

APPENDIX B ENVIRONMENTAL RESTORATION DATA

This appendix contains a brief summary of the “Environmental Restoration Report to Support Land Conveyance and Transfer Under Public Law 105-119,” Public Information (Environmental Restoration Report) (DOE 1999b). This report is intended to give Congress and DOE decisionmakers information about the potential environmental restoration and remediation activities that may be undertaken for the subject land tracts. The Environmental Restoration Report contains the best information available at this time regarding any contamination that may be present on these tracts, anticipated cleanup activities and predictions of costs, duration, and waste volumes.

APPENDIX B ENVIRONMENTAL RESTORATION DATA

In parallel with the completion of the Final CT EIS, the DOE is completing the *Environmental Restoration Report to Support Land Conveyance and Transfer Under Public Law 105-119*, Public Information (Environmental Restoration Report) (DOE 1999b). The mandated completion time for both documents is August 26, 1999. This appendix briefly summarizes the Environmental Restoration Report. A greater level of detail is presented in the actual Report, which may be reviewed at the LANL Outreach Center and Reading Room, 1350 Central Avenue, Suite 101, MS-C314, Los Alamos, New Mexico 87544; and the Technical Vocational Institute, Montoya Campus Library, 4700 Morris NE, Albuquerque, New Mexico 87111. A copy of the Environmental Restoration Report may be obtained by contacting Mr. Ted Taylor in writing at 528 35th Street, Los Alamos, New Mexico 87544, or by telephone at (505) 665-7203.

The Environmental Restoration Report is intended to give Congress and DOE decisionmakers information about the potential environmental restoration and remediation activities (including decontamination and decommissioning [D&D], and demolition of site structures¹) that may be undertaken for 9 of the 10 subject tracts. (Note: one of the 10 subject tracts, the Miscellaneous Manhattan Monument Tract, is not known to require any environmental restoration or remediation.) Information presented in the Environmental Restoration Report is based upon current knowledge of actual, suspected, or potential contamination on the subject tracts. Some of the tracts have not yet undergone field investigation and characterization for site contamination or may have been only partially investigated and characterized; thus, no information or only very limited information may be known at this time about a particular tract's actual contaminant condition. Additionally, the DOE's preliminary set of recommended cleanup activities will undergo public input and a review and approval process by the administrative authority, namely, the New Mexico Environment Department (NMED), the DOE, or both. As such, the information contained in the Environmental Restoration Report and in this appendix has a great level of uncertainty associated with it. However, it is the best information available at this time and, together with the information contained with the CT EIS, will serve the DOE decisionmakers in their decisionmaking efforts regarding the conveyance and transfer of the 10 subject tracts. Additionally, this information will serve to help with determining funding allocations and in making various other auxiliary decisions.

More site information will be generated as sampling and characterization progress and will result in refinements to current estimates of, for example, cleanup costs, cleanup techniques, and waste volumes. Some tracts already have undergone extensive site investigation and remediation; other tracts are in the beginning stages of the process, and little site investigation or work has occurred. The administrative authority review and approval process may result in changes to final plans and the actual amount of wastes generated by the cleanup activities. Ultimate costs of the cleanup would be adjusted accordingly. Site cleanup of the entire LANL facility is necessary as part of the DOE's national environmental remediation strategy for DOE facilities; however, the environmental restoration activities required on these subject tracts may be expedited in order for them to be considered suitable for conveyance or transfer by the end of the 10-year schedule required by Public Law (PL) 105-119 (the Act), which concludes November 26, 2007. In general, the projected environmental restoration and remediation activities are the same as those discussed in the DOE's plan, *Accelerating Cleanup: Paths to Closure* (DOE 1998c). Changes to this plan or the

¹ The term "structures" is used in the Environmental Restoration Report to denote all manmade construction items, including such items as permanent buildings, portable storage units, water supply wells, manholes, etc., that have at some time been assigned a LANL structure number. No attempt to verify actual structure ownership has been made. In this sense, the term is used much more broadly in the Environmental Restoration Report than in the CT EIS. The CT EIS refers to "structures" to mean a more selective set of manmade construction items such as permanent buildings or other constructed items using concrete pads for their footings. Where knowledge is readily available, an attempt to identify only DOE-owned site buildings also has been made in the CT EIS.

APPENDIX B ENVIRONMENTAL RESTORATION DATA

development of other, similar plans may be necessary to address the final site environmental restoration actions decided upon for the subject tracts.

The Environmental Restoration Report states that there are approximately 200 potential release sites (PRSs), approximately 152 structures, and 7 individual canyons within the 10 subject tracts. Some of the canyons have reaches that cross more than one of the tracts. The numbers of PRSs per tract range from none (for the Miscellaneous Manhattan Monument Tract) to 154 (for the Technical Area [TA] 21 Tract), and the numbers of structures range from one (Miscellaneous Site 22 Tract) to 125 (the TA 21 Tract). The Rendija Canyon, White Rock, DP Road, and Airport Tracts each have a single canyon floodplain within their borders; three other tracts have dual canyon floodplains within their boundaries: the TA 21, White Rock Y, and TA 74 Tracts. There are two tracts that have no PRSs recommended for remediation, no canyon systems recommended for restoration, and no structure for which decommissioning is projected: the Miscellaneous Manhattan Monument Tract and the White Rock Tract (as considered for cultural preservation and commercial development as the contemplated land use). The remaining tracts all require some level of cleanup activities, including the White Rock Tract, should residential and commercial development subsequently be considered as land uses.

Three PRS cleanup techniques are considered in Environmental Restoration Report: removal, in situ treatment, and in situ containment. Two decommissioning techniques are projected: removal of hazardous materials and complete demolition. Canyon system cleanups are all removal of contaminated soils. It is estimated that for seven of the nine tracts requiring cleanup, the necessary cleanup activities are fairly straightforward and can be completed in a few years, assuming the administrative authorities approve the recommended cleanup activities. Cleanup of the Airport Tract, DP Road Tract, and the TA 21 Tract may require a far longer period of time due to the complexity of the cleanup activities required of those sites, and in some cases, a degree of uncertainty regarding the technical feasibility of recommended cleanup activities. Costs for cleanup are expected to be greatest for these two tracts as well.

The Environmental Restoration Report bases most of its cleanup information projections upon the cleanup of PRSs. Six types of PRSs are identified in the report:

- **Surface Unit:** Areas having known or potential releases that are confined primarily to surface soils.
- **Subsurface Unit:** Areas having known or potential releases that reach deeper than surface soils. These units include underground seepage pits, dry wells, acid pits, etc.
- **Material Disposal Areas (MDAs):** Areas for the disposal of radioactive and/or other types of wastes. Area G at TA 54, for the disposal of low-level radioactive wastes, is an example of an active MDA.
- **Outfall:** An area whose contamination resulted from discharges from an existing or former wastewater outfall.
- **Construction Debris:** Rubble from standard construction activities, such as bricks, mortar, concrete blocks, drywall, ceiling tiles, etc.
- **Incinerators:** Areas of potential contamination resulting from stack emissions. These PRSs include incinerators and filter houses that will require the assessment of soils for elevated contamination levels.

The Environmental Restoration Report also discusses canyon systems within each tract. Canyon systems represent the channel created or followed by storm waters and outfall effluents, either now

APPENDIX B ENVIRONMENTAL RESTORATION DATA

or in the past. Additionally, the Environmental Restoration Report discusses the decommissioning, including demolition or razing, of site structures that have been associated with LANL operations. Structures are not limited to just buildings but include items such as electric substations, underground liquid storage tanks, cooling towers, etc. These have been categorized in the Environmental Restoration Report as one of six structure types (Types I through VI), based on the estimated cost per unit area anticipated for their decommissioning. The greater costs are typically associated with such things as the complexity of contaminant removal and/or difficulty of demolition.

The Environmental Restoration Report provides estimates of waste volumes for the cleanup of PRSs; some estimates for waste volumes to be generated by the decommissioning, including demolition of structures; and some estimates for waste generation resulting from cleanup of canyon systems. Projected waste volumes are provided with subtotals of volumes given by type of waste to be generated. Eight waste types are discussed: solid wastes (noncontaminated with either hazardous or radioactive wastes); hazardous wastes; low-level radioactive wastes (LLW); transuranic (TRU) wastes; mixed wastes (having both hazardous waste and radioactive waste components); asbestos wastes; polychlorinated biphenyl (PCB) wastes; and mixed PCB wastes (having both PCB and hazardous waste components). Definitions for these wastes can be found in either EPA regulations in Title 40 of the Code of Federal Regulations (CFR) (for example, solid waste and hazardous waste) or in DOE Order 5820.2A. Some of these terms also are included in Chapter 22, the glossary for this CT EIS.

Finally, the Environmental Restoration Report presents information and data that have been developed to date and provides estimates for all tracts. In the case of more than one potential contemplated use for a particular tract, the Environmental Restoration Report has taken a “bounding” approach that may, in some cases, be more conservative than the future site condition assumptions contemplated by the recipients and used in the CT EIS analysis of impacts. For example, where the contemplated use of a tract is a mixture of both residential and commercial purposes, the Environmental Restoration Report analysis used the bounding assumption that the entire tract would be cleaned up to accommodate future residential use based on human health and ecological risk analyses², rather than assuming that only a portion of the tract would need to meet the cleanup levels for residential future use as envisioned by the recipients. In other instances, differing assumptions were made in the Environmental Restoration Report with regard to structures

² The Environmental Restoration Report states that the LANL Environmental Restoration (ER) Project makes its decisions about site remediation based on the risks to human health, the environment, and ecological systems posed by residual site contamination. There are several references within the report to “No Action” (that is, No Further [Remediation] Action) being required based on [risks to] “human health.” In these instances, the Environmental Restoration Report refers to human health risk analysis for an industrial future use scenario, namely, the continuation of LANL activities for a tract, as was assumed to be the future use before the enacted of PL 105-119. This type of use scenario assumes site occupants are present on the site for a portion of each day, 5 days a week during the year, for a small number of years. The residential future use scenario assumes a more intense site use, where the site occupants reside on the tract for 24 hours a day, 350 days a year for a large number of years. Similarly, ecological risk analysis considers the risk to animals and plants from residual site contamination and the wildlife’s ability to bioaccumulate certain chemicals and heavy metals, up through the food chain. In the past, the ER Project did not consider the ecological risks that may be associated with site cleanups, although they do now so. It should be noted that both human health risk analysis and, especially, ecological risk analysis are relatively new tools that have been developed to aid the environmental restoration practitioners and regulators. Both analytical methods are very conservative in the assumptions employed in their mathematical formulas due to the high degree(s) of uncertainties that underpin those assumptions. These uncertainties may result from unknown length of substance exposures, questionable contaminant pathways assumptions for exposures, inability to accurately predict ultimate doses to various body parts, limited scientific study of a chemical’s effects to the human body (assumptions are frequently based on extremely limited animal studies that may not themselves be statistically adequate for the species studied and for which the subsequent extrapolation and application to the human body may result in very dubious consequences), unknown synergistic effects of chemicals and substances in the human body, etc.

APPENDIX B ENVIRONMENTAL RESTORATION DATA

being demolished than were made in the CT EIS analysis. For example, the Environmental Restoration Report analysis calculated the bounding waste produced from demolition of buildings associated with records center operations at the DP Road Tract based on possible cost savings that could result from the demolition of the buildings rather than the remodeling necessary for building reuse after decommissioning. These buildings were assumed to remain standing under the CT EIS analysis, however, due to stated intended reuse by the recipients. While these and other similar assumptions are inconsistent with the approach used for the CT EIS, which was to make as much use of tract planning documents, site drawings, and information from the recipients as reasonable (for analyzing the indirect impacts subsequent to the conveyance or transfer), the approach is consistent with the use of the bounding analysis approach employed where precise information is unknown or uncertain. The bounding approach allows the DOE to take uncertainties into account in its analysis with results that usually overestimate the final realities. In the case of the environmental restoration activities projected for these tracts, the bounding approach should result in an overestimate of the degree of site cleanup actually undertaken and the resulting waste volumes generated. Costs and cleanup durations should be overestimated as well. The CT EIS discusses the upper bounding estimates of waste volumes, etc. in its description of LANL Environmental Restoration (ER) Project activities under the existing environment at LANL.

B.1 Tract Summaries

The following sections summarize information from the Environmental Restoration Report for each of the 10 land tracts. The presentation sequence has been reordered from the Environmental Restoration Report to match the tract sequence presented elsewhere in this CT EIS, which proceeds from the northern-most tract to the southern-most tract, and is grouped by mesa top and canyon bottom locations.

B.1.1 Rendija Canyon

Information about this tract appears in Chapter 7 of the Environmental Restoration Report. The number of cleanup actions and time required to complete the cleanup are summarized in Tables B.1.1-1 and B.1.1-2. Information about estimated waste volumes (in cubic yards) is provided in Appendix A of the Environmental Restoration Report and is summarized in Table B.1.1-3 and B.1.1-4. The estimated waste volumes are based on specific assumptions of PRS cleanup waste removal and the D&D of certain structures and may represent a subset of the total information presented in the Environmental Restoration Report's Appendix A. Footnotes stating the specific assumptions are provided in Tables B.1.1-3 and B.1.1-4 as appropriate. Cleanup of the Los Alamos Sportsman's Club is included in both cleanup estimates. Cost estimates for remediation range from \$19,053,000 to \$20,462,000.

APPENDIX B ENVIRONMENTAL RESTORATION DATA

**Table B.1.1-1. Proposed Remedies for Rendija Canyon Tract
Land Use: Cultural Preservation**

MEDIA	CLEANUP / D&D	NO ACTION	ESTIMATED DURATION (months)
PRs	1	3	30
Structures	--	--	--
Canyon Systems	0	1	16

**Table B.1.1-2. Proposed Remedies for Rendija Canyon Tract
Land Use: Natural Areas and Residential Development**

MEDIA	CLEANUP / D&D	NO ACTION	ESTIMATED DURATION (months)
PRs	4	0	30
Structures	--	--	--
Canyon Systems	0	1	16

**Table B.1.1-3. Waste Volume Estimates for Rendija Canyon Tract
Land Use: Cultural Preservation**

WASTE TYPE	CLEANUP OF PRSs	D&D OF STRUCTURES ^a	CLEANUP OF CANYONS	TOTALS
Solid	0	--	0	0
Hazardous	7,500	--	0	7,500
LLW	0	--	0	0
Mixed	0	--	0	0
PCB	0	--	0	0
Mixed PCB	0	--	0	0
Transuranic	0	--	0	0
Asbestos	0	--	0	0
Totals	7,500	--	0	7,500

^a These waste volume totals are derived from assuming the D&D of no buildings and the cleanup of 3 PRSs (00-015, 00-011(c), and 00-11(e))

APPENDIX B ENVIRONMENTAL RESTORATION DATA

**Table B.1.1-4. Waste Volume Estimates for Rendija Canyon Tract
Land Use: Natural Areas and Residential Development**

WASTE TYPE	CLEANUP OF PRSs	D&D OF STRUCTURES	CLEANUP OF CANYONS	TOTALS
Solid	1	--	0	1
Hazardous	7,500	--	0	7,500
LLW	0	--	0	0
Mixed	0	--	0	0
PCB	0	--	0	0
Mixed PCB	0	--	0	0
Transuranic	0	--	0	0
Asbestos	0	--	0	0
Totals	7,501	--	0	7,501

Note: These waste volume totals are derived from assuming the D&D of no buildings and the cleanup of 4 PRSs (00-011(a), 00-015, 00-011(c), and 00-11(e))

B.1.2 DOE LAAO Tract

Information about this tract appears in Chapter 4 of the Environmental Restoration Report. The number of cleanup actions and time required to complete the cleanup are summarized in Table B.1.2-1 and Table B.1.2-2. Information about estimated waste volumes (in cubic yards) is provided in Appendix A of the Environmental Restoration Report and is summarized in Table B.1.2-3 and Table B.1.2-4. The estimated waste volumes are based on specific assumptions of PRS cleanup waste removal and the D&D of certain structures and may represent a subset of the total information presented in the Environmental Restoration Report's Appendix A. Footnotes stating the specific assumptions are provided in Tables B.1.2-3 and B.1.2-4 as appropriate. Cost estimates for remediation range from \$4,253,000 to \$9,680,000.

**Table B.1.2-1. Proposed Remedies for the DOE LAAO Tract
Land Use: Commercial Development**

MEDIA	CLEANUP / D&D	NO ACTION	ESTIMATED DURATION (months)
PRSs	3	0	18
Structures	1	2	18
Canyon Systems	--	--	--

APPENDIX B ENVIRONMENTAL RESTORATION DATA

**Table B.1.2-2. Proposed Remedies for the DOE LAAO Tract
Land Use: Residential Development**

MEDIA	CLEANUP / D&D	NO ACTION	ESTIMATED DURATION (months)
PRs	3	0	18
Structures	2	1	18
Canyon Systems	--	--	--

**Table B.1.2-3. Waste Volume Estimates for the DOE LAAO Tract
Land Use: Commercial Development**

WASTE TYPE	CLEANUP OF PRs	D&D OF STRUCTURES ^a	CLEANUP OF CANYONS	TOTALS
Solid	94	256	--	350
Hazardous	0	0	--	0
LLW	0	0	--	0
Mixed	0	0	--	0
PCB	0	0	--	0
Mixed PCB	0	0	--	0
Transuranic	0	0	--	0
Asbestos	0	46	--	46
Totals	94	302	--	396

^a These waste volume totals are derived from assuming the D&D of Building 43-41 only.

APPENDIX B ENVIRONMENTAL RESTORATION DATA

**Table B.1.2-4. Waste Volume Estimates for the DOE LAAO Tract
Land Use: Residential Development**

WASTE TYPE	CLEANUP OF PRSs	D&D OF STRUCTURES ^a	CLEANUP OF CANYONS	TOTALS
Solid	231	2,700	--	2,931
Hazardous	0	0	--	0
LLW	0	0	--	0
Mixed	0	0	--	0
PCB	0	0	--	0
Mixed PCB	0	0	--	0
Transuranic	0	0	--	0
Asbestos	0	486	--	486
Totals	231	3,186	--	3,417

^a These waste volume totals are derived from assuming the D&D of Building 43-41 and 43-39.

B.1.3 Miscellaneous Site 22 Tract

Information about this tract begins appears in Chapter 9 of the Environmental Restoration Report. The number of cleanup actions and time required to complete the cleanup are summarized in Table B.1.3-1. Waste volumes for the Miscellaneous Site 22 Tract are estimated to total 10 cubic yards of solid wastes. The cost estimation for remediation of this tract is about \$91,000.

**Table B.1.3-1. Proposed Remedies for the Miscellaneous Site 22 Tract
Land Use: Commercial Development**

MEDIA	CLEANUP / D&D	NO ACTION	ESTIMATED DURATION (months)
Construction Debris	1	0	9

B.1.4 Miscellaneous Manhattan Monument Tract

The Miscellaneous Manhattan Monument Tract contains no PRSs within its boundaries and contains no structures other than the monument itself. Neither environmental restoration nor decommissioning activities are anticipated.

APPENDIX B ENVIRONMENTAL RESTORATION DATA

B.1.5 DP Road Tract

Information about this tract appears in Chapter 3 of the Environmental Restoration Report. The number of cleanup actions and time required to complete the cleanup are summarized in Table B.1.5-1 and B.1.5-2. Information about estimated waste volumes (in cubic yards) is provided in Appendix A of the Environmental Restoration Report and is summarized in Table B.1.5-3 and B.1.5-4. The estimated waste volumes are based on specific assumptions of PRS cleanup waste removal and the D&D of certain structures and may represent a subset of the total information presented in the Environmental Restoration Report's Appendix A. Footnotes stating the specific assumptions are provided in Tables B.1.5-3 and B.1.5-4 as appropriate. Cost estimates for remediation range from \$26,986,000 to \$29,070,000.

**Table B.1.5-1. Proposed Remedies for the DP Road Tract
Land Use: Industrial and Commercial Development**

MEDIA	CLEANUP / D&D	NO ACTION	ESTIMATED DURATION (months)
PRSs	6	4	70
Structures	10	0	13
Canyon Systems	0	1	8

**Table B.1.5-2. Proposed Remedies for the DP Road Tract
Land Use: Commercial and Residential Development**

MEDIA	CLEANUP / D&D	NO ACTION	ESTIMATED DURATION (months)
PRSs	6	4	84
Structures	10	0	13
Canyon Systems	0	1	8

APPENDIX B ENVIRONMENTAL RESTORATION DATA

**Table B.1.5-3. Waste Volume Estimates for the DP Road Tract
Land Use: Industrial and Commercial Development**

WASTE TYPE	CLEANUP OF PRSS ^a	D&D OF STRUCTURES ^a	CLEANUP OF CANYONS	TOTALS
Solid	10	1,883	0	1,893
Hazardous	750	4	0	754
LLW	0	0	0	0
Mixed	0	0	0	0
PCB	0	0	0	0
Mixed PCB	0	0	0	0
Transuranic	0	0	0	0
Asbestos	50	330	0	380
Totals	810	2,217	0	3,027

^a These waste volume totals are derived from assuming the D&D of all site structures and from the removal of waste from 3 PRSS (00-004, 00-027 and 00-033(a)).

**Table B.1.5-4. Waste Volume Estimates for the DP Road Tract
Land Use: Commercial and Residential Development**

WASTE TYPE	CLEANUP OF PRSS ^a	D&D OF STRUCTURES ^a	CLEANUP OF CANYONS	TOTALS
Solid	10	1,883	0	1,893
Hazardous	740	4	0	744
LLW	0	0	0	0
Mixed	0	0	0	0
PCB	0	0	0	0
Mixed PCB	0	0	0	0
Transuranic	0	0	0	0
Asbestos	0	330	0	330
Totals	750	2,217	0	2,967

^a These waste volume totals are derived from assuming the D&D of all site structures and from the removal of waste from 2 PRSS (000-027 and 0-033(a)).

B.1.6 TA 21 Tract

Information about this tract appears in Chapter 2 of the Environmental Restoration Report. The number of cleanup actions and time required to complete the cleanup are summarized in Table B.1.6-1. Information about estimated waste volumes (in cubic yards) is provided in

APPENDIX B ENVIRONMENTAL RESTORATION DATA

Appendix A of the Environmental Restoration Report and is summarized in Table B.1.6-2. The estimated waste volumes are based on specific assumptions of PRS cleanup waste removal and the D&D of certain structures and may represent a subset of the total information presented in the Environmental Restoration Report's Appendix A. A footnote stating the specific assumptions is provided in Table B.1.6-2 as appropriate. The cost estimation for remediation of this tract is about \$400,184,000.

**Table B.1.6-1. Proposed Remedies for the TA 21 Tract
Land Use: Commercial and Industrial Development**

MEDIA	CLEANUP / D&D	NO ACTION	ESTIMATED DURATION (months)
PRSs	104	50	84
Structures	125	0	12
Canyon Systems	0	2	12

Table B.1.6-2. Waste Volume Estimates for the TA 21 Tract

WASTE TYPE	CLEANUP OF PRSs ^a	D&D OF STRUCTURES ^a	CLEANUP OF CANYONS	TOTALS
Solid	598	46,440	0	47,038
Hazardous	121	266	0	387
LLW	7,826	7,265	0	15,091
Mixed	479	629	0	1,108
PCB	169	27	0	196
Mixed PCB	40	0	0	40
Transuranic	54	0	0	54
Asbestos	0	1,929	0	1,929
Totals	9,287	56,556	0	65,843

^a These waste volume totals are derived from assuming the D&D of all site structures and from the removal of waste from 104 PRSs.

B.1.7 Airport Tract

Information about this tract appears in Chapter 5 of the Environmental Restoration Report. The number of cleanup actions and time required to complete the cleanup are summarized in Table B.1.7-1. Information about estimated waste volumes (in cubic yards) is provided in Appendix A of the Environmental Restoration Report and is summarized in Table B.1.7-2. The estimated

APPENDIX B ENVIRONMENTAL RESTORATION DATA

waste volumes are based on specific assumptions of PRS cleanup waste removal and the D&D of certain structures and may represent a subset of the total information presented in the Environmental Restoration Report's Appendix A. Footnotes stating the specific assumptions are provided in Table B.1.7-2 as appropriate. The cost estimation for remediation of this tract is \$28,217,000.

**Table B.1.7-1. Proposed Remedies for the Airport Tract
Land Use: Commercial and Industrial Development**

MEDIA	CLEANUP / D&D	NO ACTION	ESTIMATED DURATION (months)
PRSs	19	6	75
Structures	0	4	0
Canyon Systems	--	--	--

Table B.1.7-2. Waste Volume Estimates for the Airport Tract

WASTE TYPE	CLEANUP OF PRSs ^a	D&D OF STRUCTURES ^a	CLEANUP OF CANYONS ^b	TOTALS
Solid	24,056	0	--	24,056
Hazardous	0	0	--	0
LLW	400	0	--	400
Mixed	0	0	--	0
PCB	0	0	--	0
Mixed PCB	0	0	--	0
Transuranic	0	0	--	0
Asbestos	0	0	--	0
Totals	24,456	0	--	24,456

^a These waste volume totals are derived from assuming the D&D of none of the site structures and from the removal of waste from the cleanup of 5 PRSs (73-001(a), 73-002, 73-004(a), c-73-001, and C-73-005(a)).

^b DP Canyon, which lies within the boundaries of both the TA 21 and Airport Tracts, has been addressed in the section above for the TA 21 Tract.

B.1.8 White Rock Y Tract

Information about this tract appears in Chapter 8 of the Environmental Restoration Report. Information about estimated waste volumes (in cubic yards) is provided in Appendix A of the Environmental Restoration Report. The number of cleanup actions and time required to complete

APPENDIX B ENVIRONMENTAL RESTORATION DATA

the cleanup are summarized in Table B.1.8-1 and B.1.8-2. The estimated waste volumes are based on specific assumptions of PRS cleanup waste removal and the D&D of certain structures and may represent a subset of the total information presented in the Environmental Restoration Report's Appendix A. A footnote stating the specific assumptions is provided in Table B.1.8-2 as appropriate. Cost estimates for remediation range from \$1,880,000 to \$10,424,000.

**Table B.1.8-1. Proposed Remedies for the White Rock Y Tract
Land Use: Cultural and Environmental Preservation**

MEDIA	CLEANUP / D&D	NO ACTION	ESTIMATED DURATION (months)
PRSs	--	--	--
Structures	0	6	0
Canyon Systems	0	2	24

Table B.1.8-2. Waste Volume Estimates for the White Rock Y Tract

WASTE TYPE	CLEANUP OF PRSs ^a	D&D OF STRUCTURES ^a	CLEANUP OF CANYONS	TOTALS
Solid	--	0	0	0
Hazardous	--	0	0	0
LLW	--	0	3,767	3,767
Mixed	--	0	0	0
PCB	--	0	0	0
Mixed PCB	--	0	0	0
Transuranic	--	0	0	0
Asbestos	--	0	0	0
Totals	--	0	3,767	3,767

^a These waste volume totals are derived from assuming the D&D of none of the site structures, but, rather, from the selective removal of sediments within the floodplain area of the canyons.

B.1.9 TA 74 Tract

Information about this tract appears in Chapter 11 of the Environmental Restoration Report. The number of cleanup actions and time required to complete the cleanup are summarized in Table B.1.9-1. Information about estimated waste volumes (in cubic yards) is provided in Appendix A of the Environmental Restoration Report. The estimated waste volumes are based on specific

APPENDIX B ENVIRONMENTAL RESTORATION DATA

assumptions of PRS cleanup waste removal and the D&D of certain structures and may represent a subset of the total information presented in the Environmental Restoration Report's Appendix A. A footnote stating the specific assumptions is provided in Table B.1.9-2 as appropriate. Cost estimates for remediation range from \$3,683,000 to \$215,666,000.

**Table B.1.9-1. Proposed Remedies for the TA 74 Tract
Land Use: Cultural and Environmental Preservation**

MEDIA	CLEANUP / D&D	NO ACTION	ESTIMATED DURATION (months)
PRSs	0	4	18
Structures	0	3	0
Canyon Systems	0	2	22

Table B.1.9-2. Waste Volume Estimates for the TA 74 Tract

WASTE TYPE	CLEANUP OF PRSs ^a	D&D OF STRUCTURES ^a	CLEANUP OF CANYONS	TOTALS
Solid	2	0	0	2
Hazardous	2	0	0	2
LLW	1	0	98,881	98,882
Mixed	2	0	0	2
PCB	0	0	0	0
Mixed PCB	0	0	0	0
Transuranic	0	0	0	0
Asbestos	0	0	0	0
Totals	7	0	98,881	98,888

^a These waste volume totals are derived from assuming the D&D of none of the site structures and from the removal of no waste from the cleanup of any PRSs, but, rather, from the selective removal of sediments within the floodplain area of the canyons.

B.1.10 White Rock Tract

Information about this tract appears in Chapter 6 of the Environmental Restoration Report. The number of cleanup actions and time required to complete the cleanup are summarized in Table B.1.10-1 and B.1.10-2.

APPENDIX B ENVIRONMENTAL RESTORATION DATA

**Table B.1.10-1. Proposed Remedies for the White Rock Tract
Land Use: Cultural Preservation and Commercial Development**

MEDIA	CLEANUP / D&D	NO ACTION	ESTIMATED DURATION (months)
PRs	--	--	--
Structures	0	1	0
Canyon Systems	0	1	16

**Table B.1.10-2. Proposed Remedies for the White Rock Tract
Land Use: Commercial and Residential Development**

MEDIA	CLEANUP / D&D	NO ACTION	ESTIMATED DURATION (months)
PRs	--	--	--
Structures	0	1	0
Canyon Systems	1	0	16

Because plans call for no cleanup or decommissioning under cultural preservation and commercial development, this land use scenario would generate no wastes. Under the commercial and residential development land use scenario, selective removal of sediments from the canyon system would generate an estimated 942 cubic yards of LLW wastes. Cost estimates for remediation range from \$954,000 to \$3,374,000.

B.2 Data Summary

Individual tract estimates are summarized in the following three tables. Table B.2-1 summarizes the total number of PRs, structures, and canyon systems reported in the Environmental Restoration Report, as well as the number of cleanup actions planned for each tract and each contemplated land use. For example, one of four PRs would be cleaned up in Rendija Canyon if cultural preservation is the contemplated land use subsequent to transfer of the tract; however, four of four PRs would be cleaned up under the residential development land use scenario. The table enables a quick overview of planned cleanup actions, although details are not presented.

Table B.2-2 summarizes the estimated times required to perform cleanup of the 10 tracts. For example, cleanup of PRs at TA 74 is estimated to require 18 months; decontamination of structures is estimated to require 2 months; and 22 months are estimated for removal of contaminated sediments from the canyons. Durations in the table are those estimated for the longest cleanup segment. Multiple sites within a tract can be restored simultaneously so that cleanup duration is determined by that PR or structure or canyon that requires the most time.

APPENDIX B ENVIRONMENTAL RESTORATION DATA

Table B.2-3 summarizes estimated waste volumes resulting from cleanup of PRSs, D&D of structures, and remediation of canyons. The table also indicates the waste type that comprises the majority of expected wastes.

Table B.2-1. Summary of Estimated Environmental Restoration Actions

TRACT	CONTEMPLATED LAND USE	CLEANUP OF PRSs ^a	D&D ^b OF STRUCTURES	REMEDICATION OF CANYONS ^c	MAJOR WASTE TYPE
Rendija Canyon	Cultural Preservation	1/4	--	0/1	Hazardous wastes from munitions
	Residential	4/4	--	0/1	Hazardous wastes from munitions
DOE LAAO	Commercial	3/3	1/3	--	Construction debris
	Residential	3/3	2/3	--	Construction debris
Miscellaneous Site 22	Commercial	1/1	--	--	Construction debris
Miscellaneous Manhattan Monument	Cultural Preservation	--	--	--	No cleanup required
DP Road	Comm./Ind.	6/10	10/10	0/1	Solid wastes and RCRA hazardous wastes
	Res./Comm.	6/10	10/10	0/1	Solid wastes and RCRA hazardous wastes
TA 21	Comm./ Ind.	104/154	125/125	0/2	Radioactive and RCRA hazardous waste from historic operations
Airport	Comm./ Ind.	19/25	0/4	--	Solid waste from former landfill
White Rock Y	Preservation	--	0/6	0/2	Low-level radioactive canyon sediments
TA 74	Preservation	0/4	0/3	0/2	Low-level radioactive canyon sediments
White Rock	Pres./Comm.	--	0/1	0/1	No cleanup required
	Res./Comm.	--	0/1	1/1	Low-level radioactive canyon sediments

Note: Dash (--) indicates there are no PRSs or structures or canyons.

^a For example, 1/3 indicates cleanup of one PRS with a total of 3 PRSs within the tract

^b For example, 1/3 indicates D&D of one structure with a total of three structures within the tract

^c For example, 2/2 indicates cleanup of sediments in two canyons with a total of two canyons within the tract

Table B.2-2. Estimated Duration of Environmental Restoration Actions^{a,b}

TRACT	CONTEMPLATED LAND USE	CLEANUP OF PRSs	D&D OF STRUCTURES	REMEDIATION OF CANYONS	MAJOR WASTE TYPE
Rendija Canyon	Cultural Preservation	30	--	16	Hazardous wastes from munitions
	Residential	30	--	16	Hazardous wastes from munitions
DOE LAAO	Commercial	18	18	--	Construction debris
	Residential	18	18	--	Construction debris
Miscellaneous Site 22	Commercial	9	--	--	Construction debris
Miscellaneous Manhattan Monument	Cultural Preservation	--	--	--	No cleanup required
DP Road	Comm./ Ind.	70	13	8	Solid wastes and RCRA hazardous wastes
	Res./ Comm.	84	13	8	Solid wastes and RCRA hazardous wastes
TA 21	Comm./ Ind.	84	12	12	Construction debris
Airport	Comm./ Ind.	75	--	--	Solid waste from former landfill
White Rock Y	Cultural Preservation	--	0	24	Low-level radioactive canyon sediments
TA 74	Cultural Preservation	18	0	22	Low-level radioactive canyon sediments
White Rock	Pres./ Comm.	--	0	16	No cleanup required
	Res./ Comm.	--	0	16	Low-level radioactive canyon sediments

Note: Dash (--) indicates there are no PRSs or structures or canyons.

^a In months

^b Longest cleanup segment. Multiple sites can be restored simultaneously, so cleanup duration is determined by that PRS or structure or canyon which requires the most time.

Table B.2-3. Estimated Environmental Restoration Waste Volumes^a

TRACT	CONTEMPLATED LAND USE	CLEANUP OF PRSs	D&D OF STRUCTURES	REMEDIATION OF CANYONS	MAJOR WASTE TYPE	COST ESTIMATE RANGES (\$K) TO (\$K)	
Rendija Canyon	Cultural Preservation	7,500 (5,700)	--	0	Hazardous wastes from munitions	19,053	20,462
	Residential	7,500 (5,700)		0	Hazardous wastes from munitions		
DOE LAAO	Commercial	90 (70)	300 (230)	--	Construction debris	4,253	9,680
	Residential	230 (176)	3,190 (2,440)	--	Construction debris		
Miscellaneous Site 22	Commercial	10 (8)	--	--	Construction debris	91	--
Miscellaneous Manhattan Monument	Cultural Preservation	--	--	--	No cleanup required	0	0
DP Road	Comm./Ind.	810 (620)	2,220 (1,690)	0	RCRA hazardous wastes	26,986	29,070
	Res./Comm.	750 (570)	2,220 (1,690)	0	RCRA hazardous wastes		
TA 21	Comm./Ind.	9,290 (7,090)	56,560 (43,220)	0	Construction debris	400,184	--
Airport	Comm./Ind.	24,460 (18,690)	0	--	Solid waste from former landfill	28,217	--
White Rock Y	Cultural Preservation	--	0	3,770 (2,880)	Low-level radioactive canyon sediments	1,880	10,424
TA 74	Cultural Preservation	0	0	98,880 (74,910)	Low-level radioactive canyon sediments	3,683	215,666
White Rock	Pres./Comm.	--	0	0	No cleanup required	954	3,374
	Res./Comm.	--	0	940 (720)	Low-level radioactive canyon sediments		

Notes:

Dash (--) indicates there are no PRSs or structures, or canyons.

Zero indicates that no wastes are expected to be generated.

^a All volumes are cubic yards (approximate), followed by cubic meters (rounded).