Kennicott National Historic Landmark: Integrated Emergency Stabilization and Lead-Based Paint Management Program

FINAL

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Summary

The National Park Service (NPS) is interested in acquiring property associated with the Kennicott National Historic Landmark located at Kennicott, Alaska, in the heart of the Wrangell-St. Elias National Park and Preserve (WRST). The strategic and historic significance of Kennicott makes the 3,000 acre site an important acquisition goal for the NPS in Alaska.

As one step toward acquisition, the NPS prepared the *Kennicott Pre-Acquisition Environmental Site Assessment* in December 1996. That document addressed the nature and extent of environmental liability associated with the proposed acquisition. It identified seven environmental issues remaining after the remediation work conducted in 1994 and 1995 by Kennecott Corporation. Lead-based paint hazards on the buildings and in the soils were identified. While recommendations were made about the soils in the site assessment, the larger issue of paint on the buildings was deferred: "Because lead paint is on structures of national historic importance, the removal and/or encapsulation of the lead paint will be carried out over a long-term historic stabilization program."

This document addresses lead-based paint hazard management at Kennicott as one aspect of the larger questions concerning historic preservation and the long term management of the site by the National Park Service. The NPS's intent in the management of the Kennicott NHL is to incorporate the mandates of the *Secretary of the Interior's Standards for the Treatment of Historic Structures* and Section 106 of the National Historic Preservation Act with applicable state and federal regulations which pertain to lead paint hazard mitigation, worker protection and visitor safety.

The stabilization and mitigation work will be accomplished by a crew of trained maintenance personnel working under the direction of a NPS project manager. This "in-house" work crew shall undertake the stabilization and mitigation tasks at Kennicott in an integrated and concurrent effort. The combined effort provides maximum flexibility for accomplishing the tasks over a period of several years.

A range of options shall be utilized in the management of the lead-based paint hazards at Kennicott including, but not limited to, public education, signing, barriers, limits on the uses of specific buildings, encapsulation, full abatement, and combinations of methods. Public education efforts will inform visitors and area residents about lead-paint hazards while explaining the cleanup efforts—and any possible inconveniences—to all concerned. Measures selected for application are based on the severity of the hazard, the location of the hazard, the frequency of visitation by employees and the general public to those areas, and the intended use of the buildings. Ongoing maintenance and an aggressive

monitoring program are essential aspects of the plan. At all times, Occupational Safety and Health Administration regulations will be followed to ensure the protection of all employed on the site.

Lead-based paint management will be addressed through a phased, prioritized, approach extending over a period of ten years or more and subject to funding. During the first year, an interim safety plan shall be developed and implemented to insure an appropriate level of protection to those employed at or visiting NPS holdings at Kennicott. Concurrently, the planning and compliance tasks necessary for the preservation and presentation of the site--including mitigation of the lead-based paint hazard--shall be undertaken.

Stabilization and mitigation efforts in the first three years will focus on those crisis stabilization needs and lead paint hazard "hot spots" in and around the Kennicott buildings. In Year 1, the NPS shall establish project priorities to maximize available resources for emergency stabilization needs and lead based paint mitigation.

Upon acquisition, the NPS shall develop a Site Management Guide and undertake emergency stabilization, begin lead paint mitigation and provide information to the visiting public. In the third year the NPS shall also evaluate the full scope of the stabilization tasks, conduct extensive condition assessments and engineering studies and evaluate site management requirements. By year 4, the NPS shall prepare and submit a *Kennicott Site Management Guide* for the Kennicott site. The *Guide* shall address future site staffing requirements, preservation goals beyond emergency stabilization needs, visitor services requirements, partnership opportunities, site interpretation, site management and provide a revised budget for long term management of the site. It is anticipated that the *Guide* will serve the park for a period of 10 years.

Costs associated with the various phases of the program are detailed in the budget section. In the first year, Phase I, which implements the initial worker and visitor safety/protection program, is estimated at $41,228. Phase II, which establishes the emergency stabilization work plan and addresses the necessary compliance tasks associated with stabilization and mitigation work, is estimated at $149,698. Phase III, conducted in the second year, addresses site mobilization and the first year site work with costs estimated at $185,060. Phase IV, spanning years 3 through 5, continues the site work at an annual cost of $181,603. The total estimate for the five year program is $920,795.

Introduction

The Kennicott National Historic Landmark is well know to the National Park Service in Alaska. The Service has provided technical assistance for a variety of preservation and stabilization activities associated with the Landmark. Between 1990 and 1995, the NPS worked closely with a number of government agencies and private entities including Kennecott Corporation and its agents, the Great Kennicott Land Company, the U.S. Environmental Protection Agency (EPA), the Alaska Department of Environmental Conservation (ADEC), the State Historic Preservation Office (SHPO), and the Advisory Council on Historic Preservation (ACHP) to develop a cleanup strategy that dealt effectively with the hazardous materials at the site while minimizing effects to the historic fabric of the Landmark.

At an early stage in the review of the remediation recommendations proposed in 1992 by Kennecott Corporation's principal environmental consultant, America North/EMCON, Inc., lead-based paint hazards were recognized as a special case, distinct from the other hazards remaining on the site. Overly aggressive abatement actions conducted under a compressed work schedule could easily cause extensive and irreversible damage to the historic fabric of the buildings--damage that the NPS was unwilling to accept as part of the propose acquisition.

Discussions between the NPS Regional Director, the WRST Superintendent, and staff specialists concluded the NPS should assume management of the lead hazard as the best way to ensure protection of Kennicott's values and NPS preservation objectives for the site. The NPS position was acceptable to ADEC which wrote in March 10, 1995, that "this Department would not object to deferring the [lead paint] cleanup activities to the future. This would allow for the NPS to conduct its historic/cultural investigations before corrective action would be conducted."

The 1996 NPS study, *Kennicott Pre-Acquisition Environmental Site Assessment*, concurred with the approach and concluded: "The recommended management option is that the potential exposure to lead-based paint be mitigated as part of the stabilization/maintenance of the Site...." The Assessment further recommended: "These activities should occur on a phased, multi-year schedule, with high lead/readily accessible sites being mitigated first" (p. 2). Upon review of the document, ADEC agreed in a June 7, 1996 letter that, "The recommended actions in the NPS report are consistent with DEC accepted procedures and practices."

Current regulation and the literature on lead-based paint is focused on reducing the threat posed to children, particularly those under the age of six. While the Kennicott acquisition includes several buildings previously used as bunkhouses,

none of the buildings are intended to be used as residences. ADEC and EPA differentiate between residential properties and those where children are less frequently present and have recommended action levels and cleanup levels for non-residential properties which are less strict than those set for housing. While none of the buildings at Kennicott are proposed for residential use, the NPS realizes its responsibilities to the visiting public and to its employees. Therefore, it shall be the intent of the NPS to manage the Kennicott National Historic Landmark in a conservative manner in compliance with the "commercial and industrial" standards as defined in discussions between ADEC and the NPS, and in accordance with the *Secretary of the Interior's Standards for Treatment of Historic Properties.*

This approach is consistent with the management options for emergency stabilization work at Kennicott developed in a 1991 report, *Kennicott National Historic Landmark; Condition Assessment and Stabilization Cost Estimate.* Over several years a number of specific stabilization tasks identified in the *Condition Assessment have been* completed. Technical support defining the stabilization work and engineering requirements for the project were provided by the NPS. The stabilization work was accomplished by the local Friends of Kennicott organization. With proper supervision and training this arrangement can serve as a model to achieve emergency stabilization and mitigation requirements. As specific stabilization tasks are identified and prioritized, lead paint hazards will be mitigated concurrently.

Projects currently underway, such as the Cultural Landscape Inventory starting in FY 1997, will help identify high priority areas for abatement based on proposed use. Other studies and costs, including condition assessments, stabilization planning, and staffing requirements are necessary to define the full scope of the stabilization work and lead-based paint abatement work. As the additional information pertaining to long range management goals and needed stabilization work becomes available, there will be an opportunity, scheduled for the third year, to reassess and refocus the direction of the stabilization efforts and the attendant management of lead-based paint.

The broad outlines of the interim plan are easily defined and implemented. Immediately upon acquisition, an interim management plan will be devised and implemented to limit employee and visitor exposures to lead and other hazards on site by employing physical barriers, warning signs, public education, and an active monitoring program. Concurrently, cultural landscape, condition assessment, structural engineering, and other studies necessary to the larger question of managing the site will be undertaken to provide the framework necessary to define a broad management guide for the site.. Lead-based paint mitigation efforts in the first years will reinforce visitor and employee safety by directing efforts on buildings and parts of buildings identified as high hazard

and necessary for the safe use of the site. In the third year of the program, the information generated by studies begun in the first year will be used to inform the remainder of the program. Interim controls complimented by an aggressive monitoring program will be maintained until such time as ongoing work on the buildings and structures eliminates the need for such measures.

Applicable Lead-Based Paint Regulations

The release of hazardous substances into the environment is governed by CERCLA (Comprehensive Environmental Response Compensation and Liability Act, 42 USC 9601 et seq.) CERCLA requires that any responses to releases of lead into the environment meet applicalbe federal, state and local standards. At the federal level, lead paint is governed by regulations from the Environmental Protection Agency (EPA) and the Department of Housing and Urban Affairs (HUD). In Alaska, the primary regulatory responsibility for addressing contamination issues including lead-based paint lies with the Alaska Department of Environmental Conservation. State regulations currently in force require discharges of contaminants to be cleaned up to the Department's satisfaction (18 AAC 75.327).

The substantial body of regulation and guidance issued by EPA and HUD over the last four years implements the *Residential Lead-Based Paint Hazard Reduction Act of 1992*, Title X of the Housing and Community Development Act of 1992. Strictly speaking, the Act does not apply to the proposed Kennicott acquisition as the site does not qualify as "target housing" or as a "child-occupied facility." As defined at 40 CFR 7454.223, "target housing" refers generally to housing constructed prior to 1978, and a "child-occupied facility means a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week [...], provided that each day's visit lasts at least 3 hours and the combined weekly visit last at least 6 hours, and the combined annual visits last at least 60 hours." This definition was adopted to ensure that de-leading efforts "should focus on facilities that a 6-year old child regularly attends, rather than facilities that children may visit intermittently or infrequently, such as museums, hospitals, grocery stores or airports" (see 61 FR 45780-1).

Guidance issued by HUD and EPA provides standards for addressing and evaluating lead contaminated dust. Both the EPA's *Guidance on Identification of Lead-Based Paint Hazards* and HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* recommend clearance levels of 100 ug/ft^2 for floors, 500 ug/ft^2 for interior window sills, and 800 ug/ft^2 for window wells and exterior concrete surfaces. In addition, the HUD Guideline provides a handy

reference to the wide range of topics and problems which can be encountered while addressing lead-based paint hazards.

Worker protection regulations pertaining to work practices and training to address lead hazards are well established under OSHA and recognized by EPA (61 FR 45780). The construction standard for lead (29 CFR 1926.62) governs lead exposure levels and work practices during demolition, salvage, removal or encapsulation, new construction, repair or renovation, on site transportation, and maintenance. The maintenance standard for lead (29 CFR 1910.1025) applies in all other cases—agricultural operations excepted—that might be encountered during routine maintenance and site monitoring. Both standards establish an airborne particulate action level and permissible exposure limit of 30 ug/m^3 and 50 ug/m^3 respectively averaged over an 8-hour period.

In order to protect employees, employers are required to establish a written compliance plan, insure proper training for employees, conduct an initial exposure assessment and monitor exposure throughout the project's life, and impose engineering and work practice controls to reduce the level of exposure before resorting to respiratory protection. Additional requirements describe appropriate protective clothing, proper housekeeping, and hygienic facilitates and practices as well as medical surveillance of the work force. Hazard communication programs and specialized training for specific operations causing exposure are required.

There is a fortunate congruence between appropriate work practices for historic preservation and worker protection. Paint removal methods—such as wet scraping or a non-toxic paint stripper such as Sherman & William's "Peel Away, " as used at Steam Town National Historic Site—which have a limited effect on historic materials frequently generate little dust, have a low impact on worker safety, and do little additional damage to the environment (though the resulting stripped material requires special disposal). A fuller discussion of methods appropriate for a variety of historic preservation situations is available in the National Park Service's Preservation Briefs 37: *"Appropriate Methods for Reducing lead-Paint Hazards in Historic Housing"* and in Chapter 18 of the HUD guidelines entitled: "Lead Hazard Control and Historic Preservation."

NOTE: Proposed revisions to the state regulations, currently in draft for public comment, would establish specific cleanup standards for contaminated soils. In 18 ACC 75.325, lead is recognized as a special case and addressed in a footnote: "Lead cleanup standards must be determined on a site-specific basis on the general policy of 400 mg/kg soil residential and 1,000 mg/kg lead in soil for commercial/industrial." Under the proposed regulations site specific cleanup goals can be established which protect employees and the public while recognizing Kennicott as "an area of unique cultural value, historic significance,

or scenic importance. If enforced, these guidelines are considerably more stringent than those proposed for soils by the EPA and adopted by the U. S. Department of Housing and Urban Affairs (HUD).

The Lead-Based Paint Issue at Kennicott

The lead-based paint hazards associated with the proposed Kennicott acquisition do not include all the buildings included in the National Historic Landmark. As indicated in Table 1 and illustrated on Figure 2 of the *Kennicott Pre-Acquisition Environmental Site Assessment,* many lots with buildings constructed prior to 1978 are not included, especially in the mill town unit. To clarify the question, structures directly addressed by this plan are limited to the 15 buildings in the mill town complex and the structures at the mines which are part of the proposed acquisition.

Using the numbering and naming systems employed in the environmental site assessment, the buildings to be addressed by the plan in the mill town are:

- No. 2: Tramway Terminus (Upper Mill),
- No. 3: Mill (Concentrator Building)
- No. 5: Two Story National Creek Bunkhouse
- No. 8: Assay Office
- No. 9: Power Plant
- No. 15: Leaching and Flotation Plant
- No. 18: Recreation Hall
- No. 19: Store and Warehouse
- No. 20: West Bunkhouse
- No. 23: Schoolhouse
- No. 34: Station House/Depot
- No. 36: Machine Shop
- No. 44: Tailings Hoist House
- No. 48: Refrigerator Plant

In 1992, American North/EMCON, Inc., estimated the total area of lead paint coverage on these 15 buildings at slightly more than 98,067 ft^2. Two relatively small structures, the Tailings Hoist House and the Refrigerator Plant were not included in the tabulation, hence the total area of lead paint cover in the mill town addressed in the plan is slightly more than 100,000 ft^2. The total area of peeling lead paint on the buildings in question was 52,578 ft^2. Again, the Hoist House and the Refrigerator Plant are excluded. Assuming the worst for these two buildings and the passing of time since the data was assembled, the total area of peeling paint on structures addressed by the management plan is approximately 60,000 ft^2 or approximately 60% of the total estimated area of lead paint cover as defined in Table 1.

Table 1: Estimated Area Pb Paint Cover & Peeling Paint on Buildings Listed in Proposed Acquisition

Building No. & Name		Est. Area of Pb Paint Coverage (ft^2)	Est. Area of Peeling Paint (ft^2)
1	General Manager's Office	3,916	1,955
2,3	Upper and Lower Mill Building	41,661	26,037
5	Lower National Creek Bunkhouse	4,128	2,974
8	Assay office	800	320
9	Power Plant	9,360	1,502
15	Leaching & Flotation Plant	18,288	11,298
18	Recreation Hall	1,440	616
19	Store and Warehouse	3,920	2,320
20	West Bunkhouse	8,138	2,997
23	Schoolhouse	2,160	1,015
34	Station House/Depot	720	302
36	Machine Shop	4,536	1,242
Totals		98,067	52,578

Source: "Table 30. Estimated Area of Lead Paint Cover," and "Table 32. Estimated Area of Peeling Paint," in America North/EMCON, Inc., "Kennicott Mine Site Investigation Final Report," Anchorage, Alaska, August 1992.

Paint samples taken from several buildings by America North/EMCON in 1992 and the NPS in 1995 confirmed lead in the red, white and yellow paints used at Kennicott. Lead concentrations in the paint were reported at levels between 50 mg Pb/kg and 525,000 mg Pb/kg. White paint yielded generally higher levels of lead than red. The one yellow paint sample taken contained 268,000 mg Pb/kg which was the fourth highest sample result from a field of12 samples. Four samples collected by the NPS were evaluated by the RCRA tclp method 3010 and resulted in levels between 3.910 mg Pb/l and 663.0 mg Pb/l as illustrated in Table 2.

Table 2: Lead Concentrations in Paint Samples From Buildings Listed in Proposed Acquisition

Sample	Sampler	Location	Color	Pb(mg/kg)	Pb/tclp(mg/l)
KPPb2	Hovis/NPS	Bldg 1	red		3.910
BP9	EMCON	Bldg 6	red	50	
BP2	EMCON	Bldg 9	red	7,980	
KPPb6	Hovis/NPS	Bldg 9, west	red		7.310
KM9	Kay&Miller	Bldg 15	red	8,200	
BP3	EMCON	Bldg 15	red	1,270	
BP5	EMCON	Bldg 48	red	336,000	
KPPb1	Hovis/NPS	Bldg 1	white		734.000
BP1	EMCON	Bldg 9	white	276,000	
KPPb1	Hovis/NPS	Bldg 9, west	white		663.000
BP6	EMCON	Bldg 20	white	11,900	
BP4	EMCON	Bldg 48	white	11,900	

Notes: 1) Building numbers listed under location correspond to those provided in the text and located on the mill town map provided as Figure 1. 2) EPA and HUD define a positive test for Pb in paint at levels above 5,000 ug/g or 0.5% Pb by weight.

Source: Adapted from "Table 3. Compilation of paint and paint-impacted soil samples, Kennicott mill town," in U. S. Department of the Interior, National Park Service, Wrangell-St. Elias National Park and Preserve, "Kennicott Pre-Acquisition Environmental Site Assessment," December 1996.

Soil samples, taken from around selected buildings yielded results ranging from 56 mg Pb/kg (ppm) to 3,040 mg Pb/kg. Out of a total of 13 samples collected by American North/EMCON, Inc., six measured below 400 mg Pb/kg , four above 400 mg Pb/kg (ppm) and below 1,000 mg Pb/kg (ppm), and three above 1,000 mg Pb/kg (ppm). Four soil samples taken by the NPS were evaluated by the RCRA tclp method 3010. Results ranging from 0.819 mg Pb/l to 5.120 mg Pb/l; three of the four results were below the method limit of 5 mg Pb/l. See Table 3.

Acting through a contractor, the EPA conducted limited dust sampling in 1995 as part of their evaluation of the air migration pathway. Seven wipe samples were taken from five in buildings located in the mill town area— the Refrigeration Plant and four privately held buildings. Results ranged from 0.59 ug Pb/10 cm^2 in a recently constructed building to 97.4 ug Pb/10 cm^2 in a cottage at the north end of the mill town. The sample taken from the

Refrigeration Plant yielded 50.8 ug Pb/10 cm^2. The precise locations of the samples and the orientations of the surfaces sampled are not known.

Table 3: Lead Concentrations in Soil Samples Near Selected Buildings Listed in Proposed Acquisition

Sample	Sampler	Location	Depth	Pb(mg/kg)	Pb/tclp(mg/l)
KPPb3	Hovis/NPS	Bldg 1 @ 0′	surface		0.819
KPPb4	Hovis/NPS	Bldg 1 @ 0′	2″-6″		5.120
BPS03	EMCON	Bldg 1 @ 1′	2″-12″	1,170	
BPS07	EMCON	Bldg 1 @ 3′	2″-6″	161	
BPS08	EMCON	Bldg 1 @ 6′	2″-6″	123	
BPS09	EMCON	Bldg 1 @ 9′	2″-6″	56	
BPS04	EMCON	Bldg 3 @ 1′	2″-5″	557	
KPPb7	Hovis/NPS	Bldg 9 @ 0′	surface		3.660
KPPb8	Hovis/NPS	Bldg 9 @ 0′	2″-6″		3.880
BPS10	EMCON	Bldg 9 @ 3′	2″-6″	183	
BPS11	EMCON	Bldg 9 @ 6′	2″-6″	249	
BPS12	EMCON	Bldg 9 @ 9′	2″-6″	608	
BPS13	EMCON	dup. of #12		866	
BPS05	EMCON	Bldg 9 @ 1′	2″-8″	1,340	
BPS06	EMCON	dup. of #05		3,040	
BPS01	EMCON	Bldg 19 @ 1′	2″-6″	465	

Notes: 1) Building numbers listed under location correspond to those provided in the text and located on the mill town map provided as Figure 1. 2) The second aspect of the location indicated by "@" refers to the distance from the wall where the sample was taken. 3) EPA guidance for interpreting Pb levels in soils at non-child occupied facilities ranges from interim controls above 2,000 ppm to abatement above 5,000. Proposed Alaska cleanup standards recommend 1,000 ppm for commercial/industrial properties. 4) RCRA method 3010 limits for Pb are <5.

Source: Adapted from "Table 3. Compilation of paint and paint-impacted soil samples, Kennicott mill town," in U. S. Department of the Interior, National Park Service, Wrangell-St. Elias National Park and Preserve, "Kennicott Pre-Acquisition Environmental Site Assessment," December 1996; and "Table 32. Lead Content of Soils Near Selected Buildings," in American North/EMCON, Inc., "Kennicott Mine Site Investigation Final Report," August 1992.

Tests for lead-based paint on the buildings at Kennicott confirm the obvious, there is lead paint on the buildings. It is deteriorated or deteriorating and will continue to contribute to the contamination of soils and dust on the site until such time as the problem is addressed by encapsulation or removal. Currently available soil sampling suggests the proposed ADEC cleanup levels can be achieved without undo difficulty. Ten of the thirteen soil samples taken were

below 1,000 mg/kg, the proposed ADEC guideline for commercial and industrial properties. All but one sample were below the EPA's recommended action level for "areas where contact with children is less likely or infrequent." The dust samples taken by the EPA contractors suggests an initial problem with dust control. Since the precise locations of the samples are unknown, the full implications of the results are not currently available. The tests do suggest that building interiors accessible to employees on a regular basis will need to be evaluated and cleaned appropriately as one of the first steps in managing the site.

Historic Preservation Issues

Historic preservation efforts undertaken by federal agencies or receiving federal grant-in-aid funds are subject to the regulation contained in 36 CFR Part 67 and described in *The Secretary of the Interior's Standards for the Treatment of Historic Properties*. Appropriate treatment is based on an assessment of the relative importance of the property, physical condition, proposed use, and mandated code requirements. Under the fourth heading, the guidelines for implementing the Secretary's Standards note: "Abatement of lead paint and asbestos within historic buildings requires particular care if important historic finishes are not to be adversely affected" (p. 1).

Specific preservation issues and concerns which need to be addressed and incorporated in the management of the lead-based paint hazards at Kennicott include:

Site disturbance: Archaeological mapping and artifact documentation needs to be conducted prior to starting any mitigation of the lead contaminated soils. Towards this end, a Cultural Landscape Inventory including archaeological overview and mapping components will begin in 1997 to assist with and expedite compliance.

Overzealous cleanup efforts: An important part of the visitor experience and a defining quality of Kennicott is the scattering of industrial artifacts around the buildings and throughout the site. Unguided cleanup prior to documentation by an historic archaeologist would be an adverse action. Once the archaeologists have completed their work, some site cleanup is expected.

Building stabilization, paint removal and encapsulation: The majority of the immediate work that needs to be accomplished at Kennicott pertains to the emergency stabilization of the historic building walls, roofs and foundations, site cleanup and partial abatement or encapsulation of lead-based paints on the

exterior surfaces of buildings and some interior spaces. During the first years after NPS acquisition, the NPS shall focus site activities upon critical stabilization tasks and establish permanent and sound surfaces for the interim control of the lead paint hazard. Wall **stabilization will require** repairs to wall structures, reattachment of existing wood siding and trim, and judicious replacement of deteriorated wood siding and trim in accordance with the Secretary of the Interior's Standards for preservation.

Dust abatement: A relatively minor preservation issue, dust abatement will still require sensitivity to the artifacts scattered throughout the buildings. Prior to or during the abatement work, an archaeologist needs to be present to assist in the moving and replacement of the any artifacts that require moving.

Contaminated ruins: The existing building ruins in the mill complex and at the upper mine portals are important elements in the "ghost town" experience. Managing the lead-based paint hazards at these sites, keeping them relatively accessible to the public, and retaining the essential nature of these features require consideration and innovation in the long term to protect workers and visitors to the mine sites.

Lead-Based Paint Management Options

Options available to manage the lead-based paint hazards at Kennicott range from no action to full abatement. Implementing interim controls and partial or selective abatement as also acceptable options. The terms are used as defined by the EPA at 40 CFR 745.223 and in the 995 HUD *Guidelines*.

> **No action:** accepts the continued presence of a lead-based paint hazard after determining it does not pose a threat to health and safety.
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> **Interim controls:** measures designed to temporarily reduce human exposure or likely exposure to lead-based paint hazards, including specialized cleaning, repairs, maintenance, painting, temporary containment, ongoing monitoring of lead-based paint hazards or potential hazards, and the establishment and operation of management, monitoring and education programs.
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> **Selective abatement:** the judicious application of abatement techniques in combination with interim controls as appropriate.
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> **Abatement:** any measure or set of measures designed to permanently eliminate lead-based paint hazards including removal of lead-based paint and lead-contaminated dust, the removal or covering of contaminated

soil, and all preparation, cleanup, disposal, and post-abatement clearances associated with such measures

The lead-based paint hazards at Kennicott are found in four primary conditions: 1) Deteriorated Lead -Based Paint, 2) Lead Contaminated Soils, 3) Lead Contaminated Interior Dust, and 4) Lead Contaminated Ruins. The first three conditions are more common in the Mill Town area, the fourth at the mines on the mountain above. Each condition has a number of possible solutions which can be applied as appropriate to a specific location.

1) Failing Lead-Based Paint: All of the buildings at Kennicott are constructed of wood. With the exception of a single log structure, all are enclosed with horizontal wood siding. Wood trim is typically located at building corners, roof soffits, and around doors and windows. While not every building was tested for lead paint, the uniform paint pallet throughout the site and historic records support the conclusion that lead-based paint can be expected on each building. Most of the approximately 100,000 ft^2 of exterior siding the NPS would acquire was painted red with white trim, both lead-based. The buildings were last painted in the 1930s, shortly before the operation closed. Some of the interior surfaces, such as the West Bunkhouse, the Store, and the Manager's Office, were painted white. The majority of the interior wood surfaces were not painted or finished. Generally, the interior surfaces of the unheated buildings have been protected from moisture and are in relatively good condition.

A surface by surface inspection of all interior and exterior surfaces will be conducted to establish condition and develop specifications for encapsulation of the paint. Based thereon, the range of possible actions include:

No action: Not proposed.

Interim controls: The NPS would retain as much of the historic wood siding and trim as possible. Determinations will be based on the condition of the wood and its potential for continued use. Conventional methods of wood preparation, such as wet scraping or chemical stripping with non-toxic agents, followed by repainting will be used.

Selective abatement: Approximately 20% of the existing wood siding and trim will require replacement due to deterioration and breakage. The waste material will be tested and deposited in a waste facility licensed to handle lead paint waste as appropriate.

Complete abatement: Not proposed because it would be an adverse action under Section 106 of the National Historic Preservation Act.

2) Lead Contaminated Soils: The soils surrounding the footprint of the buildings and within three feet thereof contain varying concentrations of lead with the highest concentrations generally found at the base of the wall. Sampling conducted to date suggests that concentrations of lead in the soil and the necessary treatments will vary. An appropriate preservation goal is to employ the least disturbing treatment. Actions to be considered include:

No action: Not considered.

Interim controls: Signing, barriers, and restricted circulation patterns appropriate while paint hazards are being addressed. Thereafter, continuation of the approach may be appropriate depends upon the severity of the contamination.

Selective abatement: Soil capping of selected areas is appropriate based on the level of contamination (currently assumed to be > 1,000 mg/kg), discussions with ADEC, circulation patterns, and the manner in which the site is presented to the public.

Complete abatement: Not considered unless post-paint management sampling indicates contamination levels substantially and uniformly higher than levels presently established.

3) Lead Contaminated Interior Dust: Limited sampling conducted by the EPA in 1995 confirmed the presence of lead-contaminated dust in several buildings in the Kennicott area including one included in the proposed acquisition. Buildings with interior paint, such as the Store, Refrigeration Plant, and the bunkhouses, have painted surfaces and can be assumed to have some lead-contaminated dust. The interiors of the other industrial buildings were largely unpainted and lead contaminated dust levels should be lower or be limited to those areas adjacent to openings in exterior walls.

Good work practice usually requires interior dust abatement to follow after paint abatement. However, any interior spaces deemed necessary for NPS operations at any time will be defined, characterized, cleaned in an appropriate manner to reduce the possibility of lead-contaminated dust, and isolated from other, untreated areas before they are occupied. There is no intention at this time or in the foreseeable future to use any of the buildings at Kennicott as housing.

The dust abatement program involves HEPA vacuuming, washing, final HEPA vacuuming, and clearance testing. Thereafter, a monitoring program is appropriate to ensure levels do not increase without an appropriate response. Actions considered include:

No action: Only appropriate for those areas with lead contaminated floor dust levels below 50 ug/ft^2.

Interim controls: Cleaning to remove the dust is proposed for all areas with lead contaminated dust levels in excess of 100 ug/ft^2 on floors to achieve or exceed the clearance levels recommended in HUD and EPA guidance.

Selective abatement: Not proposed.

Complete abatement: Not proposed at this time as it is an unachievable goal until all other sources of contamination, paint and soil, have been addressed.

4) Lead Contaminated Ruins: The ruins of the Erie, Jumbo, Glacier and Bonanza mine structures are located at the portal openings approximately 2,500 ft. above the Mill Town. The collapsed or deteriorated structures involve construction techniques similar to those found below: wood framing and siding with similar paint patterns. Similar or slightly lower levels of lead-based paint contamination can be assumed depending upon the specific site maintenance histories.

Generally, the physical condition of the structures precludes free access even if their were no lead paint hazards. Barriers, flagging, signing and educational efforts should be employed to direct visitors along safer corridors. A strategy for identifying "hot spots" can be developed to protect employees who may visit the sites with a greater frequency as well as the casual visitor. Possible actions include:

No action: Not proposed.

Interim controls: A wide range of options can be used to restrict access and redirect interest in these areas. Barriers, flagging, warning signs and hazard education are negative restrictions on exposure. The manner in which the site is interpreted to the public will help control exposure and should be a considered. A well defined monitoring program is essential.

Selective abatement: Not proposed unless particularly contaminated "hot spots" are identified that cannot be controlled through other measures.

Complete abatement: Not proposed.

Managing Historic Building Stabilization and Lead-Based Paint at Kennicott

Upon acquisition, the NPS will institute a multiyear, phased and prioritized management plan to address the existing lead-based paint hazards on the site. The initial phase will implement interim worker and visitor safety protection programs which can be put in place quickly. Thereafter, the focus will shift to implementing longer term solutions to the hazards as expressed in a detailed work plan which is coordinated with stabilization efforts and maintenance activities.

Consultations with ADEC will be ongoing throughout the development and implementation of the specific aspects of the management plan. Consultations with the SHPO will proceed as necessary to fully comply with Section 106 of the National Historic Preservation Act.

Year 1, Phase I: Worker and Visitor Protection

Upon acquisition of the site, the NPS shall develop and implement a worker and visitor protection plan which can be followed consistently throughout the site—including the Mill Town and the ruins at the mine sites on the mountain above—until such time as the lead paint hazards are mitigated. The program will be based on existing data as augmented by a site inspection to define appropriate responses the hazards at hand.

The program will include public notice and education as to the nature of the hazard, appropriate limitations on pedestrian access through the site, the use of barriers such as fences and flagging, one public toilet, and an ongoing monitoring program to ensure the continued effectiveness of the controls.

All NPS employees working on the site shall be informed about the risks associated with juvenile and adult occupational exposure to lead in accordance with OSHA regulations. Abatement workers will be subjected to medical monitoring requirements. Based on current plans for very limited personal interpretation at the site, is not anticipated that non-abatement staff will exceed permissable exposure limitations. Education efforts under the safety program shall encompass visitors to the site and the adjacent community.

Year 1, Phase II: Establishing the Work Plan

As preparation for further lead paint mitigation work on the site, a Lead Hazard Screening Report and Paint Inspection will be conducted in accordance with standards defined by the EPA at 40 CFR 745.223 and 745.227[c], and as deemed

appropriate in consultation with ADEC. While specifically designed for the evaluation of residential and child occupied facilities, the process gathers information necessary to development of the full work plan and the written compliance plan detailing worker protection on the site as required by OSHA at 29 CFR 1910.1025(e)(2) and 1926.62(e)(2). The screening report will tie the mitigation work to the areas of risk, more accurately define the hazard, establish treatment zones, and inform cultural resource managers as they develop priorities and a scope for treatment. The report can be prepared by a contractor licensed by the EPA or by a properly trained and licensed NPS employee.

In Phase II, a multiyear work plan will be developed to define the priorities for intervention based upon the finding of the Lead Hazard Screen and the findings of NPS cultural resource specialists. Emergency stabilization and lead based paint hazard mitigation priorities will be established on the basis of levels of lead contamination, structural condition, and the condition of the lead-based paint. This will include additional site specific testing of soils as identified.

Planning and defining an emergency stabilization program are critical to the formulation of a multiyear work plan. A structural condition assessment reflecting the current condition of the buildings and site is essential to planning further stabilization work. In Phase II, the regional historical architect and a detailed structural engineer will be needed to develop the condition assessment and the necessary architectural plans to properly conduct the work. Cultural resource priorities and interpretive plans for the site will play a moderating role in the selection of an appropriate treatment plan. A separately funded, two-year cultural landscape study was initiated in 1997. The study provides a basis of information for management of the site.

A Programmatic Agreement will be developed with the SHPO and ACHP for specific treatment of historic resources as required under Section 106 of the National Historic Preservation Act. The agreement will 1) define priorities and levels of treatment for the buildings and site, 2) the effects the lead hazard control activities may have on the Landmark and 3) identify appropriate mitigation efforts to minimize those effects. Concurrently, a Programmatic Agreement will be investigated and developed as appropriate with ADEC to define roles and responsibilities for lead-based paint management, acceptable cleanup levels, long term cleanup goals, and maintenance and monitoring of the site.

The NPS shall also determine an appropriate certified hazardous disposal site and prepare procedures for disposal of future lead based hazards that will be generated from Kennicott. Discussion with the DOD Defense Revitalization Marketing Office (DRMO), who are responsible for disposing of all DOD hazardous waste substances indicates that DRMO will soon accept hazardous wastes from other departments of the government. For a fee, they will

transport, analyze, test and dispose of lead based paint hazards. Once accepted into their ownership DRMO will carry future liability for the disposed substance. The NPS will need to negotiate a Memorandum of Agreement for services by DRMO.

Years 2 to 5: Emergency Stabilization and Mitigation of Lead-Based Paint Hazards

Beginning in year 2, the NPS shall begin field work to stabilize the Kennicott mill buildings and mitigate the lead based paint hazards at Kennicott. The concept is to employ a cadre of maintenance workers, either through the use of NPS maintenance employees or through agreement with the local Friend's of Kennicott organization. On site technical assistance and supervision of the building stabilization and lead based paint hazard will be provided by the NPS. Of the three primary lead hazards, encapsulation and abatement of the lead based paint on the wood siding will be the most difficult and time consuming. Additional preservation tasks will be dovetailed with the remediation work so the wood siding can be prepared for encapsulation or painting. In some instances, the walls themselves will need to be stabilized prior to full encapsulation treatment. The size of the project and the potential for unanticipated problems as they relate to structure, requires a maintenance regimen with flexibility to deal with those problems.

Worker Safety: In accordance with the OSHA Compliance Plan developed in Year 1, Phase I, the NPS shall insure that annual training, certification and medical testing is provided to all workers prior to the beginning of work.

Cleaning and Clearance of Site: Additional training and certification will be provided to a designated NPS employee for assessing and monitoring lead based hazards, oversight of day-to-day remediation tasks, clearance examinations, and oversight of testing and disposal of the lead based materials.

Testing and Disposal of Hazardous Materials: All wastes generated by the project will be tested and handled in accordance with the provisions of the Resource Conservation and Recovery Act to ensure proper disposal. Expected wastes include lead-contaminated soils, paint particles, wipe samples, and deteriorated painted wood siding from the site and buildings. All materials shall be disposed of in accordance with procedures established in year 1.

Annual Completion Report: An interim Completion Report shall be prepared at the end of each seasons work. The Report shall include a summary of the stabilization and mitigation work accomplished, status of the worker protection plan, specifics on waste disposal during the reporting period and shall address any changing ADEC requirements of issues.

Contract Services: Contract services shall be limited to specific and easily definable tasks such as; hazardous materials refresher training, operations review, soil and lead paint analysis, equipment rental and engineering services beyond the scope of services in the NPS.

Year 3 Onward: Long Term Monitoring and Maintenance

Acquisition by the NPS will result in the establishment of a maintenance program for the NHL. As part of ongoing maintenance of the Landmark, the NPS will develop a cyclic inspection, and maintenance requirement of all encapsulated or partially abated conditions. Designated maintenance personnel will be trained to monitor and perform required lead-based hazard maintenance activities on the buildings.

Disclosure of Testing and Hazard Control Results: All testing data resulting from site monitoring activities will be made available to ADEC, representatives of the local community and other interested parties in accordance with the ADEC agreement.

Year 4 : Kennicott Site Management Guide

Parallel to the onsite stabilization work and lead base paint mitigation effort at Kennicott, the NPS will actively work to develop a management document which addresses goals and objectives for the near term management of the site.

In year 4, the NPS shall submit a *Kennicott Site Management Guide.* The *Guide* shall provide detail information that addresses future site staffing requirements, preservation goals beyond emergency stabilization needs, maintenance needs, visitor services requirements, partnership opportunities, a site interpretive plan, other issues pertaining to site management and development and a revised budget for long term management of the site. It is anticipated that the *Guide* will serve the park for a period of 10 years.

Budget Considerations: Emergency Stabilization and Lead-Based Paint Hazard Management

Cost Summary

1. Year 1, Phase I: Implement Worker and Visitor Protection Program	**$ 41,228**
2. Year 1, Phase II: Establish the Emergency Stabilization Work Plan and Conduct Compliance Tasks for Stabilization and Mitigation of Lead-Based Paint	**149,698**
3. Year 2, Phase III: Site Mobilization and First Year of Emergency Stabilization and Lead-Based Paint Hazard Mitigation	**185,060**
4. Year 3 - 5, Phase IV: Emergency Stabilization and Mitigation @ $181,603/year	**544,809**
TOTAL 5 YEAR COST ESTIMATE	**$920,795***

* The cost estimate total does not include a standard markup for Overhead and Profit if the work is accomplished in a manner similar to the past work with the Friend's of Kennicott. Standard markup would be 10% per year Profit and 10% Overhead, compounded on an annual basis.

Year 1, Phase I: Implement Worker and Visitor Protection Program

Qty/Unit	Travel/PD	Material	Labor	Equip	Total	Total
1. Prepare interim plan for initial safety management of the Kennicott Mill Complex: Regional Safety Officer, WRST and AKSO staff.						
2 trips	400.00	0.00	0.00	0.00	0.00	800.00
2. Installation of onsite safety features; fences, barriers, public toilets, and signing.						
1 lump sum	0.00	0.00	0.00	0.00	3,000.00	3,000.00
1 lump sum	0.00	0.00	20,000	0.00	0.00	21.,000.00
3. Prepare safety brochure for the Kennicott site.						
1 lump sum	0.00	0.00	0.00	0.00	7,500.00	7,500.00
4. Hire a seasonal interpretive ranger for the first summer of operations to direct visitor use at the site, May 15 to September 25.						
9 pay periods	0.00	0.00	992.00	0.00	0.00	8,928.00

Total year 1, phase I = $41,228.00

2. Year 1, Phase II: Establish the Emergency Stabilization Work Plan and Conducting Compliance Tasks for Stabilization and Mitigation of Lead-Based Paint

Qty/Unit	Travel/PD	Material	Labor	Equip	Total	Total
1. Hire NPS Project Manager to manage stabilization/cleanup effort, GS 11/1 term position w/ benefits						
13 pay periods	0.00	0.00	2,155.00	0.00	0.00	28,015.00
2. Training and Certification of Project manager for assessing, monitoring lead hazard, oversight of day-to-day remediation tasks, perform Cert. Exams, testing and disposal						
1 lump sum	0.00	0.00	0.00	0.00	5,000.00	5,000.00
3. Environmental Engineering Contract for Lead-Based Paint Hazard Screen, Paint Inspection, OSHA Worker Compliance Plan and Specifications for Mitigation Treatment						
1 lump sum	0.00	0.00	55,000.00	0.00	0.00	55,000.00
4. In-house preparation of Programmatic Agreement MOA with the SHPO						
1 trip	750.00	0.00	0.00	0.00	0.00	750.00

Qty/Unit	Travel/PD	Material	Labor	Equip	Total	Total
5. In-house preparation of Programmatic MOA with ADEC in compliance with EPA ands ADEC regulations						
1 trip	750.00	0.00	0.00	0.00	0.00	750.00
6. Revise 1991 Structural Condition Assessment to reflect current conditions. Work accomplished by WRST staff, Regional Historic Architect and DSC Engineer						
1 trip	500.00	0.00	0.00	0.00	0.00	500.00
15 days/PD	116.00	0.00	0.00	0.00	0.00	1,740.00
7. Structural Engineer - detail to WRST to conduct structural evaluation and prepare stabilization details for work in years 2 - 5						
40 days	0.00	0.00	450.00	0.00	0.00	18,000.00
2 trips	900.00	0.00	0.00	0.00	0.00	1,800.00
10 days PD/WRST	116.00	0.00	0.00	0.00	0.00	1,160.00
46 days/PD/AKSO	217.00	0.00	0.00	0.00	0.00	9,982.00
8. Equipment procurement						
6 truck lease months	0.00	0.00	0.00	500.00	0.00	3,000.00
hand tools lump sum	0.00	0.00	0.00	3,000.00	0.00	3,000.00
1 scaffold lease , lump sum	0.00	0.00	0.00	1,500.00	0.00	1,500.00
1 elec. Generator	0.00	0.00	0.00	2,500.00	0.00	2,500.00
1 sprayer paint remover	0.00	0.00	0.00	8,000.00	0.00	8,000.00
5 respirators	0.00	0.00	0.00	500.00	0.00	2,500.00
1 hazmat suits, lump sum	0.00	0.00	0.00	1,000.00	0.00	1,000.00
1 disposal equip. , lump sum	0.00	0.00	0.00	2,500.00	1.00	2,501.00
1 power equip., lump sum	0.00	0.00	0.00	3,000.00	0.00	3,000.00

Total year 1, phase II = $149,698.00

3. Year 2, Phase III: Site Mobilization and First Year of Emergency Stabilization and Lead-Based Paint Hazard.

Assumptions:

- Work accomplished by local hire WG employees. Circumstances may result in a continuation of a MOA with the Friend's of Kennicott for accomplishment of the work. WG rates are supposed to be compatible with Davis Bacon and would convert if the Friend's option is pursued.
- Year 2 will be partially spent mobilizing to the site and preparing for future work.
- Crew Structure:
  - (1) Project Manager GS 11/1 - Exhibit Specialist
  - (4) WG Workers (2 ea. WG 8 Journeymen, 2 ea. WG 5 Trainees)
- The work concept is to develop and train a cadre of workers to accomplish building stabilization work and lead based paint hazard

Qty/Unit	Travel/PD	Material	Labor	Equip	Total	Total
1. Project Manager						
26 pay periods	0.00	0.00	2,240.00	0.00	0.00	58,240.00
1 position support	0.00	0.00	3,500.00	0.00	0.00	3,500.00
2. Stabilization building materials; lumber, roofing, shoring, siding, concrete						
1 lump sum	0.00	15,000.00	0.00	0.00	0.00	15,000.00
3. Work Force: Local hire w/ (2) at journeyman WG 8 rate, (2) at trainee WG 5 rate. Estimated work year at 10 pay periods per employee						
20 WG 8 - (2 ea)	0.00	0.00	1,854.00	0.00	0.00	37,080.00
20 WG 5 -(2 ea)	0.00	0.00	1,520.00	0.00	0.00	30,400.00
4. Initial training for lead-based paint hazard mitigation - WG workers						
4 classes	0.00	1,000.00	0.00	0.00	0.00	4,000.00
4 trips	250.00	0.00	0.00	0.00	0.00	1,000.00
20 days PD	217.00	0.00	0.00	0.00	0.00	4,340.00
5. Initial medical baseline physicals: physicals, breathing and blood tests						
4 physicals	0.00	500.00	0.00	0.00	0.00	2,000.00

Qty/Unit	Travel/PD	Material	Labor	Equip	Total	Total
6. 30-day follow-up blood test during periods of intensive lead work, local clinic						
15 tests	60.00	0.00	0.00	0.00	0.00	900.00
7. Archeological assistance to WG work crew, GS 7/1						
9 pay periods	0.00	0.00	1,100.00	0.00	0.00	9,900.00
1 position support	0.00	0.00	4,000.00	0.00	0.00	4,000.00
8. Equipment and tools						
6 vehicle lease months	0.00	0.00	0.00	400.00	0.00	2,400.00
1 tool allowance, lump sum	0.00	0.00	0.00	4,000.00	0.00	4,000.00
9. Hazardous Material Disposal: Analysis, testing, transportation, roll off on-site storage and disposal of solid state regulated lead-based paint hazard materials						
1 analysis, lump sum	0.00	500.00	0.00	0.00	0.00	500.00
1 roll off, lump sum	0.00	1,800.00	0.00	0.00	0.00	1,800.00
1 transport., lump sum	0.00	2,500.00	0.00	0.00	0.00	2,500.00
1 testing, lump sum	0.00	500.00	0.00	0.00	0.00	500.00
10. Disposal of hazardous materials and chemical strippers: Defense Reutilization Marketing Office (DRMO), who are responsible for haz mat disposal. DRMO quoted $0.07 to $0.36 per pound for disposal - assume $0.50 by year 2						
6000 pounds	0.00	0.50	0.00	0.00	0.00	3,000.00

Total year 2, phase III = $185,060.00

4. Years 3 - 5, Phase IV: Emergency Stabilization and Mitigation

Assumptions:

- Work accomplished by local hire WG employees. Circumstances may result in a continuation of a MOA with the Friend's of Kennicott for

accomplishment of the work. WG rates are supposed to be compatible with Davis Bacon and would convert if the Friend's option is pursued.

- Crew Structure:
  - (1) Project Manager GS 11/1 - Exhibit Specialist
  - (4) WG Workers (2 ea. WG 8 Journeymen, 2 ea. WG 5 Trainees)
- The work concept is to develop and train a cadre of workers to accomplish building stabilization work and lead based paint hazard
- During year 3, the NPS shall prepare and submit the *Kennicott Site Management Guide* which defines long term preservation priorities.

Qty/Unit	Travel/PD	Material	Labor	Equip	Total	Total
1. Project Manager						
26 pay periods	0.00	0.00	2,286.00	0.00	0.00	59,436.00
1 pos. support, lump sum	0.00	3,500.00	0.00	0.00	0.00	3,500.00
2. Stabilization Materials: timber, framing materials, roofing, siding, etc.						
1 lump sum	0.00	20,000.00	0.00	0.00	0.00	20,000.00
3. WG Work Force: Workers to be local hire w/ (2) at journeyman WG 8 rate, (2) at trainee WG 5 rate. Estimated seasonal work year at 10 pay periods.						
20 pay periods (2 ea) WG 8	0.00	0.00	1,910.00	0.00	0.00	38,200.00
20 pay periods (2 ea) WG 5	0.00	0.00	1,565.00	0.00	0.00	31,300.00
4. Refresher training for lead-based paint hazard						
5 classes	0.00	0.00	250.00	0.00	0.00	1,250.00
5 trips	0.00	0.00	250.00	0.00	0.00	1,250.00
15 days PD	217.00	0.00	0.00	0.00	0.00	3,255.00
5. Initial medical baseline physicals: physicals, breathing, blood tests (assume 2 new employees)						
2 tests	0.00	400.00	0.00	0.00	0.00	800.00
6. 30-day follow-up blood tests during periods of intensive lead work, local clinic						
15 tests	0.00	60.00	0.00	0.00	0.00	900.00

Qty/Unit	Travel/PD	Material	Labor	Equip	Total	Total
7. Equipment, tools and scaffold purchase and rental						
6 vehicle lease months	0.00	0.00	0.00	400.00	0.00	2,400.00
1 tool allowance, lump sum	0.00	0.00	0.00	4,000.00	0.00	4,000.00
1 equipment rental, lump sum	0.00	0.00	0.00	5,000.00	0.00	5,000.00
8. Hazardous Material Disposal: Analysis, testing, transportation, roll off - on site storage and disposal of solid state regulated lead-base paint hazard materials						
1 analysis, lump sum	0.00	500.00	0.00	0.00	0.00	500.00
1 testing, lump sum	0.00	500.00	0.00	0.00	0.00	500.00
1 roll off, lump sum	0.00	1,800.00	0.00	0.00	0.00	1,800.00
1 transportation, lump sum	0.00	2,500.00	0.00	0.00	0.00	2,500.00
9. Disposal of solid hazardous materials and chemical strippers; DRMO costs, assume $0.50 by year 3						
6000 pounds	0.00	0.50	0.00	0.00	0.00	3,000.00
10. Encapsulation Painting						
2000 sq ft / paint materials	0.00	0.10	0.00	0.00	0.00	2,012.00

Total year 3 - 5, phase IV @ $181,603.00/year = $544,809

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