RECORD OF DECISION

DELATTE METALS SUPERFUND SITE
PONCHATOULA / TANGIPAHOA PARISH, LOUISIANA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6 - SUPERFUND DIVISION

SEPTEMBER 2000

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LIST OF ACRONYMS

ARARs	Applicable or Relevant and Appropriate Requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R.	Code of Federal Regulations
COCs	Chemicals of Concern
DM	Delatte Metals
DMI	Delatte Metals, Inc.
EPA	United States Environmental Protection Agency
ERA	Ecological Risk Assessment
FS	Feasibility Study
FWS	United States Fish and Wildlife Service
HHRA	Human Health Risk Assessment
IEUBK	Integrated Effects Uptake Biokinetic
LAC	Louisiana Administrative Code
LDEQ	Louisiana Department of Environmental Quality
LDOTD	Louisiana Department of Transportation and Development
LDR	Land Disposal Restrictions
LPDES	Louisiana Pollutant Discharge Elimination System
LSWR	Louisiana Solid Waste Regulation
MCLs	Maximum Contaminant Levels
mg/kg	milligrams per kilogram
mg/l	milligrams per liter
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NOAA	National Oceanic and Atmospheric Administration
NPB	North Ponchatoula Battery
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
OSHA	Occupational Safety and Health Act

LIST OF ACRONYMS (continued)

RA	Remedial Action
RAOs	Remedial Action Objections
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
Site	Superfund Site
TAP	Toxic Air Pollutant
TS	Treatability Study
ug/l	micrograms per liter
USGS	United States Geological Survey
U.S.C.	United States Code

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_____

Stephen L. Tzhone, Remedial Project Manager
Superfund Louisiana Project Management Section

_____

Michael J. Boydston, Site Attorney
Regional Counsel Superfund Branch

_____

Sing N. Chia, Acting Chief
Superfund Louisiana Project Management Section

_____

Wren L. Stenger, Chief
Superfund Louisiana / New Mexico Branch

_____

Mark A. Peycke, Chief
Regional Counsel Superfund Branch

EPA RECORD OF DECISION CONCURRENCE PAGE (continued)

_____

June Buzzell, Writer Editor
Superfund Division

_____

Myron O. Knudson, P.E., Director
Superfund Division

_____

D. Bruce Jones, Senior Attorney
Regional Counsel Multimedia Counseling Branch

_____

Lawrence E. Starfield, Regional Counsel
Office Of Regional Counsel

PART 1: THE DECLARATION

A. SITE NAME AND LOCATION

Delatte Metals Superfund Site.
Ponchatoula, Tangipahoa Parish, Louisiana.

B. STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected Remedial Action (RA) for the Delatte Metals (DM) Superfund Site (Site), in Tangipahoa Parish, Louisiana, which was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, also known as the Superfund law), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA).

The information supporting the selection of the remedy for the Site is contained in the Administrative Record file.

This decision has the concurrence of the Louisiana Department of Environmental Quality (LDEQ), National Oceanic and Atmospheric Administration (NOAA), United States Fish and Wildlife Service (FWS), and the United States Geological Survey (USGS). All letters of concurrence from the various Federal and State agencies are presented in Appendix A.

C. ASSESSMENT OF THE SITE

The response action selected in this Record of Decision (ROD) is necessary to protect the public health, welfare, or the environment from actual or threatened releases of hazardous substances into the environment.

D. DESCRIPTION OF SELECTED REMEDY

This ROD addresses the contamination in the soil, sediment, surface water and ground water at the Site by:

- Immobilization to address the principal threat wastes in the soil (thus eliminating the source of contamination for sediment, surface water, ground water);

- Off-site disposal to transport immobilized wastes to a disposal facility;

- Permeable treatment walls to neutralize the acidity of the shallow ground water and limit the migration of dissolved metals;

- Institutional controls in the form of deed notices to inform the public of Site conditions; and,

- Ground water monitoring to ensure the effectiveness of the selected remedy.

The immobilization treatment component of the selected remedy will address the principal threat wastes at the DM Site. Contaminants that have been immobilized are then transported to an off-site disposal facility. The cleanup of this approximately 25,000 cubic yards of highly mobile lead source materials, which is part of 44,000 total cubic yards of contaminated soil identified at the Site, will remove this principal threat to human health and the environment and satisfies the statutory preference for treatment of such substances. The remaining volume of soil contamination is a low level threat and can be reliably contained on-site.

The installation of permeable treatment walls within the shallow ground water zone will neutralize the acidity of the shallow ground water and limit the migration of dissolved metals. This will prevent any migration of soil contaminants into the viable aquifers and aid in the immobilization treatment process.

These components plus institutional controls ensure that the DM Site remedy will be protective for areas designated as industrial, residential, and ecological use. Data from ground water monitoring will verify the long-term effectiveness of this remedy.

E. STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the RA, and is cost effective. This remedy utilizes permanent solutions and resource recovery technologies to the maximum extent practicable for the DM Site.

The immobilization, permeable treatment walls, and off-site disposal components of the cleanup remedy will address the source of the contamination (approximately 25,000 cubic yards of the identified 44,000 total cubic yards of contaminated soil), thereby, removing the principal threat to human health and the environment and satisfying the statutory preference for treatment as a principal element of the remedy.

Because this remedy will result in hazardous substances remaining on the DM Site (levels of lead contaminants within the acceptable industrial risk range) above levels that allow for unlimited use and unrestricted exposure, a review will be conducted within five years after initiation of the RA to ensure that the remedy continues to provide adequate protection of human health and the environment.

F. DATA CERTIFICATION CHECKLIST

The following information is included in the PART 2: THE DECISION SUMMARY section of this ROD. Additional information can be found in the Administrative Record file for the DM Site.

1. Principal threat wastes and chemicals of concern (COCs);

2. Human health and ecological risk represented by the COCs;

3. Cleanup levels established for COCs and the basis for the levels;

4. How source materials constituting principal threats will be addressed;

5. Current and future land and ground water use assumptions;

6. Land and ground water use that will be available at the Site as a result of the selected remedy;

7. Estimated capital, operation and maintenance (O&M), and total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected; and

8. Decisive factors that led to selecting the remedy.

G. AUTHORIZING SIGNATURE

_____ _____

Gregg A. Cooke
Regional Administrator
U.S. Environmental Protection Agency
Region 6

Date

PART 2: THE DECISION SUMMARY

The United States Environmental Protection Agency (EPA) presents the following ROD for addressing hazardous substance contamination at the DM Site in Tangipahoa Parish, Louisiana. This ROD addresses the Site as a whole and reflects EPA's selection of the final action for all areas of the Site by recommending:

- Immobilization to address the principal threat wastes within the soil (thus eliminating the source of contamination for sediment, surface water, ground water);
- Off-site disposal to transport immobilized wastes to a disposal facility;
- Permeable treatment walls to neutralize the acidity of the shallow ground water and limit the migration of dissolved metals;
- Institutional controls in the form of deed notices to inform the public of Site conditions; and,
- Ground water monitoring to ensure the effectiveness of the selected remedy.

Once the RA is completed, EPA will pursue the Site's deletion from the National Priorities List (NPL) of Superfund sites.

The purpose of the ROD is to fulfill statutory requirements pursuant to Sections 113(k)(2)(B), 117(a), and 121(f)(1)(G) of CERCLA, as promulgated under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) of November 20, 1985 (50 Federal Register 47973), SARA of October 17, 1986, and the amended NCP of March 8, 1990 (55 Federal Register 8666). It describes the alternatives analyzed, identifies the preferred alternative, explains the rationale for this preference, and serves as a companion to the Remedial Investigation (RI) Report, Human Health Risk Assessment (HHRA), Ecological Risk Assessment (ERA), Treatability Study (TS) Report, Feasibility Study (FS) Report, the Proposed Plan, and Administrative Record file.

This ROD includes a summary of the findings from the RI, HHRA, ERA, TS, and FS Reports, identification of applicable or relevant and appropriate requirements (ARARs), development of Remedial Action Objectives (RAOs), identification and screening of remedial technologies, development of remedial alternatives, and a detailed analysis of remedial alternatives. The Presumptive Remedy for Metals-In-Soils (EPA 540-F-98-054, OSWER-9355.0-72FS, September 1999) was used to develop the cleanup alternatives for the DM Site. This presumptive remedy approach focuses on evaluating technologies that have been used frequently at Superfund sites and that have successfully treated wastes common to those sites.

This ROD has been formulated by EPA in conjunction with Federal and State agencies including: LDEQ, NOAA, FWS, and USGS.

A. SITE NAME, LOCATION AND BRIEF DESCRIPTION

The DM Site includes the Delatte Metals, Inc. (DMI) facility and the abandoned North Ponchatoula Battery (NPB) facility and parts of off-facility areas (areas outside these facilities that have impacts of contamination). The DMI facility is located at 19113 Weinberger Road in Tangipahoa Parish about 2.5 miles southeast of Ponchatoula, Louisiana. The combined areas of the two facilities is approximately 18.9 acres. The approximate total area of the DM Site, encompassing both facility and off-facility areas, is 56.8 acres. An Area Vicinity Map and the DM Site Map are shown as Figure 1 and Figure 2 in Appendix B.

B. SITE HISTORY AND ENFORCEMENT ACTIVITIES

During the 1960s, under the name Delatte and Fuscia Battery Company, battery recycling and smelting operations were conducted in the DMI facility area of the DM Site. In the early 1980s, the facility name was changed to Delatte Metals, Inc. The operations performed at the facility included spent lead-acid battery demolition to remove associated lead plates and the subsequent lead smelting of the lead plates to produce lead ingots. The typical process at the facility involved sawing off the tops of the batteries and removing the lead plates in the battery saw building. After opening the battery cases, the battery acid was drained into a sump. Before the mid-1980s, the acid was pumped from the sump to an unlined pond located on the north side of the Site. After the closure of the acid pond, the acid was pumped through an underground pipe to the acid tank farm. The spent acid was then shipped off-site for recycling. Similar operations took place at the NPB facility.

From the mid-1980s in the 1990s, LDEQ worked with the both facilities in attempts to correct Site deficiencies in environmental practices. In September 1997, however, Louisiana Governor Mike Foster formally requested that the DM Site be addressed by EPA and listed on the Superfund National Priorities List (NPL). A Hazard Ranking System documentation package was subsequently prepared and the Site was proposed for addition to the NPL in July 1998.

In September 1998, EPA Region 6 began a removal action at the DMI facility. The removal activities consisted of removing above ground wastes at the DMI facility, which included piles of slag, dust, and battery chips. Other identified source areas removed from the DMI facility included the acid tank farm, furnace building, drums of metal-contaminated waste, and tote bags of baghouse dust.

On January 19, 1999, EPA formally announced the addition of the DM Site to the NPL in the Federal Register. EPA also sent a notice letter to identified Potentially Responsible Parties (PRPs) on September 30, 1998, requesting that they conduct the RI/FS, and informing them that

EPA would not use special notice procedures to negotiate with them. The PRPs did not offer to conduct the RI/FS.

C. COMMUNITY PARTICIPATION

An Open House (July 13, 2000) and a Public Meeting (July 31, 2000) were held by the EPA to provide information to the public regarding cleanup activities. There is also an Administrative Record file located at all information repositories that contain documents leading up to this Record of Decision. The information repositories are:

- Ponchatoula Branch Library, 380 N. 5th Street, Ponchatoula, Louisiana, 70454;
- Louisiana Department of Environmental Quality, Inactive and Abandoned Sites, 7290 Bluebonnet, Baton Rouge, Louisiana, 70810; and,
- United States Environmental Protection Agency, Region 6, 12th Floor Library, 1445 Ross Avenue, Dallas, Texas, 75202.

Comments received at the Public Meeting and sent in by members of the community are addressed in PART 3: THE RESPONSIVENESS SUMMARY of this ROD.

D. SCOPE AND ROLE OF RESPONSE ACTION

This RA is planned to be the final response for the Site. The RAOs for the DM Site include prevention of unacceptable current and future exposure to contaminated media. This prevention is to be accomplished through a combination of the immobilization treatment process, installation of permeable treatment walls, off-site disposal of immobilized waste, institutional controls in the form of deed notices, and ground water monitoring at the DM Site. Through the use of treatment technologies, this response will permanently reduce the toxicity, mobility, and volume of those source materials that constitute the principal threat wastes at the DM Site.

E. SITE CHARACTERISTICS

The DM Site is in the northwest quarter of Section 43, Township 7 South, Range 8 East and its central geographic coordinates are 30° 25' N. Latitude, 90° 24' W. Longitude.

The DM Site is in a rural area of Tangipahoa Parish. The DM Site consists of facility (DMI and NPB) and off-facility areas (wetlands, tributaries, Selser's Creek, Cypress Swamp, undeveloped land, and residences). Weinberger Road is south of the facility area, and south of Weinberger Road is a residential neighborhood. East of the facility area is undeveloped land containing wetlands. Immediately north of the facility area is a residential neighborhood. West of the facility area is a residence, undeveloped land containing wetlands, and Selsers Creek. West of

Selsers Creek is residential property, undeveloped land, and farm land. The nearest place of residence is south of the facility area in an identified office building (currently, one of the owner/operators of the DMI facility lives in an office/residence building immediately outside the south gates of the DMI facility). The DM Site map is shown as Figure 2 in Appendix B.

Potable ground water at the DMI facility is used for domestic consumption and is drawn from a facility water well. Before 1999, all of the off-facility area residences used private water wells for potable water. A public water supply system was recently installed for the residential area along Weinberger Road.

Three distinct and local water-bearing zones are beneath the DM Site. According to the Louisiana Risk Evaluation/Corrective Action Program analysis of hydrology and water quality, the uppermost water-bearing zone is considered Class 3B (a source of a moderate quantity of water, with total dissolved solids concentration greater than 10,000 mg/l); the middle is Class 2C (a source that could potentially supply drinking water in sufficient quantity for a domestic water supply, but since it has a total dissolved solids concentration between 1,000 mg/l and 10,000 mg/l, it is not of sufficient drinking water quality); and the lowest is Class 1B (a source that could potentially or currently does supply drinking water to a domestic water supply and has less than 1000 mg/l total dissolved solids).

1. The first water-bearing zone consists of grayish-white to tan, fine to coarse grained sand with gravel in some areas, and is generally found between 5 and 15 feet underground. This zone is semi-confined on its sides and overlain by a sandy/silty clay across the northern section of the Site. The first water-bearing zone appears to be discontinuous and does not extend across the entire DM Site. A clay unit was encountered underneath this first water-bearing zone.

2. The second water-bearing zone encountered at the DM Site generally consists of intermittent layers of gray, tan, and orange clayey silt. At various locations, this water-bearing zone also consists of layers of silt, silty clay, clayey sand, silty sand, and/or sand. The second water-bearing zone is typically encountered at depths between 15 and 40 feet. The second water-bearing zone appears to be confined and relatively continuous across the DM Site.

3. The third water-bearing zone encountered at the DM Site consists of light brown to gray silty sand and/or sand. This water-bearing zone was encountered at depths between 58 and 62 feet, and extended to a maximum depth of 100 feet. The third water-bearing zone appears to be confined and continuous across the DM Site.

Underneath the local water-bearing zones identified at the DM Site are three regional aquifers: the Shallow Aquifer (also known as the Upland Terrace Aquifer); the Ponchatoula Aquifer (which is subdivided into two units: the upper and lower Ponchatoula Aquifers); and the Tchefuncte Aquifer.

The Shallow Aquifer underlying southern Tangipahoa Parish consists of medium sand and gravel deposits of the lower coastal terrace, along with younger flood plain deposits from major streams. The aquifer is usually < 100 feet deep in the southern section of Tangipahoa Parish, and the unit grades into clay and sandy clay. The transmissivities in this aquifer ranges from 70,000 to 350,000 gallon per day per foot. Hydraulic conductivities ranged from 70 to 140 feet per day. Wells installed in the Shallow Aquifer are mostly used for domestic purposes. Very few large capacity wells are present. Wells used for irrigation and livestock watering are also installed in the aquifer. For purposes of this ROD and ground water protection, the third identified water bearing zone at the DM Site is equivalent to the Shallow Aquifer.

The other two identified aquifers, the Ponchatoula Aquifer and the Tchefuncte Aquifer, are located beneath the Shallow Aquifer and are not hydraulically connected.

F. CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USE

1. LAND USE ASSUMPTIONS:

The DM Site consists of facility (DMI and NPB) and off-facility areas (wetlands, tributaries, Selser's Creek, Cypress Swamp, undeveloped land, and residences). The nearest place of residence is south of the facility area in an identified office building (See Site Map, Appendix B, Figure 2)

The Site is in an unzoned area according to the City of Ponchatoula's Official Zoning Map, adopted June 11, 1998 (See Appendix B, Figure 3). According to the zoning board of Ponchatoula the off-facilities areas are intended to be zoned for residential use, while the facility area itself will be zoned for industrial use. Currently, the DMI facility is being used as a commercial/light industrial site for a recycling and transfer operation.

Two residential dwellings have been constructed in the past year within one-half mile of the facility area. In addition, eight have been constructed in the past few months within one mile. New construction in the area is occurring predominately to the north, east, and west, with a large fifty-lot subdivision being developed within one mile to the northwest of the facility area.

Weinberger Road is south of the facility area, and south of Weinberger Road is a residential neighborhood. East of the facility area is undeveloped land containing wetlands. Immediately north of the facility area is a residential neighborhood. West of the facility area is a residence, undeveloped land containing wetlands, and Selsers Creek. West of Selsers Creek is residential property, undeveloped land, and farm land.

Evidence of current land use suggests that the future land use of the DMI Site will consist of the continuation of industrial/commercial activities in the facility area with off-facility residential and ecological use. The RAOs presented in this ROD have been developed

for protection of activity within these facility (industrial) and off-facility (residential and ecological) areas.

1. GROUND WATER USE ASSUMPTIONS:

An inventory of the registered water wells located within a 1-mile radius of the DMI facility was obtained from the Louisiana Department of Transportation and Development (LDOTD), Water Resources Section in Baton Rouge, Louisiana. The registered water well inventory revealed that 34 water wells are registered with the LDOTD within a 1-mile radius of the DMI facility. These wells were installed between January 1984 and May 1998 with the exception of one well installed in 1939. Twenty-two of the wells were installed in the Shallow Aquifer (code 112UPTC) and subsequently, the remaining 12 wells were installed in the Upper Ponchatoula Aquifer (code 112PNCLU). All of the wells are used for domestic purposes, and all are active except one. The total depths of the wells range from 70 to 595 feet. The wells closest to the DMI facility are just north of the facility boundary at depths of 215 feet and 550 feet, respectively.

A door-to-door water well survey within a 0.5-mile radius of the DMI facility to identify wells that may not have been registered with the LDOTD was also conducted. Most of the households within the 0.5-mile radius of the DMI facility were contacted to assess if the household had a water well, the year the well was installed, and the depth of the well. Of the 38 households contacted, all of the households owned or used an adjacent water well. The reported well depths ranged from 35 feet to 600 feet. The survey revealed that the closest water well to the DM Site is approximately 100 yards north of the facility boundary and is approximately 60 feet deep. Thirty-three of the households reported using their well for drinking water purposes. The remaining five are used for agricultural purposes. It appears that all water wells installed for drinking water purposes draw from the Shallow Aquifer or deeper.

A sampling of water wells adjacent to the facility area was done to ensure that no drinking water wells have been compromised. The data shows that all the adjacent water wells maintain drinking water integrity and no detected constituents are above EPA's Maximum Contaminant Levels (MCLs, the highest allowable concentration of detected constituents in drinking water). Since there is no evidence of drinking water use from the first two identified water-bearing zones (Class 3B and 2C), permeable treatment walls will be installed in the first water-bearing zone to aid in the overall immobilization treatment process of the contaminated soils in order to prevent any migration of lead contaminants to the usable third water-bearing zone/Shallow Aquifer (Class 1B). Ground water monitoring wells will also be installed at the DM Site to ensure the effectiveness of the remedy.

G. SUMMARY OF SITE RISKS

During 1999 and 2000, EPA conducted field sampling and investigation activities at the DM Site including collection and analyses of soil, sediment, surface water, ground water, and animal tissue samples. The RI and FS Reports identified the types, quantities, and locations of contaminants found in these samples and developed ways to address the contamination problems. A TS Report was also completed to assess the applicability of different remedial technologies. In addition, a HHRA and ERA was also performed to determine the current and future effects of contaminants on human health and the environment. The following is a summary of the identified risks as detailed within these reports:

Complete maps showing all identified areas of contamination within surficial and subsurface soils and the first water-bearing zone are shown as Figure 4 and 5 in Appendix B.

EPA has identified lead as the one COC that poses the greatest potential risk to human health at this Site. Lead is a bluish-white lustrous metal, which is very soft, highly malleable, ductile, and a conductor of electricity. The density of lead is 11,340 m3/kg, and the melting point is 327.5 °C. During the production process, lead is typically contaminated with antimony, arsenic, copper, and zinc. The typical background concentration of lead in soil is 10 to 18 mg/kg.

Lead is a poison that affects virtually every system in the body. It is particularly harmful to the developing brain and nervous system of fetuses and young children. Elevated blood lead levels are associated with adverse effects on the central nervous system, kidney, and hematopoietic system of both children and adults. In addition, lead poisoning also leads to a decrease in functions associated with developmental intelligence, hearing, growth, and vitamin D metabolism.

Lead has been used by humans because of its malleability, resistance to corrosion, and abundance. This metal can be a component of solder, paint, gasoline, ceramics, roofing, caulking, and ammunition. However, with the exception of roofing and ammunition, the amount of lead added to these products has generally decreased in recent years as awareness of its toxicity and adverse effects have increased (ATSDR 1993f; Carson, Ellis, and McCann 1986). Currently in the U.S., lead is predominantly used in batteries.

Lead was detected in all surficial facility soil sampling locations with the highest lead concentration detected at 185,000 mg/kg. Lead was also detected in all shallow subsurface on-site soil sampling locations with the highest detected lead concentration in the shallow subsurface at 94,000 mg/kg in the 4 to 5 foot depth. Several surficial and shallow subsurface off-site soil sampling locations also indicate high concentrations of lead.

Lead was found in sediment samples collected from various off-facility ecological habitats and Selsers Creek (specifically, the ditch north of Weinberger Road and in a tributary of Selsers Creek west of the facility). Because of seasonal variations and the presence of sediment and soil mixed together in many parts of the off-facility areas, whenever this ROD addresses soil, it is with the understanding that it includes both soil and sediment (when present). It is anticipated that the cleanup of soil thus will of necessity include the cleanup of sediment.

Lead was also detected in the first water-bearing zone at high concentrations. This first water-bearing zone exists in a very acidic environment and tends to flow towards Selsers Creek.

Lead was also found in surface water samples collected from various off-facility ecological habitats and Selsers Creek (specifically, the tributary of Selsers Creek north of the facility, the low-lying land west of the facility, and the cypress swamp southwest of the facility across Weinberger Road).

It should be noted that while some other contaminants were detected besides lead, these other contaminants (mostly metals) are not the subject of detailed discussion in this ROD. This was chosen to avoid confusion for the reader, as lead was found to be the overwhelming contaminant at almost every sampling location, and the cleanup of lead will address the other few metal contaminants (aluminum, antimony, cadmium, manganese, selenium, and zinc) because these contaminants have been found at the same sampling points where lead was found.

1. HUMAN HEALTH RISKS:

Based on the field data collected, the primary contaminant at the DM Site is lead. In order to determine cleanup goals for lead in industrial and residential areas, the Adult Lead Model and Integrated Effects Uptake Biokinetic (IEUBK) were used.

The basis for the Adult Lead Model is the relationship between the soil lead concentration and the blood lead concentration in the developing fetus of adult women who have site exposures. This Adult Lead Model served as the basis for determining the RAO of lead in soil in the facility industrial areas.

The basis for the IEUBK Model is the calculation of a geometric mean blood lead concentration for a typical child aged 6 months to 7 years of age, residing at a given residence. This IEUBK Model served as the basis for determining the RAO of lead in soil in the off-facility residential areas.

The conclusions of the Adult Lead Model and the IEUBK Model indicate that there will be unacceptable health risks and blood lead concentrations to both an adult worker in the facility areas of the DM Site and the child in the residential off-facility areas. Therefore, cleanup of these areas designated for industrial and residential use will have to be addressed.

The development of the Adult Lead Model, IEUBK Model, and the human health cleanup goals are presented in Appendix C.

2. ECOLOGICAL RISKS:

Based on the field data collected, the primary contaminant at the DM Site is lead. Three major habitat types appear to be affected by this contaminant originating from the DM Site (1) the bottomland hardwood forest typical of that part of Tangipahoa Parish, (2) the

aquatic habitat of Selsers Creek and its tributaries, and (3) the cypress swamp habitat south of Weinberger Road.

The conclusions of the Ecological Risk Model indicate that there will be unacceptable environmental risks to both ecological receptors and natural habitats in the off-facility areas. Therefore, cleanup of the areas designated for ecological use will have to be addressed.

The development of the Ecological Risk Model (presented in two parts as Figure 2-1 Conceptual Site Model and Figure 2-2 Food Web) and ecological cleanup goals are shown in Appendix D.

3. BASIS FOR RESPONSE ACTION:

The response action selected in this Record of Decision is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

Lead is the most abundant and widespread COC at the DM Site. Since lead has been detected (co-located) at the points where the few other identified heavy metals have been detected, lead will be used as the basis for measuring numerical cleanup goals.

The numerical cleanup goals were developed from the Adult Lead Model, the IEUBK Model, and the Ecological Risk Model. These models form the basis for determination of cleanup levels that will ensure protection of human health and the environment in both facility (industrial) and off-facility (residential and ecological) areas.

Based on the risk models, a total of 44,000 cubic yards of contaminated soil would have to be addressed at the DM Site. Included in this total are areas where lead contaminants were found well above acceptable risk levels even for industrial workers (the approximately 25,000 cubic yards of highly mobile lead source materials, also referred to in this ROD as the principal threat wastes).

H. REMEDIAL ACTION OBJECTIVES

The RAOs for the DM Site are to:

1. Treat or remove the principal threat wastes at the DM Site;

2. Reduce or eliminate the direct contact threats associated with contaminated soil; and,

3. Minimize or eliminate contaminant migration to the ground water and surface waters to levels that ensure beneficial reuse of these resources.

In order to achieve these RAOs, certain numerical cleanup levels would have to be maintained or attained in the various environmental media. These are:

- Soil: Industrial: 1,700 mg/kg lead, Residential: 500 mg/kg lead, Ecological: 80 mg/kg lead.
- Sediment: Industrial: n/a, Residential: n/a, Ecological: 100 mg/kg lead.
- Ground Water: Industrial: n/a, Residential: 15 ug/L lead, Ecological: n/a.
- Surface Water: Industrial: n/a, Residential: n/a, Ecological: 0.6 ug/l lead.
- Air: Industrial: n/a, Residential: n/a, Ecological: n/a

However, since the source of the contamination is mainly in surficial and subsurface soils, the selected remedy was designed to primarily address the soil contamination. It is expected that when the soil cleanup levels are achieved, the other forms of cleanup measurements (such as Sediment: Ecological: 100 mg/kg lead; Ground Water: Residential: 15 ug/l lead; and, Surface Water: Ecological: 0.6 ug/l lead) will also be achieved.

Therefore, the measurement of success at accomplishing the RAOs will be based on the media-specific numerical cleanup goals to be achieved in the various designated areas of soil contamination. These are:

1. Industrial (Adult Lead Model basis): 1,700 mg/kg lead in soil;

2. Residential (IEUBK Model basis): 500 mg/kg lead in soil; and,

3. Ecological: (Ecological Risk Model basis): 80 mg/kg lead in soil.

The development of the numerical cleanup goals for both human health and the environment can be found in Appendices C & D.

I. DEVELOPMENT AND SCREENING OF ALTERNATIVES

Soil and ground water remediation technologies were developed and screened for applicability at the DM Site. A summary of the screening of alternatives is presented in Table 1 of Appendix E.

J. DESCRIPTION OF ALTERNATIVES

After the development and screening of alternatives, EPA formulated six remedial alternatives for the DM Site. The DM Site soil contains hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901-6992k, and is therefore subject to the RCRA Land Disposal Restrictions (LDR) if the waste is excavated and treated or removed

from the area of contamination. All remedies involving such activities will comply with the LDR (40 C.F.R. Part 268) and will meet the alternative LDR treatment standards for contaminated soil described at 40 C.F.R. § 268.49 (90 percent reduction, capped at treatment to 10 times the universal treatment standard for the contaminant) before land disposal in a RCRA-compliant landfill.

Many of these alternatives include common components, such as permeable treatment walls to address the acidity of the first water-bearing zone and institutional controls in the form of deed notices to inform the public of Site conditions. Consistent with NCP requirements concerning the development of remedial alternatives (40 C.F.R. § 300.430(a)(1)(iii)), none of the remedies rely exclusively on institutional controls to achieve protectiveness.

Several alternatives also include the use of low-level contaminated soils (those below industrial risk levels) as backfill in the facility area. EPA is designating the entire Site as an Area of Contamination, because it is subject to widespread contiguous contamination with lead and other metals. Although much of the contamination that lies outside the facility is below human health and ecological risk levels, certain areas exceed these values and will be excavated and used as backfill in appropriate areas of the facility.

Ground water monitoring to ensure the effectiveness of the remedy is also a component of each alternative, except the "no action" alternative. This ground water component of Alternatives 2 through 6, requires the monitoring of ground water to ensure that contaminants have not migrated into the third water-bearing zone/Shallow Aquifer. Additionally, this ground water component includes recovering and treating contaminated ground water as a contingency if contamination of the third water-bearing zone becomes evident. All soil and ground water alternatives, except the "no action" alternative, are expected to attain EPA's RAOs.

1. ALTERNATIVE 1: NO ACTION

   Estimated Capital Cost: $100,000; Estimated Time to Achieve RAOs: n/a.

   The total cost for the "no action" alternative is $100,000. Operating costs are based on the review of Site conditions every 5 years over a 30-year period. No other operation and maintenance costs will be included. Regulations governing the Superfund program generally require that the "no action" alternative be evaluated generally to establish a baseline for comparison. None of the 44,000 cubic yards of contaminated soil would be addressed by this alternative. Under this alternative, EPA would take no action at the DM Site to prevent exposure to the soil and ground water contamination.

2. ALTERNATIVE 2: CAPPING & GROUND WATER MONITORING

   Estimated Capital Cost: $6,000,000; Estimated Time to Achieve RAOs: 6 months.

   Contaminated soil will be capped in place with a RCRA-compliant cap. All contaminated soils above the industrial risk range (25,000 cubic yards) will be contained

under this cap. The off-facility contaminated soils may be placed in the cap or used as topsoil for the cap cover if it meets the topsoil specifications. The area will be monitored in perpetuity to verify that the integrity of the capping system. Permeable treatment walls will be installed to neutralize the acidity of the shallow ground water and limit the migration of dissolved metals. Lime will be applied to the surface soils in areas with acidic soils which are not capped for neutralization. Institutional controls in the form of deed notices will inform future purchasers of Site conditions. Ground water monitoring will be also implemented to monitor the effectiveness of this alternative.

3. ALTERNATIVE 3: ON-SITE DISPOSAL & GROUND WATER MONITORING

Estimated Capital Cost: $8,800,000; Estimated Time to Achieve RAOs: 8 months.

This alternative involves constructing a complete containment system for the contaminated soils on the DM Site. All contaminated soils above the industrial risk range (25,000 cubic yards) will be excavated and placed in a composite lined vault, and a composite cover will be placed on the contaminated soils. The off-facility contaminated soils (19,000 cubic yards) may be placed in the lined area or used as topsoil for the cover if it meets the topsoil specifications. The area would be monitored in perpetuity to verify that the cap liner retains integrity and is not leaking. Permeable treatment walls will be installed to neutralize the acidity of the shallow ground water and limit the migration of dissolved metals. Lime will be applied to the surface soils in areas with acidic soils which are not capped for neutralization. Institutional controls in the form of deed notices will inform future purchasers of Site conditions. Ground water monitoring will be also implemented to monitor the effectiveness of this alternative.

4. ALTERNATIVE 4: IMMOBILIZATION (SOLIDIFICATION/STABILIZATION), ON-SITE DISPOSAL, & GROUND WATER MONITORING

Estimated Capital Cost: $8,000,000; Estimated Time to Achieve RAOs: 8 months.

This alternative entails excavating and immobilizing the contaminants present in the surface and subsurface soils. All contaminated soils above the industrial risk range (25,000 cubic yards) are treated with the immobilization reagents and the mixture will be used as backfill in the facility area. All other low-level contaminated soils will then be excavated and transported to the facility area (19,000 cubic yards) to be used as backfill. Excavated areas will also be backfilled with imported soils as needed. Permeable treatment walls will be installed to neutralize the acidity of the shallow ground water and limit the migration of dissolved metals. For soils that are not excavated, lime will be applied to the surface soils in areas with acidic soils for neutralization. Institutional controls in the form of deed notices will inform future purchasers of Site conditions. Ground water monitoring will be also implemented to monitor the effectiveness of this alternative.

5. ALTERNATIVE 5: IMMOBILIZATION (SOLIDIFICATION/STABILIZATION), OFF-SITE DISPOSAL, & GROUND WATER MONITORING

Estimated Capital Cost: $9,900,000; Estimated Time to Achieve RAOs: 6 months.

This alternative entails excavating and immobilizing the contaminants in the surface and subsurface soils and transporting the treated material to a RCRA Subtitle D landfill. All contaminated soils above the industrial risk range (25,000 cubic yards) are mixed with the immobilization reagents and the mixture will be loaded and transported to the RCRA Subtitle D landfill. All other low-level contaminated soils will then be excavated and transported to the facility area (19,000 cubic yards) to be used as backfill. Excavated areas will also be backfilled with imported soils as needed. Permeable treatment walls will be installed to neutralize the acidity of the shallow ground water and limit the migration of dissolved metals. For soils that are not excavated, lime will be applied to the surface soils in areas with acidic soils for neutralization. Institutional controls in the form of deed notices will inform future purchasers of Site conditions. Ground water monitoring will be also implemented to monitor the effectiveness of this alternative.

6. ALTERNATIVE 6: OFF-SITE DISPOSAL & GROUND WATER MONITORING

Estimated Capital Cost: $12,400,000; Estimated Time to Achieve RAOs: 4 months.

This alternative entails excavating, loading, transporting, and off-site disposal of contaminated surface and subsurface soils to a RCRA Subtitle C landfill. All contaminated soils above the industrial risk range (25,000 cubic yards) are loaded and transported to the RCRA Subtitle C landfill. All other low-level contaminated soils will then be excavated and transported to the facility area (19,000 cubic yards) to be used as backfill. Excavated areas will also be backfilled with imported soils as needed. Permeable treatment walls will be installed to neutralize the acidity of the shallow ground water and limit the migration of dissolved metals. For soils that are not excavated, lime will be applied to the surface soils in areas with acidic soils for neutralization. Institutional controls in the form of deed notices will inform future purchasers of Site conditions. Ground water monitoring will be also implemented to monitor the effectiveness of this alternative.

Under all alternatives, employers of cleanup workers are required to comply with all applicable occupational safety and health standards promulgated under Section 5 of the Occupational Safety and Health Act. The requirements include the Occupational Safety and Health Administration (OSHA) standards under C.F.R. § 1910.120 that were developed to maintain the health and safety of employees involved in hazardous waste operations or hazardous waste operations and emergency response. These standards are applicable to employees engaged in cleanup activities at designated CERCLA sites regulated under C.F.R. Part 300 Subpart F; employees engaged in RCRA closure activities conducted under C.F.R. Part 265 Subpart G; employees at those sites similar to CERCLA sites that have been designated for cleanup by a state or local agency; employees at RCRA treatment, storage, and disposal facilities; and employees engaged in

emergency response actions at all sites. Because excavation and construction related activities at the DM Site involve the potential for workers to be exposed to hazardous working conditions that may include toxic and hazardous substances and hazardous wastes, any remedial actions must be performed in accordance with applicable OSHA standards.

K. SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

A detailed analysis of remedial action alternatives is required by the NCP (40 C.F.R. § 300.430 [e][9]). Section 121 of CERCLA establishes five principal requirements for the selection of remedies. According to these statutory requirements, which guide the evaluation of remedial alternatives, a RA must:

- Protect human health and the environment;
- Comply with ARARs unless a waiver is justified;
- Be cost effective;
- Utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and,
- Satisfy a preference for treatment as a principal element, or provide an explanation in the ROD was to why this preference was not met.

EPA has developed nine criteria to be used to evaluate remedial alternatives to ensure that all important considerations are factored into remedy selection decisions. These criteria are derived from the statutory requirements of Section 121 (as stated above), as well as other additional technical and policy considerations that have proven to be important for selecting among remedial alternatives. The nine evaluation criteria can be classified into the categories of threshold criteria, primary balancing criteria, and modifying criteria. A description of evaluation criteria categories and the nine evaluation criteria follows:

1. THRESHOLD CRITERIA

The two most important criteria are statutory requirements that must be satisfied by any alternative for it to be eligible for selection. These two threshold criteria are:

1.1 Overall Protection of Human Health and the Environment:

Overall protection of human health and the environment is evaluated for each alternative on the basis of the alternative's ability to reduce the risk of exposure to contaminants from potential exposure pathways through engineering or institutional controls. Each alternative is also examined to determine whether it creates unacceptable short-term risks to human health.

1.2. Compliance with ARARs:

This criterion evaluates each alternative's compliance with action-specific, location-specific, and chemical-specific ARARs. Section 121(d) of CERCLA states that remedial actions must attain or exceed ARARs. ARARs are derived from both Federal and State environmental and facility siting laws and include regulations, standards, criteria, or limitations promulgated under federal or state laws. State standards that constitute ARARs are those laws that are promulgated, substantive in nature, more stringent than federal requirements, consistently applied, and identified by the State in a timely manner. The ARARs identified by Federal and State agencies that are applicable to the DM Site are the following:

1.2.1. Action-specific ARARs:

Action-specific ARARs are typically technology or activity based requirements applicable to actions involving special categories of wastes. Action-specific requirements are usually triggered by certain remedial activities that may be a component of the overall preferred cleanup alternative. The RA must satisfy the following action-specific ARARs:

- Solid Waste Requirements:

  Solid waste (such as nonhazardous contaminated waste soil and debris generated at the site through industrial activities) is defined under the Louisiana Administrative Code (LAC) 33:VII.Chapter 1. LAC 33:VII.Chapter 7 specifies the reporting, notification, waste-testing, waste code assignment, waste accumulation, and transporter requirements with which all generators of industrial solid waste must comply.

- Hazardous Waste Requirements:

  RCRA allows any state to administer and enforce a hazardous waste program under federal authorization. The Hazardous and Solid Waste Amendments of 1984 expanded the scope of RCRA by adding new ARARs in the forms of corrective action requirements, LDR, and technical requirements. Keeping in accordance with these new regulations, generators of hazardous waste in Louisiana must comply with the rules set forth in LAC 33:V.Chapter 11 (that is, 40 C.F.R. Parts 261 and 262). These regulations establish the requirements for hazardous waste determination, EPA generator identification, waste manifests and shipments, pretransport activities, and generator recordkeeping and reporting activities

- Air Quality Requirements:

Remedial actions resulting in the generation of airborne particulate matter from the excavation of contaminated soil, earth moving, and regrading must be evaluated under LAC 33:III.Chapter 13. These regulations call for the control of fugitive emissions by taking measures to prevent particulate matter and suspended particulate matter from becoming airborne. In addition, activities conducted during remedial actions must be evaluated by the LDEQ to determine if they meet the requirements of a small source exemption. Emissions from small sources must be less than 5 tons per year of a regulated pollutant, and emissions cannot exceed the maximum emission rate for any hazardous air pollutant or TAP.

Remedial actions associated with on-site solidification/stabilization activities conducted at inactive or abandoned CERCLA cleanup sites are exempt from permitting requirements under LAC 33:III.Chapter 51 upon approval of the cleanup plan by the administrative authority.

- Water Quality Requirements:

  The Clean Water Act (33 U.S.C. §§ 1251 to 1387), provides authority for each state to adopt water quality standards designed to protect beneficial uses of each water body and requires states to designate uses for each water body. For cleanup actions at the DM Site involving construction and excavation of contaminated soil, engineering controls designed to prevent discharges that may affect the water quality of nearby surface waters must be implemented. In accordance with the provisions of the Clean Water Act, LAC 33:IX.Chapter 1 establishes the requirements and procedures for permitting, enforcement, monitoring and surveillance, and spill control activities, in accordance with the Louisiana Water Pollution Control Regulations.

  A Louisiana Pollutant Discharge Elimination System (LPDES) permit is required for any activity that results in the discharge of any pollutant into the waters of Louisiana that is within the scope of coverage of the LPDES permit program in accordance with LAC 33:IX.2311. Permits are developed and issued pursuant to the Louisiana Environmental Quality Act (La. R.S. 30:2001 *et seq.*). All LPDES permit conditions that are within the scope of coverage of the National Pollutant Discharge Elimination System (NPDES) program (40 C.F.R. Parts 122 through 125) are federally enforceable, including conditions within the scope of the NPDES program that may be more stringent than the Clean Water Act or EPA standards and guidelines. The need for an LPDES permit or a general permit for storm water discharge and treated wastewater discharge from the DM Site to surface water must be evaluated by the LDEQ before it can issue the permit. If no permit is required, discharges will still be required to meet storm water and wastewater discharge monitoring requirements established by the LDEQ.

- Department of Transportation Requirements:

  As required by the United States Department of Transportation (49 C.F.R. Part 171), hazardous materials, such as hazardous wastes and environmentally hazardous substances that may be transported off the DM Site, cannot be transported in interstate and intrastate commerce, except in accordance with the requirements of Subchapter C of 49 C.F.R. Part 171 (Hazardous Material Regulations). Hazardous wastes or environmentally hazardous substances transported within the state must comply with the applicable packaging, labeling, marking, and placarding requirements of 49 C.F.R. Part 171 Subpart C and/or Title 33:V Subpart I, Chapter 13.

1.2.2. Location-specific ARARs:

Location-specific ARARs are restrictions placed on remedial activities solely on the basis of the location of the remedial activity. Some examples of locations that might prompt a location-specific ARAR include sensitive ecosystems or habitats (Endangered Species Act), areas of historical significance (National Historic Preservation Act and the Archaeological and Historic Preservation Act), floodplains, and wetlands. Because areas in floodplains and wetlands have incurred DM Site contamination impacts, the following location-specific ARARs are applicable:

- "Floodplain Management," Executive Order No. 11988:

  This Executive Order (40 C.F.R. Part 6 Appendix A) requires that federally funded or authorized actions within the 100-year floodplain avoid, to the maximum extent possible, adverse impacts associated with the development of a floodplain. This determination requires the evaluation of whether the proposed remedy will be in, or will affect, wetlands. If so, a wetlands assessment must be prepared. Specific measures to minimize adverse impacts will be identified following consultation with the appropriate agencies during the remedial design phase before implementation of a selected remedy.

- "Protection of Wetlands," Executive Order No. 11990:

  The requirements of this Executive Order (40 C.F.R. Part 6 Appendix A) mandate that Federal agencies and PRPs avoid, to the extent possible, the adverse impacts associated with the destruction or loss of wetlands and avoid support of new construction in wetlands if a practicable alternative exists. In addition, this Executive Order requires agencies to consider factors relevant to a proposal's effect on the survival and quality of the wetlands and to take actions to preserve and enhance the natural and beneficial values of wetlands in carrying out the agencies' responsibilities.

1.2.3. Chemical-specific ARARs:

Chemical-specific ARARs are usually health or risk-based numerical values or methodologies that, when applied to site-specific conditions, result in the establishment of numerical values. These values establish the acceptable amount or concentration of a chemical that may be found in, or discharged to, the environment. Potential exposure pathways for contamination include air, soil, and ground water.

The following chemical-specific ARARs criteria have been identified:

- EPA's "National Primary and Secondary Drinking Water Regulations" (40 C.F.R. Parts 141 and 143). Assuming the water beneath and in the

vicinity of the site is a potential drinking water source, CERCLA requires that MCLs for inorganics and organics generally be considered "relevant and appropriate" for ground water remediation. Except for the third water-bearing zone/Shallow aquifer, there is no evidence of drinking water or potential drinking water use from the first or second water-bearing zones beneath the DM Site. Therefore, all remedial actions must ensure or preserve drinking water integrity in the third local water-bearing zone/Shallow Aquifer.

2. PRIMARY BALANCING CRITERIA

Five primary balancing criteria are used to identify and measure the major cleanup abilities between the remedial alternatives. These criteria undergo comparison and evaluation to identify the preferred alternative and to select the final remedy. The five primary balancing criteria are:

2.1. Long-term Effectiveness and Permanence:

Long-term effectiveness and permanence are evaluated for each alternative on the basis of the magnitude of residual risk and the adequacy and reliability of controls used to manage remaining waste after response objectives have been achieved. Alternatives that offer long-term effectiveness and permanence halt (or otherwise mitigate) any potential for off-site contaminant transport and minimize the need for future engineering controls.

2.2. Short-term Effectiveness:

The evaluation of alternatives for short-term effectiveness takes into account protection of remedial workers, members of the community, and the environment during implementation of the RA and the time required to achieve cleanup performance goals. Time estimates are based on projected availability of materials and labor, weather, the ability to create and receive adequate and authorized access, and the availability of required utilities.

2.3. Reduction of Mobility, Toxicity, or Volume through Treatment:

The statutory preference is to select a remedial alternative that employs treatment to permanently and significantly reduce the mobility, toxicity, or volume of hazardous substances. EPA assess the degree to which each alternative employ recycling or treatment to address the principal threats posed by the DM Site.

2.4. Implementability:

Each alternative is evaluated with respect to the technical and administrative feasibility of implementing the alternatives as well as the availability of necessary equipment and services. This criterion includes such items as: the ability to

obtain services, capacities, equipment, and specialists necessary to construct components of the alternative; the ability to operate and monitor the performance and effectiveness of technologies; and, the ability to obtain necessary approvals from other agencies.

2.5. Cost:

Each alternative is evaluated for cost effectiveness against the other alternatives. Accuracy of present worth costs is +50/-30 percent (meaning that the actual total cost of each alternative, tallied after all field activities have been completed, are anticipated to be plus 50 percent or minus 30 percent of the estimated total cost for that alternative as presented in this ROD). Detailed cost estimates are derived from current information, including vendor quotes, conventional cost-estimating guides, and costs associated with similar projects. The actual cost of the project will depend on labor and material costs, site conditions, competitive market conditions, the final project scope, and the implementation schedule at the time the remedial activities are initiated.

3. MODIFYING CRITERIA

These criteria were considered fully after the formal public comment period on the Proposed Plan was completed. The EPA has also worked with the State and the community throughout the DM Site cleanup project to ensure an agreeable cleanup remedy selection for all parties. The two modifying criteria are:

3.1. State Acceptance:

The EPA selected cleanup alternative should be acceptable to the State of Louisiana and its support agencies. The State of Louisiana, as represented by the LDEQ, has reviewed the various alternatives and officially indicated its support for the selected remedy. A copy of the letter of concurrence from the State is attached in Appendix A.

3.2. Community Acceptance:

The concerns of the community should be considered when selecting a remedial alternative. Much information has been exchanged with the area residents and community leaders concerning the DM Site. This criterion spells out the formal acceptance of the community and will be based on comments received from residents and local officials during the Proposed Plan public comment period.

The summary of comparative analysis of alternatives (Threshold and Primary Balancing Criteria) is presented in Table 3 of Appendix E. Further comparative analysis information is presented under the section M. The Selected Remedy.

Also, in satisfaction of the Modifying Criteria, the State of Louisiana has indicated its support of EPA's preferred alternative (as shown by their letter of concurrence in Appendix A) and the community has shown general support for EPA's selection of the remedy (as detailed later in PART 3: THE RESPONSIVENESS SUMMARY).

L. PRINCIPAL THREAT WASTE

Principal threat wastes is a concept developed in the NCP to help streamline and focus the remedy selection process. The NCP establishes the expectation that treatment will be used to address principal threats posed by the site whenever practicable. The manner in which principal threat waste is addressed generally will determine whether the statutory preference for treatment as a principal element is satisfied (remedies that use treatment for principal threat waste are likely to satisfy the statutory preference for treatment).

As identified before in this ROD, there are areas where lead contaminants were found well above acceptable risk levels even for industrial workers (the approximately 25,000 cubic yards of highly mobile lead source materials out of 44,000 cubic yards of total contaminated soil). Added to these surficial and subsurface areas is the first water-bearing zone, which has been identified to be highly acidic (pH 2-3), thereby causing these lead contaminants to be mobile within the soil matrix. Because these mobile lead source contaminants cannot be reliably contained, they are principal threat wastes, and must be resolved by treatment and permanent solutions to the maximum extent practicable.

M. THE SELECTED REMEDY

EPA's selected remedy is Alternative 5: Immobilization (Solidification/Stabilization), Off-site Disposal, and Ground Water Monitoring. The rationale for the selection of this remedy is:

- Following the Presumptive Remedy for Metals-In-Soils (EPA 540-F-98-054, OSWER-9355.0-72FS, September 1999), the EPA has a goal of resource conservation and the preferred treatment technology for metals-in-soil sites is reclamation/recovery. EPA has determined that this approach is not appropriate for the DM Site because of the high cost of physical separation technology, the questionable availability of buyers and end users, and of vendors who could achieve RAOs using this technology. In addition, the costs associated with transportation and recovery activities would outweigh the revenues generated by the resale/reuse of recovered materials. Therefore, the next most preferred treatment technology alternative is immobilization (solidification/stabilization).

- The National Contingency Plan (NCP) recommends use of "permanent solutions to the maximum extent practicable" and "treatment to address principal threats wherever practicable and engineering controls such as containment for low-level long term threats." The 25,000 cubic yards of lead contaminants at the DM Site, highly mobile due to the low pH environment and above industrial risk levels, are defined as principal

threats. Therefore, EPA must use treatment and permanent solutions to the maximum extent practical for these principal threats. Both use of treatment and permanent solutions are accomplished in Alternative 5, which consists of immobilization and off-site disposal in a non-hazardous landfill.

- There is a capping alternative (Alternative 2) and an on-site disposal alternative (Alternative 3) that provides for a mechanism for containment of wastes identified in Site areas. However, containment is the presumptive remedy for low-level threats only, and would not be preferred for the large portion of principal threat wastes that exists on the Site. In addition, combining low-level threat and principal threat wastes in a containment area does not satisfy EPA's goal of using treatment and permanent solutions for principal threats. Therefore, containment would not be appropriate.

- Alternative 4 allows for immobilization and on-site disposal to address the principal threats at the Site. This alternative meets the EPA treatment objective for principal threats and contains all Site wastes (immobilized principal threat wastes and low-level threat wastes) by moving them to an on-site disposal area. However, this methodology hinders any possible future redevelopment activities at this Site because of the presence of the on-site disposal. Also, long-term protection of the immobilized soils is lowered as there will always exist a potential for leaching of principal threats out of the immobilized soil matrix into areas that have been cleaned up. Therefore, after the immobilization process, the on-site disposal component should be replaced with off-site disposal into a non-hazardous landfill component to complete the soil remedial alternative. Thus, immobilization and off-site disposal will ensure permanence of the cleanup remedy and be more conducive to Site redevelopment by treating and eliminating all principal threat wastes from the Site.

- The off-site disposal alternative (Alternative 6) does not fulfill EPA's statutory requirement to utilize treatment to the maximum extent practicable. In addition to not meeting statutory requirements, the cost associated with this alternative is the highest of all the alternatives and can be lowered by choosing Alternative 5, which incorporates the off-site component and meets statutory requirements for treatment.

- Alternative 5, the selected remedy, allows for immobilization and off-site disposal. Immobilization of the principal threats meets EPA's statutory requirement to utilize treatment to the maximum extent practicable. In addition, off-site disposal of the immobilized principal threats will ensure permanence of the cleanup remedy and be more conducive to Site redevelopment. A detailed cost summary of the selected remedy (estimated capital, O&M costs, total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected) can be found in Appendix F.

Alternative 5 (like alternatives 2, 3, 4, and 6) employs institutional controls in the form of deed notices to inform the public of Site conditions. Specifically, EPA will request LDEQ, in accordance with La. Rev. Stat. Ann. § 30:2039 (2000) and La. Admin. Code tit. 33 § 3525 (1999), to require the owner(s) of the facility property to record a notice in the mortgage and

conveyance records of Tangipahoa Parish. This notice must provide at least the following information:

- That the property has been the subject of a CERCLA response;
- That hazardous substances remain at specified locations on the property above levels that allow for unrestricted exposure;
- That disturbing or moving soil in these locations may pose a threat to human health or the environment, and may subject the property owner and the party causing the disturbance to liability under CERCLA or other laws;
- That structures including permeable treatment walls and monitoring wells, and any other feature necessary for protectiveness of the remedy or for its successful operation and maintenance, remain on the property at specified locations;
- That disturbing or moving these features of the remedy may pose a threat to human health or the environment, and may subject the property owner and the party causing the disturbance to liability under CERCLA or other laws; and
- That the property may be subject to restrictions under LAC 33:V.Chapter 35.

A full copy of the notice must also be filed with the Tangipahoa Parish zoning authority and any other authority having jurisdiction over local land use.

N. STATUTORY DETERMINATIONS

The RA selected for implementation at the DM Site is in accordance with CERCLA and, to the extent practicable, the NCP. The selected remedy is protective of human health and the environment, will comply with ARARs and is cost-effective. In addition, the selected remedy utilizes permanent solutions and alternate treatment technologies or resource recovery technologies to the maximum extent practicable, and satisfies the statutory preference for treatment that permanently and significantly reduces the mobility, toxicity or volume of hazardous substances as a principal element.

1. THE SELECTED REMEDY IS PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT:

The remedy at the DM Site will protect human health and the environment by:

- Immobilization to address the principal threat wastes within the soil (thus eliminating the source of contamination for sediment, surface water, ground water);

- Off-site disposal to transport immobilized wastes to a disposal facility;
- Permeable treatment walls to neutralize the acidity of the shallow ground water and limit the migration of dissolved metals;
- Institutional controls in the form of deed notices to inform the public of Site conditions; and,
- Ground water monitoring to ensure the effectiveness of the cleanup remedy.

More specifically, the implementation of the selected remedy will achieve the DM Site RAOs, as determined by numerical cleanup goals formulated from the basis of the Adult Lead Model, IEUBK Model, and the Ecological Risk Model.

2. THE SELECTED REMEDY COMPLIES WITH ARARs:

The selected remedy complies with all Federal and any more stringent State ARARs as identified earlier in this ROD. All components of the selected remedy can be implemented without compromising any of the requirements as specified in the identified ARARs.

3. THE SELECTED REMEDY IS COST-EFFECTIVE:

The selected remedy is cost-effective because the remedy's cost is proportional to its overall effectiveness (see 40 C.F.R. § 300.430(f)(1)(ii)(D)). EPA has compared the overall effectiveness of each alternative, as measured by the Threshold and Primary Balancing Criteria, to the alternative's costs to determine cost-effectiveness. The relationship of the overall effectiveness of the selected remedy to its costs is reasonable, in comparison to other available options.

4. THE SELECTED REMEDY UTILIZES PERMANENT SOLUTIONS AND ALTERNATIVE TREATMENT OR RESOURCE RECOVERY TECHNOLOGIES TO THE MAXIMUM EXTENT PRACTICABLE:

Once alternatives that attain ARARs and that are protective of human health and the environment are identified, EPA continues to analyze which alternative utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The selected remedy satisfies this statutory requirement and provides the best balance among the Threshold and Primary Balancing Criteria among the alternatives.

5. THE SELECTED REMEDY SATISFIES THE PREFERENCE FOR TREATMENT WHICH PERMANENTLY AND SIGNIFICANTLY REDUCES THE TOXICITY, MOBILITY OR VOLUME OF THE HAZARDOUS SUBSTANCES AS A PRINCIPAL ELEMENT:

The principal element of the selected remedy is the immobilization treatment process used in source control of the highly mobile lead contaminants. This remedy satisfies the statutory preference for treatment as a principal element by greatly reducing the toxicity and mobility of the lead principal threat wastes.

6. FIVE YEAR REVIEWS OF THE SELECTED REMEDY ARE REQUIRED:

Because this remedy will result in hazardous substances remaining on-site above levels that allow for unlimited use and unrestricted exposure (the facility area limited to industrial use), a review will be conducted within five years after initiation of the RA to ensure that the remedy continues to provide adequate protection of human health and the environment.

O. DOCUMENTATION OF SIGNIFICANT CHANGES

There are no significant changes between the Proposed Plan issued on July 13, 2000 and this ROD. Community comments and EPA responses are addressed in PART 3: THE RESPONSIVENESS SUMMARY.

P. STATE ROLE

The State of Louisiana, as represented by the LDEQ, has reviewed the various alternatives and has indicated its support for the selected remedy. The State has also reviewed the RI, HHRA, ERA, TS, and FS Reports to determine if the selected remedy is in compliance with State environmental and facility siting laws and regulations.

While the EPA bears the responsibility in ensuring all parts of the selected remedy are carried out, the State of Louisiana (in accordance with La. Rev. Stat. Ann. §30:2039 (2000); La. Admin. Code tit. 33 §3525 (1999)) will bear the responsibility to enforce implementation of institutional controls in the form of deed notices by the property owners.

The State of Louisiana has indicated its support on the selected remedy for the DM Site. A copy of the letter of concurrence from the State is attached in Appendix A.

PART 3: THE RESPONSIVENESS SUMMARY

The concerns of the community should be considered when selecting a remedial alternative. Much information has been exchanged with the area residents and community leaders concerning the DM Site. An Open House (July 13, 2000) and a Public Meeting (July 31, 2000) were held by the EPA provide information to the public regarding cleanup activities. There is also an Administrative Record file at all information repositories that contain documents leading up to this Record of Decision. This Administrative Record file includes a transcript of the Public Meeting, which records answers to many public comments. Additional comments received during the comment period from July-August 2000 are summarized below:

A. STAKEHOLDER ISSUES AND EPA RESPONSES

1. What is the difference between Alternative 5 and Alternative 6?

   The only significant difference between Alternatives 5 and Alternative 6 is that one will be delivering immobilized contaminated wastes to a RCRA Subtitle D non-hazardous disposal facility (Alternative 5) and other will be delivering un-immobilized contaminated wastes to a RCRA Subtitle C hazardous disposal facility (Alternative 6). The EPA selected Alternative 5 because it satisfies the statutory preference for treatment via immobilization, is associated with the transport of non-hazardous wastes, and is more cost efficient.

2. What recourse will I have if I suffer damages from DM Site trucking activities during the RA?

   EPA will be working with officials from the City of Ponchatoula and Tangipahoa Parish in designing a safe, efficient trucking route from the DM Site to a disposal facility to ensure timely disposal of immobilized materials. Understandably, there may be some inconveniences to area residents due to the increase in trucking activities associated with the cleanup of the DM Site. EPA's Superfund Ombudsman will help resolve disputes that residents raise in the course of the cleanup action. The Ombudsman may be contacted by telephone at 800.533.3508.

3. I live close to the facility area and have not had my water well tested for drinking water contamination.

   In 1999, drinking water samples were collected and analyzed from residential water wells located immediately adjacent and on different sides to the facility area (DMI and NPB). None of these wells contained constituents that exceeded MCLs (Maximum Contaminant

Levels, the highest allowable concentration of detected constituents in drinking water). Since none of these wells showed any compromise to the integrity of drinking water for these residences at locations immediately adjacent to the facility area, EPA determined that there was no need to undertake further testing beyond these tested boundaries. As part of the RA, ground water monitoring will also be implemented to ensure that any improbable migration of residual contaminants after the cleanup will be detected.

4. I support Alternative #5 and would like the EPA to keep me informed of the DM Site cleanup status.

EPA will continue to have informational meetings with the community, as well as, periodic fact sheets and mailings on the cleanup status of the DM Site. EPA welcomes public input on its decision making process and appreciates the support of the community in moving forward with Alternative #5.

APPENDICES

APPENDIX A: LETTERS OF CONCURRENCE

1. Louisiana Department of Environmental Quality
2. National Oceanic and Atmospheric Administration
3. U.S. Fish and Wildlife Service
4. U.S. Geological Survey

APPENDICES (continued)

APPENDIX B: SITE FIGURES

1. Figure 1: Area Vicinity Map
2. Figure 2: Delatte Metals Site Map
3. Figure 3: City of Ponchatoula Zoning Map
4. Figure 4: Contaminated Soils Location Map
5. Figure 5: First Water-Bearing Zone Lead Concentration Map

APPENDICES (continued)

APPENDIX C: HUMAN HEALTH RISK INFORMATION

1. Adult Lead Model + IEUBK Model
2. EPA memo from risk assessor David Riley, dated 4/26/00.
3. EPA memo from risk assessor David Riley, dated 4/26/00 (Adult Lead Model parameters).
4. EPA memo from risk assessor David Riley, dated 4/26/00 (IEUBK Model parameters)
5. EPA memo from risk manager Stephen Tzhone, dated April 27, 2000.

APPENDICES (continued)

APPENDIX D: ECOLOGICAL RISK INFORMATION

1. Ecological Risk Model (presented as Figure 2-1 Conceptual Site Model and Figure 2-2 Food Web).
2. EPA memo from risk assessor Jon Rauscher, dated February 10, 2000.
3. EPA memo from risk assessor Susan Roddy, dated April 26, 2000.
4. EPA memo from risk manager Stephen Tzhone, dated April 27, 2000.

APPENDICES (continued)

APPENDIX E: REMEDIAL ALTERNATIVES SUMMARY TABLES

1. Table 1: Screening of Soil Remediation Technologies.
2. Table 2: Screening of Ground Water Remediation Technologies.
3. Table 3: Summary of Detailed Analysis of Alternatives.

APPENDICES (continued)

APPENDIX F: SELECTED REMEDY DETAILED COST SUMMARY

APPENDICES (continued)

APPENDIX G: ADMINISTRATIVE RECORD INDEX