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EPA Superfund
Record of Decision:

AGRICULTURE STREET LANDFILL
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RECORD OF DECISION

AGRICULTURE STREET LANDFILL SUPERFUND SITE

OPERABLE UNIT 4 - Moton Elementary School
OPERABLE UNIT 5 - Groundwater

NEW ORLEANS, LOUISIANA

Prepared by:

U.S. Environmental Protection Agency
Region 6
Dallas, Texas

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DECLARATION FOR THE RECORD OF DECISION
AGRICULTURE STREET LANDFILL SITE

OPERABLE UNIT 4 - Moton Elementary School
OPERABLE UNIT 5 - Groundwater

No Federal Response Action is Necessary for Protection

SITE NAME AND LOCATION

Agriculture Street Landfill Superfund Site,
Operable Unit 4 - Moton Elementary School
Operable Unit 5 - Groundwater
New Orleans, Louisiana

STATEMENT OF BASIS AND PURPOSE

The United States Environmental Protection Agency (EPA) has determined that no remedial actions are necessary to ensure the protection of human health and the environment on two of the five operable units that define the Agriculture Street Landfill Superfund Site (site) in New Orleans, Louisiana. The 2 operable units are Moton Elementary School, including the Mugrauer Playground (OU4), and groundwater (OU5). The EPA's decision is in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund), 42 U.S.C. º 9617 and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR 300. This decision is also supported and based on materials and documents contained in the Administrative Record for this site.

The State of Louisiana concurs on the selected remedy.

DESCRIPTION OF THE REMEDY

OU4

EPA has selected no action as the remedy for Operable Unit 4 at the site. EPA's rationale for this decision is that previous actions have addressed all risks posed by this portion of the site and that no further action is necessary for this operable unit. Information obtained in the course of site investigations indicated that a three-foot layer of clean fill had been placed over the property during construction of the school facility in 1985. The Moton School property was further evaluated in the Human Health Risk Assessment, which concluded that no risk attributable to site related contaminants remains at the school property.

OU5

EPA has selected no action as the remedy for Operable Unit 5 at the site. During site investigative activities, information obtained from the Louisiana Department of Environmental Quality (LDEQ) indicated that groundwater beneath the Site is not used for any beneficial purpose and should not be considered a potential source of drinking water. Residents in the site area are served by the municipal drinking water supply of the City of New Orleans. Site groundwater presents no other pathway of exposure. Thus, no action is warranted for this operable unit.

Because these no-action remedies will result in hazardous substances remaining onsite, a review

will be conducted every five years after commencement of remedial action in accordance with CERCLA Section 121(c), 42 U.S.C. Section 9621(c). Should future reviews indicate that the site poses an unacceptable risk to human health or the environment, then EPA may initiate response actions under the authority of CERCLA and in accordance with the NCP.

STATUTORY DETERMINATIONS

No remedial actions for OU4 and OU5 are necessary to ensure protection of human health and the environment.

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DECISION SUMMARY

FOR OPERABLE UNITS 4 AND 5
FOR THE
AGRICULTURE STREET LANDFILL SUPERFUND SITE
NEW ORLEANS, LOUISIANA

I. INTRODUCTION

This Record of Decision (ROD) describes the basis for the "No Action Decision" for OU4 (Moton Elementary School including the Mugrauer Playground) and groundwater (OU5).

The site consists of five operable units: the undeveloped fenced property (OU1), residential property (OU2), Press Park Community Center (OU3), Moton Elementary School including the Mugrauer Playground (OU4), and groundwater (OU5). Soil removal activities planned for OU1, OU2 and OU3 will be pursued as a non-time-critical removal action, to facilitate the site cleanup work and reduction of any risk in an expeditious manner.

II. SITE LOCATION AND DESCRIPTION

Location

The Agriculture Street Landfill Superfund site (site) is approximately 95 acres and is located in the eastern section of the city of New Orleans (Figure 1). The approximate geographic coordinates for the center of the former landfill are 29559'20" north latitude and 90502'31" west longitude. The site is bound on the north by Higgins Boulevard, and on the south and west by the Southern Railroad rights-of-way. The eastern site boundary extends from the cul-de-sac at the southern end of Clouet Street, near the railroad tracks, to Higgins Boulevard between Press and Montegut streets. The site is partially redeveloped today, as depicted on Figure 1.

To effectively investigate and develop alternatives for the remediation of the site, EPA divided the site into five operable units (OUs):

- OU1 - The undeveloped (currently fenced-in) property;
- OU2 - The residential development which consists of the Gordon Plaza Apartments, single family dwellings in Gordon Plaza subdivision, and the Press Court town homes;
- OU3 - Press Park Community Center;
- OU4 - Moton Elementary School which includes Mugrauer Playground; and,
- OU5 - Groundwater.

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III. SITE HISTORY AND ENFORCEMENT ACTIVITIES

Operations at the site began in approximately 1909 and continued until the landfill was closed in the late 1950's. The landfill was reopened for approximately one year in 1965 for use as an open burning and disposal area for debris left in the wake of Hurricane Betsy. Records indicate that during its operation the landfill received municipal waste, ash from the city's incineration of municipal waste, and debris and ash from open burning. There is no evidence that industrial or chemical wastes were ever transported to, or disposed of at, the site.

From the 1970's through the late 1980's, approximately 47 acres of the site were developed for private and public uses that included: private single-family homes, multiple-family private and

public housing units, Press Park Community Center, a recreation center, retail businesses, the Moton Elementary School, and an electrical substation. The remaining 48 acres of the former landfill are currently undeveloped and covered with dense vegetation. Illegal dumping continues to occur on this portion of the site. Previous investigations on the undeveloped property have indicated the presence of hazardous substances, pollutants, or contaminants at concentrations above background and/or regulatory levels.

In 1986, EPA Region 6 conducted a Site Inspection and prepared a Hazard Ranking System (HRS) documentation record package utilizing the 1982 HRS model. The site score was not sufficient for the site to be considered for proposal and inclusion on the NPL. Pursuant to the requirements of Superfund Amendment and Reauthorization Act of 1986 (SARA), which amended the original Superfund legislation, EPA published a revised HRS model on December 14, 1990. At the request of area community leaders, EPA initiated, in September 1993, an Expanded Site Inspection (ESI) to support the preparation of an updated HRS documentation record package that would evaluate the site's risks using the revised HRS model. Subsequently, on August 23, 1994, the site was proposed for inclusion on the NPL as part of NPL update No. 17, and on December 16, 1994, EPA placed the site on the NPL.

Prior to 1994, access to OU1, the undeveloped portion of the former landfill, was unrestricted, allowing unauthorized waste disposal and exposure to contaminants of potential concern such as lead, arsenic and carcinogenic polynuclear aromatic hydrocarbons (cPAHs) found in the surface and subsurface soils. In a time-critical removal action, initiated in March 1994, EPA installed an 8-foot-high, chain-link fence topped with barbed wire around the entire undeveloped portion of the former landfill.

Concurrent with the removal action, EPA performed a Remedial/Removal Integrated Investigation (RRII) of the entire site. RRII fieldwork was conducted from April 4 through June 20, 1994. Samples of surface and subsurface soil, sediment, surface water, groundwater, air, dust, tap water, garden produce, and paint chips collected during the field investigation were submitted to specialized laboratories for analysis. Aerial photographs, geophysical investigations and computer modeling were used to supplement the analytical data in defining site boundaries and evaluating migration pathways. These data were also used to prepare the Human Health Risk Assessment and the Ecological Risk Assessment.

Based on information presented in the RRII report, EPA conducted a second time-critical removal action at the site in February 1995, and performed confirmational air and groundwater sampling. Through this sampling event, EPA was able to obtain a second round of analyses of the groundwater, to clarify earlier identified ambient air contaminants, and to verify composition and magnitude of indoor air contaminants.

The removal action consisted of removing playground equipment from the Press Park Community Center. The equipment was located in a children's play area which exhibited surface soil lead contamination above 1,000 milligram/kilogram (mg/kg). The depression created by removal of the equipment was built up to grade with clean backfill, and the entire area was sodded with heavy grass to create a restrictive barrier and to limit contact with contaminated soils.

In March of 1996, EPA completed a third time-critical removal action to repair the fence around the undeveloped area (OU1). Portions of the fence had been breached and required repair.

The RRII confirmed that the actions implemented during the construction of the Moton Elementary School, removed the potential for exposure to site contaminants. During school construction in 1985, three feet of surface soil were excavated and replaced with three feet of clean fill. However, soil data collected on-site at a number of residential developments (OU2) and the community center (OU3) indicated varying levels of site contaminants. This is due in part to the

absence of an adequate soil barrier.

Numerous attempts have been made to encourage the city of New Orleans, which is the only potentially responsible party (PRP) for this site, to perform or finance site investigations, or provide in-kind services for the response actions planned for OU1, OU2, and OU3. Evidence of this effort is highlighted in the site's Administrative Record. The PRP has expressed its inability to fund any of these actions to date. As a result, EPA used funds from the Hazardous Substance Superfund to finance the RRII and Engineering Evaluation/Cost Analysis (EE/CA) for the entire site, and all other response actions to date.

IV. HIGHLIGHTS OF COMMUNITY PARTICIPATION

The EPA began investigation of the site in 1986. Under the 1982 Hazard Ranking System used to rank a site for placement on the National Priorities List (NPL), the site did not score sufficiently high for placement on the NPL. At the request of residents from the Agriculture Street Landfill area, an Expanded Site Inspection was conducted by EPA in September 1993. The additional information was used to evaluate the Site under the revised 1990 Hazard Ranking System. The site ranked and was subsequently proposed for inclusion on the NPL on August 23, 1994.

In 1993, prior to the site being placed on the NPL, the Louisiana Office of Public Health and the Agency for Toxic Substances and Disease Registry (ATSDR) established a community assistance panel (CAP) for citizens living near the Agriculture Street Landfill site. The intent of the program was to exchange information, address the community's health concerns, and in conjunction with EPA, assist the community in better understanding the Superfund process.

EPA opened an outreach office on the site in April 1994 to involve the community at every level of the Superfund technical and administrative process on a personal, face-to-face basis. The outreach office, located in one of the Press Park town homes, is staffed by a resident of the community, houses the Administrative Record and other Superfund documents, and provides a reception area and reading room for document review.

In April 1994, the community and the city of New Orleans were informed of EPA's plans to perform an in-depth investigation on the site. During the sampling efforts that commenced in April 1994, the community was provided a copy of the sampling plan for review and comment. Although preliminary sampling activities had started, EPA wanted to make sure that the residents' concerns and comments were incorporated into the investigation. The sampling efforts concluded on May 26, 1994, and data was evaluated.

To keep all segments of the community informed of site activities associated with the Superfund process, two meetings were conducted each time EPA scheduled an information meeting. Morning meetings accommodated senior citizens, and evening meetings were available for other residents of the site and the general public. Information meetings were conducted September 14-15, 1994, to respond to concerns associated with the ranking of the site, the process, and the roles of various agencies.

A Technical Assistance Grant (TAG) was awarded by EPA on September 27, 1994. Meetings were held October 18 and 19, 1994, to discuss the grant, which was awarded to the Concerned Citizens of Agriculture Street Landfill, Inc.(CCASL).

From November 29, 1994, through December 1, 1994, EPA and ATSDR met with residents individually to discuss the data results of samples taken on their property. Information meetings were also held to explain the results of the detailed site study. A draft copy of the Remedial Removal Integrated Investigation Report (RRII), Volumes 1-4, dated October 1994, was provided to the

CCASL and filed at the Community Outreach Office for the community's review and comments.

On December 16, 1994, the Agriculture Street Landfill site was added to the NPL in a final rulemaking. At that time and throughout the Superfund process, EPA responded to numerous inquiries from Congressional representatives and city officials seeking answers to various site-related issues raised by the residents (see Attachment 3 - Administrative Record).

Based on information presented in the draft RRII report, EPA conducted another time-critical removal action at the site in February 1995, to address elevated levels of lead found on the Press Park Community Center property, and to perform additional groundwater sampling and air monitoring.

The RRII report was completed in March 1995, and a copy of the report was presented to the community during the information meeting held July 12, 1995. The EPA also developed and distributed a fact sheet that responded to comments the CCASL group submitted to EPA on the draft RRII report.

As noted above, numerous efforts have been pursued to encourage the city of New Orleans to contribute funds or in-kind services to site response activities.

On March 22, 1996, EPA Assistant Administrator, Elliott Laws, and the Region 6 Administrator, Jane Saginaw, met with site residents to discuss site issues, alternatives, and community concerns.

The community and TAG advisor were provided with copies of the draft Proposed Plan of Action and draft EE/CA Report on April 17, 1996, for comments and input. EPA also conducted workshops on specific topics to make the information more accessible to the community before the decision making process began, to ensure that the community was involved in the process and that its concerns were identified and addressed.

An outreach proposal was developed and presented to the community for its input during EPA's May 29, 1996, information meeting. Also during this meeting, EPA arranged for a resident of the former Carver Terrace subdivision, located on the Koppers Texarkana Superfund site, to speak with residents on how his community secured a Congressionally mandated buyout. At the conclusion of the meeting EPA agreed to: 1) continue its efforts to determine whether other government agencies had programs which could accommodate the requests of residents who desired to be relocated; and, 2) provide an opportunity for residents to become familiar with the draft Plan, before starting the decision process. Community groups also used this period to pursue other means to secure a buyout for residents who desired to move, since EPA data did not support relocation as the "preferred alternative" under Superfund.

EPA officials met with a community leader in December 1996 to discuss the community's concerns and EPA's desire to start the decision process. The community expressed its readiness to start the process. On February 20, 1997, EPA released an Information Bulletin notifying the community that the Decision Process would begin soon.

On February 28, 1997, the Proposed Plan of Action was formally released. The public was notified that site documents were available in the Administrative Record, maintained at the information repositories located at EPA's outreach office at the site, the EPA-Region 6 Office, and the Louisiana Department of Environmental Quality. Notice of the public meetings scheduled on March 19, 1997, was published in the Times Picayune on March 4, 1997. Oral comments were accepted at the public meetings, and transcripts of these meetings were added to the Administrative Record. More than 170 people attended the March 19 meetings; over 120 people commented on the record.

The public comment period was held from March 5, 1997, through April 12, 1997; upon receipt of a request for an extension, EPA accepted comments from the public through May 12, 1997.

Review of public comments revealed that the community objected to leaving the undeveloped property fenced without further response action. Although alternatives for the undeveloped property were initially presented to the community for comment in April 1996, through a draft Proposed Plan Fact Sheet and EE/CA, and again during a formal comment period from March 5 through May 12, 1997, EPA provided an additional opportunity to submit any remaining comments on the alternatives for the undeveloped property in July 1997. A 30-day informal comment period started July 7, 1997 and concluded August 5, 1997. Responses to the comments received during the formal and informal comment periods are included in the Responsiveness Summary (see Attachment 2).

In addition to Fact Sheets typically used to present site findings, activities, and status, EPA also began publishing Information Bulletins in May 1996, to address particular questions/concerns posed by the residents on the draft Proposed Plan of Action and perceived complications that might occur with a soil removal action.

The EPA's response to comments received during the public comment period, the public meetings, and the informal comment period are provided in the Responsiveness Summary attached to this ROD. The decision for Moton Elementary School (OU4) and groundwater (OU5), are based on the Administrative Record.

V. SCOPE AND ROLE OF OPERABLE UNITS 4 AND 5

As stated above, EPA divided the site into five operable units (OUs):

- OU1 - The undeveloped (currently fenced-in) property;
- OU2 - The residential developments which consist of the Gordon Plaza Apartments, single family dwellings in Gordon Plaza subdivision, and the Press Court town homes;
- OU3 - Press Park Community Center;
- OU4 - Moton Elementary School which includes Mugrauer Playground and recreational center; and,
- OU5 - Groundwater

EPA is planning a non-time-critical removal action for Operable Units 1-3. The Action Memorandum for this site describes the non-time-critical removal action that will be implemented at the remaining 3 OUs; the undeveloped property (OU1), the residential properties (OU2), and Press Park Community Center (OU3).

EPA has selected the no action remedial alternative for Moton School (OU4) and groundwater (OU5), because these operable units pose no current or potential threat to human health or the environment. The Human Health Risk Assessment for the site confirmed that no risk attributable to site-related contaminants remains at the school property. Site investigations, together with the information that groundwater beneath the site is not a potential drinking water source, revealed that there is no potential for exposure to humans or the environment from groundwater.

Findings in this decision document that no further action is necessary to protect human health and the environment at the Moton School property should clear the way for beneficial utilization of the property by the City of New Orleans or the New Orleans School Board. In accordance with EPA policy on partial deletion of sites listed on the National Priorities List, EPA may propose OU4 and OU5 of this site for partial deletion from the NPL.

VI. SITE CHARACTERISTICS

The RRII performed on the entire site included characterization of: surface and subsurface soil; groundwater; surface water and sediment; air; garden produce; tap water; indoor dust; and paint.

This section provides a summary of findings related to the site geology and hydrogeology, and nature and distribution of landfill material. An overview of soil and groundwater characteristics of OU4 and OU5, are also presented.

SITE GEOLOGY

The geology beneath the former landfill is typical of a delta area. Lithology to a depth greater than 80 feet below ground surface (BGS) consists of the following units, in descending order: a sandy-clayey silt surficial soil; landfill material; peat/organic clay; silty clay; clay; silty-sandy clay with numerous shells; interbedded silts, clays, and sands; and fine to medial grained sand with some silt or clay.

The usually somewhat vegetated sandy-clayey silt surficial soil is present to a depth of one foot BGS across most of the site. On the Moton School property, approximately three feet of clean, fine to medium grained silty sand comprises the surficial soil unit.

Landfill material is encountered at most locations within the site boundaries. Landfill material is thickest (maximum measured depth of 17 feet) across the interior of the site and thins radially outward toward the former landfill perimeter. Based on current site topography and geotechnical studies conducted prior to construction on the developed portion of the site, landfill material could possibly be thicker than the maximum measured values at a few locations (e.g., current topographically highest points) within the interior of the site.

The peat/organic clay unit is approximately ten feet thick across the site. The peat layer within the unit varies in thickness from six inches to two feet and is both thicker and more distinguishable at the site boundaries. The organic clay is silty and contains wood, roots, and other plant material. Landfill material is never encountered below this unit. In general, the depth to the top of the peat/organic clay unit is greater across the interior of the site, where landfill material is thickest. This general relationship might reflect peat removal during landfill activities, compaction of the unit by landfill loading, or a natural topographic depression in the peat layer.

The peat/organic clay unit is underlain by the approximately 50 foot thick sequence of predominantly silty and clayey lithologies presented above. This lithologic sequence is encountered at depths of approximately 12 feet BGS at the site boundaries to 25 feet BGS within the site interior. Due to very low hydraulic conductivity, this sequence is a controlling element with respect to site hydrogeology. A fine to medium grained sand with some silt or clay is present at depths of 55 to 67 feet BGS. Regional geologic data indicate that the base of this sand unit will not be deeper than approximately 120 feet BGS.

SITE HYDROGEOLOGY

Two distinct groundwater units are present in the shallow subsurface beneath the site; the near surface shallow zone and the deeper sand unit. These two groundwater units are separated by the approximately 50 foot thick sequence of predominantly silty and clayey lithologies, which function as an effective, low permeability confining unit.

Shallow Zone

The shallow zone is unconfined. Depth to the water table ranges from approximately two feet BGS

to eight feet BGS. The water table is usually encountered at greater depths in the topographically higher central areas of the site. The base of the shallow zone occurs within the silty clay lithologic unit at some depth between 15 feet BGS.

The shallow zone exhibits a radial flow pattern centered on an area of high groundwater levels beneath the developed portion of the site proximate to Moton School and Mugrauer Playground. This radial flow pattern is definitely a reflection of groundwater discharge into the Florida Avenue and Peoples Avenue canals through cracks in the canal walls. In addition, the central area of groundwater mounding might also reflect one or a combination of the following: leakage from the sewer and water lines serving the developed area; upward movement of groundwater from the sand unit along conduits that have breached the confining unit during past/existing development, such as the Moton School foundation pilings or improperly abandoned wells in the southeastern portion of the mounded water table area (associated with structures that were demolished in the late 1940's to early 1950's); and naturally occurring, continuous upward leakage of groundwater, through the confining unit, from the sand unit to the shallow zone.

Sand Unit

The sand unit exhibits artesian characteristics, with most of the wells having hydraulic heads that rise above ground surface by as much as 4.6 to 4.7 feet (i.e., sand unit groundwater is under sufficient pressure for the wells to flow). As noted above, regional geological data indicate that the base of the sand unit will not be deeper than approximately 120 feet BGS.

Groundwater flow in the sand unit is predominantly from north to south with additional flow components to the west and southeast. All sand unit/shallow zone well clusters exhibit strong upward vertical hydraulic gradients.

NATURE AND DISTRIBUTION OF LANDFILL MATERIAL

Several types of waste materials are present on site, but not all of these materials are associated with former landfill activities. Waste materials found at the site can be categorized based on when disposal occurred: during landfill operations prior to Hurricane Betsy, during landfill operations after Hurricane Betsy, and after landfill operations had ceased.

Unauthorized disposal of trash (e.g., yard wastes, old tires, automobile parts, household wastes, cars, and construction debris potentially containing asbestos) continued on the undeveloped portion of the site until it was fenced by EPA in 1994 under removal authority. Trash is above ground and visible. Household debris consists of paper, cans, plastic, glass, and similar trash.

Landfill material encountered during the RRII is thoroughly mixed with natural soil materials (e.g., silts and clays). The landfill material was composed primarily of glass, metal, brick, and wood debris set in a reddish brown, fine grained matrix underlain by a layer of similar debris mixed with black ash and natural soil materials. The black ash layer is normally wet, somewhat plastic, and exhibits a hydrocarbon like or diesel odor. The landfill material generally exhibits low BTU and high ash contents, and relatively low percentages of chlorine and sulfur. The presence of ash and other observed debris is usually indicative of complete combustion, which would yield low BTU and high ash content residue material.

SOIL CHARACTERIZATION

The present source of contamination at the site is surface and subsurface soils that have been impacted by the addition of municipal wastes and incinerator ash during the operational history of the former landfill. Contaminants were detected in surface soils on both the undeveloped

portion and the developed portion of the former landfill. Contaminant concentrations are generally lower in the surface soils of developed areas due to mixture with and dilution by imported fill or topsoil during construction. Only Moton School and Mugrauer Playground surface soils appear relatively unaffected by the site. This finding is consistent with reports that clean fill was imported into the school area prior to and during construction.

Principle contaminants in on-site soils are lead, arsenic, and cPAHs. Dioxins were never detected at concentrations exceeding 1 ug/kg, a standard used by EPA for residential cleanup at other Superfund sites. Urban man-made contaminants, especially pesticides such as 4,4'-DDT and chlordane, were widespread across the site and in background locations.

Lead concentrations in surface soils from the Moton School property on the developed portion of the former landfill are below 21 mg/kg (see Figure 2). This is consistent with importation of approximately three feet of fill material prior to construction of the school. The areas of lowest potential lead contamination included Moton School and the northern half of Mugrauer Playground. These same areas also displayed the lowest arsenic and cPAH concentrations.

In contrast to surface soil contaminant concentrations, subsurface soil lead, arsenic, and cPAH concentrations, to a depth of at least 5.5 feet BGS, are uniformly high across the undeveloped and developed portions of the former landfill. The most visible exception to this general trend is Moton School, where high contaminant concentrations are not encountered until the 4.5 to 5.5 foot BGS sampling interval (see Figure 4). These vertical contaminant distributions are consistent with progressively less mixing at depth of landfill materials and developed area native soils or imported construction backfill. This is also consistent with the identified presence of approximately 3 feet of clean fill imported during construction of Moton School.

GROUNDWATER CHARACTERIZATION

Contamination of groundwater underlying the site is restricted to the shallow zone. Both target analyte list (TAL) inorganic and target compound list (TCL) organic constituents were detected in sand unit samples, and the organic contaminants cannot be attributed to a natural source. However, the absence of consistent areal distribution trends for these contaminants and the presence of a confining unit and associated upward hydraulic gradient between the sand unit and shallow zone, indicate that sand unit groundwater has not been impacted by landfill-related soil and groundwater contamination.

TAL metals are by far the most common shallow zone groundwater contaminants. TCL organics (mostly cPAHs, other semivolatile compounds, and pesticides) were only sporadically detected at low concentrations. Based on the high frequency of occurrence and detected concentrations of TCL organics (especially cPAHs) in on-site subsurface soil samples, it is possible that dissolved organic contaminant values in shallow zone groundwater are being reduced by natural biodegradation processes.

Lead, arsenic, cobalt, aluminum, iron, and manganese are the most common shallow zone groundwater TAL metal contaminants present at concentrations above the corresponding the Applicable or Relevant and Appropriate Requirements (ARARs) and/or to be considered (TBC) criteria. Lead was the metal most commonly detected at concentrations above an ARAR criterion. Concentrations decrease significantly near the former landfill boundaries. Shallow zone and sand unit groundwater are not currently utilized as a drinking water supply in the site vicinity.

VII. SUMMARY OF SITE RISKS FOR OU 4 AND 5

HUMAN HEALTH RISK ASSESSMENT SUMMARY

A baseline Human Health Risk Assessment is a component of the RRII and EE/CA conducted at the site. The objective of the baseline risk assessment is to evaluate potential adverse health effects associated with site-related contaminants in the absence of remedial action. The results of the baseline risk assessment are used to make decisions regarding the necessity and extent of remediation, develop site-specific cleanup levels, and select appropriate remedial technologies.

This assessment focuses on potential exposures to contaminants of potential concern (COPC) at the site. Potential exposures were evaluated using exposure scenarios developed to reflect site specific current and future land use scenarios at the site. Health risks were evaluated for the developed portion of the former landfill, which includes residential property, Moton School, Press Park Community Center, and the undeveloped portion of the site.

Analytical results obtained as part of the 1993 EPA Region 6 Expanded Site Investigation showed lead to be a significant contaminant at the site (see Figures 2 - 4); therefore, an extensive evaluation of exposures to lead was performed using the latest version of EPA's Integrated Exposure Uptake Biokinetic (IEUBK) model. The IEUBK model requires the input of numerous multi-media data from potential lead sources in residences (e.g., soils, indoor dust, and tap water). Consequently, a representative group of residences was randomly selected, in addition to those selected for study based on ESI results, to evaluate current health risks posed by lead. Potential future lead associated health risks were also evaluated in the undeveloped portion of the site.

For contaminants other than lead, the likelihood of adverse public health impacts associated with long-term exposure to site related contaminants was determined by estimating potential excess lifetime cancer risks for carcinogens and by computing hazard indices (His) for non-carcinogens. Exposure and risk estimates were generated using conservative reasonable maximum exposure (RME) and average (central tendency) exposure values. The average case represents exposure that is most likely to occur for the majority of the potentially exposed population and is evaluated with the RME case to provide a range of risk estimates.

A summary of the exposure scenarios, pathways evaluated, and the risk results are presented in Tables 1-1 through 1-4.

Current Risks

Except for current RME residential and worker scenarios, cumulative cancer risks for potential current exposures were within the range of acceptable risks defined in Federal environmental laws and regulations, (i.e., 1x10-6 to 1x10-4,, see Table 1-1). The RME residential cumulative cancer risk estimate of 8x10-4 exceeded the upper bound of the acceptable risk range. Risk originated from the inhalation of chloroform and benzene in indoor air and ingestion of dioxin and arsenic in soils. Dioxin and arsenic were common site related contaminants. Chloroform is associated with the chlorination of drinking water, municipal sewage, auto exhaust, fluorocarbon refrigerants, and dry cleaning agents. Benzene can be found in plastics, auto exhaust, paints, and perfumes.

Under current exposure conditions, only the residential scenario yielded non-cancer HIs in excess of EPA's regulatory benchmark of one (see Table 1-3).

For OU4, the total excess lifetime cancer risk posed to children attending Moton School was estimated at 2x10-5, with most of this estimated risk attributable to inhalation of non-site-related benzene and chloroform from indoor and outdoor air. Additionally, none of the HIs exceeded EPA's regulatory benchmark of unity (1). The carcinogenic risks associated with the ingestion and dermal contact pathways for soil are 4.7xl0-6. Therefore, no remedial actions will be conducted at OU4, since no risks exist that are attributable to site related contaminants.

Potential Future Risks

of the scenarios considered, only the potential future residential scenario yielded cumulative cancer risks in excess of the range of acceptable risks defined in Federal environmental laws and regulations, (i.e., 1x10-6 to 1x10-4, see Table 1-2). Most of the RME residential cumulative cancer risk would be from ingestion of arsenic in shallow zone or deep (sand unit) groundwater. Currently, there are no on-site drinking water wells. Because residents obtain drinking water from the Mississippi River (the municipal water supply) and not from onsite drinking water wells, there is no potential for exposure to contaminants.

Again, arsenic and dioxin were responsible for the majority of risks associated with incidental ingestion of soil. Considerable uncertainty is associated with the cancer risk estimates for groundwater because this water is unlikely to ever be used as a residential water supply.

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Under future exposure conditions, only the residential scenario yielded non-cancer HIs in excess of one (see Table 1-4). Again, the ingestion of groundwater contributed most to the total adult and child HIs, and arsenic was the principle COPC.

ECOLOGICAL RISK ASSESSMENT SUMMARY

The Ecological Risk Assessment is a component of the RRII and EE/CA conducted at the site. The objective of the assessment is to evaluate potential ecological risks to wildlife that inhabit or potentially utilize the undeveloped portion of the former landfill and adjacent canals in the absence of remedial action. Results of this assessment support decisions regarding the necessity and extent of remediation and the identification of ecologically protective concentrations of site contaminants.

The assessment was performed in accordance with national and regional EPA guidance. Surface soil data (0 to 24 inch depth interval) were utilized to develop site specific ecological exposure models and toxicity reference values. This information was then used to calculate site specific risk based soil concentrations (RBSCs) for identified surface soil contaminants. The following measurement species and communities were evaluated: terrestrial vegetation, soil earthworms, short tailed shrew, American robin, and American kestrel.

Potential ecological risks to aquatic and semi aquatic wildlife that potentially utilize the Florida Avenue and Peoples Avenue canals were evaluated during the second phase of the assessment. However, it was concluded that potential risks to aquatic receptors would not be evaluated because the Florida Avenue Canal does not contain suitable habitat to sustain viable populations of aquatic or semi-aquatic species.

The ecological significance of potential risks to wildlife on the undeveloped former landfill is relatively minor, based on the site's urban environmental setting and the absence of sensitive species and habitats. Although potential risks to individual species within the small mammal and passerine assessment endpoints groups were predicted as a result of exposure to soils of potential concern in undeveloped former landfill surface soil, population levels' effects within these two groups are not expected because of their abundance in the southeastern United States.

Table 1.1

CURRENT SCENARIOS: CANCER RISKS
HUMAN HEALTH RISK ASSESSMENT
AGRICULTURE STREET LANDFILL
NEW ORLEANS, LOUISIANA

Exposure Scenarios(a)	Exposure Pathway	Medium	RME (b)	Average
Residential	Incidental ingestion	Soil	1E-4	1E-5
	Dermal contact	Soil	3E-5	2E-6
	Inhalation	Outdoor Air	3E-4	7E-5
	Inhalation	Indoor Air	4E-4	1E-4
	Produce ingestion	Homegrown produce	3E-8	4E-9
Total Residential:			8E-4	2E-4
Worker	Ingestion	Soil	1E-5	8E-7
	Dermal contact	Soil	2E-5	2E-7
	Inhalation	Outdoor Air	1E-1	5E-5
Total Worker:			2E-4	5E-5
Trespasser	Ingestion	Soil	9E-6	---
	Dermal contact	Soil	6E-6	---
	Inhalation	Outdoor Air	3E-6	---
Total Trespasser:			2E-5	NA
Press Park	Incidental ingestion	Soil	2E-5	---
Community Center	Dermal contact	Soil	1E-5	---
Total Press Park Community Center:			3E-5	NA
Moton School	Incidental ingestion	Soil	3E-6	---
	Dermal contact	Soil	2E-6	---
	Inhalation	Outdoor Air	4E-6	---
	Inhalation	Indoor Air	7E-6	---
Total Moton School:			2E-5	NA

Key

RME Reasonable maximum Exposure
--- Not evaluated because exposure parameter values and/or information were unavailable
NA Not applicable

(a) All scenarios reflect risks associated with the developed portion of the ASL except the trespasser scenario, which evaluates the undeveloped portion
(b) The cancer risk estimate is the sum of childhood and adult risks for ASL

Source: Ecology and Environment Inc., 1994

Table 1.2

POTENTIAL FUTURE SCENARIOS
CANCER RISKS
HUMAN HEALTH RISK ASSESSMENT
AGRICULTURE STREET LANDFILL
NEW ORLEANS, LOUISIANA

Exposure Scenario	Exposure Pathway	Medium	RME	Average
Residential	Incidental ingestion	Soil	2E-4	2E-5
(Shallow well)	Dermal contact	Soil	6E-5	2E-5
	Inhalation	Outdoor Air	2E-5	5E-6
	Ingestion	Groundwater (Shallow Well) b	2E-3	4E-4
	Inhalation	Groundwater (Shallow Well) b,c	---	---
	Dermal contact	Groundwater (Shallow Well) b	6E-6	1E-6
Total Residential (shallow well):			3E-3	5E-4
Residential	Incidental Ingestion	Soil	2E-4	2E-5
(Deep well)	Dermal contact	Soil	6E-5	2E-5
	Inhalation	Outdoor Air	2E-5	5E-6
	Ingestion	Groundwater (Deep Well) b	3E-6	5E-7
	Inhalation	Groundwater (Deep Well) b	7E-8	1E-8
	Dermal contact	Groundwater (Deep Well) b	2E-6	4E-7
Total Residential (deep well):			3E-4	4E-5
Worker	Ingestion	Soil	2E-5	1E-6
	Dermal contact	Soil	3E-5	3E-7
	Inhalation	Outdoor Air	9E-6	3E-6
Total Worker:			6E-5	5E-6
Trespasser	Ingestion	Soil	1E-5	---
	Dermal contact	Soil	7E-6	---
Total Trespasser:			2E-5	NA

Key

RME Reasonable maximum exposure
--- Not evaluated because exposure parameter values and/or information were unavailable
NA Not applicable

(3) All scenarios reflect risks associated with the developed portion of the ASL except the trespasser scenario, which evaluates the undeveloped portion.
(b) Exposure to groundwater assumes drinking waters derived from the maximally contaminated wells. Shallow wells are 5 to 15 feet deep and deep wells are 50 to 70 feet deep.
(c) No carcinogenic VOCs were detected in shallow wells.

Source: Ecology and Environment Inc., 1994

Table 1.3
CURRENT SCENARIOS: NON-CANCER HAZARD INDICES
HUMAN HEALTH RISK ASSESSMENT
AGRICULTURE STREET LANDFILL
NEW ORLEANS, LOUISIANA

Exposure Scenario a	Exposure Pathway	Medium	RME Adult	RME Child	Average Adult
Residential	Incidental Ingestion	Soil	0.1	0.9	0.1
	Dermal contact	Soil	0.09	0.1	0.02
	Inhalation b	Outdoor Air	0.05	0.05	0.05
	Inhalation b	Indoor Air	1	2	1
	Produce ingestion	Homegrown produce	2	4	1
Total Residential:			2	5	1
Worker	Ingestion	Soil	0.06	---	0.01
	Dermal contact	Soil	0.1	---	0.003
	Inhalation b	Outdoor A	0.03	---	0.03
Total Worker:			0.2	NA	0.01
Trespasser	Ingestion	Soil	0.2	---	---
	Dermal contact	Soil	0.2	---	---
	Inhalation b	Outdoor Air	0.007	---	---
Total Trespasser:			0.4	NA	NA
Press Park	Incidental ingestion	Soil	---	0.7	---

Table 1.3 (cont'd)

CURRENT SCENARIOS: NON-CANCER HAZARD INDICES
HUMAN HEALTH RISK ASSESSMENT
AGRICULTURE STREET LANDFILL
NEW ORLEANS, LOUISIANA

Community Center	Dermal contact	Soil	---	0.3	---
Total Press Park Community Center:			NA	1	NA
Moton School	Incidental ingestion	Soil	---	0.1	---
	Dermal contact	Soil	---	0.06	---
	Inhalation b	Outdoor Air	---	0.02	---
	Inhalation b	Indoor Air	---	0.05	---
Total Moton School:			NA	0.2	NA

Key

RME Reasonable maximum exposure
--- Not evaluated because exposure parameter values and contamination were unavailable
NA Not applicable

(a) All scenarios reflect risks associated with the developed portion of the ASL except the trespasser scenario, which evaluates the undeveloped portion.
(b) Inhalation HIs are not included in scenario totals as discussed in Section S.6.1.2

Source: Ecology and Development Inc., 1994

Table 1.4

POTENTIAL FUTURE SCENARIOS
NON-CANCER HAZARD INDICES
HUMAN HEALTH RISK ASSESSMENT
AGRICULTURE STREET LANDFILL
NEW ORLEANS, LOUISIANA

Exposure Scenario	Exposure Pathway	Medium	RME Adult	RME Child	Average Adult
Residential	Incidental ingestion	Soil	0.4	4	0.4
(Shallow Well)	Dermal contact	Soil	0.4	0.4	0.4
	Inhalation b	Outdoor Air	0.01	0.01	0.01
	Ingestion	Groundwater (Shallow Well) c	16	36	11
	Inhalation b	Groundwater (Shallow Well) c	0.00002	0.00003	0.00002
	Dermal contact	Groundwater (Shallow Well) c	0.04	0.06	0.03
Total Residential (shallow well):			17	40	12
Residential	Incidental ingestion	Soil	0.4	4	0.4
(Deep Well)	Dermal contact	Soil	0.4	0.4	0.4
	Inhalation b	Outdoor Air	0.01	0.01	0.01
	Ingestion	Groundwater (Deep Well) c	0.7	2	0.5
	Inhalation b	Groundwater (Deep Well) c	---	---	---
	Dermal contact	Groundwater (Deep Well) c	0.02	0.03	0.01
Total Residential (deep well):			2	6	1

Table 1.4 (cont'd)

POTENTIAL FUTURE SCENARIOS
NON-CANCER HAZARD INDICES
HUMAN HEALTH RISK ASSESSMENT
AGRICULTURE STREET LANDFILL
NEW ORLEANS, LOUISIANA

Worker	Ingestion	Soil	0.1	---	0.02
	Dermal contact	Soil	0.2	---	0.01
	Inhalation b	Outdoor Air	0.01	---	0.01
Total Worker:			0.4	---	0.04
Trespasser	Ingestion	Soil	0.2	---	---
	Dermal contact	Soil	0.2	---	---
Total Trespasser:			0.4	---	---

Key

RME Reasonable maximum exposure
--- Not evaluated because exposure parameter values and/or information were unavailable
NA Not applicable

(a) All scenarios reflect risks associated with the developed portion of the ASL except the trespasser scenario, which evaluates the undeveloped portion.
(b) Inhalation HIs are not included in scenario totals as discussed in Section S.6.1.2.
(c) Exposure to groundwater assumes drinking water is derived from the maximally contaminated wells. Shallow wells are 5 to 15 feet deep and deep wells are 50 to 70 feet deep.

Source: Ecology and Environment Inc., 1994

VIII. DESCRIPTION OF THE "NO ACTION" ALTERNATIVE

No further action will be taken by EPA on Moton School, including the Mugrauer Playground (OU4) and groundwater (OU5), and both operable units will be proposed for deletion from the Superfund NPL. This decision is based on the risk assessment that evaluated Moton School (OU4) and groundwater (OU5), which concluded no risks exist that are attributable to site related contaminants. For Moton School this is due to the three foot clean fill barrier installed during the construction of the facility. Likewise, current information from the Louisiana Department of Environmental Quality indicates that groundwater (OU5) is not used for any beneficial purpose and should not be considered a potential source of drinking water. Residents in the Site area have access to the municipal water supply. No further action for these operable units is warranted.

IX. EXPLANATION OF SIGNIFICANT CHANGES

The Proposed Plan for the Agriculture Street Landfill site was released for public comment in February 1997. It identified the no-action alternative as the preferred alternative for OU4 and OU5. Public comments on the Proposed Plan were evaluated at the end of the public comment period and are addressed in the Responsiveness Summary. This Record of Decision proposes no significant changes for OU4 and OU5 from the alternatives presented in the Proposed Plan.