St. Louis Site

National Priorities List

Document

NPL-FRU6-2-58

Proposed final
NPL-U8-2-6
10/89

National Priorities List

Superfund hazardous waste site listed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended in 1986

ST. LOUIS AIRPORT/HAZELWOOD INTERIM STORAGE/FUTURA COATINGS CO.
St. Louis County, Missouri

Conditions at listing (May 1989): The St. Louis Airport/Hazelwood Interim Storage/Futura Coatings Co. Site is in St. Louis County, Missouri. It consists of three areas used for storing radioactive and other wastes from uranium processing operations conducted in St. Louis by the Atomic Energy Commission (AEC) and its successor, the U.S. Department of Energy (USDOE). None of the three areas is now owned by the Federal Government.

The St. Louis Airport area covers 21.7 acres immediately north of Lambert St. Louis International Airport, approximately 15 miles northwest of downtown St. Louis. It is bounded by a railroad track, Coldwater Creek, and McDonnell Boulevard. Radioactive metal scrap and drums of waste were stored in the airport area in uncovered and unstabilized piles from 1947 to the mid-1960s, when they were transferred 0.5 mile northeast to AEC's Hazelwood Interim Storage (HIS) area. Buildings in the airport area were razed, buried, and covered with clean fill after 1967. In 1969, the land was conveyed to the St. Louis-Lambert Airport Authority.

HIS and the Futura Coatings Co. plant cover 11 acres adjacent to Latty Avenue, Coldwater Creek, and Hanley Avenue. In 1966, Continental Mining and Milling Co. acquired the property and recovered uranium from wastes purchased from AEC's St. Louis operations. In 1967, the company sold the property, and by 1973 most processing residues had been removed. Under the direction of the Nuclear Regulatory Commission (NRC), the present owner excavated contaminated soil and is storing it in two large piles in the eastern portion of the 11 acres. Since the 1970s, Futura Coatings, a manufacturer of plastic coatings, has leased the western portion.

High levels of uranium, thorium, and radium are present in surface and subsurface soils and ground water near the airport area, according to tests conducted by NRC (1976), Oak Ridge National Laboratory (1977), and a USDOE contractor (1986). Radon-222 was present in the air near the area in the USDOE tests. An office building with 24,000 employees is within 0.5 mile of the site.

In 1982, USDOE conducted preliminary studies of radioactive contamination of the ditches along the sides of the roads leading to the site. In 1986, boreholes were drilled to continue the contamination study and collect geological information. In 1984, USDOE cleared the HIS/Futura Coatings area, constructed a vehicle decontamination facility, installed a perimeter fence, excavated and backfilled the edges and shoulders of Latty Avenue, and consolidated contaminated soils into a pile. In 1986, during a city road improvement project, contaminated soil from roads leading to all the areas was excavated. USDOE plans further studies in all areas, which will lead to additional remedial action.

Status (August 1989): USDOE is continuing to conduct studies to characterize the site. USDOE, the Missouri Department of Natural Resources, and EPA will begin negotiations shortly on an Interagency Agreement for remedial activities.

Facility name: St. Louis Airport/Hazelwood Interim Storage/Futura Coating Site

Location: St. Louis County, Missouri

EPA Region: VII

Person(s) in charge of the facility:

Name of Reviewer: Jill R. Biesma
Robert Aston
Terry Hagen

Date: June 3, 1988

General description of the facility:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

The St. Louis Airport (SLAP) Site and the Latty Avenue properties consisting of the Hazelwood Interim Storage (HIS) Site and the Futura Coatings (FUTURA) Site are located near the Lambert St. Louis International Airport. These Sites were used for storing radioactive by-product wastes and other wastes resulting from a U.S. Department of Energy (DOE) uranium processing operation. All three sites are under investigation through DOE's Formerly Utilized Sites Remedial Action Program (FUSRAP). The SLAP Site, which is 21.7 acres, is located immediately north of the Lambert St. Louis International Airport, approximately 15 miles northwest of downtown St. Louis, Missouri. The HIS and FUTURA Sites are located in the City of Hazelwood, Missouri, approximately one-half mile north of the SLAP Site. Radioactive material which resulted from uranium processing operations was stored at the SLAP Site from 1947 to 1967. In 1967, the stored residues were transferred to the HIS and FUTURA Sites. These materials were later transferred to another site in Colorado. High levels of uranium, thorium, and radium have been detected in soil and groundwater samples near the SLAP facility. Radon 222 has also been detected in air at concentrations significantly above background at this facility. Radioactive wastes from cleanup of the FUTURA and HIS Sites and adjacent haul roads are currently being stored on the HIS Site in two storage piles.

Scores: $S_M = 38.31$ (S_{GW} = N.A. $S_{SW} = 10.91$ S_a = 65.36)

S_{FE} = N.A.

S_{DC} = N.A.

HRS COVER SHEET Comment Response dr R.D. McBrien 9/20/89

QA Reviewed 10/18/89

Surface Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 (45)	1	45	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 1 2 3	1		3	
1-yr. 24-hr. Rainfall	0 1 2 3	1		3	
Distance to Nearest Surface Water	0 1 2 3	2		6	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score				15	
3 Containment	0 1 2 3	1		3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 (8)	1	8	8	
Total Waste Characteristics Score			26	26	
5 Targets					4.5
Surface Water Use	0 1 (2) 3	3	6	9	
Distance to a Sensitive Environment	(0) 1 2 3	2		6	
Population Served/Distance to Water Intake Downstream	(0) 4 6 8 10 12 16 18 20 24 30 32 35 40	1		40	
Total Targets Score			6	55	
6 If line 1 is 45, multiply 1 x 4 x 5. If line 1 is 0, multiply 2 x 3 x 4 x 5				64,350	
7 Divide line 6 by 64,350 and multiply by 100	S_{sw} = 10.91				

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

BUMCB 9/20/89

NOT EVALUATED

Ground Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1		45	3.1
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.					
2 Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 2 3	2		6	
Net Precipitation	0 1 2 3	1		3	
Permeability of the Unsaturated Zone	0 1 2 3	1		3	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score				15	
3 Containment	0 1 2 3	1		3	3.3
4 Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 12 15 18	1		18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				26	
5 Targets					3.5
Ground Water Use	0 1 2 3	3		9	
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1		40	
Total Targets Score				49	
6 If line 1 is 45, multiply 1 x 4 x 5. If line 1 is 0, multiply 2 x 3 x 4 x 5				57,330	
7 Divide line 6 by 57,330 and multiply by 100		S_{gw} = N.A			

Air Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 (45)	1	45	45	5.1
Date and Location:	1986 and 1987 quarterly air samples at SLAP Site air monitoring stations.				
Sampling Protocol:	Terradex Type-F Track-Etch Detectors				
If line 1 is 0, the S_a = 0. Enter on line 5 If line 1 is 45, then proceed to line 2					
2 Waste Characteristics					5.2
Reactivity and Incompatibility	(0) 1 2 3	1	0	3	
Toxicity	0 1 2 (3)	3	9	9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 (8)	1	8	8	
	Total Waste Characteristics Score		17	20	
3 Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 (27) 30	1	27	30	
Distance to Sensitive Environment	(0) 1 2 3	2	0	6	
Land Use	0 1 2 (3)	1	3	3	
	Total Targets Score		30	39	
4 Multiply 1 x 2 x 3			22,950	35,100	
5 Divide line 4 by 35,100 and multiply by 100		S_a = 65.38			

	s	s^2
Groundwater Route Score (S_{gw})	NE	—
Surface Water Route Score (S_{sw})	10.91	119.03
Air Route Score (S_a)	65.38	4274.54
$s_{gw}^2 + s_{sw}^2 + s_a^2$		4393.57
$\sqrt{s_{gw}^2 + s_{sw}^2 + s_a^2}$		66.28
$\sqrt{s_{gw}^2 + s_{sw}^2 + s_a^2} / 1.73 = S_M$		38.31

FIGURE 10
WORKSHEET FOR COMPUTING S_M

Bomcb
9/20/89

DOCUMENTATION RECORD
FOR
HAZARDOUS RANKING SYSTEM

INSTRUCTIONS:

As briefly as possible, summarize the information you used to assign the scores for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference. Include the location of the document.

FACILITY NAME: St. Louis Airport/Hazelwood Interim Storage Site (SLAP/HIS/FUTURA Site)

LOCATION: St. Louis County, Missouri

DATE SCORED: June 3, 1988

PERSON SCORING: Jill Biesma, Jacobs Engineering Group
Robert Aston, Jacobs Engineering Group
Terence Hagen, Jacobs Engineering Group

PRIMARY SOURCE(S) OF INFORMATION (e.g., EPA region, state, FIT, etc.):

Department of Energy Characterization Reports

FACTORS NOT SCORED DUE TO INSUFFICIENT INFORMATION:

Groundwater and surface water routes were not evaluated because targets have not been identified.

10/18/88

GROUND WATER ROUTE

NOT EVALUATED

1. OBSERVED RELEASE Not evaluated - no targets

Contaminants detected (5 maximum):

Rationale for attributing the contaminants to the facility:

2. ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

Depth from the ground surface to the highest seasonal level of the saturated zone (water table) of the aquifer(s) of concern:

Depth from the ground surface to the lowest point of waste disposal/storage:

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

Radium-226
Thorium-230
Uranium

Reference #6

Rationale for attributing the contamination to the facility:

Radium-226, Thorium-230, and Uranium and are components of wastes generated from uranium processing and other activities and were stored at the site in unstabilized and uncovered piles between 1947 and 1967. Results of environmental surveys in the 1980s indicated that surface and subsurface soils are contaminated with these substances at levels significantly above background. (Ref. 16) No other radioactive waste sources are known to exist in the immediate vicinity of the site.

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

Name/description of nearest downslope surface water:

Average slope of terrain between facility and above-cited surface water body in percent:

Is the facility located either totally or partially in surface water?

RDM&B 9/20/89

Is the facility completely surrounded by areas of higher elevation?

1-Year 24-Hour Rainfall in Inches

Distance to Nearest Downslope Surface Water

Physical State of Waste

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Method with highest score:

Bonnie B 9/20/89

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

Radium-226
Thorium-230
Uranium

References 6, 8, and 16

Compound with highest score:

Uranium Toxicity/Persistence Value = 18

Reference 18

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

At least 41100 tons of hazardous wastes were deposited at the SLAP site.

Basis of estimating and/or computing waste quantity:

See p. 8A

* * *

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

Recreational use by children living within 2 miles of site.

Factor value = 2

Reference 25

S.D. McB 9/20/89

Basis of Computing Waste Quantity
(Reference 8, p. 7; and Reference 16, pp. 2-1 and 2-4)

Waste Material	Quantity *
(1) Contaminated steel and alloy scrap.	3,500 tons
(2) Drums containing miscellaneous residues, Japanese uranium containing sand, and contaminated scrap metal.	600 tons
(3) 50 to 60 truckloads of contaminated metal scrap, not calculated because of lack of data.	------
TOTAL	4,100 tons

* Note: All quantities were converted to tons using the conversion factors given in reference 17, p. 19.

S.U. McB. 9/20/89

Is there tidal influence?

NO

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

N/A

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

N/A

Distance to critical habitat or an endangered species or national wildlife refuge, if 1 mile or less:

N/A

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

N/A

R.D McB 9/20/89

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

N/A

Total population served:

N/A

Name/description of nearest of above water bodies:

N/A

Distance to above-cited intakes, measured in stream miles:

N/A

BWMcB 9/20/89

AIR ROUTE

1. OBSERVED RELEASE

Contaminants detected (5 maximum):

222 Radon at Station 2; mean = 4.3 pCi/ℓ (Ref. 24)
background is about 0.6 pci/ℓ (Ref. 24)

Statistical analysis of quarterly air monitoring data obtained at the SLAP Site for 1986 and 1987 indicates an observed release of Radon-222 to air at monitoring station two. Radon-222 is a natural decay product of Radium-226 (References 23 and 24).

Date and location of detection of the contaminants:

Quarterly air monitoring data for 1986 and 1987 at various locations at the SLAP Site provide evidence of a release of Radon-222 to air (Reference 8, page 15; and References 7, 23 and 24). Radon concentrations measured include the background concentration of approximately 0.3 to 0.5pCi/l (Reference 8, p. 14; and Reference 24). The measured concentrations exceed the average outdoor Radon concentrations for land areas in the northern hemisphere of 0.1-0.15 pCi/l (Reference 10, p. 25; and Reference 11, pp. 79). Some detected concentrations exceed the median indoor Radon concentration of 0.96 pCi/l for the state of Missouri (Reference 12, p. 229). Outdoor background concentrations of Radon are expected to be lower than these indoor values due to dispersion of Radon into the atmosphere.

Methods used to detect the contaminants:

Terradex Type-F alpha particle track-etch recorders with exposure periods of three months were used for measuring the average quarterly concentrations of Radon-222 gas at the sampling stations at the SLAP Site. The track-etch technique utilizes a plastic nuclear track detector mounted in a plastic cup with a filter permeable to Radon over the open end. This detector is exposed to the atmosphere to measure the Radon concentration in the air. Alpha particles from Radon in the air penetrate the detector and cause radiation damage tracks that are subsequently revealed by an etching process performed in the lab. This technique of measuring Radon gas concentrations is commonly used to measure Radon levels around uranium milling and mining sites (Reference 13, pp. 2, 3, 8-11). Each air monitoring station at the SLAP Site consists of a single Type-F track-etch recording cup inside a protective cannister mounted one meter above the ground surface (Reference 15, pp. 1). These detectors are installed and exchanged as per manufactures instructions (Reference 14). The protective cannisters, built by Bechtel, consist of an 8-inch long, 4-inch diameter PVC pipe which is capped at one end. The detectors are placed inside the cannisters and attached to the cap at the top of the cannisters. A piece of nylon screen is

10/8/92

then placed over the open end of the cannister. These cannisters were mounted one meter above the ground with the screened end pointing downward(Reference 15).

The track-etch detectors used at the SLAP Site have a lower limit of detection (LLD) of 0.2 pCi/l-month (Reference 15). This detection limit is based upon the standard deviation of the background distribution σ_B In the case of track-etch detectors, the standard deviation of the background distribution is related to the background track density T_B and the area of the detector utilized by the laboratory for the analysis (A) by: $\sigma_B = \sqrt{(T_B/A)}$.

The standard deviation is then converted to an equivalent Radon exposure by means of the calibration factor expressed in tracks/mm^2 per pCi/l-months. The lower limit of detection is defined as 4.66 (calibration factor) times the standard deviation of the background distribution (Reference 13, pp.7-8).

Rationale for attributing the contaminants to the site:

Wastes generated from uranium processing and other activities were stored at the site in unstabilized and uncovered piles between 1947 and 1967. In addition, approximately sixty truck loads of contaminated scrap metal and a contaminated vehicle were reported to have been buried at the SLAP Site. The wastes which were stored at the site included drums containing miscellaneous residues, Japanese uranium containing sand, and contaminated scrap metal (Reference 8, p. 7; and Reference 16, pp. 2-1 and 2-4). Results of environmental surveys in the 1980s indicated that surface soils and subsurface soils are contaminated with Uranium 238 and Radium 226 throughout various areas of the site at concentrations significantly above background levels (Reference 16, p. 1-3). No other radioactive waste sources are known to exist in the immediate vicinity of the site.

SCORE = 45

2. WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

Radioactive residues present on all three subsites are believed to be relatively stable. It is not known whether the intermixing of these residues poses a threat of a fire or explosion.

SCORE = 0

Most incompatible pair of compounds:

None found

Toxicity

Most toxic compound:

Uranium (Reference 18)

SCORE = 9

Hazardous Waste Quantity

Total quantity of hazardous substances at the site (Give a reasonable estimate even if quantity is above maximum):

At least 4,100 tons of hazardous wastes were deposited at the SLAP Site, as documented below:

SCORE = 8

Basis of estimating and/or computing waste quantity:

Basis of Computing Waste Quantity
(Reference 8, p. 7; and Reference 16, pp. 2-1 and 2-4)

Waste Material	Quantity *
(1) Contaminated steel and alloy scrap.	3,500 tons
(2) Drums containing miscellaneous residues, Japanese uranium containing sand, and contaminated scrap metal.	600 tons
(3) 50 to 60 truckloads of contaminated metal scrap, not calculated because of lack of data.	-----
TOTAL	4,100 tons

* Note: All quantities were converted to tons using the conversion factors given in reference 17, p. 19.

10/18/

3. TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi | 0 to 1 mi | (0 to 1/2 mi) | 0 to 1/4 mi

The McDonnell Douglas Corporation borders the SLAP Site on the west and southwest (Reference 16, p. 3-20). The office buildings of this company are within one-half mile of contaminated surface soil on the SLAP Site (Reference 16, pp. 3-19 and 3-27). Twenty four thousand employees (24,000) of this company work at the location adjacent to the SLAP Site (Reference 19).

SCORE = 27

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

No coastal wetlands exist within two miles of the site.

SCORE = 0

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

No fresh-water wetlands are known to exist within one mile of the site (Reference 16, pp. 1-2 and 3-18; and Reference 22).

SCORE = 0

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

No critical habitat areas are known to exist within one mile of the site (Reference 16, pp. 1-2, 3-17, and 3-18).

SCORE = 0

Land Use

Distance to commercial/industrial area, if 1 mile or less:

The McDonnell Douglas Corporation borders the SLAP Site to the west and the southwest (Reference 16, p. 3-20). Thus, the distance to an industrial area is less than one-fourth mile.

SCORE = 3

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

No national or state park, forest, or wildlife reserve is known to exist within two miles of the site (Reference 22).

Distance to residential area, if 2 miles or less:

The nearest residential area is in Hazelwood, one-half mile from the SLAP Site. This area of Hazelwood has 75 to 100 residents (Reference 16, p. 3-20).

Distance to agricultural land in production within past 5 years, if 1 mile or less:

No agricultural land is known to exist within one mile of the site (Reference 16, pp. 3-18, 3-19, and 3-20).

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

No agricultural land is known to exist within one mile of the site (Reference 16, pp. 3-18, 3-19, and 3-20).

Is a historic or landmark site (National Register of Historic Places and National Natural Landmarks) within view of the site?

There are no archaeological or historical sites or districts which are included in the National Register of Historic Places within one mile of the site (Reference 16, p. 3-21).

REFERENCES

1. St. Louis FUSRAP sites 120 IAG, Federal Facility Agreement Draft Report.

2. Chemical Characterization Plan For The St. Louis Airport Site And The Latty Avenue Properties, DOE/ORO/20722-190.2, prepared by Bechtel National, Inc., Oak Ridge, Tennessee, for the U.S. Department of Energy, Formerly Utilized Sites Remedial Action Program (FUSRAP), Oak Ridge Operations Office, Oak Ridge, Tennessee, February 1988.

3. Radiological Characterization Plan For the Haul Roads And Adjacent Properties, In The St. Louis Airport Site Area, Hazelwood and Berkeley, Missouri, DOE/OR/20722-165, prepared by Bechtel National Inc., Oak Ridge, Tennessee, For The United States Department of Energy, Formerly Utilized Sites Remedial Action Program (FUSRAP), Oak Ridge Operations Office, Oak Ridge, Tennessee, August 1987.

4. Radiological Survey of Latty Avenue In The Vicinity Of The Former Cotter Site Hazelwood/Berkeley, Missouri (LM001). ORNL/TM-10006, prepared by Oak Ridge National Laboratory, Oak Ridge, Tennessee, For The U.S. Department Of Energy, May 1987.

5. Radiological Survey Of Properties In The Vicinity Of The Former Cotter site, Hazelwood/Berkeley, Missouri (LM003), ORNL/TM-10008, prepared by the Oak Ridge National Laboratory, Oak Ridge, Tennessee, for the U.S. Department Of Energy, May 1987.

6. Summary of Radiological Data for SLAPS, HISS and FUTURA.

7. Attachment 1 to letter From: Mr. Andy Avel, U.S. Department of Energy To: Mr. John Chen, U.S. Environmental Protection Agency, dated September 30, 1987.

8. Environmental Monitoring Report - St. Louis Airport Storage Site, Formerly Utilized Sites Remedial Action Program (FUSRAP), Contract No. DE-AC05-81OR20722, Department of Energy, Calender Year 1986, May 1987.

9. Characterization Report For The Hazelwood Interim Storage Site, Hazelwood, Missouri, DOE/OR/20722-141, prepared by Bechtel National Laboratories, Inc., Oak Ridge, Tennessee, for the U.S. Department of Energy, Formerly Utilized Sites Remedial Action Program (FUSRAP), Oak Ridge Operations Office, Oak Ridge, Tennessee, June 1987.

10. NCRP Report No. 77 - Exposure From The Uranium Series With Emphasis On Radon And Its Daughters, March 15, 1984, page 25.

11. NCRP Report No. 45 - Natural Background Radiation In The United States, November 15, 1975, page 79.

12. Alter, H. Ward, and Oswald, Richard A., Nationwide Di Indoor Radon Measurements: A Preliminary Data Base, AP Vol. 37, No. 3, December 1987.

13. Alter, H.W., Gingrich, J.E., and Oswald, R.A., Monitoring Uranium Mine and Mill Sites with Passive Integrating Detect Presented At: International Symposium On Management Of Waste Uranium Mining And Milling, May 1982.

14. Terradex, Installation Instructions For Track-Etch Type-F Radon

15. Telephone Conversation Record (TCR) To: Mr. Clay Davis of Bechtel National, Inc. From: Mr. Bob Aston, Jacobs Engineering Group, Date: May 10, 1988, Subject: Installation Of Terradex Radon Detectors, and an open borehole near air monitoring station #2.

16. Roy F. Weston, Inc., Environmental Impact Assessment of Former Airpo Storage Site of the Atomic Energy Commission, St. Louis County, Miss Draft Report, October 1978.

17. Uncontrolled Hazardous Waste Ranking System, A Users Manual, United States Environmental Protection Agency, 1984 Publication.

18. Sax, N. Irving and J. Lewis, Sr., Dangerous Properties of Industria Materials, 7th edition, Van Nostrand Reinhold, New York, 1989.

19. Telephone Conversation Record (TCR) To: Mr. Joe Copeland, McDonnel Douglas Corporation, From: Ms. Jill R. Biesma, Jacobs Engineering Group, Date: November 9, 1987, Subject: McDonnell Douglas Corporati employment and water usage.

20. Federal Register, Part VII, Environmental Protection Agency - Final and Proposed Amendment to National Oil and Hazardous Substances Con Plan; National Priorities List, September 8, 1983, Pages 40663 and 40664.

21. Snedecor, George W. and William G. Cochran, Statistical Methods, Iowa State University Press, Ames, Iowa, 1967.

22. USGS Topographic Map, Florissant, Missouri quadrangle, 7.5 minute series 1974, USGS Topographic Map, St. Charles, Missouri quadrangle 7.5 minute series 1954, USGS Topographic Map, Clayton, Missouri, 7.5 minute series 1974, and USGS Topographic Map, Creve Coeur, Miss quadrangle, 7.5. minute series 1954.

23. Telephone conversation Record (TCR) To: Mr. Channing Johnson, the MITRE Corporation, From: Ms. Jill R. Biesma, Jacobs Engineering Group, Date: January 12, 1988, Subject: Statistical Analysis requir for an observed air release.

24. Biesma, Jill R. and Hagen, Terence D., of Jacobs Engineering Group Inc., Observed Air Release Statistical Analysis, June 3, 1988.

25. Photographs showing recreational use of Coldwater Creek.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
726 MINNESOTA AVENUE
KANSAS CITY, KANSAS 66101

FAX COVER SHEET

TO: Mark Byrnes	MAIL CODE:
COMPANY NAME: SAIC	
FAX NO.: (615) 481-8590	
CONFIRMATION NO:	
FROM: Greg McCabe	
PHONE: (913) 551-7709	MAIL CODE:
DATE: 12/1/92	NUMBER OF PAGES TO INCLUDE THIS COVER LETTER 22

COMMENTS

Mark-

per your request.

Greg

(XEROX COPIER 7020)		FAX MACHINE NO:	VERIFICATION NO:
WSTM/SPFD	COMMERCIAL	913-551-7063	913-551-7052
	FTS 2000	276-7063	276-7052
RCRA/IOWA	913-551-7521 OR 276-7521		913-551-7058 OR 276-7058
MAIL ROOM	COMMERCIAL	913-551-7467	913-551-7211
	FTS 2000:	276-7467	276-7211

FUSRAP Document Management System

Year: 00 | ID: 2773

Further Info? ☐

Operating Unit: St. Louis Sites | Site: | Area: | MARKS Number: FN:1110-1-8100g

Primary Document Type: Site Management | Secondary Document Type: Reference Documents

Subject or Title: Fax Copy of the St. Louis Sites National Priorities List Document for SLAPS, HISS and Futura Coatings Co. dated October 1989

Author/Originator: Greg McCabe | Company: USEPA | Date: 12/1/1992

Recipient (s): Mark Byrnes | Company (-ies): SAIC | Version: Final

Original's Location: Central Files | Document Format: Paper | Confidential File? ☐

Include in which AR(s)?

- ☑ North County
- ☐ Madison
- ☐ Downtown
- ☐ Iowa

Comments:

SAIC number:

Bechtel ID:

ETL: 1.6

Filed in Volume: 1