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RESPONSIVENESS SUMMARY

OMAHA LEAD SITE

Interim Record of Decision

December 15, 2004

On July 16, 2004, the Environmental Protection Agency (EPA) released the Omaha Lead Site (OLS) Proposed Plan for a 30-day public comment period The Proposed Plan described the Agency's preferred alternative for cleanup at the Site. Two public meetings were announced with the release of the Proposed Plan and conducted on August 10, 2004, in North Omaha and South Omaha within the focus area of the OLS. Three separate extensions of this comment period were granted in response to requests from community members. Additional EPA availability sessions were scheduled and conducted on August 20, 21, and 26, 2004. The comment period for the OLS Proposed Plan closed on November 1, 2004. Comments received are summarized in this Responsiveness Summary.

The EPA believes that an interim action for the Site is appropriate at this time to protect the residents of Omaha that are at greater risk from highly contaminated soils while a final remedy is being developed for remaining properties that are contaminated at low to moderate levels. Interim actions are usually more limited in scope than a final action. Requirements for the documentation to support an interim action are typically less than for a final action. For instance, a conventional Remedial Investigation/Feasibility Study (RI/FS) is not always required to proceed with an interim action. Agency policy requires, however, that an interim action must be supported by documentation of the rationale for conducting the interim action. A large amount of data has been collected at the OLS which identifies and documents the need for a response to the lead contamination in residential soils. The EPA believes that an interim remedy will provide the ability to address this significant threat, and concurrently develop additional information regarding risk characterization and potential treatment technologies that will be considered during the remedy selection process for a Final Record of Decision (ROD).

The EPA received hundreds of pages of comments on the OLS Proposed Plan and supporting documents. Many of these comments were repetitive. For clarity purposes, EPA has attempted to limit the number of responses to similar comments. In some instances, related comments have been combined for a single comprehensive response. In certain cases, responses to specific comments of a technical nature were not provided if a more general response adequately addresses the comment. This responsiveness summary has been prepared with the goal of

responding to all comments without being overly repetitive, while assuring that the public clearly understands the basis and goals of the interim remedy.

Comments Received from State and Local Governments

The Nebraska Department of Environmental Quality (NDEQ) submitted comments requesting clarification of whether the institutional controls in the preferred alternative would consist of a notice or restrictions on the property deed and whether placement of an institutional control would prohibit quarterly deletion of properties once remediation is complete. The NDEQ does not support such institutional controls that would place notice or restrictions on property deeds, or would prohibit quarterly deletion. The NDEQ would not object to an informational type of institutional control such as a registry identifying properties that have been sampled and remediated. The NDEQ also requested clarification of whether the proposed institutional controls for non-residential lead-contaminated areas where land use could change to residential includes the central business district, which is not considered part of the Site. The NDEQ does not support institutional controls on central business district properties.

The EPA selected remedy does not include institutional controls placed on individual residential properties at the Site. Risk characterization performed to date at the Site indicates that removal and replacement of soils exceeding 400 parts per million (ppm) from remediated properties will achieve a level of human health protection that will not require institutional controls to maintain the protectiveness of the remedy. The need for institutional controls to achieve protectiveness will be further considered during the development of a final remedy for OLS.

The NDEQ concurs with EPA that a more comprehensive approach to addressing all sources of lead exposure is needed at the Site, and believes that activities associated with all of the sources of lead should be included in the preferred alternative.

The EPA participation in a comprehensive remedy is included in the Selected Remedy.

The NDEQ supports beneficial use of excavated soil from the Site, but would need to review technical information to determine if any proposed beneficial use is protective.

The EPA agrees that beneficial use of excavated materials would potentially represent the most attractive final management option for contaminated soils. The selected remedy includes coordination with state and local governments in consideration of a beneficial use project for excavated materials.

The Nebraska Health and Human Services System (NHHSS) submitted comments generally concurring with the interim approach, requesting clarification in some areas, and offering proposed modifications:

> *The NHHSS recommends that prioritization of properties for remediation should be*

clarified, advising that residences with a child exhibiting an elevated blood-lead level should be first priority, child care facilities second, high child-impact areas third, and properties over 800 ppm fourth.

Language has been added to the ROD to establish priorities for sampling and remediation.

The NHHSS desires that a cleanup level of 400 ppm for all remediated properties be explicitly stated.

Language has been added to the ROD to clarify this issue.

The NHHSS requests clarification what institutional controls are included with each alternative and the preferred alternative. The NHHSS opposes institutional controls that would place restrictions on individual property deeds.

Alternatives 2 and 3 presented in the OLS Proposed Plan includes institutional controls that would prevent unacceptable future use from occurring at individual excavated properties and at a potential soils repository for final management of excavated soils. The preferred alternative in the OLS Proposed Plan and the selected remedy in the ROD do not include institutional controls on individual remediated residential properties, but may include institutional controls, as required, on a soil repository.

The NHHSS requests clarification of why phosphate stabilization is preferable, in accordance with the statutory and regulatory preferences for treatment, and what advantages phosphate stabilization offers to public health.

There does exist a statutory and regulatory preference for remedies that utilize treatment as a component of the remedy. However, the selected remedy must achieve the threshold criteria of overall protection of human health and the environment. To date, phosphate treatment has not demonstrated the ability to provide protection to human health and the environment at the OLS. Phosphate treatment is not preferable at this time

The NHHSS would like clarification that the property selected for the treatability study will be within the OLS.

Soils used to evaluate the effectiveness of any potential treatment technology, including phosphate treatment, will originate from the OLS. If a location cannot be identified and made available to perform an in situ treatability study, contaminated soils from the Site may be relocated to a controlled location to perform the study. The EPA anticipates performing the treatability study within the overall Site boundaries.

The NHHSS would like clarification that contractors working on removal of lead-based paint will operate in conformity with the Residential Lead-Based Paint Hazard Reduction

Act, the Toxic Substances Control Act, and Title 178, Chapter 23 of the Nebraska Administrative Code.

Appropriate language has been added to the description of the selected remedy in the ROD to include compliance with these requirements.

The NHHSS would like clarification that any property eligible for a Superfund response will have all aspects of remediation completed in a single phase, including removal of exterior lead-based paint and interior cleaning.

Any property eligible for remedial response under this ROD will have all work performed in a single phase, including soil excavation and replacement, revegetation, interior cleaning, and exterior paint stabilization. If the final remedy involves performing response actions at properties contaminated at levels less than 400 ppm, then EPA would consider the need to return to remediated properties to perform additional work. In that event, any residual risk associated with lead concentrations less than 400 ppm would be very low and may not justify additional response.

The NHHSS would like the selected remedy to include continued excavation of properties below 800 ppm following completion of the interim remedial action, until a final ROD is issued.

This ROD allows for excavation of the highest-priority properties while additional risk characterization is performed at the Site. Additional risk characterization is necessary to determine which additional properties at the Site are eligible for response. The EPA anticipates that contaminated properties at the Site will continue without interruption. If the interim remedy nears completion without a final remedy in place, the need for an additional interim response will be evaluated by EPA to address those remaining properties that have been determined through additional risk characterization to warrant response. The EPA will take action, as required, to assure continued response and protection of human health and the environment.

The *NHHSS advises that surfaces with loose or flaking lead-based paint that are scraped or power washed should then be encapsulated or enclosed.*

Language has been added to the ROD to include encapsulation or other appropriate treatment to stabilize the surface following removal of loose or flaking exterior lead-based paint.

The NDEQ and the NHHSS submitted joint comments requesting that a portion of the state's required cost share be directed to pay for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) authorized response actions other than soil remediation. The state understands that these actions may include health education, exterior lead-based paint removal when necessary to protect the remedy, and removal of interior dust linked to soil contamination. During implementation of the interim remedy, the state

recommends that additional data collection should be performed to better characterize potential lead exposure sources including soil, potable water, exterior paint, interior dust, and interior paint. If elevated lead levels are identified in interior dust, it should be evaluated to determine the relative contribution of interior lead-based paint and soil. The state advised that they may request enhancement of the remedy at a later time if this sampling identifies interior paint and lead plumbing are found to be primary lead exposure pathways.

The EPA acknowledges the state's intent to offset a portion of any required cost share with costs incurred by the state in providing certain components of the selected remedy other than soil remediation. If state cost share is required, EPA will work with the state to develop the necessary agreements that will provide the state with credit toward their cost share for portions of the selected remedial action that the state performs. During implementation of the selected remedy, additional data collection will be performed to better characterize potential lead exposure sources at the Site including soil, potable water, exterior paint, interior dust, and interior paint. Additional characterization of interior dust will be performed to better determine relative contributions of contaminated soils, interior paint, and other potential sources. The EPA understands that the state may request enhancement of the remedy at a later time based on additional source characterization.

The Douglas County Board of Health (BOH) provided comments generally supporting EPA's preferred alternative and a comprehensive approach to lead exposure sources at the Site. The BOH believes that a comprehensive remedy in the ROD should include:

Establishment of a non-profit entity
Public awareness/outreach programs
Public education/training programs
Blood lead screening and monitoring programs
In-home assessments in residences with children with blood-lead levels at or above 10μg/dl
Exterior lead-based paint removal
Interior dust testing program
Interior residence cleaning
Resources to local agencies to enforce local housing ordinances and regulations

The BOH further recommended a strong partnership with community and local government agencies and taking a team approach to each residence identifying all lead hazards, providing information and assistance in remediating all sources, and testing and monitoring of all children less than six years of age for elevated blood-lead levels.

The EPA supports a comprehensive remedy including the elements presented by the BOH. The EPA intends to develop strong partnerships with community organizations and local and state government agencies to design and implement a comprehensive lead risk reduction strategy.

The Mayor of Omaha submitted comments requesting the EPA to revise the preferred alternative to include a comprehensive approach to address all sources of lead exposure at the OLS, advising that local management is one key aspect of a comprehensive program. The Mayor recommended that the comprehensive remedy include the following components:

> *A public awareness and outreach program designed for the various cultural and ethnic groups within the Site to educate the public of the sources of lead including interior and exterior lead-based paint hazards, interior dust, water, soil contamination, occupational exposure to lead, and the health risks associated with lead poisoning.*
>
> *A blood-screening and monitoring program that tests pregnant and nursing mothers, as well as children less than seven years of age.*
>
> *An in-home consultation program for families with children with elevated blood concentrations to identify potential lead hazards within the child's living environment.*
>
> *An in-home testing and cleaning program to identify interior lead sources and provide education, HEPA-VACs, and interior cleaning for homes with children with elevated blood-lead levels.*
>
> *Appropriate actions to remediate identified lead hazards, including interior and exterior lead-based paint hazards, interior dust, water and soil contamination.*

The EPA recognizes the importance of addressing the cultural and ethnic diversity within the OLS community in the development of public outreach and education programs. Local management will be a critical component of a successfully implemented comprehensive plan to reduce overall lead exposure, as are the other elements presented in the comment. The EPA will participate in the implementation of a comprehensive plan to the extent permissible under CERCLA authority, and will work with other organizations and agencies to arrange for mechanisms and funding sources to address lead-exposure sources outside of CERCLA authority.

A Douglas County Commissioner commented that if exterior lead-based paint needs to be removed, then EPA should pay for the repainting of the house, and that the second phase of the cleanup must be as aggressive as the first phase.

Payment for stabilization of loose or flaking exterior lead-based paint will not be the responsibility of the homeowner. The EPA plans to aggressively continue all phases of the cleanup until remedial goals are achieved.

The Executive Director of the Omaha Small Business Network submitted a series of comments.

> *The commentor is concerned that only properties exceeding 800 ppm and EBL properties*

and high child-impact properties exceeding 400 ppm would be remediated. If the treatability study does not prove successful, yards contaminated between 400 ppm and 800 ppm would be excavated anyway. Use of residential properties can change. Most residents rent instead of own, and are more transient. A family with children could move from a remediated home to one that has not been cleaned up.

The EPA acknowledges that additional studies are required to develop and select a final remedy for the Site. Excavation of properties contaminated at levels between 400 ppm and 800 ppm is one alternative that will be evaluated for a final remedy. The selected remedy allows for excavation of the properties with the highest human health risk to proceed while additional evaluation is performed to better support a remedy for the lower priority properties not addressed by the interim remedy. The EPA is aware of the high number of tenants in the study area and the potential for families with children to move from home to home. When an elevated blood-lead level is identified to EPA, that child's current living environment is targeted for priority response by EPA regardless of recent moves. The EPA will work with other organizations and agencies in an attempt to identify and prioritize for action those residences where young children reside at the Site.

The commentor questions the long-term effectiveness of phosphate treatment and the short-term safety of applying phosphoric acid to yards where children live.

The safety and long-term effectiveness of phosphate treatment will be evaluated in a treatability study before it is considered for a final remedial action for the remaining properties not addressed by this interim remedy. This treatability study will be released for public review and comment prior to final remedy selection.

The commentor favors Alternative 2 since it provides a proven solution to all affected yards, and provides for stabilization of exterior lead-based paint and interior cleaning. The commentor believes that the uncertainties associated with phosphate treatment are too great, regardless of cost savings.

The safety and long-term effectiveness of phosphate treatment must be successfully demonstrated before it could be considered for a final remedy at the Site. The selected remedy also provides for stabilization of exterior paint and interior cleaning at remediated properties.

The commentor would like to see primary consideration given to community and minority businesses for remediation services. Non-government organizations should have money granted to expand testing and awareness in the affected communities.

The EPA is actively working with community leaders to understand capabilities and capacities of local contractors so that a contracting strategy can be developed that maximizes the opportunity for participation of local companies and workforce in the implementation of the remedy. The EPA encourages non-governmental organizations to apply for grants to support their efforts.

Federal regulations, however, require that grants must be competitively awarded. The EPA attempts to identify grant opportunities to local organizations through the OLS Community Advisory Group, and fully supports award of grant funds to qualified groups.

The OLS Community Advisory Group submitted comments regarding the EPA Proposed Plan. In these comments, the OLS Community Advisory Group recommended that the EPA preferred alternative include and fund a comprehensive approach to achieve remedial action objectives. The comprehensive approach would include, but not be limited to, the following components:

> *A not-for-profit entity to oversee the coordination and collaboration of all programs and agencies involved at the OLS*
> *Culturally and linguistically appropriate public awareness and outreach programs*
> *Culturally and linguistically appropriate public education and training programs*
> *Blood screening and monitoring program*
> *In-home assessments in residences with children with blood-lead levels at or above 10 μg/dl.*

A "Comprehensive Plan for the Elimination of Lead Hazards in Omaha, Nebraska" was submitted by the OLS Community Advisory Group recommending that a comprehensive lead risk reduction program be conducted including the following components:

> *Outreach and awareness activities in the Omaha Lead Superfund Site area*
> *Education for parents, property owners, health care professionals, and staff at community-based organizations*
> *Training for remodelers and home repair workers in lead-safe practices*
> *Training for contractors involved in remediation activities – soil and housing*
> *Screening of children for elevated blood-lead levels*
> *Case management for monitoring children with elevated blood-lead levels*
> *Source identification – soil/lead-based paint/air/water/other*
> *Source remediation – soil/lead-based paint/lead dust*
> *Surveillance – data collection for blood leads and housing*
> *Collaboration of service providers in providing coordinated services*
> *Plans to expand and improve services*
> *Evaluation of effectiveness of collaboration and coordination efforts.*

The Comprehensive Plan provides considerable detail regarding each of the identified elements proposed for a comprehensive lead risk reduction program. The Comprehensive Plan describes the creation of an Omaha Lead Superfund Site Alliance to direct implementation of a comprehensive lead risk reduction program.

The selected remedy includes EPA participation in a comprehensive remedy that addresses all potential lead-exposure sources at the Site, and includes the elements described in the comment. The EPA will work with the OLS Community Advisory Group, and other organizations and

community members, to develop a strategy that addresses these potential sources. The EPA's authority under CERCLA extends to many of these activities, and the remedy includes those components of a comprehensive remedy that are allowable under the statute. The EPA will work with other interested parties and agencies to identify and engage other organizations, agencies, and funding sources to address potential lead exposure sources that are outside the scope of CERCLA authority.

The OLS Community Advisory Group submitted comments and questions concerning the EPA Feasibility Study, OLS, including the following:

> *What will EPA do to ensure that paint chips and dust removed via power washing do not contaminated neighborhood yards? How will EPA contain the wastewater that is generated so that it does not contaminate other properties?*

The EPA anticipates that flaking and deteriorating exterior lead-based paint will be removed by wet scraping. The EPA will require the remediation contractor to develop and implement procedures that will minimize the potential for lead-based paint chips and dust (and associated wastewater) from contaminating neighborhood yards. In addition, removal of exterior lead-based paint will be performed before the removal and replacement of yard soil.

> *How does EPA plan to protect its remedy at properties where the owner does not agree to have paint removed? How does EPA plan to protect its remedy at homes where neighboring properties that do not qualify for removals have flaking and deteriorating paint?*

The EPA expects that its health education and community involvement programs will generally be successful in convincing homeowners of the need to stabilize flaking exterior lead-based paint. Further, EPA anticipates that public pressure from owners of nearby remediated properties will positively influence reluctant owners. Deteriorating lead-based paint from neighboring properties that threatens the continued effectiveness of the remedy can be stabilized as part of the selected remedy.

> *How will risks associated with excavation and transportation of lead impacted soils to workers and residents be addressed? What will be the impacts to local neighborhoods and residents of increased truck traffic from implementation of EPA's proposed remedy?*

Risks to workers and residents resulting from excavation and transportation of lead-impacted soil (and of importing new backfill) will be controlled by requiring pertinent health and safety procedures be developed, documented, and implemented in the remediation contractor's project specific health and safety plan. Impacts to local neighborhoods and residents include increased noise, dust, and accident potential in remediation areas. These risks will be minimized by appropriate traffic control and other procedures specified in the health and safety plan.

If an onsite soil repository were to be created, where will it be located? Will the public have any input into the decisions made regarding siting such a repository? If the soil is used as beneficial fill, what are the implications regarding risk to receptors living and working near the fill area? Will the public have any input into the decisions made regarding the use of the soil as fill material.

The need for a soil repository and its potential location have not been confirmed, but if a decision is made to consider a soil repository for final management of contaminated soils, the public will be provided with opportunities to participate in the decision-making. Typically this involves, at a minimum, public participation opportunities associated with land development, such as planning and zoning commission meetings. Generally, local or state permitting requirements may apply to any proposed facility, which would provide additional opportunities for public involvement. Excavated materials will only be considered for beneficial use if the proposed placement is protective of human health and does not pose a threat to nearby residents. Worker safety during placement of excavated soils as beneficial fill would be addressed in a site-specific health and safety plan developed for the project.

What considerations have been given to the logistics and costs of additional testing and the potential for rejection of excavated soils by the landfill?

Excavated materials have been transported to local landfills for use as cover or fill since 1999. The landfill requires periodic testing of soils prior to transport. Currently the landfill is requiring a Toxicity Characteristics Leachate Procedure (TCLP) and total metals analysis for every thousand cubic yards of disposed material. This routine analysis does not present logistical difficulties, and the cost of the analysis is insignificant to disposal costs. If EPA encounters a release of hazardous substances unrelated to the lead contamination during the course of the response action, any resulting contaminated soils would be addressed in a manner similar to any release addressed under EPA emergency response authority. The EPA does not anticipate that any lead-contaminated soils will be determined to be unsuitable for land disposal.

What will the initial watering requirements be for sod and hydro-seed and what will the cost be to homeowners? What types of upkeep and maintenance will be required, and what will the costs be to homeowners?

Initial watering requirements will be similar to those associated with starting any other new lawn using sod or hydro-seeding, and vary by season and weather conditions. The EPA will provide for watering until the grass lawn is established at no cost to homeowners. Once established, additional watering and maintenance costs should be no different that those associated with an existing lawn and will be the responsibility of the homeowner.

At each individual property, how does EPA intend to determine whether contamination is from "industrial operations" or from "other sources"?

The EPA has determined through the Apportionment Study that a significant amount of the lead contamination detected in yards in the OLS originates from industrial operations. No additional characterization will be required to initiate response, if at least one mid-yard sample exceeds the appropriate action criteria.

> *How will EPA determine if interior lead contamination in dust is due to exterior soil and not lead-based paint?*

Additional apportionment studies will be performed to evaluate the relative contribution of contaminated soil and other sources to contaminated interior dust. In the absence of other data, tracking of exterior soils is assumed to significantly contribute to interior dust lead concentrations.

> *What potential impacts in property value are expected at properties requiring institutional controls? What are the expected costs to the state and local governments for implementation of institutional controls?*

The selected remedy does not include institutional controls on individual residential properties that are remediated. The need for institutional controls will be further evaluated during the final remedy selection process.

> *With known high instances of lead-based paint in residences in the OLS, there is a high potential for the incidence of elevated blood-lead levels to remain the same after soil removal. As such, why do none of the alternatives presented in the Feasibility Study (FS) include elements to address this known source of lead exposure.*

CERCLA Section 104(a)(3)(B) generally limits the EPA's authority to respond to interior sources of lead, such as interior lead-based paint, as follows:

> "Limitations on Response. The President (EPA) shall not provide for removal or remedial action under this section in response to a release or threat of release...from products which are part of the structure of, and result in exposure within, residential buildings or business or community structures..."

The EPA believes that the actions provided in the selected remedy, including removal of contaminated soil and contaminated interior dust, will significantly reduce the level of lead exposure at remediated properties.

The OLS Community Advisory Group submitted the following comments and questions regarding the NHHSS Baseline Human Health Risk Assessment, OLS, and the EPA RI, Residential Yard Soil, OLS.

The NHHSS Baseline Human Health Risk Assessment

> *The EPA has developed adult blood lead models – why are these models not being considered at the OLS? Also, why are women of childbearing age, nursing mothers, and pregnant women not included in the risk assessment for the OLS?*

The EPA policy, as presented in the EPA Superfund Lead-Contaminated Residential Sites Handbook, establishes a remedial action objective for remedial response at residential lead sites. The remedial action objective for the OLS is to reduce the risk of exposure of young children to lead such that an individual child, or group of similarly exposed children, have no greater than a 5 percent chance of having a blood-lead concentration exceeding 10 ug/dl. Young children are the group most at risk from lead contamination. By addressing the risks to young children, it will provide the necessary protection to other receptor groups.

> *How are the arsenic risks going to be addressed?*

Sampling results indicate that arsenic is not related to lead contamination resulting from historic industrial emissions that defines the properties that are considered a part of the OLS. Accordingly, EPA does not plan to remediate soil contaminated with elevated arsenic concentrations except where it is co-located with lead contamination. Arsenic contamination that exists in lead-contaminated yard soils would be removed and disposed of together with the lead-contaminated soil.

> *What value is the Integrated Exposure Uptake Biokinetic (IEUBK) Model if the results do not accurately predict actual Site conditions?*

The EPA followed the *Guidance Manual for the Integrated Exposure Uptake Biokinetic Model for Lead in Children*. Where appropriate, EPA used site-specific input parameters to adjust the IEUBK Model to Site conditions and improve the accuracy of the model output. Default values were used where appropriate and within the guidelines of the IEUBK Model. The EPA is issuing an interim ROD that will allow additional data to be collected to better refine the input parameters to the IEUBK Model. The EPA believes the IEUBK Model results for the OLS are accurate and should be used for decision-making including risk analysis and final remedy selection.

> *Much discussion has occurred regarding sources of lead other than industrial sources (e.g.,) paint, hobbies, tap water, etc.). How can remedy decisions be made without knowing the contribution of these sources to the overall risk of Omaha residents?*

Regardless of other potential sources of lead exposure, lead-contaminated soils at the OLS pose an unacceptable risk and must be remediated to control this significant exposure pathway. As a

component of the comprehensive lead risk reduction strategy, EPA does plan to collect and analyze samples from interior dust, interior lead-based paint, and tap water during the interim remedy in order to better characterize risks from these other potential sources of lead.

Has EPA done any statistical analysis to determine if an adequate amount of data have been collected to accurately predict Site risks?

The EPA believes that sufficient analytical data have been collected to set preliminary cleanup goals for the interim remedy. The EPA will collect additional data during implementation of the interim remedy to refine the characterization of risk at properties contaminated at low to moderate levels.

Has the EPA compared the results of bioavailability at OLS to the bioavailability of paint and paint in soil?

A comparison of the bioavailability of lead at the Site to the bioavailability of lead in paint is inconsequential. Speciation studies performed by EPA confirm that a significant amount of lead in Site soils is related to historic industrial emissions.

The EPA conducted bioavailability measurements of lead in the OLS residential soils using both in vivo (live young swine) and in vitro (laboratory) methods. While only two in vivo samples were analyzed, 47 additional samples were analyzed by the in vitro method. The range of bioavailability measurements from these two methods overlap with an average value about 40 percent. This illustrates the expected consistency between these two measurement techniques. The greater than 40 percent result is relatively high and well above the EPA risk model default value for bioavailability of 30 percent. All the samples used to make the bioavailability measurements were collected throughout the Superfund Site in areas in the yards away from the influence of lead-based paint. Some of the in vivo samples were also used in the Apportionment Study and that study determined that only a small percentage (7 percent) of these samples contained lead-based paint. Therefore, lead-based paint was present in a small number of the samples, but could not have been a significant factor in the samples used in the bioavailability measurements. Although the lead concentrations in the samples used in the bioavailability studies are higher than the average concentrations in the yard soil, such higher concentrations will have no impact on the results of the bioavailability study.

Why was the downtown area excluded from the OLS boundaries, and how will EPA address risk to these individuals?

The central business district was excluded from the OLS because there is limited exposure in the central business district. There are a limited number of residential yards and high child impact areas in the central business district that would retain contamination from airborne industrial emissions.

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Has EPA considered evaluating the correlation between dust concentration and other variables, like age of home and presence of lead-based paint?

These correlations would be inconsequential. Speciation studies performed by EPA confirm that a significant amount of lead in Site soils is related to historic industrial emissions.

Why were drip zones not included in the risk assessment?

Risks were assessed in accordance with pertinent EPA guidance. Mid-yard lead concentrations are of interest as they are more likely linked to historic industrial emissions and less likely to be affected by the potential presence of lead-based paint.

Has there been any consideration for occupational exposure to lead and its impact on either Site contamination or elevated blood-lead levels?

The demographic survey attempted to collect occupational information. Potential occupational exposure will be further evaluated as a component of a comprehensive lead-risk reduction strategy. The potential exposure source does not alter the need to address contaminated Site soils.

How does the likelihood that a source other than soil is contributing to children's blood-lead levels within the OLS affect the results of the risk assessment?

The impacts of other potential sources of lead were included in the IEUBK Model through the use of site-specific or default input parameters. Potential exposure to other sources of lead makes the need to remediate Site soils even greater to reduce overall exposure levels.

The EPA Remedial Investigation, Residential Yard Soil, Omaha Lead Site

How are decisions regarding remedy selection for this Site impacted if all significant sources of lead exposure within the OLS are not identified?

Soil contamination originating from industrial sources pose an unacceptable risk to human health, and must be remediated to eliminate this important exposure pathway.

Why were data not collected from each of the media listed in the EPA Superfund Lead-Contaminated Residential Sites Handbook, and why were evaluations not conducted to determine the contribution of each to blood-lead levels.

The EPA believes the data collected during the Remedial Investigation is sufficient to move forward with the interim remedy selection. Other potential exposure sources will be better characterized through additional data collection and the comprehensive lead-risk reduction strategy.

If all the appropriate lead sources were not identified, how could a presumptive resampling and investigation be conducted at the Site?

The EPA believes that the sampling performed during the RI adequately supports the interim remedy selection for the media that can be addressed under CERCLA authority.

The investigation activities deviated from project plans prepared for the investigation. What impact does this have on the investigation results?

A Field Sampling Plan (FSP) that described planned sampling activities was prepared prior to initiation of investigatory activities. During the course of the investigation, modifications to the sampling procedures were made based on changed or previously unknown field conditions. Such changes were approved by EPA, but the FSP was not revised. Actual sampling procedures were described in the RI. Therefore, changes that were implemented in the sampling and testing program are already reflected in the RI and do not impact the investigation results.

Can EPA expand the discussion regarding the quality and validity of data generated in EPA's investigation?

The EPA believes that the data were collected in general conformance with pertinent RI/FS and lead Site assessment guidance. The EPA believes that data collected during the RI is valid and of sufficient quality for selection of the interim remedy.

Why has EPA not evaluated correlations between exterior soil contamination, interior lead concentrations, and blood-lead levels in children?

These correlations would be inconsequential to EPA's decision-making. Contaminated soils pose an unacceptable human health risk to individuals at the Site, and must be remediated to eliminate this significant exposure pathway.

Why is there not extensive sampling being conducted in Council Bluffs, Iowa?

Sampling was initially conducted in Council Bluffs, Iowa, that showed significantly less soil lead levels than were found at the Site west of the Missouri River. Also, the child blood-lead data for the Council Bluff area do not indicate that the impacts are the same in that community. Accordingly, sampling efforts in Council Bluffs were discontinued.

A number of comments and questions were submitted by the President of the Lead-Safe Omaha Coalition (LSOC). Some of the comments were prepared and submitted directly by the LSOC, and others were received by LSOC from community members, compiled, and submitted to EPA.

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The LSOC asked how many properties are estimated to be contaminated at levels between 300 ppm and 400 ppm, and if the cost to remediate properties in this range had been estimated.

Sampling results for 24,002 properties received as of December 7, 2004, indicate that 2,926 properties are contaminated at levels less than 400 ppm, but greater than 300 ppm. This represents approximately 12 percent of the properties sampled. If this percentage of properties remained consistent for the estimated 40,000 properties at the Site, approximately 5,000 additional properties would be expected to have lead concentrations in this range. No cost estimate has been performed to address these potential properties.

The *LSOC asked why the 400 ppm cleanup level that is based on non-site specific data was proposed by EPA instead of the 300 ppm cleanup level resulting from the IEUBK modeling effort based upon site-specific input parameters.*

Site-specific input parameters used in the IEUBK modeling effort did suggest a required cleanup level of 300 ppm for the Site. The EPA does not believe that sufficient information has been developed at this time to support a 300 ppm cleanup level for the interim remedy. This value was influenced primarily by the relatively high lead bioavailability measured in Site soils. The EPA recognizes that refinement of the bioavailability factor and other IEUBK input parameters are necessary to better support the IEUBK modeling output. Based on all current information, the EPA believes that a 400 ppm cleanup level will be protective when the interim remedy has been implemented. The 400 ppm cleanup level included in the selected remedy is at the lowest end of EPA's typical range of cleanup levels for residential sites contaminated with lead. The final cleanup level determined to be required to protect human health and the environment in the final remedy could be higher or lower that this value.

The LSOC urged that cleanup of drip zones should occur regardless of mid-yard sample results, since the EPA "Superfund Lead-Contaminated Residential Sites Handbook" defines drip zones as "areas where lead contamination from roofs may concentrate, and that these should be target areas for cleanup as they may often be play areas for children." The commentor questions if there is a site-specific technical basis for considering drip zone contamination to be related to lead-based paint and not atmospheric deposition, and how many properties would be excluded by basing cleanup actions solely on non-drip zone samples?

Lead-contamination levels detected in the drip zones of older structures is typically highly influenced by the presence of exterior lead-based paint. Due to the age of the housing stock at the Site, the EPA believes that lead-based paint is primarily responsible for contamination found in drip zones, and is not initiating response actions when the drip zones are the only identified areas that exceed action criteria. However, at any property where a response action is initiated on the basis of any non-foundation sample, the drip zone will be cleaned up as required with all other portions of the property that exceed 400 ppm. The EPA recognizes that there is a potential

for contribution in drip zones from airborne lead deposition, and will perform additional characterization of lead contamination in the foundation areas to determine the significance of potential airborne sources. The EPA may re-evaluate taking action in foundation areas alone if these studies indicate that airborne sources are a significant source of lead contamination in drip zones.

The LSOC asked what remedial action would be undertaken if phosphate treatability study results are unacceptable?

During the final remedy selection process, a range of alternatives, not yet defined, will be developed and implemented. The EPA anticipates that soil excavation and replacement will be among those alternatives considered for final action. Other treatment remedies may also be considered. A final remedy will only be selected after development of additional information and public review and comment on EPA's proposed approach.

The *LSOC inquired about the cost EPA anticipated for the treatability study and how that compares to the cost for excavation and disposal of soils between 400 and 800 ppm.*

A work plan has not been finalized for conducting the treatability study, and an estimated cost for this study is not available. The ROD notes that the use of phosphate treatment for properties contaminated at levels between 400 ppm and 800 ppm could result in potential cost savings of approximately $80 million relative to excavation and soil replacement. The cost of the treatability study is anticipated to cost orders of magnitude less than this projected cost savings.

A commentor asked for clarification of the number of yards to be addressed by the remedial action while a three-year treatability study is performed.

The number of properties to be addressed by the selected remedy is based upon the estimate of 5,600 properties exceeding 800 ppm provided in the OLS RI. The actual number of properties to be remediated will not be known until all of the properties in the area of interest have been characterized for lead contamination. Based on available information, EPA anticipates that approximately 5,600 properties will be remediated by this interim remedy while the treatability study is conducted.

A commentor asked how EPA plans to involve the community in the implementation of the remedy.

The EPA is working with the local community to develop a contracting strategy that will provide opportunities for local involvement and participation in the implementation of the remedy. The EPA will continue to work with community members and organizations throughout the implementation of the remedy to provide information and receive feedback on the performance of the work.

A commentor asked if it was possible for one property to be contaminated when a property next door does not have any contamination.

Soil sample results indicate considerable variability in lead concentrations from property to property, and within each individual property. It is not unusual for two adjacent properties to have greatly varying sample results.

A commentor asked how accurate soil sampling results are.

The EPA believes that sample results are sufficiently accurate to guide decision-making. Samples are collected in accordance with a Quality Assurance Project Plan (QAPP) that assures high quality data.

A commentor asked how long it takes to analyze the samples.

Samples are initially analyzed by an X-Ray Fluorescence Spectroscopy (XRF) instrumentation. This instrument provides a nearly instantaneous result. As part of the data quality control program, a portion of the samples are sent to a laboratory for confirmation analysis. This confirmation analysis may take several weeks or longer before data are made available. Until the results of the confirmation sampling are received from the laboratory, the XRF results are considered preliminary. Data are not considered valid until analytical results are received that support the initial XRF results, in accordance with the QAPP.

A commentor asked if there will be a test site selected to conduct the proposed phosphate treatability study.

A test site will be selected to perform the treatability study, but this site has not yet been identified and finalized.

A commentor asked if EPA had contacted the county to find possible testing sites for the phosphate treatability study.

The EPA has worked with several local groups to locate a suitable test site. However, EPA has not contacted the county to date for assistance in locating property to conduct the treatability study.

A commentor asked what type of scientific evaluations have been conducted to validate that the preferred remedy is a good choice for cleanup of the OLS.

The rationale for the selection of the selected remedy is fully explained in the interim ROD. The selected remedy utilizes a well-demonstrated and proven approach to remediating lead contamination in residential yards.

US EPA ARCHIVE DOCUMENT

A commentor asked if the property where the Druid Hill Elementary School is presently located was tested prior to construction.

The present location of the Druid Hill Elementary School was sampled and remediated by the Omaha Public Schools prior to construction.

A commentor asked what cost is associated with the proposed cleanup.

The estimated cost of the selected remedy is $77,370,700.

A commentor asked if property testing is voluntary or if the EPA will force homeowners to have their property tested if they do not provide access.

At this time, EPA has not elected to use administrative authority to require homeowners to allow access for soil sampling. The EPA hopes to be able to work with all property owners to provide them with information and assurances they need to voluntarily grant access for soil sampling. The EPA hopes to sample all properties that my be affected by Site contamination.

Two commentors asked how EPA is making information available to the public at large.

The EPA is involved in a number of outreach and public education activities. The EPA attends regular meetings of the OLS Community Advisory Group and participates in availability sessions, meetings, and other functions to provide information about lead contamination and the cleanup process. The EPA will open at least one full-time public information center located within the focus area of the Site to improve availability of information to the public.

A commentor asked if there is a contingency plan if there is inadequate funding for the remedy.

The EPA believes adequate funding will be available to implement the remedy and therefore no contingency plan has been prepared.

A commentor asked if 2009 is a realistic time frame for completion of this Superfund project.

The EPA estimates that three to five years will be required to implement the interim remedy selected in the ROD. Completion of the interim remedy by 2009 can be reasonably anticipated.

A commentor asked how long after sampling the results are available to homeowners.

Preliminary results are available almost immediately, but final validated sample results are not available until receipt of laboratory confirmation analysis are received. In some instances, final,

US EPA ARCHIVE DOCUMENT

validated sample results are not available to homeowners for several months following collection of samples. The EPA is working to streamline the process so that data results are made available sooner to residents.

Two commentors asked how a person can find out if their property, or another property, have been sampled.

This information is available by calling the EPA at 1-800-223-0425. This information will also be available at the EPA public information center to be opened at the Site.

A commentor asked how property value would be affected if they were to build in the Superfund area.

There is a possibility that property values in the affected area may be impacted due to the presence of soil-lead contamination. The EPA believes that remediation of contaminated properties may serve to enhance property values at the Site.

A commentor asked how EPA knows that the proposed phosphate treatment technology will be effective.

The effectiveness of phosphate treatment to reduce risks associated with lead contamination at the Site has not yet been demonstrated. A treatability study will be performed that evaluates the potential effectiveness of phosphate treatment on Site soils. Phosphate treatment will not be considered for treating Site soils unless the treatability study successfully demonstrates the safety and effectiveness of this alternative for treating contaminated soils at the Site.

A commentor asked if continued funding would be available and if there is a possibility that adequate funding will not be available to finish the cleanup.

The EPA plans through enforcement or government funding to provide continued funding for remediation of contaminated properties at the Site. The EPA anticipates that adequate funding will be available to complete the remediation of contaminated properties at the OLS.

A commentor asked when funding from the ASARCO settlement would be received, and how much would be allocated to the OLS.

The allocation of funds from the ASARCO settlement is performed annually. Funds are generally made available for the designated sites in late spring or early summer. The amount of funds to be allocated to the OLS in 2005 has not been determined.

A commentor asked if soil remediation has been performed west of 42nd Street.

Soil remediation has been performed at a number of residences west of 42nd Street.

US EPA ARCHIVE DOCUMENT

A commentor asked if an investigation has been performed in the Carter Lake or Council Bluffs areas.

Soils sampling has been performed in both the Carter Lake and Council Bluffs, Iowa areas. The sampling has not detected widespread soil contamination in either of these areas.

A commentor asked what proof EPA has that the lead in soil originated from the ASARCO facility and not from other sources.

An Apportionment Study was performed by EPA that confirmed a minimum of 38 percent of lead contamination in the studied soil samples originated from pyrometallurgical sources. Ambient air sampling performed by the Douglas County Health Department during operation of the ASARCO refinery consistently showed elevated airborne lead levels associated with plant emissions.

The Apportionment Study performed by EPA examined 29 soils samples taken from yards throughout the Superfund Site in areas in the yards away from the influence of lead-based paint. Evidence of paint was only found in two of these samples and, thus, was not a significant portion of the lead found in the samples overall. However, the presence of lead-based paint in residential soils was considered in the determination of how much of that lead could be attributed to the pyrometalurgical (smelter) sources. This consideration resulted in a conservative determination that 38 percent of the lead in residential soils was attributed to the smelter sources and that 62 percent of the lead was either not attributable to a source or attributed to other sources. The amount of lead (38 percent) attributed to smelter sources could have been increased by making the logical assumption that a larger portion of the un-attributed lead came from smelter sources. The Apportionment Study also determined that 80 percent of the yards sampled contained lead from smelter sources. The conservative results of the Apportionment Study clearly illustrate that smelter source lead is present in the residential soils within the area of the OLS and represents a source of lead exposure potentially contributing to the elevated blood-lead level in children.

Comments on the Proposed Plan were submitted by the United Steelworkers of America (USWA) advising that the preferred alternative should be strengthened, not weakened, and that ASARCO should be held accountable for the cleanup. Specifically, the USWA commented that:

Health effects of lead are well documented.
Studies link lead exposure to cancer. The cleanup level should be adjusted to reflect the potential carcinogenic effects of lead exposure. The commentor offered that a lead cleanup to 400 ppm may be protective for carcinogenic impacts.
The Proposed Plan violates EPA/TSCA lead hazard standards that require cleanup to 400 ppm in bare soil in children's play areas since not all of the areas at the Site where children could play will be remediated to 400 ppm, if some are only cleaned up to 800 ppm.
Children face increased risks from multiple exposures, which should be considered in

US EPA ARCHIVE DOCUMENT

assessing a child's risk and developing soil cleanup goals. Children are more vulnerable to environmental toxicants than adults.
Calculations of soils ingestion rate should include the intentional ingestion of soil by children.
Soils In all Omaha yards should be remediated to a level at or preferably below 400 ppm.

Properties at the Site are being cleaned up in accordance with EPA policies described in the EPA Lead-Contaminated Residential Sites Handbook. This standardized approach involves characterizing risks and determining cleanup goals through the use of the IEUBK Model. The model outputs for the OLS support a cleanup level of 400 ppm. All areas remediated by the interim remedy will be cleaned up to a concentration less than 400 ppm in the upper foot, or less than 1,200 ppm at depths greater than one foot (two feet in garden areas). A final remedy for properties contaminated at levels less than 800 ppm that are not addressed by this interim remedy will be selected in a future decision-making process after further characterization of risks associated with site contaminants.

A commentor submitted a series of questions and comments concerning a comprehensive approach addressing other sources of potential lead exposure including:

How will a coalition that is created to address all potential sources of lead exposure be funded and led, considering that other entities including the Department of Housing and Urban Development (HUD), local governments, health authorities, potentially responsible parties (PRPs), private organizations, or individual homeowners may be involved in these efforts? How will inefficiencies and redundancies be reduced?

The EPA anticipates that parties forming such a coalition will participate with their own funding or on a voluntary basis. Leadership of such a coalition will be determined collectively by the group. Inefficiencies and redundancies can be reduced through effective planning and coordination between participants. The EPA can fund data collection activities and certain response actions to the extent permissible under the CERCLA statute. The EPA anticipates working with other agencies and organizations to identify mechanisms and funding sources to address sources of lead exposure that are outside CERCLA authority.

Can a schedule be developed for the coalition to implement risk reduction measures concurrently with the preferred alternative?

The EPA anticipates that such a coalition will be formed and begin implementing risk reduction measures concurrently with implementation of the interim remedy.

Performance measures should be developed for the risk reduction measures that non-EPA organizations plan to implement.

US EPA ARCHIVE DOCUMENT

The EPA agrees that performance measures are necessary to evaluate the effectiveness of the activities conducted by coalition members.

The EPA should clarify whether PRPs at the Site would get involved with lead-based paint problems, or if these would be PRPs from the lead-based paint industry.

The EPA cannot compel PRPs at the Site to perform interior lead-based paint abatement, and also lacks authority to pursue entities associated with the former lead-based paint industry due to the same limitation under CERCLA to address this potential exposure source.

Citizen education, involvement, and cooperation should be increased to improve access to properties and provide information to homeowners about lead hazards and how to get help to address those hazards.

The EPA agrees with this comment and will increase the level of funding and support for these activities at the Site.

Performance measures and a schedule should be developed for health education and outreach activities.

The EPA will work with other interested parties involved in the comprehensive program to develop performance measures and schedules for health education and outreach activities.

What will happen to trees, gardens, and other landscaping features during the cleanup?

To the extent practicable, EPA will attempt to preserve landscaping features and carefully remove soil using hand tools to prevent damage or loss of trees and plants. In some cases, additional sampling may be performed to further define the areas that require removal of soils.

Will there be restrictions placed on properties that could create problems with the title or real estate transactions?

The interim remedy does not include institutional controls on individual residential properties. The need for institutional controls will be further evaluated during the remedy selection process for a final ROD.

What impact would institutional controls have on the homeowner's ability to sell property?

The EPA will consider the potential impact to homeowners if institutional controls are considered necessary to control future use of properties. The interim remedy is intended to provide for unrestricted use of residential properties following remediation, so no institutional controls are anticipated at this time for these properties.

US EPA ARCHIVE DOCUMENT

Will the soil, grass, and plants used to restore the property be of lower quality and reduce property value?

If necessary, EPA will attempt to replace affected vegetation with items of equal or greater quality.

Will possible phosphate treatment adversely affect property values?

The EPA believes that any alternative that effectively remediates a property will have a positive impact on property values. Phosphate treatment will not be considered unless a treatability study successfully demonstrates its safety and effectiveness in treating contaminated soils at the Site.

Damage to property values may be an environmental justice concern because the neighborhood is older with declining infrastructure and lower property values than other parts of Douglas County.

The EPA is aware of environmental justice concerns at the Site and factors this consideration into all decision-making for the Site.

Will confirmation testing where soil is removed be definitive or XRF?

Confirmation sampling is currently performed using XRF instrumentation in accordance with EPA policy presented in the EPA Lead-Contaminated Residential Sites Handbook. The EPA believes that XRF measurements are definitive for lead concentration in soil.

When will the subsequent Proposed Plan and final ROD be issued relative to the treatability study, and what types of long-term controls will be considered in the final remedy?

The subsequent Proposed Plan and Final ROD will be issued following completion of any treatability study so that results of the study can be considered. Institutional controls are not anticipated at this time for residential properties, but will be developed if and when a need for these long-term controls is identified.

What happens if the treatability study does not demonstrate that the technology is effective?

If the treatability study fails to successfully demonstrate the effectiveness of a particular technology to treat lead-contaminated soil at the Site, the technology will not be considered further for the Site. Other alternatives would require consideration in that event.

Will sufficient data be collected after three years to demonstrate that remedial action objectives have been reached?

Attainment of the remedial action objective[1] is a longer-term goal that can be achieved when blood-lead levels decline over a period of years following soil remediation. Attainment of the remedial action objective is not instantaneously achieved when remediation of a particular property is completed. The interim remedy provides for remediation of the most highly-contaminated properties as well an many additional activities designed to reduce the risk of lead exposure. Additional response is anticipated to address the Site risks not addressed by this interim remedy.

If capping is applied, would trees, gardens, or landscaping be allowed?

Language in the ROD has been changed to refer to a one-foot soil cover that may be considered in certain limited situations, instead of referring to this as a cap. Trees, landscaping, and flower gardens would be allowed in areas that received such a cover. The EPA would not consider placement of a soil cover in areas where vegetable gardens may exist.

Possible partners that you could consider for house repainting are "Brush-up Nebraska or "Paint-a-thon."

The EPA appreciates this information and anticipates that many parties will work cooperatively in the design and implementation of a comprehensive lead-risk reduction strategy.

A resident submitted a series of questions and comments regarding the OLS Proposed Plan including the following:

How will sampling be performed to measure lead concentrations at the exposed surface of the excavation? Is testing performed at designated intervals? Will analysis be by XRF or laboratory? Who will be responsible for conducting testing, i.e., will the excavation contractor perform their own sampling?

Lead concentrations at the exposed surface of the excavation are measured using in situ XRF testing. Actual samples are not collected for this confirmation testing since the readings are taken directly from the undisturbed exposed surface of the excavated area. Testing is performed after removal of each lift, which may vary in thickness from a few inches to a foot. Generally, contractors involved in the excavation are not allowed to perform their own confirmation testing.

Beneficial reuse of excavated soils may pose additional problems. Industrial facilities may be reluctant to accept liability. Future land use would be limited and would require documentation of affected area and monitoring of use. Excavated soils would require

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[1] The remedial action objective for the Omaha Lead Site is to reduce the risk of exposure of young children to lead such that an individual child, or group of similarly exposed children, have no greater than a 5 percent chance of having a blood-lead concentration exceeding 10 ug/dl.

US EPA ARCHIVE DOCUMENT

staging while the repository is constructed that would require double handling of material.

The EPA understands that these potential concerns exist for beneficial use of the excavated materials, but hopes that a use that is acceptable to all parties can be identified. Double handling of materials would not be required if excavated materials could be transported directly to the fill area. Currently, excavated materials are staged while awaiting sampling results required prior to transport to the landfill for disposal.

Stabilizing loose and flaking paint when more than 10 percent of a surface is affected raises questions. Will exterior surfaces at all remediated properties be characterized to determine eligibility, and how will the testing be performed? Who will perform the testing and who will make the determination that 10 percent of a surface is deteriorated? Is the 10 percent criteria based on the specific component, all exterior painted surfaces, or each side of the home?

Exterior paint will be characterized for lead content using XRF instrumentation. The 10 percent criteria has been eliminated from the interim ROD. Instead, loose and flaking lead-based paint will be stabilized in situations where a qualitative determination is made that the continued effectiveness of the remedy is threatened.

Does the reference to EPA and HUD guidelines for exterior lead-based paint procedures infer by reference HUD requirements for clearance wipe sampling following completion of exterior lead paint removal? Are costs associated with exterior lead-based paint removal and clearance wipe sampling included in the cost estimates for the alternatives? Who will perform wipe testing following removal of lead-based paint.

The substantive HUD requirements for exterior lead-based paint stabilization will be followed. Sampling would be arranged through contract mechanisms. The cost estimates include compliance with substantive requirements of applicable or relevant and appropriate HUD programs.

Will HUD, EPA, and state requirements for clearance wipe sampling following interior cleaning? Who will perform the wipe sampling, and are costs associated with the sampling included in the estimates?

The substantive HUD requirements for interior cleaning will be followed. Sampling would be arranged through contract mechanisms. The cost estimates include compliance with substantive requirements of applicable or relevant and appropriate HUD programs.

A commentor provided a series of questions and comments.

US EPA ARCHIVE DOCUMENT

How does EPA explain the non-existence of lead in the soils of Carter Lake and Council Bluffs, Iowa?

Lead contamination at Carter Lake and Council Bluffs, Iowa, was not non-existent during previous EPA investigation, but was not present at elevated concentrations on a widespread basis relative to locations in Omaha. Possible explanations involve historic land modification or flooding of the Missouri River, that could have covered or eroded and transported surface contamination downstream.

How will property values be impacted by this project?

The EPA anticipates that property values will be restored by this project.

How did EPA determine the much lower trigger level of 400 ppm at the OLS relative to the 1,639 ppm play area and 2,356 ppm house perimeter trigger level at the Butte-Silver Bow County site?

The relatively high bioavailability of lead measured in Site soils is largely responsible for driving the 400 ppm action level to this comparatively low value.

Elevated blood-lead levels are primarily due to exposure to lead-based paint. Highest levels are found within the Site several miles from ASARCO's property and only a few tests above 10 µg/dl are found within a mile of the facility, and none in Carter Lake or Council Bluffs.

The EPA believes that lead-contaminated soils in residential yards poses an unacceptable risk to exposed individuals at the Site. The Apportionment Study links a significant portion of the lead detected in yard soils to historic industrial emissions at the Site.

The commentor questions the validity of the 10 µg/dl blood-lead criteria, and questions how much 400 ppm dirt a child would have to eat to elevate above 10 µg/dl. The commentor asks what the findings were on a study conducted at the Coeur d'Alene site in Idaho.

A child's blood lead concentration is a result of exposure from a number of sources, including dust, water, diet, and air. These other sources are taken into consideration by the IEUBK Model. It is not possible to simply compute an amount of soil that must be ingested to result in a specific blood-lead level. The model predicts a range of possible blood-lead levels based on many factors, and the results are expressed as a percent probability that a certain blood-lead level will be exceeded. It is not possible to comment on findings of an unidentified study performed at the Coeur d'Alene site in Idaho.

The commentor would like an explanation of why the cost estimate used in the Proposed

US EPA ARCHIVE DOCUMENT

Plan is significantly less that the cost of the response to date ($8 million) divided by the number of properties remediated this year (200).

More cost-effective remediation of individual yards is being achieved by EPA through innovative performance-based contracting procedures that maximize competition between contractors. The EPA expects to achieve even greater reductions in the cost of remediation per yard through continued improvements in the contacting approach. In addition, a significant portion of the EPA response costs have been incurred on sampling activities in order to identify contaminated properties.

The commentor believes that the cleanup is unnecessary and the effort should focus on education and health surveillance of parents and children.

The EPA disagrees with the commentor about the necessity of the cleanup and believes that lead contamination in Site soils poses an unacceptable risk to exposed individuals, and warrants soil remediation. In addition to addressing Site soils, the selected remedy includes health education, outreach, and monitoring programs among the features of the remedy.

The commentor suggested that "baring the yards with dust blowing around could exacerbate the problems in the neighborhoods."

The EPA is aware of the potential migration of contaminated soils through airborne transport of contaminated dust, and will utilize dust suppression to control this potential, as conditions warrant.

A commentor believes that no evidence has been provided to prove that the lead in the soils has contributed to lead poisoning in Omaha children. The commentor recommended that contaminated soils should be "tilled over and tested again before any applications are applied."

The EPA relies on the IEUBK Model to predict the impact of contaminated soils at the Site. The model outputs for the OLS indicate an unacceptable level of risk associated with Site soils. Merely tilling soils will not adequately address this important source of exposure.

A commentor questioned the hazard represented by soils exceeding 400 ppm and recommended that EPA should reassess the criteria and revise the scope of the activity.

During implementation of the interim remedy, EPA will collect additional data to better characterize the risks associated with low to moderately contaminated soils. This information will be considered during the remedy selection process for the remaining properties not addressed by this interim remedy. The EPA believes that sufficient data have been generated, particularly regarding bioavailability, to support the interim remedy.

A commentor supported the preferred alternative as a good option, noting the extra care to high child-impact areas and public education. The commentor would support phosphate treatment if it is proven effective.

The EPA appreciates the comment.

Three sets of comments were received from PRPs. One set addressed separately the OLS Remedial Investigation, *HHRA, Feasibility Study, and Proposed Plan. These comments are addressed initially, followed by the remaining two sets of PRP comments.*

OLS Union Pacific Proposed Plan Comments

The EPA prepared responses to the general comments. Except as noted, these responses are also responsive to all of the specific comments provided by the commentor.

None of the alternatives evaluated in the Proposed Plan will accomplish the remedial action objective or regulatory requirements for a remedy.

- *The EPA did not recognized the role of lead-based paint*
- *The EPA did not provide the opportunity for public input into a comprehensive plan*
  The EPA did not allow the PRPs to contribute to a comprehensive plan

The EPA believes that the selected remedy will accomplish the remedial action objective by addressing the most highly contaminated residential properties and is consistent with CERCLA regulatory requirements. The selected remedy was developed using pertinent EPA guidance documents and is consistent with EPA policy for addressing lead-contaminated residential sites.

The selected remedy addresses all lead sources for which EPA has regulatory authority under CERCLA. The EPA will participate with members of the community and other interested parties in the design and implementation of a comprehensive lead-risk reduction strategy for the Site.

The EPA recognizes the role of exterior and interior lead-based paint in child elevated blood levels, but does not have authority under CERCLA to address the lead-based paint source, except in instances where it threatens the continued effectiveness of the remedy. The EPA has included in the selected remedy the stabilization of deteriorating exterior lead-based paint where it threatens the continued effectiveness of the remedy.

The EPA has provided sufficient opportunity for community members and interested parties (including PRPs) to review and comment on the proposed remedy presented in the OLS Proposed Plan. Community members and PRPs have also had significant involvement in the ongoing development of a comprehensive strategy to address Site risks.

The EPA has not recognized or identified the multiple sources of child lead exposure at the OLS.

- *The EPA did not follow its own guidance.*
  The EPA did not consider the significant contribution to child lead exposures from interior and exterior lead-based paint.
  The EPA did not consider existing information about other OLS lead sources.

The EPA believes that the selected remedy is generally consistent with appropriate guidance documents and EPA policy regarding response to lead-contaminated soils in residential areas. Additional data collection will be performed during the interim remedy to better characterize other potential sources of lead exposure at the Site. An interim approach has been selected in order to allow for further characterization of low- to moderately-contaminated properties while remediation proceeds at the highest risk properties.

Site-specific data generated during the OLS RI support the need to take action to remediate the highest priority properties while additional risk characterization is performed. The relatively high bioavailability of lead measured in Site soils significantly increases the level of risk associated with exposure to lead-contaminated soil at the Site. Action must be taken now to address the highest risk properties identified in the ROD to control the level of exposure that is currently occurring as a result of exposure to lead-contaminated soils.

The EPA recognizes there are other potential sources of child lead exposure at the OLS, including interior and exterior lead-based paint. These other sources do not lessen the need to take action to control risks associated with exposure to soil. The need to take action to address the soil contamination at the Site is, in fact, made more urgent due to the additional potential sources of lead exposure at the Site that could further contribute to unacceptable overall exposure levels. The selected remedy enables EPA to proceed with controlling the important soil exposure pathway at the highest risk properties while risks associated with other potential sources are identified and addressed.

The selected remedy includes the stabilization of deteriorating exterior lead-based paint where the continued protectiveness of the remedy would be threatened through recontamination of soils. CERCLA Section 104(a)(3) states that "the President (EPA) shall not provide for removal or remedial action under this section in response to a release or threat of release...from products which are part of the structure of, and result in exposure within, residential buildings...." This section generally limits EPA's authority to respond to interior lead-based paint inside a house.

The selected remedy commits EPA to participate in the development and implementation of a comprehensive lead-risk reduction strategy that addresses all potential lead exposure sources. During the interim remedy, EPA will collect additional data to better characterize these other potential sources of lead exposure in the community. The EPA will respond to identified exposure sources that can be addressed under CERCLA authority, and will work with other

US EPA ARCHIVE DOCUMENT

agencies and organizations to find funding sources and mechanisms to address lead exposure sources that are not eligible for CERCLA-funded response.

The Apportionment Study is a technically sound document which identifies the ASARCO and Gould facilities as significant contributors to the lead contamination detected in Site soils. The EPA has identified all parties that it has sufficient evidence to name as PRPs.

The EPA recognizes that air dispersion occurs in the direction of the prevailing winds. Sampling results indicate that lead contamination was distributed randomly and somewhat non-uniformly throughout the Site.

The comprehensive program is the preferred remedy.

The selected remedy does recognize other potential sources of lead exposure at the Site and commits EPA to participate in a comprehensive program to address these potential sources. The EPA fully supports a comprehensive community-based approach to address all potential sources of lead at the Site.

A comprehensive program can legally be the remedy or an integral component of the remedy.

The EPA agrees that a comprehensive remedy can be an integral component of the remedy and is for the OLS. However, except in a single case, EPA has not issued RODs for remedial actions at CERCLA cleanups that provide for response to interior lead-based paint or plumbing. In the case of the Leadville, Colorado, site, the EPA entered into a pilot project that included response to interior lead-based paint as a component of the remedy. The selected remedy at the Leadville site reflected the response strategy that had been agreed to years earlier and fully funded by the Potentially Responsible Parties. CERCLA response funding was not used to fund response to interior lead-based paint at the Leadville site, or any other aspect of that pilot ROD. Subsequent to the Leadville pilot, EPA has not issued another ROD that provides response to interior lead-based paint or plumbing.

The EPA has committed in the interim ROD to work with other organizations and agencies to address potential lead exposure sources that are outside the authority of CERCLA. The interim ROD states that the EPA will seek to partner with other public and private entities to characterize and address all identified sources of lead exposure to the OLS community. Consistent with Agency policy, the EPA will assess the contribution of all identified sources of lead to overall lead exposure at the Site. The EPA will participate in the development of a risk reduction strategy that addresses all identified sources that significantly contribute to overall lead exposure. The CERCLA statute limits EPA's authority to respond to certain sources such as interior lead-

US EPA ARCHIVE DOCUMENT

based paint[2] and plumbing. In cases where CERCLA authority is limited, EPA will work with other interested parties and authorities to identify potential funding sources and mechanisms to address these other sources of lead exposure as part of a comprehensive lead-exposure reduction program.

To date, no party has approached Region 7 with an offer to fully fund a comprehensive remedy for the OLS.

An interim ROD is appropriate at this time.

An interim remedy is authorized and consistent with EPA guidance. There are too many unanswered questions and potential errors to adopt a final remedy or soil cleanup standard now.

The EPA agrees with the commentor that an interim ROD is authorized and appropriate. The ROD selects an interim remedy. The EPA plans to continue soil remediation at the highest priority properties and concurrently perform treatability studies and collect additional risk characterization data. The EPA believes that the risk characterization performed to date supports a 400 ppm interim cleanup level for the Site.

The EPA did not comply with statutory and regulatory requirements or guidance in many material respects concerning the Site.

The EPA believes that all members of the public, including PRPs, were provided with ample opportunity to participate in the remedy selection process for the OLS. The EPA participated in a number of availability sessions and public meetings that were conducted during the public comment period that was extended on three occasions and had a final duration of more than fourteen weeks.

The EPA believes the data collected during the investigation of the OLS are valid and suitable to support decision-making for the interim remedy. The EPA believes that other elements of the remedial planning process are consistent with Agency policy and were developed using pertinent EPA guidance documents. The treatability study can be performed as part of the additional data collection supporting the final ROD.

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[2]Generally, CERCLA response actions are undertaken to address a release or threat of a release of a hazardous substance, such as lead, into the environment. There are potential limitations to CERCLA authority. For example, CERCLA Section 104(a)(3) states that "the President (EPA) shall not provide for removal or remedial action under this section in response to a release or threat of release...from products which are part of the structure of, and result in exposure within, residential buildings...." This section generally limits EPA's authority to respond to interior lead-based paint inside a house.

It is inappropriate for EPA to discuss the enforcement matters raised by the commentor in a responsiveness summary.

All PRPs at the Site must be identified and have a meaningful opportunity to participate in the Site investigation and remedy selection process.

- *The EPA is required to identify Site PRPs before a remedy is selected.*
- *Over 200 businesses have potentially contributed lead to Site soils.*
- *The EPA has incorrectly identified Union Pacific as a PRP.*

The EPA has identified PRPs and notified them of their potential liability in letters dated June 6, 2002. A meeting was conducted with the notified PRPs at the EPA Regional Office in Kansas City on June 17, 2002. The PRPs were provided with an opportunity to take the lead in remedial planning and response activities, but declined. All interested parties, including PRPs, were provided the opportunity to comment on the OLS Proposed Plan before issuance of the Interim ROD. Comments provided to the EPA regarding the OLS Proposed Plan and all other documents submitted by the public pertaining to EPA's proposed remedy were entered into the administrative record for the Site. The EPA hopes to involve the PRPs in the implementation of the selected remedy.

The EPA is aware of the numerous companies in the Omaha area that handled lead during the conduct of operations. The EPA has identified all parties which it has sufficient evidence to name as a PRP. If anyone has any information that could assist EPA in identifying additional PRPs, the EPA would welcome that information. Union Pacific has been identified as a PRP under CERCLA. It is inappropriate for EPA to comment further on enforcement matters raised by the commentor.

The community has not had a meaningful opportunity for involvement.

The public has had a meaningful opportunity for involvement in the selection of the interim remedy by reviewing and commenting on the OLS Proposed Plan and associated supporting documents. The EPA has also actively participated in a Community Advisory Group, which was formed by Union Pacific, since its inception. The EPA believes the schedule for release of the documents was appropriate and did not limit the public's opportunity to be involved in the remedy selection. The EPA has participated in community involvement activities at the OLS since 1999, including distribution of fact sheets, and participation in availability sessions, public meetings, and other public forums.

The data supporting EPA's proposed plan do not meet data quality requirements and do not define the nature and extent of site-lead contamination.

The data used to support the OLS Proposed Plan and selected remedy were developed to meet the data quality requirements of the study as specified in the QAPP and FSP. The data for the in-

US EPA ARCHIVE DOCUMENT

vitro and in-vivo studies were collected in accordance with the QAPP and FSP. The EPA used site-specific values as input to the IEUBK Model or provided valid reasons for using the default values.

In general, EPA followed the *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*. Additional data will be collected prior to the final remedy selection which could include paired data for blood and soil. The data that have been collected are of acceptable quality for decision-making purposes in the interim remedy selection process.

> *The commentor stated that DCHD has identified lead sources for each child where an in-home consult was performed and EPA should use this information.*

The EPA will consider all additional information as it proceeds with additional data collection for use in a final remedy selection.

> *The commentor stated that older homes have larger eaves, and EPA should modify drip-zone area to include these larger eaves.*

The EPA appreciates the comment on the larger eaves of older homes and can consider this when assessing the drip zone of properties.

> *The commentor stated that EPA has not speciated every property so EPA cannot identify source of lead contamination, and EPA needs additional language promoting the comprehensive program.*

The EPA believes it has sufficient information to identify sources of lead contamination in the residential yards as demonstrated by the Apportionment Study and the bioavailability sample results. The EPA has included additional language on the comprehensive program in the interim ROD.

> *The commentor included several comments on the evaluation of alternatives.*

- *The components of each alternative should be articulated and should not reference other alternatives*
- *Long-term effectiveness does not include paint considerations or recontamination of yards by paint*
- *Short-term effectiveness does not include increased risk from dust and traffic*
- *It is not clear that the reduction of toxicity, mobility, and volume is through treatment*
- *Need additional cost information for adequate review of alternatives*
- *The EPA cannot select a soil cleanup level without additional data or cannot determine cost effectiveness of soil excavation remedies*

US EPA ARCHIVE DOCUMENT

The EPA wanted to avoid redundancy when developing the various alternatives for the Proposed Plan and therefore did not repeat each component of the alternatives over and over in the Proposed Plan. Long-term effectiveness included all of the necessary factors to make an appropriate assessment of the alternatives considered, including the recontamination of yard soil by exterior lead paint. The EPA did consider increased truck traffic and the associated risks when assessing the short-term effectiveness of the various alternatives. The EPA agrees with the commentor that the reduction of toxicity, mobility, and volume must be for treatment alternatives and that is how the factor was assessed. The EPA believes there was sufficient cost information provided in the Proposed Plan to perform an adequate review of all alternatives and sufficient data to determine the cost effectiveness of the excavation remedies.

The commentor provided several comments on the Preferred Alternative.

Include creation of 501(c)(3) non-profit organization as part of remedy
Need more information on disposal options
What will be done with exterior lead paint for those properties where soil cleanup has already occurred
Will complete paint removal be required or encapsulation
Clarify if interior dust will be coordinated with interior lead paint abatement
Health education should be multi-lingual, involve the Community Advisory Group subcommittee and do not limit site-specific database to protective barriers
Clarify whether the equipment purchase is an additional component of the remedy and whether the equipment is for contractor use or homeowner use

The EPA can provide administrative support to help coordinate the formation of a non-profit organization to oversee the comprehensive program. The EPA cannot fund incorporation fees and will not include this as a required component of the remedy.

The EPA believes that sufficient information has been provided on disposal options and is not aware that the option of landfill disposal may not be available in the future. Disposal would include any lead paint that is removed from home exteriors. The necessary requirements will be met in order to provide for proper disposal of Site materials.

The EPA will re-assess those properties where soil cleanup has occurred to assure the remedy remains protective. Complete removal of exterior paint will not be required. Encapsulation has been shown to be an appropriate method of providing protection from exterior lead-based paint.

The EPA does not have the authority to perform or compel any interior lead-based paint abatement activities and those activities will not be a component of the interim remedy. However, to the extent those activities are performed by others, the EPA will coordinate any interior dust removal activities, so the dust removal actions are performed at the completion of all other interior work.

The EPA agrees with the commentor and supports the idea of multi-lingual health education activities as well as the coordination with other parties for these actions. There is no intent to limit the information created or input into any site-specific databases. Finally, the equipment the commentor is referring to is equipment needed for health education and outreach activities which would be equipment provided to homeowners. The EPA agrees with the commentor that appropriate training may be necessary to allow the best use of any equipment.

Union Pacific OLS Remedial Investigation Comments:

The EPA has not identified all significant lead exposures at the Site.

Site lead exposures are diverse.

The EPA determined the source, nature, and extent of the lead releases at the Site in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The EPA is aware of other potential lead exposure sources at the Site that are identified by the commentor. The existence of other potential lead exposure sources at the Site does not lessen the need to initiate response actions to address contaminated soils to eliminate this important exposure pathway. The EPA will perform additional characterization of potential lead exposure sources at the Site during implementation of the interim remedy.

The EPA believes that the Site investigation performed to date is valid and adequate to support decision-making during the interim remedy selection process. Additional data collected during implementation of the interim remedy will be considered in the remedy selection process for a Final ROD for the Site.

The EPA understands that the commentor may have a different understanding of the historical facts than EPA. The EPA acknowledges that lead produced at the ASARCO facility may have been used in other industries in Omaha. The EPA has identified all parties that it has sufficient evidence to name as PRPs. The Site history portion of the RI document was written with respect to that contamination that EPA has the authority to address under CERCLA, which is why residential development or other development was not discussed.

The EPA's conceptual model is fundamentally flawed.

Hundreds of industrial sources are potential contributors of lead to the Site, not just two.
The EPA also neglected other historic lead sources.
Lead-based paint is clearly a source of lead exposure at the Site.

The EPA is aware of the numerous companies identified in the Omaha area that handled lead as part of their operation. The EPA has identified all of those parties which it has sufficient evidence to name as a PRP.

The EPA also recognizes the historic activities cited by the commentor including: demolition of homes for freeway construction, past use of pesticides, and use of lead-contaminated slag from smelting and refining operations for construction of sidewalks in Omaha. The EPA does not have information that housing demolition or use of slag for sidewalk construction contributed significantly to the widespread lead contamination detected at the Site. Historic use of pesticides has a greater potential to result in more widespread contamination, but the apportionment study found that on average at least 38 percent of the lead found in samples collected from mid-yard areas (to avoid the potential impact of deteriorating lead-based paint) originated from pyrometallurgical sources, which would exclude pesticide usage.

The "Kids, Houses, and Dirt:" study by Leinenkugel[3], finds that over 90 percent of the children with identified elevated blood lead levels lived in homes in the eastern part of Omaha which were built prior to 1950. While blood lead levels were actually measured, the remainder of the analysis (with the exception of the soil data provided by EPA) is primarily demographic in nature. Although the correlations strongly suggest that the age of the home and, therefore, lead-based paint is a major factor in elevated blood lead levels in children, much more environmental data would be needed to draw conclusions about the contribution of various sources of lead in the environment. The area considered by the Leinenkugel study is also the area where atmospheric deposition of lead is predicted to have occurred and EPA has evidence that pyrometalurgical/smelter related lead has been deposited in this area. The findings of the Leinenkugel study indicate that lead-based paint is a source of exposure, but do not lessen the need to address lead contamination in soils to protect children's health.

The EPA's air dispersion model does not support EPA's conclusions.

The EPA did not apportion lead deposition among known sources.
The air dispersion modeling indicates there were numerous lead deposition sources at the Site.
The EPA's air dispersion analysis supports the conclusion that numerous airborne sources contributed to the lead in Site soil.

The assumption that lead found in soils at the OLS results from airborne deposition of historic emissions from the ASARCO refinery and the Gould Battery facility is supported by the Apportionment Study performed by EPA. The Apportionment Study is a technically sound document which identifies ASARCO and Gould facilities as significant contributors to lead contamination detected in Site soils based on proven scientific methodologies.

The EPA recognizes that air dispersion generally occurs in the direction of the prevailing winds; however, based on sampling results lead contamination was randomly and somewhat non-

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[3]Kids, Houses, and Dirt: Finding out What We Know About Lead Exposures in Douglas County, Nebraska; Kathy L. Leinenkugel, University of Nebraska at Omaha, Douglas County Health Department, May 2002

US EPA ARCHIVE DOCUMENT

uniformly distributed throughout the OLS. The EPA believes that there are a number of factors that could account for the deposition patterns. Deposition patterns can be affected by meteorology and the presence of significant structures. Historic events such as flooding or earth working could have covered or transported contaminants at the Site. Gardening or landscaping performed on individual properties could have had a profound effect on soil lead concentrations detected.

The EPA understands that older refineries had significant fugitive sources emitting particles of larger size than those being emitted from the tall stacks which may have shifted the deposition closer to ASARCO and Gould Battery. The EPA Apportionment Study, however, identifies lead contamination from these facilities throughout the OLS.

The EPA has not effectively speciated sources of lead in Site soil.

- *The Drexler Report is unreliable.*
- *A second speciation test indicates that paint is the primary source of lead in Site soil.*
- *The EPA has insufficient basis to identify Site lead sources.*

The EPA believes that the conclusions presented in *"The Source of Anomalous Lead Concentrations in Soils from the Omaha Community -- Omaha, Nebraska"* (Apportionment Study) are valid, and that the ASARCO and Gould facilities are significant sources of the pyrometallurgical lead at the OLS. Samples were collected from the ASARCO and Gould facilities, analyzed, and compared to samples throughout the Site. This comparison indicates that these facilities are the source of pyrometallurgical lead.

The EPA agrees that paint is a potential source of lead concentration in the soil. However, the Apportionment Study also indicates that there are pyrometallurgical sources from the ASARCO and the Gould facilities located within the Site boundaries. The Apportionment Study correlates trace metals from the ASARCO and Gould facilities and indicates these facilities are sources of lead contamination.

The EPA's bioavailability samples were strongly influenced by paint.

The bioavailability study was conducted in accordance with the EPA Region 8 *Project Manual for Systemic Availability of Lead to Young Swine from Sub-chronic Administration of Lead Contaminated Soil.* The samples collected for the bioavailability study were collected from different locations throughout the Site and composited into two samples. No sample material was collected from drip zone locations. The EPA believes that the samples collected for the bioavailability evaluation are representative of soils contaminated through historic pyrometallurgical industrial emissions at the Site.

The EPA believes the quality of the analytical data is sufficient to support the conclusions of the bioavailability study and of sufficient quality to support decision-making for the interim remedy selection process.

The EPA's Demographic Study overlooked a number of material issues.

The EPA believes that the Demographic Study provides the critical demographic data to determine the site conditions and receptors at the Site. The interim remedy commits EPA to participate in a comprehensive lead-risk reduction program. Concurrent with the interim remedy, additional data collection will be performed to better characterize potential sources of lead exposure in the community. A component of this data collection effort will be to better characterize demographic information about the affected community. Additional demographic surveys will be conducted that will be designed in consideration of the demographic data needs identified by the commentor.

The Agency for Toxic Substances and Disease Registry's (ATSDR) Public Health Assessment was based upon incomplete data and EPA's inaccurate site conceptual model; its conclusions do not support the RI.

The EPA believes that the conclusions and recommendations in ATSDR's *Public Health Assessment for the Omaha Lead Refinery, Omaha, Douglas County, Nebraska,* are consistent with and support the OLS RI and HHRA. The EPA did not rely solely upon the ATSDR *Public Health Assessment* to support the interim remedy. Rather, the ATSDR Public Health Advisory was prepared independently by ATSDR, and is consistent with remedial planning documents prepared by EPA for the OLS and further supports the selected interim remedy for the Site. The risk determinations used in the ATSDR Public Health Advisory are reliable and can be used to further support preliminary soil cleanup levels at the OLS.

The EPA believes that the site model developed for the OLS generally follows the RI/FS guidance document and is consistent with EPA policy and appropriate for decision-making for the interim remedy.

The EPA provided a summary of the conclusions of the ATSDR Health Consultation. There was no intent to misstate or mislead anyone on the conclusions and recommendations found in the ATSDR Health Consultation. The EPA appreciates the clarification by the commentor.

The EPA did not follow its own guidance documents to prepare the RI.

In general, the EPA believes that the Site investigation was performed in accordance with the NCP, the 1998 Superfund RI/FS Guidance, the 2003 EPA Superfund Lead-Contaminated Sites Handbook, the Guidance Manual for the Integrated Exposure Uptake Biokinetic Model for Lead in Children, and appropriate agency policies regarding lead-contamination site assessment. The

EPA believes that data generated during the Site investigation at the OLS are of sufficient quality to support decision-making in the interim remedy selection process.

The EPA attempted to include all relevant previous investigations in the RI. There was no intent to exclude any reports that may provide useful information in addressing Site contamination.

The EPA understands the issue of including natural and non-site related anthropogenic sources in background samples. The background samples for the OLS were collected prior to issuance of the Lead-Contaminated Residential Sites Handbook.

Many comments focused on providing additional information on lead-based paint. While EPA agrees this is a source of exposure for Omaha residents and should be addressed, CERCLA generally does not have the authority to address lead-based paint. The focus of the EPA studies have been on sources of contamination that CERCLA has the authority to address. However, the EPA supports and is committed to participating in a comprehensive lead-risk reduction program that addresses all potential lead exposure sources at the Site.

There were numerous comments on the quality of the EPA data and the inadequacy of EPA sampling procedures. The data EPA collected complied with rigorous quality assurance and quality control procedures, and the sampling procedures were appropriate for the quantity and types of data collected. The EPA believes the data used are valid and adequate to support the interim remedy selection process.

Union Pacific OLS HHRA Comments

The HHRA does not comply with CERCLA or the NCP.

In general, EPA followed the appropriate CERCLA guidance documents in preparing the HHRA. The EPA believes sufficient data were collected to clearly show risks to young children from lead are unacceptable at the OLS. The available data do enable EPA to evaluate actual and potential exposure pathways from multiple sources of lead. The EPA has chosen to issue an Interim ROD which will enable collection and evaluation of additional data to further refine the HHRA.

The HHRA is based upon the incorrect premise that industrial sources are the only sources of lead at the Site.

The EPA recognizes there are multiple sources of child lead exposure that all contribute to elevated blood-lead levels in children at the OLS. As appropriate, the HHRA acknowledges these multiple sources and incorporates provisions to address those sources for which the EPA has regulatory authority under CERCLA. In addition, EPA plans to partner with those agencies and organizations that have interest and/or regulatory authority to address lead contamination from other sources.

In general, EPA followed the NCP, 1999 Superfund RI/FS guidance document, the 2003 EPA Superfund Lead-Contaminated Residential Sites Handbook, and relevant lead risk assessment guidance. The EPA is issuing an Interim ROD which will allow other data to be evaluated, including further characterization of lead sources at the Site.

OLS blood lead levels mirror national trends showing a steady decline in blood lead elevations casting doubt on the need for the massive soil excavation remedy proposed by EPA.

The EPA recognizes that the blood levels of children in Omaha have been decreasing; however, the reasons for this decline are unknown. It is possible that EPA's presence at the Site and increased health education may affect behavior leading to a decline in blood lead levels. In addition, the closing of the ASARCO Refinery in 1997 may have contributed to a decline in blood lead levels. The EPA agrees that blood lead data are an important component in understanding risk and is committed to using all available data to effectively make cleanup decisions that are protective of human health. The EPA also recognizes that lead-based paint is more prevalent in older homes at the Site. The EPA plans to partner with those agencies and organizations that have interest and/or regulatory authority to address lead contamination from other sources. During the interim ROD, EPA will collect additional data to better characterize the contribution of various lead sources to elevated blood lead levels and to define the final cleanup level for the Site.

A recent HUD study indicates that soil removal alone will not appreciably reduce children's blood lead levels.

The EPA recognizes there are multiple sources of child lead exposure at the OLS. As appropriate, the HHRA acknowledges these multiple sources and incorporates provisions to address those sources for which the EPA has regulatory authority under CERCLA. During the Interim ROD, EPA will more closely evaluate the contribution of various lead sources (e.g., outdoor soil, lead-based paint) to interior dust. In addition, EPA plans to partner with those agencies and organizations that have interest and/or regulatory authority to address lead contamination from other sources.

Although the *HUD Study* provides useful information, EPA believes sufficient information is available to justify the current action. The EPA also notes that studies conducted at other sites show the removal of contaminated soil does result in blood lead level reductions in children.

Application of the IEUBK Model and use of actual blood lead data

The EPA understands there is a large population of children at the Site where blood lead measurements have been taken and agrees this information is informative. However, an actual well-designed blood lead study has not been conducted at the Site. The EPA guidance clearly states that the IEUBK Model is the primary tool for evaluating risks to young children and for

determining a soil cleanup level. Experience at other sites has shown the IEUBK Model is a good predictor of long-term blood lead levels in children, while blood lead studies are considered a snapshot of ongoing exposure under a specific set of circumstances at a specific time. The EPA is issuing an Interim ROD which will allow for collection and evaluation of additional blood lead data in children for use in developing a final remedy.

The IEUBK modeling was improperly conducted at the OLS.

In general, EPA followed the *Guidance Manual for the Integrated Exposure Uptake Biokinetic Model for Lead in Children* and relevant lead risk assessment guidance. The EPA's Technical Review Work Group for Lead reviewed the HHRA and concluded the risk assessment followed EPA lead risk assessment guidance and policies, including use of the IEUBK Model. Where appropriate, EPA used site-specific input parameters to adjust the IEUBK Model to Site conditions and improve the accuracy of the model output. Default values were used where appropriate and within the guidelines of the IEUBK Model. The EPA plans to perform an interim remedy which will allow other data to be evaluated and used as inputs to further refine the IEUBK Model predictions.

The Site data set has many gaps and usability problems.

In general, the NCP, the Superfund RI/FS guidance document, the EPA Lead-Contaminated Residential Sites Handbook, and relevant lead risk assessment guidance were followed. The EPA has collected extensive surface soil data which document widespread contamination above health-based levels of concern. The data used in the HHRA were evaluated according to EPA guidance and are of sufficient quality for risk assessment purposes. During the Interim ROD, EPA will collect additional data to more fully characterize all potential sources of lead at the Site (e.g., tap water and lead-based paint).

The EPA has extensive experience at lead sites and can effectively implement actions at these sites which streamlines the RI/FS process.

The spatial distribution of lead in soil may be evaluated in the Interim ROD process.
The co-location of lead with other metal chemicals of potential concern may be evaluated in the Interim ROD process.
Numerous drip zone samples have been collected and indicate lead content.
The correlation of dust concentrations with other variables (age of homes) may be evaluated during the Interim ROD process.
The Apportionment Study indicates that the ASARCO and Gould facilities are sources of lead contamination.
Further comparisons of elevated blood levels to soil concentrations may be accomplished during the Interim ROD process.

US EPA ARCHIVE DOCUMENT

The commentor raised a number of specific issues related to the Remedial Soils Site Characterization Data Set

The correlation of XRF and laboratory results is greater than the QAPP requirement of 0.7. Initially more laboratory samples were collected to ensure a strong correlation between laboratory and XRF data. Once this high correlation was established, fewer laboratory samples were required.

Based on EPA's experience at lead sites, surficial soils collected from the 0– to 2-inch interval provides adequate representation of the soil. The EPA believes the uncertainty associated with this action is low. At each residential home, non-drip zone sample locations were selected to ensure no interference from large eaves.

The limited data set seems to indicate that lead concentrations in the fine fraction (< 250 μm) are slightly greater (i.e., enrichment) than the bulk fraction. However, the number of samples is not adequate to make a definitive determination. If enrichment has occurred, then the predicted blood lead levels in the HHRA would be underestimated. This would not change EPA's conclusion that a significant health threat from lead exists at the OLS. During the Interim ROD, additional data may be collected to further evaluate the relationship between the fine and bulk soil fractions.

XRF technology is a proven method of analyzing for metals in soils. The samples were randomly sent to the laboratory for confirmation and not biased by high metals concentrations. The data do not provide the risk manager a biased, worst-case data set since the soil sent for analysis was random. Based on EPA's experience at other large lead sites and the relatively high correlation of the laboratory and XRF results, EPA reduced the percentage of duplicate samples which is a routine procedure when QAPP requirements have been satisfied. The accuracy and validity of the results meet the objectives of the QAPP and are useable for risk assessment purposes. The number of residential yards sampled and the duplicate samples collected are presented in the Appendix to the RI. This table will be updated and made available in the Administrative Record as more homes are sampled and analyzed.

When subsets of the data are evaluated, the correlation between XRF and laboratory results may vary as compared to an evaluation of the entire data set. The correlation of the laboratory and XRF results from the entire data set was greater than 0.7, which satisfied the criteria in EPA's QAPP.

The commentor raised a number of issues relating to the IEUBK Lead Risk Model Paired Outdoor Soil and Interior Dust Data Set.

The initial goal for indoor dust sampling was approximately 500 homes, but dust was only collected from 159 homes due primarily to access issues. The difference between collecting dust from 500 versus 159 homes will not affect interim remedial action decision-making.

The procedure for averaging the soil concentrations is consistent with existing lead risk assessment guidance. Additional evaluation of gardens may be completed during implementation of the Interim ROD.

During the Interim ROD, EPA may collect additional data to further evaluate the relationship between the lead concentration of residential soil and interior dust. All of the data will be presented in the Administrative Record. The EPA believes the dust sampling locations are spatially representative of the OLS and do not create significant uncertainty in analyzing the data.

The commentor questioned the adequacy of ambient air data.

The EPA agrees the air monitoring data are limited, but additional data would not substantially impact the risk estimates for the Site.

The commentor raised issues with the EPA Demographic Study

While EPA was not able to collect the number of samples initially planned, the available data are adequate to support EPA's decision to issue an Interim ROD. The EPA may collect additional demographic information to further characterize the risks to young children at the OLS.

The commentor raised specific issues related to application of the IEUBK Model.

The Lead Bioavailability Study was conducted in accordance with EPA guidance documents and provides a range of scientifically supportable bioavailability values for lead at the OLS. The EPA believes that the bioavailability of lead in soil, as measured by the juvenile swine study, is representative of the OLS. In addition, 47 soil samples were evaluated for in vitro bioaccessibility, and the results clearly support those from the swine study demonstrating increased bioavailability of lead at the Site. All of the necessary steps in sample collection and handling and sample preparation and analysis were conducted in accordance with the QAPP and/or EPA guidance documents. Backup documentation for the juvenile swine study may be provided in the Administrative Record. The bioavailability protocol as outlined in the EPA *Region 8 Project Manual for Systemic Availability of Lead to Young Swine from Sub-chronic Administration of Lead Contaminated Soil* indicates that the concentrations of lead in soil to be fed to the swine must be greater than 1,000 ppm.

The IEUBK Model runs using 50 months as the age input for batch mode calculations is correct and does not distort the Site data. A small error in predicting blood lead levels does occur when using this approach, as compared to using the single run mode (6-84 months), but the error is insignificant and does not affect EPA's conclusions at the OLS. This approach is consistent with existing EPA guidance. It is not unnecessary and inappropriate to adjust the predicted blood levels for this insignificant difference.

US EPA ARCHIVE DOCUMENT

Union Pacific OLS FS Comments

The FS does not meet minimum regulatory requirements.

The EPA believes that the OLS FS is consistent with regulatory requirements under CERCLA. The FS was developed in consideration of appropriate EPA guidance documents and is generally consistent with EPA policies regarding lead contamination site assessment.

The EPA believes that the cost information provided in the FS meets all the basic requirements of the NCP section 300.430 (e)(9)(iii)(G). The costs of excavation and disposal presented in the FS are conservative, and the EPA believes that enough cost detail has been presented in this FS to meet the necessary +50 percent to -30 percent accuracy range.

In general, Superfund authority does not extend to lead-based paint, therefore, discussion on applicable or relevant and appropriate requirements (ARARs) relating to lead paint was not included. However, since a component of the interim remedy includes addressing exterior paint, the EPA has included ARARs relating to lead paint in the Interim ROD. The interim remedy does not include any components addressing drinking water, so drinking water ARARs were not included. The EPA supports the comprehensive plan to investigate elevated blood levels in children at the OLS, and EPA will work closely with the appropriate governmental agencies and other organizations to implement this plan.

The EPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (RI/FS Guidance)* has been generally followed during the development of this FS. The guidance document states that the alternatives analysis "...should be conducted so that decision-makers are provided with sufficient information to compare alternatives...". The EPA believes that sufficient data have been presented within the FS for an interim remedy to be selected.

Lead sources have not been identified or sufficiently evaluated to develop alternative or perform an alternative analysis consistent with NCP section 30.430 (e).

The EPA believes that the Apportionment Study effectively determines that the former ASARCO and Aaron Ferer/Gould facilities are significant contributors to lead contamination detected in residential properties at the Site. The EPA acknowledges that there exist other potential sources of lead exposure at the Site. The interim remedy commits EPA to participate in a comprehensive lead-risk reduction program that addresses all potential lead exposure sources at the Site. The potential existence of these other lead exposure sources increases the urgency of taking action to remove contaminated soils from residential properties which represent a significant human health risk in order to reduce overall exposure levels.

The EPA understands that there are other sources of lead in the OLS area. Additional data can be collected to assess these other sources as part of the continuing response actions at the Site.

US EPA ARCHIVE DOCUMENT

Financial/cost information does not meet statutory and regulatory requirements.

The EPA believes that the cost information meets all the basic requirements of the NCP section 300.430 (e)(9)(iii)(G). This section requires that direct and indirect capital costs be presented, along with annual operations and maintenance (O&M) costs. The net present value of capital and O&M costs are also to be presented. All of these costs have been included in the FS. Sufficient detail has been presented to demonstrate an accuracy level of +50 percent to -30 percent. Additional cost information for the selected remedy is presented in the interim ROD.

The FS glosses over the risks presented by increased truck traffic.

The EPA acknowledges that there will be risks posed by the truck traffic involved with the remediation effort, and has in no way attempted to minimize the importance of this increase in risk. Short-term risks associated with implementation of remedial alternatives are further discussed and compared in the Interim ROD. These considerations include risks to community members related to increased truck traffic and risks to Site workers. No further analysis of short-term risks associated with each of the remedial alternatives is warranted.

The FS should have recognized the work being done by the community and proposed a comprehensive program alternative to effectively coordinate these efforts.

The EPA recognizes the contributions made by the identified agencies and organizations within the OLS community. The interim remedy states that EPA will seek to partner with other public and private entities to characterize and address all identified sources of lead exposure to the OLS community. The EPA will participate in the development of risk reduction strategies that address all identified sources that significantly contribute to overall lead exposure. The CERCLA statute limits EPA's authority to respond to certain sources such as interior lead-based paint and plumbing. In cases where CERCLA authority is limited, EPA will work with other interested parties and authorities to identify potential funding sources and mechanisms to address these other sources of lead exposure as part of a comprehensive lead-exposure reduction program.

The Interim ROD identifies many agencies and organizations currently contributing to public awareness and community outreach within the OLS community. The organizations and agencies identified by the commentor are among those identified in the Interim ROD. The EPA will seek to coordinate and partner with these and other entities having an interest in reducing overall lead exposure in the OLS community to develop and implement a comprehensive lead risk reduction program.

The commentor raised issues concerning the phosphate treatability study.

US EPA ARCHIVE DOCUMENT

The EPA will address the issue of surface application of phosphates versus mixing of the phosphates into the soil through tilling in the development and implementation of the treatability study.

> *The commentor stated that vegetation may be sufficient protection since soil is a low pathway of exposure.*

The EPA disagrees that vegetation alone would be sufficient protection from the contaminated soils found at the OLS.

> *The commentor raised issues about the authority of CERCLA to address Site contaminants.*

The EPA believes that it has clearly stated that CERCLA authority does not extend to lead paint except in specific situations to protect a selected remedy. The EPA agrees with the commentor that the state can request a remedy enhancement.

Comments from ASARCO on the OLS Proposed Plan

> *The commentor offers that meeting the remedial action objective at this Site will require a comprehensive plan that deals directly with the risk of exposure of children to lead-based paint and other urban sources of lead [e.g., leaded gasoline].*

The EPA agrees that a comprehensive plan is required to address the risks at the OLS and recognizes that there are multiple potential sources of child lead exposure at the Site. In the interim ROD, EPA commits to perform additional data collection, concurrent with the selected interim remedy, to further characterize other potential lead exposure sources at the Site. The EPA authority will be used to respond to those identified lead exposure sources that are permissible under the CERCLA statute. For identified lead exposure sources that are not authorized under CERCLA, EPA will work with other organizations and agencies to identify funding sources and mechanisms to address these sources to control overall levels of lead exposure at the Site.

> *The commentor asserts that the correlation between lead in soil concentrations and blood lead concentration is at best an indirect correlation, and that focusing on soil remediation alone will provide little or no chance of meeting the remedial action objective for the Site.*

The EPA believes that the elevated lead concentrations in the residential soils at the OLS are a significant source of exposure to young children in the Omaha community. The EPA anticipates that additional health and exposure data will be collected as part of the comprehensive lead risk reduction strategy to better define the exposure sources of lead at the OLS.

The EPA believes that on the basis of risk characterization performed to date, continued exposure to Site soils represents an unacceptable risk to exposed individuals. The interim remedy involves excavation and replacement of contaminated soils at properties exceeding designated action levels, thereby eliminating further exposure to elevated soil lead levels in remediated areas. The EPA believes that removal of soils exceeding the action levels is necessary to protect human health, and significantly contributes toward attainment of the remedial action objective. The IEUBK Model used by EPA to predict the attainment of remedial action objectives considers potential exposure sources other than soil. The EPA believes that the remedial action objective can be attained through soil response combined with other elements of a comprehensive remedy.

The commentor suggests that another alternative be considered for the OLS wherein health education and institutional controls would play a (more) significant role, and that community groups and PRPs should be recognized for their participation - and even take the lead role(s) in the risk reduction program.

The EPA agrees that health education is an important component of an overall lead risk reduction strategy. The interim remedy includes health education as an element of the selected remedy. Institutional controls may be necessary to provide long-term protection of public health, particularly where land use controls are required to prevent an unacceptable level of exposure to residual Site contamination from occurring in the future. The EPA anticipates that properties remediated under the interim ROD will be available for unrestricted future use, and will not require the use of institutional controls. Institutional controls may be required for final management of excavated materials, e.g., to control future land use at a soil repository constructed for disposal of contaminated residential soils. The need for institutional controls will be further evaluated during the remedy selection process for the Final ROD at the OLS.

The EPA is committed to working with other agencies and organizations in the implementation of a comprehensive lead-risk reduction program, and recognizes the valuable contribution many groups and organizations are currently making to this effort. The EPA would fully support community groups and/or PRPs taking a lead role in implementing a comprehensive remedy to address all lead sources at the OLS.

The commentor states that the Proposed Plan incorrectly asserts that ASARCO and other PRPs have not participated in studies or implementation of response actions at the OLS.

The EPA has offered PRPs the opportunity to participate in the investigations and remediation of the residential properties comprising the OLS. The PRPs have declined to participate in a significant way. The EPA acknowledges that ASARCO did accept some excavated soil from properties at the Site and placed such soil beneath the closure sub-cap at the former refinery. The EPA also acknowledges receiving $3 million from the ASARCO Environmental Trust Fund for work at the Site, and believes that use of such funds was appropriate under CERCLA.

US EPA ARCHIVE DOCUMENT

The commentor states that the Proposed Plan inaccurately describes industrial air emissions as the predominant source of lead emissions, while ignoring bioavailability and speciation data suggesting that other urban lead sources dominant the lead-impacted soil requiring remediation.

The EPA Apportionment Study determined that pyrometallurgical industrial emissions from the former ASARCO and Gould facilities significantly contributed to lead contamination concentrations detected in residential properties at the Site.

The commentor expresses concern about the cleanup level because EPA may reverse the interim remedial action as described in the OLS Proposed Plan.

The EPA has received a Health Consultation[4] from ATSDR concluding that the interim remedy described in the ROD is protective of public health for remediated properties. The EPA concurs with this assessment and on the basis of information developed to date, does not anticipate a need to reassess the continued protectiveness of the response measures. Additional risk characterization will be performed during implementation of the interim remedy, and new information could impact the current assessment, but EPA does not anticipate the need for further response at remediated portions of affected properties.

Comments from Gould, Electronics Inc.

The Site data demonstrate that soil lead is not the major contributor to elevated blood lead levels for children within the OLS.

The EPA does not believe the available data demonstrate soil lead does not significantly contribute to elevated blood lead levels at the Site. The EPA agrees that there are other potential sources of lead contributing to the high blood lead levels in children at the Site. Some of these sources (e.g., interior lead-based paint) are not within EPA's authority under CERCLA to remediate. Nevertheless, data from several other contaminated sites demonstrate high soil lead levels constitute a risk to children and must be remediated to reduce such risk.

The EPA supports a comprehensive plan to investigate elevated blood levels in children at the Site, and EPA will work closely with the appropriate governmental agencies to continue investigating this issue. During the interim remedy, EPA will collect and evaluate additional data to further characterize the influence of various sources of lead on blood lead levels in children.

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[4] Health Consultation, Evaluation of the U.S. Environmental ProtectionAgency Proposed Soil Excavation Plan for the Omaha Lead Refinery Site, U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, Division of Health Assessment and Consultation, Atlanta, Georgia, June 2, 2004.

The EPA has neglected to adequately consider the contribution of lead-based paint to interior dust-lead levels and to children's blood-lead levels.

The EPA recognizes that lead-based paint can contribute to high lead levels in interior dust and possibly to high blood-lead levels in children. However, EPA does not have regulatory authority under CERCLA to investigate or remediate interior lead-based paint issues. Notwithstanding these limitations, the selected remedy includes the provision to remove and encapsulate exterior lead-based paint in cases where the continued protectiveness of the remedy is threatened, and to provide a high-efficiency cleaning of interior dust for remediated properties when HUD/EPA standards for interior dust are exceeded. In addition, EPA proposes to partner with those community, local, and/or state agencies that have interest and/or regulatory authority to address lead contamination from other sources.

The EPA's own data and its application of the IEUBK Model show that the remedy will fail because it does not sufficiently address the primary source of exposure to lead, interior dust contaminated with lead-based paint.

The EPA believes that remediation of high soil lead levels will reduce the risk of high blood-lead levels in children. The EPA does not have the authority under CERCLA to address the risks associated with interior lead-based paint. However, the selected remedy includes the provision to remove and encapsulate exterior lead-based paint in cases where the continued protectiveness of the remedy would be threatened, and to provide high-efficiency cleaning of interior dust for remediated properties when HUD/EPA standards for interior dust are exceeded. The EPA recognizes that other potential lead exposure sources exist. The EPA plans to collect additional data during the interim remedy to evaluate the relative contribution of lead sources (e.g., soil and lead-based paint) to interior dust.

Environmental sampling of soils only conducted as part of the RI is inadequate to clearly sort out the sources of lead exposure.

The EPA's RI included sampling of soil in yards in an effort to identify those locations with elevated lead levels that could contribute to the risk of high blood-lead levels in children. The EPA concentrated its soil sampling to those sources for which it has regulatory response authority under CERCLA. The EPA recognizes that sources of lead other than soil may contribute to the risk of elevated blood-lead levels in children, and will work with other agencies and organizations to identify funding sources and mechanisms to address lead exposure sources at the Site that are not within CERCLA response authority.

During the Interim ROD, EPA will evaluate "paired" data and analyze exterior paint with XRF technology.

Because the site-specific model inputs are inadequate, the risk assessment does not and cannot provide adequate support that a soil lead cleanup level of 400 milligrams per kilogram (mg/kg) is required for protection of public health, and it is therefore inappropriate to select this cleanup level in the Proposed Plan.

- *Soil to Dust Transfer Coefficient (M_{SD})*
  Geometric Standard Deviation (GSD) of Blood Lead
  Bioavailability

During the interim remedy, additional health and exposure data will be collected to better characterize risks at the Site. Preliminary risk characterization performed in the HHRA supports a cleanup level of 400 ppm, particularly in consideration of the relatively high bioavailability of lead contamination measured in Site soils. The bioavailability factor and other input parameters to the IEUBK Model may be reassessed to strengthen the modeling results.

The EPA agrees that additional data are needed to more fully understand the relationship between outdoor soil and indoor dust concentrations, as well as the contribution of all sources to interior dust. During the Interim ROD, EPA plans to collect additional paired soil and dust data to more accurately define the M_{SD} for the OLS.

The EPA disagrees that data from other sites suggest the default value for the GSD is too high. The EPA believes the default value of 1.6 is correct and has consistently recommended that site-specific estimates of the GSD not be attempted. As stated in EPA guidance, the GSD parameter is particularly difficult to evaluate at a site, as it is demanding with regard to the amount and quality of the data and the potential complications in the analysis. The EPA's Technical Review Work Group for Lead recommends the default GSD be used unless there are detailed, scientifically defensible studies documenting site-specific differences in child behavior or lead biokinetics. The EPA has no current basis for believing these site-specific differences exist at the OLS.

The EPA does not believe the range of bioavailability results necessarily suggest more than one source of lead. Several factors are known to influence bioavailability in soil, including particle size, mineralogy, and lead speciation. The range of results is more likely a reflection of the variability across the Site, which is not solely dependent upon the source of lead. The EPA also points out that the bioavailability results are comparable to those seen at other lead smelter sites. The results from the juvenile swine study and *in vitro* bioaccessibility tests clearly demonstrate that the bioavailability of soil lead is elevated at the Site. The EPA believes the site-specific bioavailability data are appropriate for use in the IEUBK Model. Additional data may be collected to augment the comparison of bioavailability of lead in interior dust and soil.

The deficiencies in the data collection for the risk assessment are further demonstrated by the poor agreement between the predicted and observed blood-lead levels.

The EPA disagrees that the data demonstrate a poor agreement between predicted and observed blood-lead levels. The EPA also does not agree that the commentor's own analysis indicates lead-based paint is likely responsible for the observed blood-lead levels. The EPA did not conduct an "empirical comparison" as presented in Hogan *et al.* (1998) because an actual blood lead study is not available, and other significant limitations exist as discussed in Appendix 13 of the HHRA. For example, EPA does not have information on whether the 1,420 children actually spend the majority of their waking hours at home. If children spend a significant portion of their day outside of the home, then any comparisons between predicted versus observed blood-lead levels would likely be inaccurate. As a result, no definitive conclusions can be made at this time regarding comparisons between the IEUBK Model predictions and observed blood-lead levels at the Site.

During the interim remedy, additional data will be collected so that a true empirical comparison between predicted and observed blood-lead levels can be conducted. However, some deviations between measured and predicted blood lead values are expected and where actual blood lead data varies significantly from IEUBK Model predictions, model parameters are not automatically changed without additional evaluation to determine the source of those differences.

> *The FS was deficient because it does not address any sources of lead other than soil and ignores the residual risk that will remain at the conclusion of the remediation and its impact on the quality of the cleanup. Furthermore, EPA provides no support for the phosphate treatment in either the FS or the Administrative Record.*

The OLS FS addresses soil and other potential lead exposure sources that can be addressed under CERCLA authority. The EPA will participate in a comprehensive lead-risk reduction strategy that will characterize other potential sources of lead exposure at the Site concurrent with the interim remedy.

Phosphate treatment will be further evaluated during a treatability study performed concurrent with the interim remedy. Any treatment technology will be further considered for potential application at the Site only if a treatability study successfully demonstrates the safety and effectiveness of the technology on contaminated soils at the OLS.

> *The Proposed Plan makes an unnecessary and expensive risk management decision when it requires a cleanup of each quadrant of a yard to 400 mg/kg rather than focusing on the yard as a whole. This risk management decision is not warranted given the lack of a strong relationship between lead in soil and blood and the limitations of the risk assessment.*

The risk management decision requiring cleanup of quadrants of a yard was developed in accordance with pertinent EPA guidance documents, in particular that in Section 6.0 of the *Superfund Lead-Contaminated Residential Sites Handbook*, August 2003 (OSWER 9285.7-50).

The EPA believes that this approach is consistent with EPA policy and the most appropriate for the Site.

> *Although data exist to assess the success of soil remediation conducted to date, no such assessment has been made. This information is critical to justify the continuing expenditure of tens to, likely, hundreds of millions of dollars on soil cleanup on Omaha. The Urban Soil Lead Abatement Demonstration Project (Three City Lead Study), which was designed to assess the effects of soil remediation on blood-lead levels, showed limited to no benefit from soil remedies such as that proposed by EPA for the OLS.*

Similar actions taken by EPA to address soil contamination, in the absence of interior lead-based paint abatement, have substantially reduced blood-lead levels at other sites (e.g., Jasper County, Missouri). During the interim remedial action, EPA will review data regarding blood levels in children at remediated properties to preliminarily assess the impact on blood-lead levels of the response actions conducted at the OLS to date.

> *The EPA incorrectly applied its NCP's criteria in evaluating remedial alternatives in the FS and its remedy selection in the Proposed Plan. As described in other comments herein, neither the RI, FS, risk assessment, nor the selected remedy adequately address the primary source of lead exposure to children within the OLS. As a consequence, the selected remedy cannot meet the criteria required for remedy selection under CERCLA and the NCP.*

The EPA believes that the NCP criteria were appropriately applied in the evaluation of remedial alternatives in the FS and in the evaluation of alternatives and identification of a preferred alternative in the OLS Proposed Plan.

The Proposed Plan's selected remedy is not protective of human health.

The EPA believes the selected alternative will provide protection of human health through removal of lead-contaminated soils at properties with the greatest human health risks. The interim remedy includes stabilization of deteriorating exterior lead-based paint in cases where it could recontaminate remediated areas and high efficiency interior cleaning at remediated properties that exceed HUD/EPA standards for interior dust. The EPA will also work with other agencies and organizations to identify funding sources and mechanisms to address lead exposure sources that are not within CERCLA response authority.

The selected remedy fails the long-term effectiveness criterion.

The selected remedy does satisfy the long-term effectiveness criterion because the source of lead in soil will be removed to the cleanup level, and deteriorating exterior lead-based paint that could threaten the continued effectiveness of the remedy will be stabilized. The interim remedy

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commits EPA to participate in a comprehensive lead-risk reduction program that will address all potential sources of lead exposure at the Site.

The reduction of toxicity through treatment criteria is also not addressed in the Proposed Plan.

Language has been added to the ROD that addresses the criteria of reducing toxicity, mobility, or volume of site contaminants through treatment, recognizing the statutory preference under CERCLA for remedies that incorporate treatment as a principle element.

The proposed remedy also fails the implementability criterion.

The selected interim remedy is readily implementable, once access is granted to enter properties to perform remediation. Excavation is a proven and easily implemented technology. Excavation and replacement of contaminated soils is performed using conventional earthmoving equipment and hand tools and can be readily performed by trained operators and laborers. Similar operations have been underway in the Omaha area under EPA emergency response authority, and coordination between local, state, and federal governments is established

The costs are not proportional to the remedy's effectiveness.

The EPA believes that costs are proportional to the level of protection provided by the selected remedy. The EPA believes the costs of the preferred alternative have been accurately assessed and documented.

The EPA's basis for concluding that the lead in the soils being cleaned up originates from historic smelting activities is erroneous and unfounded.

The Apportionment Study is a technically sound document which determined that emissions from the former ASARCO and Gould facilities significantly contributed to lead contamination detected in residential properties at the Site. The EPA Apportionment Study is based on proven scientific methodologies.

- *Airborne emissions from the former Gould smelter would never have been deposited in the soils being proposed for remediation.*

The Apportionment Study effectively determines that the ASARCO and Gould facilities are significant sources of lead contamination in the soils at the Site.

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