List (NPL) in 1981. The locations of both landfills are shown on Figure 1. The Fulbright Landfill is located just north of the city of Springfield, east of Highway 13 and along the east bank of the South Dry Sac River. Municipal and industrial wastes were disposed in this 98 acre landfill from 1962 until 1968.

At about the time that the Fulbright Landfill closed, the city of Springfield opened and began operating the 114 acre Murray Landfill, which is now known as the Sac River Landfill. The Sac River Landfill operated from approximately 1968 until 1974. The Sac River Landfill is located about $\frac{1}{2}$ -mile northwest of the Fulbright Landfill, north of the Little Sac River, west of Highway 13 and north of Springfield.

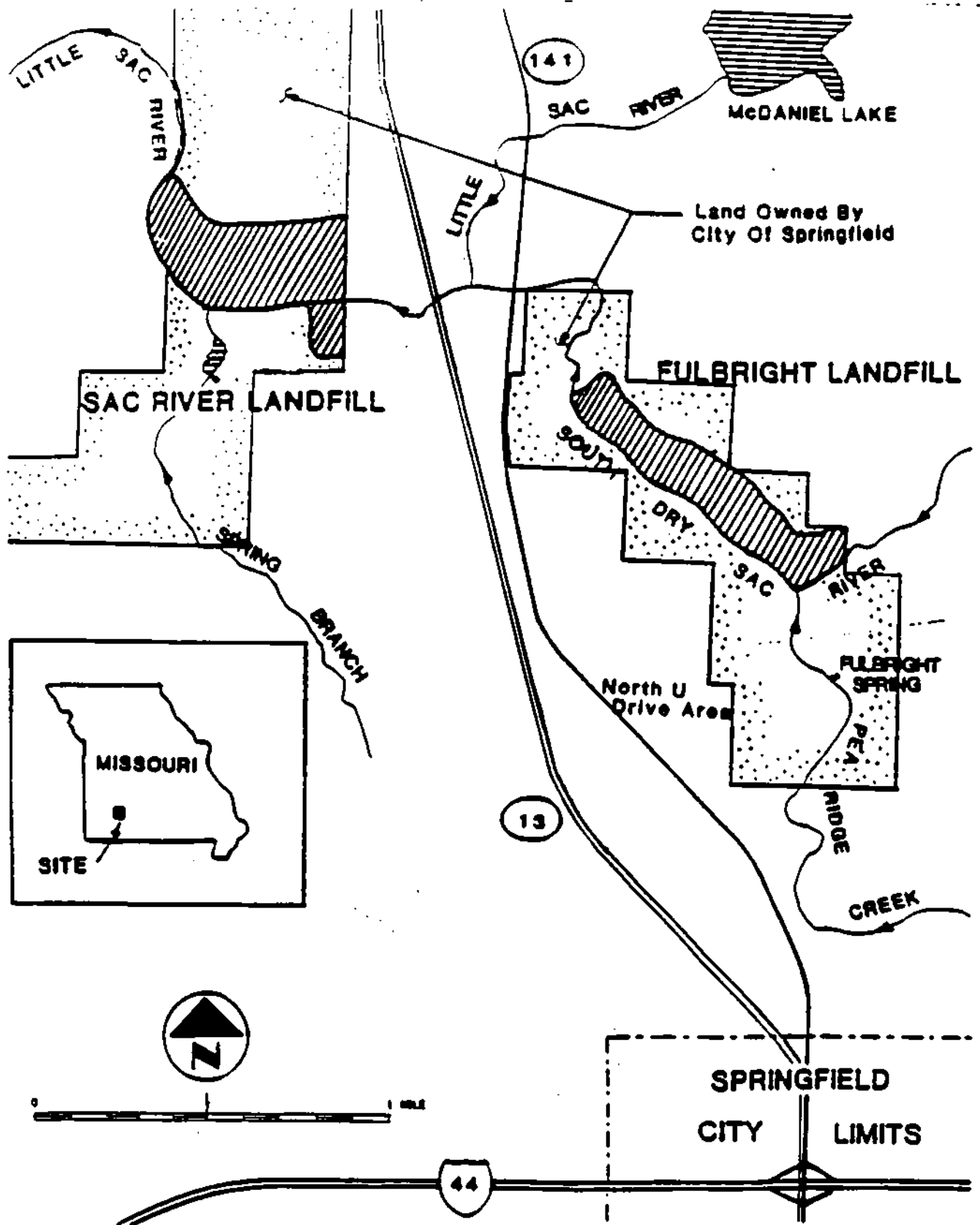
The Fulbright Landfill is somewhat elongated in shape and adjacent to and in the flood plain of the South Dry Sac River. Wastes were disposed in pits and in shallow trenches running perpendicular to the river. After the pits and trenches were filled with wastes, they were covered. However, in some places the cover is rather sparse.

The Sac River Landfill is circular in shape because most of the wastes were disposed in a circular abandoned rock quarry, although eventually wastes were landfilled beyond the original boundary of the quarry, extending down into the flood plain north of the Little Sac River. Once again, wastes were covered after placement in the abandoned quarry or in disposal trenches. Neither landfill has a liner on its bottom or sidewalls, and neither landfill has a leachate collection system.

The landfills may have received similar types of wastes for disposal, including trash, other domestic solid waste and industrial wastes. However, it is less certain that industrial or toxic wastes were disposed in the Sac River Landfill. Both landfills were closed and no longer received wastes for disposal prior to the effective date of the Federal Resource Conservation and Recovery Act (RCRA), which now regulates the generation, transportation, treatment and disposal of hazardous wastes.

The Fulbright Landfill was operated and closed prior to the effective date of the state of Missouri regulations for solid waste disposal and management. When EPA signed its Record of Decision (ROD) on this site in 1988, EPA believed that the Sac

Figure 1. APEA MAP



River Landfill was also closed prior to the effective date of the state of Missouri solid waste regulations. However, the MDNR in reviewing a draft of this five-year review report, advised EPA that if the Sac River Landfill (then operating under a different name) did not close until 1974, this landfill was in operation for several months after the June 30, 1973, effective date of the Missouri Solid Waste Management Laws and Regulations.

Industrial wastes disposed in the landfills are believed to have included: manufacturing process wastes such as cyanide wastes, filter cake and still residues; rubber wastes; pesticide wastes including pyrethrum residues; printing wastes; paint thinner and other paint wastes; and lubricating oil and sludge.

The principal contaminants found at the landfills during the remedial investigation/feasibility study (RI/FS) included metals and volatile organic compounds (VOCs) such as trichloroethylene, vinyl chloride and benzene. Cyanide wastes were known to have been disposed in the Fulbright Landfill. However, significant cyanide contamination was not found during the RI/FS at the site.

Although only the Fulbright Landfill was placed on the NPL, the RI/FS completed by potentially responsible parties (PRPs) for the site, as well as all subsequent work under the Superfund program addressed both landfills. The PRPs conducted the RI/FS pursuant to a Consent Administrative Order with EPA. The PRPs formed a steering committee (SSC) for this work, which consisted of the city of Springfield, as the owner and operator of the landfills, and Litton Industries, Inc., an owner of a company which generated some wastes disposed in the landfills.

Based upon the RI/FS, EPA signed a Record of Decision (ROD) on September 30, 1988, selecting short-term remedial actions for this site. The EPA has been the lead agency for the oversight of these remedial actions, and EPA wrote this five-year review report. The MDNR is the support agency on this site.

II. Remedial Action Objectives and Compliance

A. Remedial Action Objectives

The ROD signed by EPA in 1988 included four components in the remedial action:

1. Drummed wastes and contaminated soil were to be removed from a trench and a sinkhole on a bluff east of the Fulbright Landfill disposal trenches along the river for offsite disposal. Soil cleanup levels were not identified in the ROD. Therefore, EPA and Missouri Department of Health, using EPA's Risk Assessment Guidance for Superfund (RAGS), reviewed the residual levels of soil contamination remaining after the removal of the drummed wastes and visibly contaminated soil. It was

determined that the residual levels of contaminants left in the soil after the excavation and removal did not present a significant threat to human health or the environment at this site, under reasonably expected land uses.

2. Ground and surface water samples were to be collected and analyzed for contaminants found in the RI/FS.

3. There was a contingency for leachate control and collection. Leachate seeps were occasionally observed at both landfills during the RI/FS field work. However, no leachate seep was seen often or consistently enough to undertake a corrective action at the time the ROD was signed in 1988. Therefore, EPA identified a contingency, under which if leachate were consistently detected in potentially significant quantities with potentially significant concentrations of contamination in the future, then corrective measures would be undertaken as part of the remedial action.

4. Deed restrictions were to be placed on the property on which the landfills were located to limit the potential for human exposure to the wastes and hazardous substances disposed in the landfills.

B. Compliance

A Consent Decree was negotiated between EPA and the SSC for the implementation of the remedial action selected by EPA in the 1988 ROD. The effective date of the Consent Decree is February 1, 1990. The SSC completed the short-term remedial actions for this site pursuant to the Consent Decree and under EPA oversight, as follows.

1. The SSC completed the removal of drummed waste and contaminated soil from the trench and sinkhole on a bluff above the Fulbright Landfill on February 21, 1992. Analytical data on soil samples collected after the completion of this removal confirmed the SSC's completion of this work.

2. The city, on behalf of the SSC, collects and analyzes ground and surface water samples from the site on an annual basis. The monitoring well and surface water sample collection points are shown in Figure 2. The analytical data provided to EPA from these samples collected since the RI/FS was compiled by the city of Springfield in a September 20, 1995 report, entitled "Fulbright and Sac River Landfills, Water Sampling Data and Related Correspondence", which the city provided to both EPA and MDNR. Data from this report is summarized in Table 1.

3. Leachate seeps have not been consistently detected since the RI/FS at either landfill. Therefore, the contingency

TABLE 1-SUMMARY OF GROUND AND SURFACE WATER MONITORING DATA
FOR FULBRIGHT/SAC RIVER LANDFILLS

KEY- All data in parts per billion or micrograms/liter
 SRDG1S-collection point (in river) or well sampled
 Month/Year (of sample collection)
 - denotes no data for this period
 < denotes less than
 duplicate data reported under same month in separate columns

GROUNDWATER

SRDG1S (Sac River Landfill alluvial monitoring well)
 Sept 1992 Dec 93 Nov 94 Feb 95 May 95 Jn 96

Cd	-	-	12.8	7.52	<5	<5
Cr	-	-	76.3	30.9	11.8	<10
Pb	-	-	234	83.6	30.8	<5
VC	-	<2	<10	<2	<2	<2
CH3Cl	-	<1	<1	<1	<1	<1
1,2-DCA	-	<1	<1	<1	<1	<1
TCE	-	<1	<1	<1	<1	<1
benzene	-	22.5	13.2	<5	<5	19.7 ✓
toluene	-	<5	<5	<5	<5	<5
CB	-	10.1	<5	<5	<5	8.97 ✓
EB	-	<5	<5	<5	<5	<5

SRDG1D (Sac River Landfill bedrock monitoring well)
 Sept 1992 Dec 93 Oct 94 May 95 June 96

Cd	<5	-	<5	<5	<5
Cr	32.8	-	17.6	<10	<10
Pb	47.5	-	166	162	<5
VC	<2	<2	<2	<2	<2
CH3Cl	<1	<1	<1	<1	<1
1,2-DCA	<1	<1	<1	<1	<1
TCE	<1	<1	<1	<1	<1
benzene	<5	<5	<5	<5	<5
toluene	<5	<5	<5	<5	<5
CB	<5	<5	<5	<5	<5
EB	<5	<5	<5	<5	<5

FDG1S (Fulbright Landfill alluvial monitoring well)

	Sept 1992	Dec 93	Oct 94	May 95	June 96
Cd	-	-	6.14	<5	<5
Cr	-	-	191	49.2	56.3 ✓
Pb	-	-	93.2	<5	<5
VC	-	<2	<2	<2	<2
CH3Cl	-	<1	<1	<1	<1
1,2-DCA	-	<1	<1	<1	<1
TCE	-	<1	<1	<1	<1
benzene	-	<5	<5	<5	<5
toluene	-	<5	<5	<5	<5
CB	-	<5	<5	<5	<5
EB	-	<5	<5	<5	<5

-continued on page 2-

FDG1D (Fulbright Landfill bedrock monitoring well)						
	Sept 1992	Dec 1993	Oct 94	May 95	June 96	
Cd	<5	-	-	<5	<5/<5	<5
Cr	18.9	-	-	21.3	<10/15.4	<10
Pb	<20	-	-	<20	<5/<5	<5
VC	242	<2	38.1	322	9.65/7.04	16.7
CH3Cl	<1	<1	<1	<1	<1/<1	<1
1,2-DCA	5.5	<1	<1	2.01	<1/<1	<1
TCE	276	11.6	133	453	216/242	765
benzene	<5	<5	<5	<5	<5/<5	<5
toluene	<5	<5	<5	<5	<5/<5	10.5
CB	<5	<5	<5	<5	<5/<5	<5
EB	<5	<5	<5	<5	<5/<5	<5

NWWTP (treatment plant potable well)					
	Sept 92	Dec 93	Oct 94	May 95	Jn 96
Cd	<5	-	<5	<5	<5
Cr	<10	-	<10	<10	<10
Pb	<20	-	<20	<5	<5
VC	<2	<2	<2	<2	<2
CH3Cl	<1	<1	<1	<1	<1
1,2-DCA	<1	<1	<1	<1	<1
TCE	<1	<1	<1	<1	<1
benzene	<5	<5	<5	<5	<5
toluene	<5	<5	<5	<5	<5
CB	<5	<5	<5	<5	<5
EB	<5	<5	<5	<5	<5

SURFACE WATER

FDGSW (South Dry Sac River, downstream of Fulbright Landfill)					
	Sept 92	Dec 93	Oct 94	May 95	FLSW (New Sample Name)
					June 96
Cd	<5	-	<5	<5	<5 <5/<
Cr	<10	-	<10	<10	<10 <10/<10
Pb	<20	-	<20	<20	<5 <5/<5
VC	<2	<2	<2	<2	<2 <2/<2
CH3Cl	<1	<1	<1	<1	<1 <1/<1
1,2-DCA	<1	<1	<1	<1	<1 <1/<1
TCE	<1	<1	<1	<1	<1 <1/<1
benzene	<5	<5	<5	<5	<5 <5/<5
toluene	<5	<5	<5	<5	<5 <5/<5
CB	<5	<5	<5	<5	<5 <5/<5
EB	<5	<5	<5	<5	<5 <5/<5

SRDGSW (Little Sac River, downstream of Sac River Landfill)
 Sept 92 Dec 93 Oct 94 May 95 SRLSW (New Sample Name)

	Sept 92	Dec 93	Oct 94	May 95	June 96
Cd	<5	-	<5	<5	<5
Cr	<10	-	<10	<10	<10
Pb	<20	-	<20	<5	<5
VC	< -	<2	<2	<2	<2
CH3Cl	<	<1	<1	<1	<1
1,2-DCA	<1	<1	<1	<1	<1
TCE	<1	<1	<1	<1	<1
benzene	<5	<5	<5	<5	<5
toluene	<5	<5	<5	<5	<5
CB	<5	<5	<5	<5	<5
EB	<5	<5	<5	<5	<5

for leachate collection/control has not been implemented. The site will continue to be checked for evidence of leachate at least once per year during post-closure monitoring.

4. As the owner of the property on which the landfills are located, the city has placed restrictions on the property deed, thereby limiting future land uses at the site. The EPA reviewed this language and found it acceptable. In addition, the state of Missouri now has this site on the Missouri Registry of Hazardous Waste Sites, through which the State now also has some control over future land uses. Land uses today are substantially the same as they were in 1988. The city has been very diligent about checking with EPA about future land use planning for this area before proceeding with any plans that EPA might find unacceptable.

C. New Applicable or Relevant and Appropriate Requirements

In the course of conducting this five-year review, additional state applicable or relevant and appropriate requirements (ARARs) have been identified for the site: the Missouri Clean Water Law, 10 CSR 20-7.031 and the Solid Waste Management Law, 10 CSR 80-3.010. These state laws require corrective actions for the solid waste eroding into the Little Sac River along portions of the Fulbright Landfill. The city of Springfield, as the owner and operator of this landfill, has repaired the river bank erosion.

III. Recommendations

A. Ground Water Recommendations

The EPA identified the remedial actions selected in the 1988 ROD as short-term remedial actions. The EPA has not made a final decision as to whether or not additional remedial actions to address ground water will be required. There have been several developments relating to ground water since the 1988 ROD, which have led to some EPA recommendations for the ground water.

The analytical data from the analysis of ground water samples collected at the site is summarized in Table 1. No clearly identifiable trend in the overall level of ground water contamination is identified. While the concentrations of trichloroethylene in monitoring well FDG1D have been higher in 1995 and 1996 than earlier, the concentrations of vinyl chloride in this well are recently lower than earlier. The concentrations of contamination in the other monitoring wells vary less significantly.

There were several factors or considerations relevant to EPA's decision to not require a ground water remedial action in the 1988 ROD. These included:

-During the RI/FS, the ground water flow direction at the Fulbright Landfill, which is about ¼-mile northwest of a deep aquifer municipal drinking water well (Fulbright Well No. 1), was to the northwest, which is away from this drinking water well.

-To the extent that there was a vertical gradient between the upper aquifer (which contained low levels of contamination found during the RI/FS) and the deeper aquifer (which is used as a source of drinking water), the gradient appeared to be upward, at least for part of the site.

-Only low levels of shallow ground water contamination were found during the RI/FS. Dilution and attenuation would provide additional protection for Fulbright Well No. 1, even if the vertical and horizontal gradients were to change.

An investigation at a nearby Superfund site indicated that some private drinking water wells were going dry. The EPA determined that this warranted reassessing the ground water flow at the Fulbright/Sac River Landfills site, which was the basis of the remedial action selected for the site in the 1988 Record of Decision. The EPA asked MDNR/Division of Geology and Land Survey (DGLS) to assist EPA in reevaluating the hydrogeology at this site in 1993 and 1994.

It was determined that the vertical gradient between the upper and lower aquifers may now be downward. In addition, since Fulbright Well No. 1 pumps such large quantities of water, ground water in the deeper aquifer flows toward this well for the part of the year when the well is being pumped within a fairly large cone of influence, including at times the Fulbright Landfill.

The EPA shared this information with the city of Springfield, which in addition to being a PRP on this site, also uses water from Fulbright Well No. 1 for some of its municipal drinking water. The city monitors all of its sources of drinking water and has not found contamination from the site in the water samples from Fulbright Well No. 1.

The EPA Region VII Superfund Program recommended that the city consider installing an early warning monitoring well to determine if contaminated ground water has migrated from the site toward Fulbright Well No. 1. The EPA also suggested that the city might consider using a former water supply well between the Fulbright Landfill and Fulbright Well No. 1 for such monitoring, while noting that the usability of any data from the former well would be limited because the depth from which this well obtains water is not known.

The EPA then recommended, if contamination were found migrating from the site toward Fulbright Well No. 1, that the city consider certain protective measures to prevent Fulbright

Well No. 1 from becoming contaminated, such as recasing the well through the surface alluvial soil deposits down into the Northview Shale, a confining layer above the deeper bedrock which is the source of the drinking water for Fulbright Well No. 1. Alternately, EPA suggested that the city could consider just recasing Fulbright Well No. 1 even without data from an early warning monitoring well. However, recasing Fulbright Well No. 1 would probably reduce its capacity somewhat.

The city of Springfield has advised EPA that it is considering these recommendations. At this time, the EPA Superfund Program is not attempting to require this work of the city or the PRPs on this site. The EPA Region VII Superfund Program believes that the city, as the user of Fulbright Well No. 1, can also evaluate the costs and the benefits of the recommendations made by EPA.

The EPA has decided not to require these actions of the city at this time, nor to amend its ROD or amend the Consent Decree to require the implementation of our recommendations for the following reasons:

-Fulbright Well No. 1 is not pumped all year long. The intermittent nature of the pumping reduces the probability that contamination from the landfills will reach the well.

-The potential for contamination to migrate through the Northview Shale is still limited and provides some degree of protection for Fulbright Well No. 1.

-Ground water migrating from the site will be diluted with the lower levels of contamination from other parts of the site and from portions of the site where ground water is not contaminated.

-Most of the ground water withdrawn by Fulbright Well No. 1 is not from the vicinity of the landfills and is free of any contamination from the landfills. Therefore, even if contamination from the landfills were to reach Fulbright Well No. 1, it will be diluted with uncontaminated ground water flowing into Fulbright Well No. 1 from other directions. The degree of such dilution is substantial.

-The city tests water from Fulbright Well No. 1 before it is used as a source of public drinking water.

-Finally, even when Fulbright Well No. 1 is pumped it provides only a portion of the municipal drinking water. Even if contamination were to reach Fulbright Well No. 1 in detectable concentrations, the contamination would be diluted with other uncontaminated sources of drinking water in the municipal supply.

In addition, volatile contaminants such as TCE and vinyl chloride could be volatilized and released from the water as the water is treated.

B. Erosion Control

During the September 6, 1995 site visit, trash and solid waste were observed in a 400-500 foot long stretch of the Fulbright Landfill adjacent to the South Dry Sac River. This was observed along the southwest part of the Fulbright Landfill where disposal trenches had extended to the edge of the river bank. Trash and solid waste could be seen in some parts of the river and appeared to have recently eroded from the disposal trenches and fallen into the river. The MDNR, as well as city personnel and contractors, were present for the site visit and observed the solid waste entering the river from the Fulbright Landfill.

It was agreed that the city would amend their Post-Closure Monitoring and Maintenance Plan to include measures to remove the threat of solid waste entering the adjacent rivers from the landfills. Subsequently, the city submitted a Stream Bank Stabilization Workplan on November 9, 1995, to EPA and MDNR for review. These repairs have been completed by the city, as documented in their August 7, 1996, Streambank Stabilization Report. A copy of this report is attached to the five-year review report.

IV. Protectiveness

The remedial action selected in the 1988 ROD and implemented by the SSC continues to be protective of human health, welfare and the environment. The ground and surface water monitoring will continue. The deed restrictions for future land use are in place and have been effective. So far, leachate has not been consistently found at any location at the site. Therefore, the contingency for leachate collection/control has not been implemented. Solid waste had been observed entering the Little Sac River from disposal trenches along the southwest edge of the Fulbright Landfill. Responsible parties have made the necessary corrections to prevent the continued release of solid waste into the river as part of their post-closure monitoring and maintenance for the site.

V. Next Five-Year Review

Unless pertinent portions of the statute (CERCLA) or the regulations (the NCP) change, EPA Region VII expects to conduct the next five-year review of the remedial action at this site in the year 2000.



Michael J. Sanderson
Director
Superfund Division

12/9/96
Date

Attachments Figure 1, Area Map
 Table 1, Ground and Surface Water Monitoring Data
 Figure 2A and 2B, Locations of Monitoring Wells
 and Surface Water Sample Collection Points
 city of Springfield August 7, 1996 Streambank
 Stabilization Report

CITY of
SPRINGFIELD



***FULBRIGHT LANDFILL
STREAMBANK
STABILIZATION PROJECT***

August 7, 1996

Prepared by

***City of Springfield
Department of Public Works
Solid Waste Division
830 Boonville Avenue
Springfield, Missouri***

EXECUTIVE SUMMARY

The Fulbright Landfill was operated by the City of Springfield for the disposal of municipal and industrial solid wastes generated in the Springfield area from 1962 through 1968. The Fulbright Landfill covers ninety-eight (98) acres and is located along the South Dry Sac River, a tributary of the Little Sac River. The EPA placed the Fulbright Landfill on its National Priorities List (NPL) of hazardous waste sites in 1981 and the site was added to the Missouri Registry of Abandoned or Uncontrolled Hazardous Waste Disposal Sites (Registry) in 1984. The site was placed on the Registry because the facility closure included leaving waste in place.

In November 1995 the Missouri Department of Natural Resources (MDNR) identified three areas along the South Dry Sac River streambank that needed stabilization due to the erosion of the streambank which resulted in exposed waste and leachate.

A workplan for the streambank stabilization project was submitted to the MDNR in March 1996 and was approved by the MDNR on June 25, 1996. The Springfield Department of Public Works, Solid Waste Management Division initiated construction activities on June 28, 1996 to address erosion of the streambank of the South Dry Sac River. Construction activities included removal and stockpiling of cover soils, for the beneficial reuse of soil in final grading activities. Waste material was removed, transported and properly disposed of at the Fulbright Landfill. The streambank was returned to its near original grade and shape with additional erosion control measures put in place to help stabilize the streambank for the future. Revegetation of the affected areas was accomplished by fertilizing, seeding grasses and planting trees.

A final inspection of the project was conducted by the Missouri Department of Natural Resources on August 1, 1996.

PROJECT:
Fulbright Landfill

Streambank Stabilization

COMMENTS:
Exposed waste along the South Dry Sac River prior to construction activities.

PHOTOGRAPHER:
D. Whitaker
SCALE:
S. Short
DATE:
May 29, 1996



PROJECT:
Fulbright Landfill

Streambank Stabilization

COMMENTS:
Exposed waste along the South Dry Sac River prior to construction activities.

PHOTOGRAPHER:
D. Whitaker
SCALE:
S. Short
DATE:
May 29, 1996



PROJECT:
Fulbright Landfill
Streambank Stabilization

COMMENTS:
Exposed waste along the South Dry Sac River prior to construction activities.

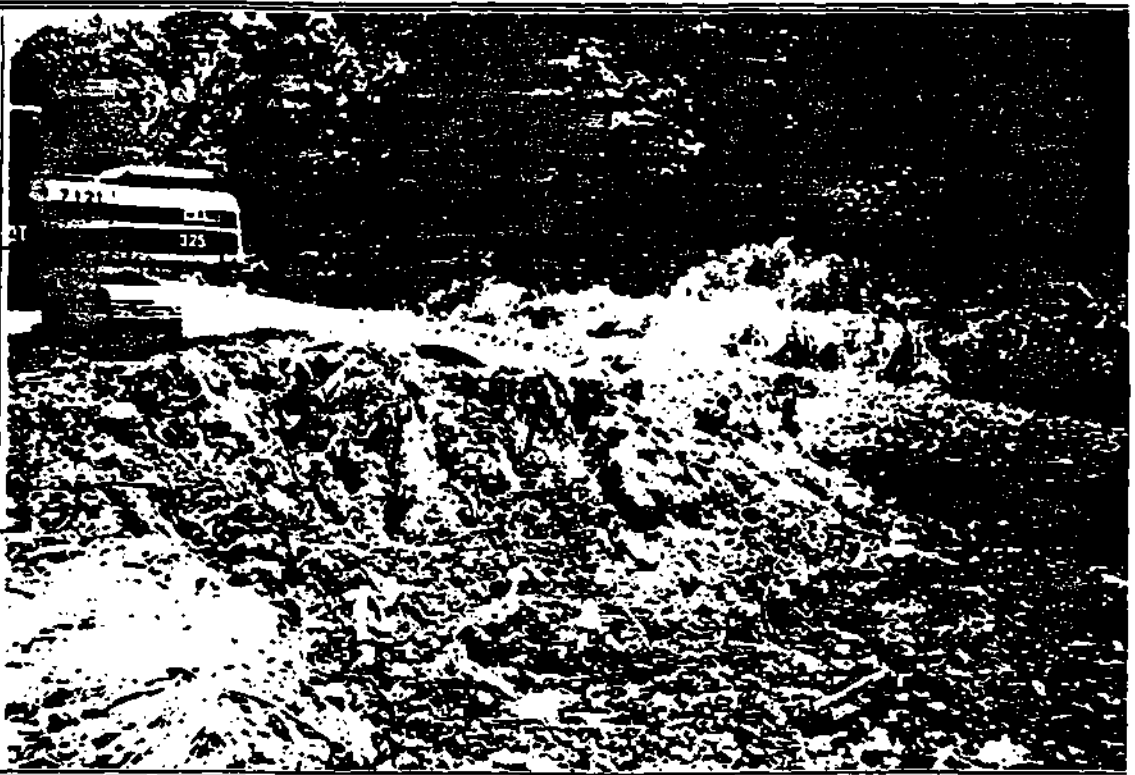
PHOTOGRAPHER:
D. Whitaker
SCALE:
S. Short
DATE:
May 29, 1996



PROJECT:
Fulbright Landfill
Streambank Stabilization

COMMENTS:
Excavation and waste removal along the streambank.

PHOTOGRAPHER:
D. Whitaker
DATE:
July 11, 1996



PROJECT:
Fulbright Landfill
Streambank Stabilization

COMMENTS:
Construction activities.
Grading the streambank.
Looking north.

PHOTOGRAPHER:
D. Whitaker

DATE:
July 15, 1996



PROJECT:
Fulbright Landfill
Streambank Stabilization

COMMENTS:
Final grade prior to seeding.
Note silt fence and transplanted trees saved during excavating.
Looking east.

PHOTOGRAPHER:
D. Whitaker

DATE:
July 15, 1996



PROJECT:
albright Landfill
Streambank Stabilization

COMMENTS:
Erosion control mat
and transplanted trees
along the streambank.
Looking south.

PHOTOGRAPHER:
D. Whitaker

DATE:
July 26, 1996



PROJECT:
Fulbright Landfill
Streambank Stabilization

COMMENTS:
Project completed.
Area 1.
Looking north.

PHOTOGRAPHER:
D. Whitaker

DATE:
August 5, 1996



PROJECT:
Fulbright Landfill
Streambank Stabilization

COMMENTS:
Project completed.
Area 2 and 3.
Looking north.

PHOTOGRAPHER:
D. Whitaker

DATE:
August 5, 1996

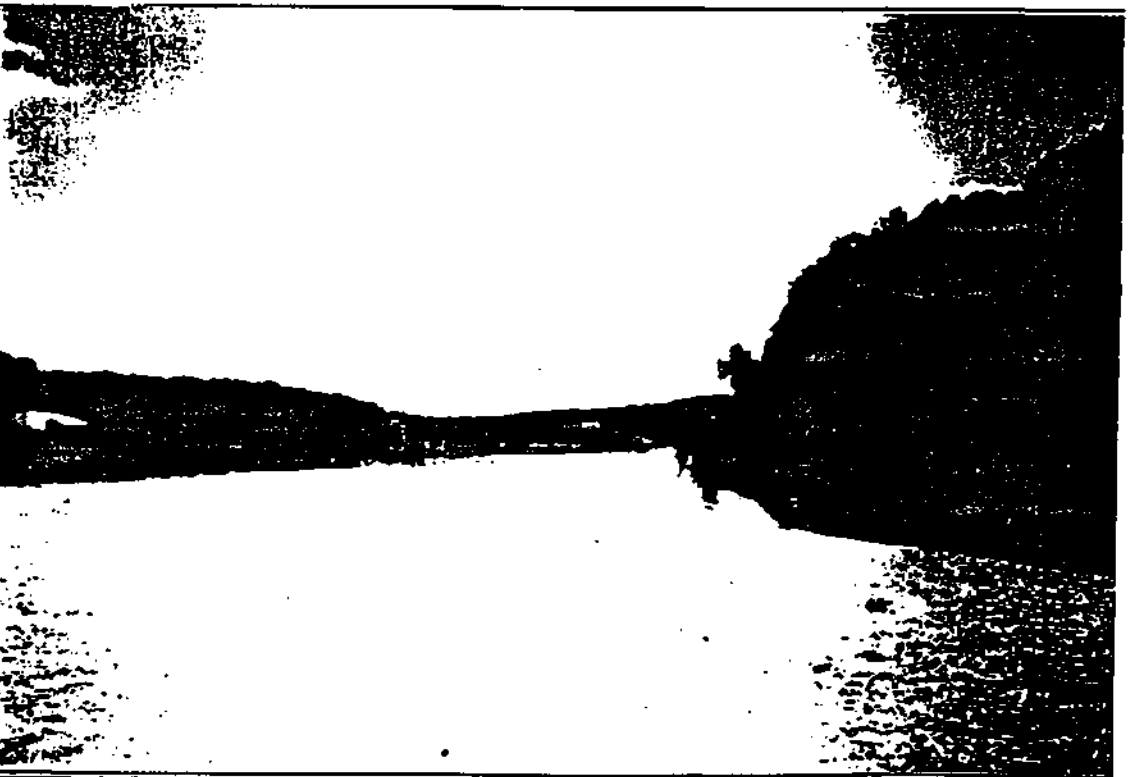


PROJECT:
Fulbright Landfill
Streambank Stabilization

COMMENTS:
Project completed.
Area 2 and 3.
Looking north.

PHOTOGRAPHER:
D. Whitaker

DATE:
August 5, 1996



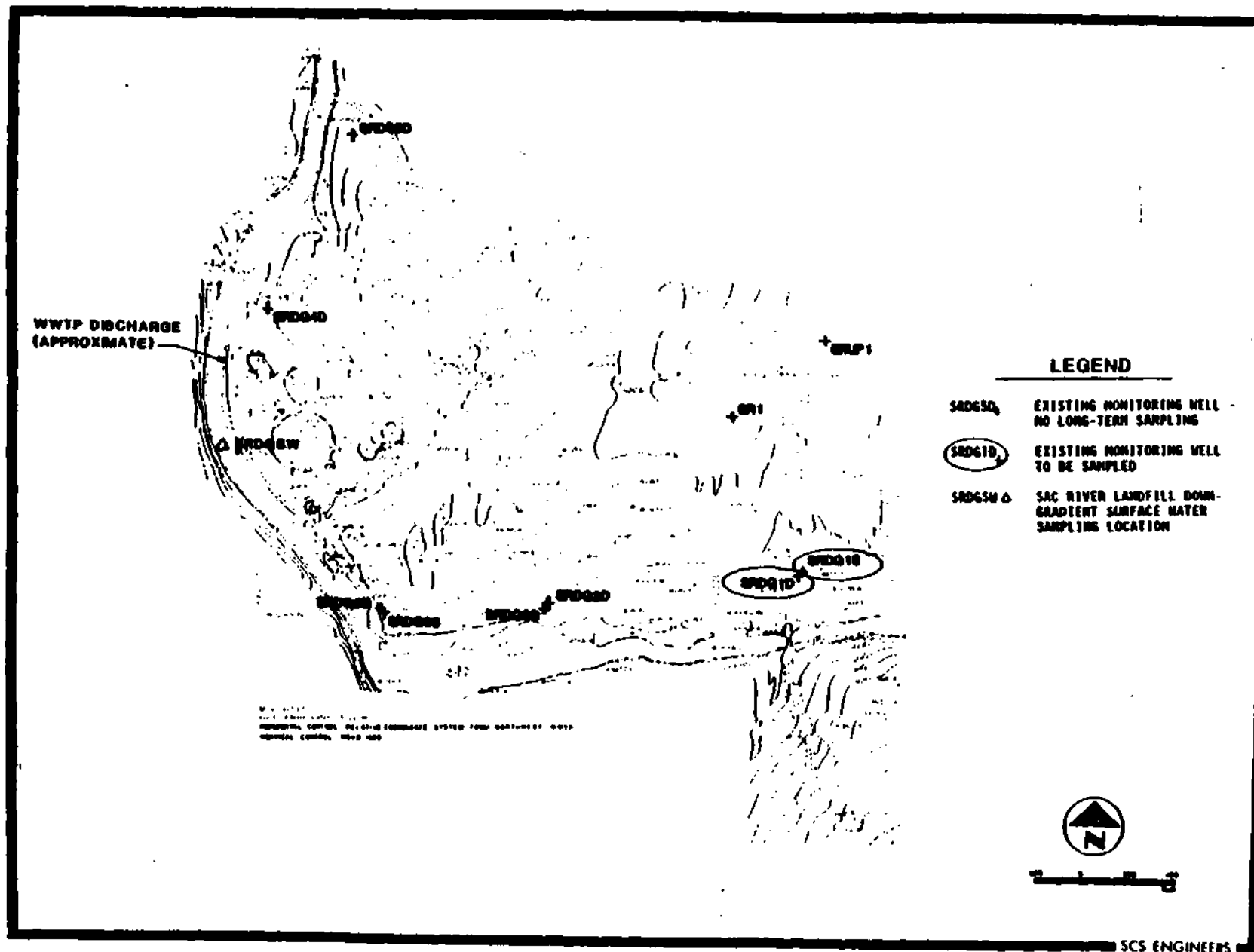


Figure 2B Groundwater and Surface Water Sampling Locations for the Long-Term Monitoring Program at Sac River Landfill.