

ENCLOSURE A

LANL STP PROPOSED REVISION 4.0
SORT, SURVEY AND DECONTAMINATION (SSD) ACTIVITIES, LOS ALAMOS NATIONAL
LABORATORY (LANL) FEDERAL FACILITY COMPLIANCE ORDER (FFCO)

The purpose of this revision is to document the transfer of STP covered wastes from treatability group LA-W929 to new treatability groups, and the deletion of some of these LA-W929 covered wastes. These proposed transfers and deletions are the result of Activities A-I currently listed in Section 3.4.2, *Sorting, Surveying and Decontamination*, in the Compliance Plan Volume of the Site Treatment Plan (STP). As a result of this revision, all 1,250 items in the original inventory of treatability group LA-W929, "Nonradioactive or suspect items to be surveyed," will be transferred to new treatability groups or deleted (see a summary of these proposed transfers and deletions in Table A-1).

The following portions of this enclosure follow the requirements of Section X.C.2, "Revisions," of the FFCO. Proposed STP text changes are provided in Enclosure C. The complete proposed CPV text is provided in hard copy form in Enclosure D and in the enclosed electronic copy.

Section X.C.2.a. Detailed description of the proposed revision. For the reasons given in the following paragraphs, in Revision 4.0, DOE and UC are proposing to revise the Compliance Plan Volume (CPV) language as follows:

- To transfer the referenced LA-W929 items to other treatability groups (which involves creation of two new treatability groups);
 - To delete covered waste items in treatability group LA-W929 that have been determined to be missing or nonexistent; and
 - To change the treatability group name for MWIR ID no. LA-W923, as discussed below.
1. **Transfer of the referenced LA-W929 items to treatability groups.** Most of the LA-W929 items are proposed to be transferred to other existing treatability groups (see Table A-1). DOE and UC propose that all SSD items being transferred to other existing treatability groups (TGs) will be treated according to the Compliance Dates already existing for those TGs. In addition, two new treatability groups are deemed necessary to accommodate some of the LA-W929 waste items, and DOE and UC propose to establish Activities and Compliance Dates for the new treatability groups. The new TGs are proposed to be added to CPV Section 3.3, "Mixed Waste Requiring Further Characterization or for Which Technology Assessment Has Not Been Done." Since all 1,250 items from the original SSD subgroups 1, 2, and 3 are herein being reassigned to other TGs (including the new TGs), or deleted, **the three subgroups of LA-W929 will no longer contain any of the original waste items under the approved revision** (NOTE: *an item entered the covered waste inventory during FY95; and it is being added to LA-W929 as part of Rev. 5.0 [see Enclosures B and C], and thus LA-W929 will require new Compliance Dates[see Enclosure C]*).
 2. **Deletion of missing or nonexistent covered waste items.** DOE and UC are also proposing to revise the CPV language to delete 41 covered waste items in treatability group LA-W929 listed in Table A-1 that have been determined to be missing or nonexistent. LANL's management strategy for addressing missing or nonexistent items is discussed in new text proposed for addition to CPV Section 2, as new Section 2.2 (see proposed STP text provided in Enclosure C). (NOTE: *the 13 treated items listed in Table A-1 are being deleted as part of Rev. 5.0 [see Enclosures B and C]*).
 3. **Change of treatability group name for MWIR ID no. LA-W923.** DOE and UC identified that eleven of the SSD mixed waste items are liquid oxidizers. It is requested that the treatability group name for MWIR ID no. LA-W923 be changed to "Liquid and solid oxidizers," as shown in Enclosure



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C, and that the eleven SSD items be added to this treatability group.

Background of the SSD Project. The SSD activity consisted originally of an on-site field operation to survey waste suspected of radioactive contamination to determine definitively whether it is radioactively contaminated, using equipment and staffing provided by another DOE site, namely the Grand Junction Project Office (GJPO). The October 4, 1995 STP required that DOE and UC "complete [a] survey" (of the 1250 "nonradioactive or suspect waste items to be surveyed") by 10/30/96. The Background Volume (BV), Section 3.4.1, page 43, provides a discussion of the basis and need for the SSD project, as well as a brief description of the process that was followed to 10/30/96.

Wastes undergoing the SSD process were expected to fall into one of two categories:

- If determined not to be radioactively contaminated, they are planned to be released for treatment to permitted commercial hazardous waste facilities;
- If confirmed to be mixed low-level wastes (MLLW), they would necessarily remain in the STP inventory.

Implicit but not stated in the October 4, 1995 STP language were two assumptions. The first assumption was that SSD wastes in the first category (items determined not to be radioactively contaminated) would be removed from the STP inventory using the process of Section V.B, "Covered Matters," in the FFCO, prior to treatment and/or disposal as nonradioactive hazardous waste (this survey was not intended to provide data applicable to determining whether any of these wastes may be nonhazardous low-level waste). The second assumption was that new treatment milestones must be proposed for SSD wastes in the second category (items that remained in the STP inventory), in accordance with the requirements of Section X.C.2, "Revisions," of the FFCO.

In either case, for many of these waste items, further activities were required to characterize the wastes sufficiently to verify appropriate treatment/disposal options. Often, further characterization was expected to be necessary to meet the waste acceptance criteria of a specific off-site treatment facility. However, neither the activities nor timetables for these activities were specified in the October 4, 1995 STP.

Wastes required to undergo SSD were placed in MWIR ID LA-W929, which originally consisted of 1250 items packaged in some 495 containers, having a total estimated volume of 14.24 m3. GJPO's field procedure involved visual inspection; radiological surveys using field survey instruments; repackaging of items into new outer containers if necessary; and the taking of confirmatory samples for radiological analysis off-site. These activities were conducted on approximately 1049 of the 1250 waste items (i.e., 84 percent of the SSD total) prior to October 30, 1996.

To facilitate the identification of appropriate treatment technologies, the assignment of waste items to applicable treatability groups, and/or the expeditious shipment of the items to appropriate MLLW treatment/disposal facilities, full sampling and characterization for RCRA and radiological constituents was conducted on the remaining items in SSD subgroup 2. The field survey activity included RCRA as well as radiological characterization of these items.

DOE and UC found that the unsampled waste items in SSD subgroup 3 (such as lead-acid batteries with potential internal radioactive contamination) were not amenable to sampling using currently approved field methods. DOE and UC conducted visual verification of all containers holding these items, to confirm the available information on those that cannot be sampled.

STP Amendment 1.0 provided for this field survey/sampling work to be performed on subgroups 2 and 3 of these SSD items. This work was completed for SSD subgroups 2 and 3 on January 28, 1997, as

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described in our February 11, 1997 notification letter to NMED. As further stated in that letter, three of the original SSD subgroup 3 items were moved to SSD subgroup 2 and sampled for RCRA characterization.

In verifying completion of the SSD subgroups 2 and 3 activities, however, it was discovered that between ten and fifteen percent of the 1,049 SSD subgroup 1 items had been incorrectly counted as completed prior to the October 30, 1996 due date for Activity A, as stated in our February 11, 1997 correction letter. Also, as stated in the February 11, 1997 notification letter, of the 162 items assigned originally to SSD subgroup 2, 82 were moved to SSD subgroup 3 and visually inspected. Assignments to new treatability groups in Table A-1 were completed for all these items by reviewing and verifying (to the extent possible) existing data.

Additional Treatability Groups. DOE and UC determined, during reviews of the data for the 1250 SSD waste items, that in a number of instances waste items did not fit appropriately into the existing treatability groups. DOE and UC therefore propose two new treatability groups be added to address such items - "*Labpacks*," and "*Explosives*."

Section X.C.2.b. Rationale for the proposed revision. DOE and UC have the following reasons for requesting this revision. First, FFCO Section VIII requires that waste additions follow the revision requirements specified in Section X.B. Although some of the volume increases associated with the LA-W929 waste transfers would be exempt from the revision requirements of FFCO Section X (because individually they fall below the threshold established in FFCO Section X.B.4, as amended [i.e., an increase of less than 10% of the TG volume, or an increase of less than 1 cu. m.]), the total volume of wastes being transferred, and total number of transfers, are significant enough to require revision of the STP.

Second, at the time of development of the SSD project, commercial and non-commercial treatment capabilities for MLLW were lacking. It was believed that many of the STP wastes, if verified to be nonradioactive, could be treated cost-effectively using commercial hazardous waste treatment facilities, provided it could be clearly determined that they need not be managed as radioactive waste. This involves both approval by NMED via the FFCO Section V.B process, and a detailed internal evaluation by DOE, before a waste package is allowed to be released from the site for management as nonradioactive material. Since the SSD process was developed, however, commercial and non-commercial treatment capacity for MLLW has expanded significantly.

Third, regarding nonradioactive determinations using the FFCO Section V.B process, part of GJPO's field procedure involved the taking of confirmatory samples, which were sent off-site to be analyzed at GJPO's laboratories. DOE and UC are still in the process of receiving and reviewing these analytical reports for many of the waste items field surveyed by GJPO for radioactivity. This is a lengthy process involving the preparation, review, and approval of detailed analytical and quality assurance data. DOE and UC believe it is not cost-effective to complete this review process simply to declare some of these waste items non-radioactive, even if so indicated by the analytical results.

Our operational experience with the field survey activities has indicated that the treatment and disposal of this nonradioactive or suspect radioactive waste as MLLW is more conservative, efficient, and cost effective than performing field survey activities for the sole purpose of declaring waste as non-radioactive, and undergoing additional characterization and detailed analyses to verify the nonradioactive status of a waste item. Therefore, at this time, DOE and UC intend to pursue treatment and disposal of the 1250 SSD waste items as MLLW, even though analytical results might allow some of them to be shipped offsite as nonradioactive hazardous waste upon NMED approval.

As of this writing,, this management approach includes items identified as "Empty" in our February 11, 1997 notification letter. In such cases, waste materials were not present, but the item's container may not

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yet be determined to meet the definition of "RCRA empty." They must be either so identified, or will be disposed as MLLW. Therefore, such items will be maintained in the applicable treatability groups at this time.

In summary, all of the 1250 items, except for the 41 missing items proposed for deletion, will continue to be managed as MLLW at this time, and are being assigned to other treatability groups (as indicated in Table A-1) based on existing data, records, and knowledge of process (for instance, the lead-acid batteries would be assigned to a treatability group for macroencapsulation). They will be sent off-site to appropriate treatment facilities, when the available waste characterization data for the items is sufficient for shipment to the treatment facility and for ensuring compliance with RCRA land disposal restrictions requirements. The management approach for deletion of missing items is discussed below.

Revision 3.0 to CPV Section 3.4.2 stated that SSD wastes may either be assigned to applicable treatability groups, sent to off-site facilities for appropriate treatment, or both. All LA-W929 items being transferred to other treatability groups will continue to be managed as mixed low-level waste. DOE and UC believe the available information is sufficient to support the treatability assignments given in table A-1.

• Rationale for the Additional Treatability Groups.

Explosives (proposed ID no. LA-W932). DOE and UC identified one mixed waste item during the SSD sampling and visual inspections, a stable explosive waste, which did not fit appropriately into the existing treatability groups, and which does not currently have a treatment pathway identified in the STP. Typically, all explosive wastes generated at LANL are managed at its existing explosives research and development facilities. Explosive wastes may not be released from these facilities for transfer to other LANL sites, including TA-54, or off-site, until the explosive components have been deactivated in accordance with methods approved by DOE and NMED. DOE and UC therefore propose a new treatability group be added to CPV Section 3.3 to address such waste items, called "*Explosives*."

LANL's experience in managing similar non-radioactive hazardous wastes is that currently there are few commercial hazardous waste management facilities available to manage such wastes, and no known commercial capability for explosive-containing mixed waste. On-site methods and typical industry approaches would include incineration, other thermal treatment methods, or some type of chemical deactivation. Incineration or other thermal methods ensure appropriate treatment of any other regulated organic constituents that might be present in the material, even if present only in nonregulated trace amounts. New technologies are currently being investigated that may offer alternatives to incineration/thermal/chemical treatment. DOE and UC may elect to pursue an on-site treatment approach, if no off-site alternatives become available. It is thus recommended that a specific technology should not be assigned to this TG at this time.

Labpacks (proposed ID no. LA-W933). Typically the affected wastes are small-volume, solid waste items containing metals, often commercial laboratory chemicals such as cadmium chloride (D006), chromium oxide (D007), vanadium pentoxide (P120), or thallium chloride (U216). These chemicals are typically managed in labpacks, and did not meet the definition of debris. However, the only treatability groups for MLLW solids currently in the STP are "*Combustible Debris*" (MWIR LA-W912) and "*Non-Combustible Solids*" (MWIR LA-W922), which do not appropriately address such waste items. DOE and UC therefore propose a new treatability group be added to address such non-debris solids, and certain other labpacked items not fitting clearly into other existing treatability groups, called "*Labpacks*" (proposed new MWIR LA-W933).

LANL's experience in managing similar non-radioactive hazardous wastes is that current management practices in the commercial hazardous waste management industry frequently involve stabilization as the

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final treatment step to meet RCRA land disposal restriction requirements. However, the typical pretreatment is incineration of the full, unopened labpacks, because of the cost and safety issues that would be involved if the labpacks were to be opened, managed, and sorted prior to stabilization. In addition, incineration ensures appropriate treatment of any regulated organic constituents that might be present in the labpacked material, even if present in nonregulated trace amounts. LANL is aware that many new technologies are currently being investigated that offer alternatives to the incineration/stabilization treatment train, including vitrification, molten metal processes, and other methods. It is thus recommended that a specific technology should not be assigned to this TG at this time.

Compliance Dates. DOE and UC propose that these new TGs, "Labpacks" and "Explosives," be added to CPV Section 3.3, "Mixed Waste Requiring Further Characterization or for Which Technology Assessment Has Not Been Done" (MWIR Treatment ID LA-S701), and that the Activities and Compliance Dates applicable to "Labpacks" and "Explosives" would be existing Activities C, D, E, and F in CPV Section 3.3. (NOTE: New Compliance Dates for CPV Section 3.4.2 are required for the item newly being added to LA-W929 as part of Rev. 5.0. They are being proposed as part of Rev. 5.0 [see Enclosures B and C]).

• **Rationale for Deletion of "Missing" LA-W929 Items.**

During the visual inspections and sampling activities of the SSD field effort, forty-one (41) of the 1250 SSD items were not found, or were not located in the containers they were expected to be in according to the LANL data files for those waste items. DOE and UC, and their contractors, performed a thorough inspection of the SSD containers for subgroups 2 and 3; however, these investigations did not turn up the missing items. It is believed that one or more of the following explanations applies to each of the 41 missing items.

- In some instances, the item could not be verified as having ever been received in storage at LANL. In these cases, it is believed that the generator had submitted paperwork to TA-54, requesting pick-up of certain waste items, in anticipation that they would be generated by the pickup date. For various reasons, they were never in fact generated. However, based on the submitted paperwork, the items still were included in the original STP inventory because of the timing of the original data call (i.e., the original STP data call included all MLLW items present [or expected to be present] in the TA-54 MLLW storage area on a certain date. Thus, some items awaiting pickup were included in the STP inventory data call because their pickup requests had already been entered into LANL's data system). Diligent searches of the paper records and discussions with the waste generator did not yield convincing evidence that these items, although referenced on paper, ever in fact existed.

How this
been verified
by the generator
or in it for
long ago

- In some instances, the waste description in the LANL database disagreed with reality, particularly for some of the older containers received into storage at TA-54 before paperwork and database requirements were standardized. For example, some containers listed as containing a certain number of waste items may have in actuality contained more or fewer items than were specified (e.g., a drum listed as containing three SSD items only held two of the specified items. The third expected item was absent entirely, or the container might have held an entirely different third item that was not specified in the records).

- In some instances, when a drum (e.g., a labpack container) was opened for visual inspection, an expected SSD item was missing, but broken glass was discovered in the bottom of the drum, sometimes in the presence of discolored sorbent material. This indicated that the missing waste item may have been a glass bottle that broke inside the labpack container sometime during its life in storage, or during transportation to the storage facility. Either the wastes were still contained in the sorbent material, or in some cases, they may have escaped through volatilization over time and

Force
Should we
not delete
but create another
category (not treatment)
just for those items
please let me
know! Thanks

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could not be retrieved by the survey team.

DOE and UC are hereby requesting the deletion of these 41 missing SSD items from the STP (see Table A-1). We believe the available information is sufficient to support their deletion. Individual deletions are called out in the CPV text, in each TG where they occur (see Enclosures C and D), and in the summary table proposed for addition as an appendix to the CPV (see Enclosures B and C).

DOE and UC propose to adopt the following management approach regarding missing or nonexistent items identified now and in the future. DOE and UC will re-verify the absence of missing items container-by-container, as each STP waste item is being sampled, repackaged, or otherwise prepared for on- or off-site treatment. Therefore, the final verification that all "*Missing*" items are in fact nonexistent will be completed by April 21, 2004, at which time all remaining MLLW items in the original STP inventory will have been treated. At any time during the re-verification process, should any of these "*Missing*" items be discovered to exist, NMED will be notified, and approval will be requested for assignment of any rediscovered items to the appropriate TG. If necessary, new Activities and Compliance Dates will be assigned. DOE and UC are hereby requesting to add a synopsis of this management approach in CPV Section 2 (see Enclosures C and D).

Section X.C.2.c. Anticipated length of any delay in performance. Sampling and/or field survey work corresponding to the SSD field survey requirements of Activities A, D, and G, and sufficient to support the treatability group assignments, has been completed. Expeditious review of this revision is requested, so that DOE and UC can commence shipment of some of these wastes to off-site treatment facilities as soon as possible.

Section X.C.2.d. Plan and schedule for implementing all reasonable measures. We request that NMED advise DOE and UC expeditiously if NMED will require any additional information regarding CPV Section 3.4.2, or these wastes.

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TABLE A-1
PROPOSED TREATABILITY GROUP ASSIGNMENTS FOR LA-W929 SSD ITEMS
New/modified treatability groups are shown in *italics*

Treatability group	MWIR waste ID	RCRA codes	Number of items	Net volume (m ³)
aqueous organic liquids	LA-W906	D008 D010 D022 D027 D028 D030 D032 D033 D034 D037 D041 D042 D043 F001 F002 F003 F005 U002 U003 U154	27	0.36
halogenated organic liquids	LA-W907	D001 D002 D004 D007 D018 D019 D022 D039 F002 F003 F005 U022 U044 U045 U077 U080 U188 U210 U211 U225 U226 U227 U228	97	1.05
non-halogenated organic liquids	LA-W908	D001 D002 D003 D004 D005 D007 D008 D009 D011 D018 D030 D035 D043 F003 F005 U002 U003 U012 U019 U052 U056 U057 U080 U117 U122 U140 U154 U159 U213 U226 U239 U359	409	3.38
bulk oils	LA-W909	F001 D001	8	1.48
organic-contaminated combustible solids	LA-W911	D001 D003 D004 D018 D022 D038 F001 F002 F003 F005 U165	33	0.68
combustible debris	LA-W912	D001 D002 D003 D008 D011 F002	9	0.75
aqueous waste with heavy metals	LA-W913	D001 D002 D003 D004 D005 D006 D007 D008 D009 D010 D011 F001 F003 F005	25	0.40
corrosive solutions	LA-W914	D001 D002 D003 D005 D009 D010 D011 U133 U134	90	0.36
aqueous cyanides, nitrates, chromates, and arsenates	LA-W915	D001 D002 D003 D007 D009	3	0.002
water reactive wastes	LA-W916	D001 D003 D005 F002	26	0.31

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TABLE A-1 (continued)
PROPOSED TREATABILITY GROUP ASSIGNMENTS FOR LA-W929 SSD ITEMS
New/modified treatability groups are shown in *italics*

Treatability group	MWIR waste ID	RCRA codes	Number of items	Net volume (m³)
compressed gases requiring oxidation	LA-W918	D001 D003 D007 F002 F003 P056 P056 U029 U075 U121 U226 U227 U228	168	1.23
organic-contaminated non-combustible solids	LA-W919	D001 F001 F002 F003 F005	9	0.38
elemental mercury	LA-W920	D009 U151	20	0.02
non-combustible debris	LA-W922	D002 D003 D004 D006 D007 D008 D009 D010 D011	53	2.83
mercury wastes - TBD	LA-W925	D001 D002 D003 D009 P030	37	0.42
<i>explosives</i>	<i>LA-W932</i>	<i>D003</i>	<i>1</i>	<i>0.000001</i>
<i>lab packs</i>	<i>LA-W933</i>	<i>D001 D002 D003 D004 D005 D006 D007 D008 D010 D011 P012 P029 P098 P106 P113 P120 U131 U144 U145 U188 U190 U204 U216 U219</i>	<i>114</i>	<i>0.17</i>
<i>liquid and solid oxidizers</i>	<i>LA-W923</i>	<i>D001 D003 D005 D007 D011 U160</i>	<i>67</i>	<i>0.145</i>
<i>Missing</i>	N/A <i>(Proposed for deletion in Rev. 4.0)</i>	D001 D002 D003 D007 D008 D010 D035 U220 U226	41	0.26
<i>Treated</i>	N/A <i>(Proposed for deletion in Rev. 5.0)</i>	D001 D002 D004 D005 D006 D007 D008 D009 D010 D011 F003	13	0.01
Totals			1250	14.24

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ENCLOSURE B

LANL STP PROPOSED REVISION 5.0
COMPLIANCE PLAN VOLUME (CPV) COVERED WASTE INVENTORY, LOS ALAMOS
NATIONAL LABORATORY (LANL) FEDERAL FACILITY COMPLIANCE ORDER (FFCO)

The purpose of this revision is to incorporate changes (additions and deletions) to the covered waste inventory that occurred since the original STP inventory was established in the October 4, 1995 FFCO through the end of FY96. Changes occurring through the end of FY95 were presented in the *FY95 Update*, and changes occurring during FY96 were presented in the *FY96 Update*. Mixed waste that was generated in FY96 was not included in the *FY96 Update*, or this revision, because it is not a covered waste under the FFCO until it no longer complies with the LDR 1-year storage limitation. Additionally, in this revision, DOE and UC are requesting to formally incorporate deletion of one missing LA-W904 item (even though its status was verified after the end of FY96), and to formally incorporate "(a) schedule for development of lead processing techniques and options" into Section 3.4.1 of the CPV.

The result of this revision will be to make the mixed low-level waste covered waste inventories in the Compliance Plan Volume current as of the end of FY96 (with exceptions as noted herein). DOE and UC intend hereafter to update these inventories annually, by a revision request to be submitted simultaneously with our *Annual Update*. The following portions of this enclosure follow the requirements of Section X.C.2, "Revisions," of the FFCO. Proposed STP text changes are provided in Enclosure C.

Section X.C.2.a. Detailed description of the proposed revision. For the reasons given in the following paragraphs, DOE and UC are proposing to revise the Compliance Plan Volume language to incorporate the following:

- Changes in mixed low-level waste (MLLW) covered waste inventories (additions and deletions) that have been reported since the FFCO was issued in October 4, 1995, up through the end of FY95, as reported in the *FY95 STP Annual Update*;
- Changes in MLLW covered waste inventories (additions and deletions) during FY96, discussed in the *FY96 STP Annual Update*;
- Deletion of one missing LA-W904 item, and
- "(A) schedule for development of lead processing techniques and options." DOE and UC were required to incorporate this schedule into Section 3.4.1 on page 15 of the Compliance Plan Volume for those lead shapes and forms in the treatability group MWIR ID LA-W930 found to be "not amenable to processing using the lead decontamination trailer." The schedule was originally submitted to NMED prior to June 30, 1996, but NMED informed LANL on February 25, 1997 that the schedule must be added to the CPV as part of a formal revision.

These changes will allow the additional covered wastes to be treated or otherwise managed in accordance with the Activities and Compliance Dates pertaining to each treatability group. The text changes are summarized in Enclosure C. The complete proposed CPV text is provided in hard copy form in Enclosure D and in the enclosed electronic copy.

Background

The CPV inventory presented in the original STP (October 4, 1995) was for MLLW in storage before October 1, 1994, regardless of its time of generation or its state of compliance with the Land Disposal

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Restrictions (LDRs) storage requirements. In addition, some wastes reported in the *FY95 Update* were in the LANL mixed waste inventory at that time, but inadvertently had been omitted from the final STP inventory. All such untreated waste now meets the definition of "covered waste" in the FFCO.

Because other documents published by the DOE require different reporting parameters and periods, the volumes of covered waste reported in the *FY 95 and FY96 Update* may not be the same as the volumes of LANL's mixed waste reported in other documents, such as the "1995 Hazardous Waste Report for Los Alamos National Laboratory, Volumes I and II," (LANL's Biennial Report) and the *DOE Transuranic Waste Baseline Inventory Report* (TWBIR or BIRD).

Proposed CPV Appendix A. DOE and UC propose adding a summary table as Appendix A to the CPV, summarizing all changes to LANL's covered MLLW Inventory. The STP Inventory Update Summary Tables in the LANL FY96 STP *Annual Update* presented a summary of changes in volumes of LANL STP covered waste streams by treatability groups, for mixed low-level waste (MLLW) and mixed transuranic (MTRU) waste, respectively. Proposed CPV Appendix A (see Enclosures C and D) incorporates all volume changes included in this consolidated revision request - those due to transfers of LA-W929 waste in Rev. 4.0 (summarized in Enclosure A, Table A-1), as well as those due to all changes addressed in Rev. 5.0 (the changes in the MLLW covered waste inventory occurring during or before FY95, and during FY96, as given in the STP Inventory Update Summary Tables). The volumes given in the proposed CPV Appendix A table reflect changes to the individual MLLW treatability group volumes due to increases or decreases, as noted.

This Appendix will provide a master list of MLLW inventory changes presented in the FY95 and FY96 *Annual Updates* (as amended herein), and future *Annual Updates*, to enable users of the STP to track all changes in the LANL MLLW covered waste inventory that occurred since the original STP inventory was established in the October 4, 1995 FFCO.

As stated previously, mixed waste that was generated in FY96 is not reported in this Revision 5.0 request, because it was not a covered waste subject to the FFCO as of September 30, 1996. Likewise, mixed waste that became STP covered waste after September 30, 1996 is not reported; this will be done in the FY97 STP *Annual Update* and corresponding subsequent revision request.

In general, , as discussed in the FY95 and FY96 *Annual Updates*, increases since the original STP inventory was established may be attributed to:

- addition of waste that became covered waste since preparing the Mixed Waste Inventory Report ([MWIR], which served as the basis for the covered waste inventories reported in the original STP);
- reassignment of covered waste from one existing treatability group to another existing treatability group (see Rev. 4.0 in Enclosure A), based on LANL's ongoing reevaluation of new or existing data;
- correction of inaccurate volume information;
- addition of waste in inventory before October 1, 1995, that was inadvertently omitted from the original STP inventory; or
- addition of waste that became covered waste during FY95 or FY96.

In general, as discussed in the FY95 and FY96 *Annual Updates*, decreases since the original STP inventory was established may be attributed to:

- shipment of waste to an off-site facility for treatment;
- treatment of waste in a treatability study;
- other compliant management activity, such as recycling;
- reassignment of covered waste to another existing treatability group, based on reevaluating the new or

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- existing data (see Rev. 4.0, Enclosure A);
- correction of inaccurate volume information;
- deletion of covered waste that was verified to be missing or nonexistent (see discussion in Enclosure A and below);
- removal of waste from the inventory prior to the issuance of the FFCO, based on the reasons noted in the *Annual Update* tables; or
- reclassification of waste as either hazardous waste or LLW based on new or existing data (e.g., Rev. 2.0).

Section X.C.2.b. Rationale for the proposed revision. DOE and UC have the following reasons for requesting this revision. In the transmittal letter for the FY95 *Annual Update*, DOE and UC committed to submitting a revision for the CPV inventory corrections reported in the FY95 *Annual Update*; however, NMED then requested clarifications related to the FY95 *Annual Update* volume information, which are still being addressed as of this writing. Therefore, the corresponding revision had not heretofore been submitted for NMED's approval.

FFCO Section VIII requires that all additions of waste to the CPV inventory follow the revision requirements specified in FFCO Section X.B. Although, individually, some of the volume increases associated with the LA-W929 waste transfers in Rev. 4.0 would be exempt from the revision requirements of FFCO Section X (because individually they fall below the threshold established in FFCO Section X.B.4, as amended [i.e., an increase of less than 10% of the TG volume, or an increase of less than 1 cu. m.]), the entire group of waste transfers, additions, and deletions is being addressed here as a revision. As stated above, the result of this revision will be to make the mixed low-level waste covered waste inventories in the Compliance Plan Volume current as of the end of FY96 (with exceptions as noted herein). DOE and UC intend hereafter to update these inventories annually, by a revision request to be submitted simultaneously with our *Annual Update*.

Wastes were tentatively assigned to appropriate treatability groups in the FY95 and FY96 *Annual Updates*. In some instances, the wastes being added to some treatability groups bear additional EPA hazardous waste codes in addition to those given in the current CPV text; these will be noted where applicable in the proposed revision text.

Additionally, in this revision, DOE and UC are requesting to formally incorporate deletion of one missing LA-W904 item (even though its status was verified after the end of FY96) in the CPV, and to formally incorporate "(a) schedule for development of lead processing techniques and options" into Section 3.4.1 of the CPV. These changes are discussed in the following subsections.

- **Rationale for Changes to MLLW Inventory.**

The increases in covered waste inventory that have occurred between October 4, 1995 and the end of FY96 are attributable primarily to additions of waste to inventory before October 1, 1995, that were inadvertently omitted from the original STP inventory; or additions of waste that became covered waste during FY95 or FY96. The decreases reflect the treatment and disposal of covered waste inventory at off-site commercial and off-site DOE facilities during FY95 and FY96, and the treatment of covered wastes in on-site and off-site treatability studies during FY95 and FY96. In addition, a small volume of waste treated in an on-site treatability study during FY95 is reflected as a FY96 decrease, because it was inadvertently omitted from the March 1996 FY95 *Annual Update*.

Subgroups. It is proposed that the newly added covered waste volumes be listed as separate subgroups within each treatability group having volume increases, as shown in proposed Appendix A. Subgroups are

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identified according to the Revision in which they were first authorized (i.e., LA-W901-0 represents the original STP inventory in LA-W901; LA-W901-5 represents the covered waste newly added in Rev. 5; and so forth). All changes in the LANL covered waste inventory that occurred since the original STP inventory was established will be shown in proposed Appendix A. This will enable users of the STP to track work-off of each TG and subgroup over time. The separate TG subgroups corresponding to newly added wastes will be listed in the CPV text **only in those cases where additional Compliance Dates are being requested.**

It should be noted that the definition of "covered waste" in the FFCO does not depend on listing of a waste item in the CPV inventory, and that there is no specified time period in the FFCO for submitting this revision to NMED, except that a revision must be submitted within two *Annual Update* cycles. Therefore, DOE and UC disagree with the basis for the concerns raised in NMED's February 14, 1997 Letter of Violation. Nonetheless, DOE and UC are submitting this revision request to formally incorporate all covered waste volumes discussed in the FY95 and FY96 *Annual Updates* (i.e., all covered waste volumes identified from the date of issuance of the FFCO through the end of FY96) into the CPV inventory.

Compliance Dates. Except where otherwise noted, DOE and UC propose to manage wastes being newly added to an existing TG in accordance with Activities and Compliance Dates already existing in the CPV for that TG. New Compliance Dates are being requested **only in those cases where the additional covered wastes cannot be treated within the existing Compliance Dates specified for each treatability group** (e.g., in Section 3.4.2, only for the item being newly added to LA-W929).

In the latter cases, the additional Compliance Dates are intended only to apply to the newly added covered waste volume, which is listed as a separate subgroup of the treatability group having the volume increase. For example, new Compliance Dates for CPV Section 3.4.2 are required for the item newly being added to LA-W929 as part of this Rev. 5.0 (listed as TG subgroup LA-W929-5). They are being proposed as part of this Rev. 5.0.

- **Rationale for Deletion of "Missing" LA-W904 Item.**

DOE and UC are requesting the deletion of one (1) missing or nonexistent LA-W904 item from the STP as part of this revision, even though this "Missing" determination was made after the end of FY96. This is being done because deletion of this item must be completed prior to the December 29, 1997 amended Compliance Date for Activity 3.1.2B. We believe the available information is sufficient to support the deletion.

During the visual inspections and sampling activities of the MLLW work-off effort, this one LA-W904 item was not found, or was not located in the container it was expected to be in according to the LANL data files for the waste item. DOE and UC, and their contractors, performed a thorough inspection of the LA-W904 containers; however, these investigations did not turn up the missing item. Therefore, its deletion is requested.

As a general management approach, DOE and UC will re-verify the absence of all missing items container-by-container, as each STP waste item is being sampled, repackaged, or otherwise prepared for on- or off-site treatment. Therefore, the final verification that all "Missing" items are in fact nonexistent will be completed by April 21, 2004, at which time all remaining MLLW items in the original STP inventory will have been treated. At any time during the re-verification process, should any "Missing" item be discovered to exist, NMED will be notified, and approval will be requested for assignment of any rediscovered items to the appropriate TG. If necessary, new Activities and Compliance Dates will be assigned. DOE and UC are requesting to add a synopsis of this management approach for "Missing" items in CPV Section 2 (see Enclosures C and D).

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- **Rationale for Incorporation of Lead Processing Schedule.**

Development of this schedule (see Enclosures C and D), to be incorporated into CPV Section 3.4.1, was required by STP Activity 3.4.1A. The schedule was originally submitted to NMED June 26, 1996. This lead is mixed low-level waste contained in the treatability group "*lead for surface decontamination*," MWIR waste ID number LA-W930.

Section 3.4.1 of the LANL Site Treatment Plan discusses two categories of lead for decontamination in MWIR waste ID number LA-W930. The first is amenable to decontamination in the on-site lead decontamination trailer, which was designed to decontaminate simple lead shapes, such as lead bricks, of certain physical dimensions. Prior to the issuance of the FFCO and Site Treatment Plan, this trailer was used to successfully decontaminate over 140,000 pounds of lead in compliance with the Federal Facility Compliance Agreement milestone LD200. This effort included an extensive investigation of drum contents, with sorting as necessary, to locate lead bricks in legacy MLLW inventory. As a result, to the best of our knowledge, effectively all of the lead currently contained in this treatability group (MWIR waste ID number LA-W930) amenable to decontamination in the on-site lead decontamination trailer has been processed. Thus, this Revision seeks to eliminate the existing Activities B and C for lead in the first category.

The schedule offered in Enclosure C applies to the second category of lead only (i.e., lead which was not amenable to decontamination in the on-site trailer). It replaces the second Activity/Compliance Date table currently given in CPV Section 3.4.1, Rev. 1.0, 2.0, 3.0. The remaining lead will be processed using other on-site decontamination processes or commercially available lead decontamination services. Any lead not acceptable for on-site or off-site lead decontamination, plus any lead unsuccessfully decontaminated, will be designated for treatment by macroencapsulation and disposal at an off-site facility, or for recycle through an off-site capability (yet to be developed), such as metal melting to create shielding blocks or a DOE lead bank. Non-conforming items will be reassigned to appropriate treatability groups in accordance with the FFCO. Because of delays in formal approval of the schedule submitted to NMED on June 26, 1996, it has become necessary to modify the dates for proposed Activities 3.4.1 E and F from those originally submitted (see Enclosures C and D).

The schedule offered for lead not amenable to decontamination in the on-site trailer envisions a multi-step process to ensure as much of the lead as possible is recycled instead of treated and disposed. The first step involves the identification of the acceptance criteria for existing, proven commercial lead decontamination services. The lead waste was to be segregated and sorted into appropriate groupings (e.g., lead sheets, lead shot, lead shavings, lead pieces, lead pigs, etc.) and the volume and weight of each grouping will be measured. This activity (proposed Activity 3.4.1A for lead not amenable to decontamination in the on-site trailer) was in fact completed as of July 31, 1997. A Request for Proposal will be issued to solicit proposals from the various commercial lead decontamination services. After award of the contract(s) for lead decontamination services, the lead will be decontaminated and recycled.

Section X.C.2.c. Anticipated length of any delay in performance. First, to avoid delay, DOE and UC request expeditious consideration of this request. DOE and UC would like the opportunity to complete treatment of some of the additional covered MLLW discussed herein as soon as possible during FY98.

Second, the deletion of the one missing LA-W904 item addressed as part of this Rev. 5.0 request must be completed by December 29, 1997 if possible. Failure to delete this item by December 29, 1997 would constitute noncompliance with Activity 3.1.2B.

Third, please note that because of delays in formal approval of the schedule submitted to NMED on June

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26, 1996, it has become necessary to modify the dates for proposed Activities 3.4.1 E and F from those originally submitted (see Enclosures C and D).

Section X.C.2.d. Plan and schedule for implementing all reasonable measures... DOE and UC request that NMED inform us in writing immediately, should it be unable to approve this revision prior to the December 29, 1997 amended Compliance Date for Activity 3.1.2B, because the deletion of the one missing LA-W904 item is addressed as part of this Rev. 5.0 request. In order to avoid noncompliance with Activity 3.21.2B, DOE and UC would like the opportunity to further amend this Compliance Date for Activity 3.1.2B, if it becomes apparent that Rev. 5.0 approval may be delayed beyond December 29, 1997.

ENCLOSURE C
PROPOSED CPV REVISION TEXT
TEXT CHANGES IN CPV SECTIONS IN 2.0, 3.0, AND APPENDIX A
*(Clean copy format of text changes only; all changes are shown in context in the
full CPV text in Enclosure D)*

2.2 Management of "Missing" Items.

During visual inspections and sampling activities in support of STP waste work-off, occasionally an item cannot be found, or it is not located in the containers it is expected to be in according to the LANL data files for the waste item. In some instances, such items could not be verified as having ever been received in storage at LANL, and further follow-up investigations of the record files revealed that for various reasons, they were never in fact generated, although on paper they were included in the original STP inventory.

In these instances, DOE and UC, and their contractors, perform a thorough inspection of both the physical inventories and the data files. When DOE and UC determine that an STP covered waste item does not exist, deletion of the item is requested through the revision process associated with the next Annual Update.

DOE and UC will re-verify the absence of all "Missing" items container-by-container, as each STP waste item is being sampled, repackaged, or otherwise prepared for on- or off-site treatment. The final verification that all "Missing" items do not in fact exist will be completed by April 21, 2004, at which time all remaining MLLW items in the original STP inventory will have been treated. ~~At that time DOE and UC will request their deletion from the STP.~~ ^{the items will be deleted in accordance with the STP plan} At any time during the re-verification process, should any of these items be discovered to exist, NMED will be notified, and ~~approval will be requested for assignment of the rediscovered items to the appropriate TG.~~ ^{in accordance with the STP plan} If necessary, they will be assigned new Activities and Compliance Dates.

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3.0 MIXED LOW-LEVEL WASTE STREAMS

This section presents proposed schedules for treatment technologies and the preferred options to treat mixed low-level waste streams (MLLW or LLMW) at LANL. All preferred options not described below must be approved by NMED in accordance with the revision process pursuant to the Compliance Order.

The original October 4, 1995 STP inventory in each MLLW treatability group has been modified through the revision process in the FFCO. The original STP inventory in each MLLW treatability group is now denoted as subgroup 0 of that treatability group (e.g., original STP treatability group LA-W906 became LA-W906-0). The following revisions have affected volumes in individual treatability groups to date:

<u>Revision</u>	<u>Effect on Volumes</u>
Rev. 2.0	Reduced volume of LA-W928
Rev. 3.0	Divided original volume of LA-W929 into three subgroups
Rev. 4.0	Transferred original volume in three subgroups of LA-W929 to other treatability groups
Rev. 5.0	Added volumes to several treatability groups

Each revision that has since added volumes to individual treatability groups has resulted in creation of an additional subgroup, having the same number as the revision (e.g., LA-W906-4 was created in Revision 4.0, and LA-W906-5 was created in Revision 5.0).

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3.1.1 Off-Site Treatment by Thermal Treatment

Treatability Group(s):

LLMW for Thermal Treatment (MWIR Treatment ID DS-S001)

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Treatability Group	MWIR Waste ID	RCRA Codes	Number of items	Net volume (m ³)
IPA Wastes	LA-W901-5	D001, D009, F002, F003, F005	??	??
Totals			??	??

....

Activities for items added as subgroup 5 of this treatability group.

Activity	Compliance Dates
D. Complete shipping of wastes to an off-site treatment facility	12/30/98
E. Provide documentation to NMED that waste was received at off-site facility	Within 45 days of receipt of waste at off-site facility

3.1.2 Commercial Off-site Treatment by Stabilization or Macroencapsulation

Treatability Group(s):

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LLMW for Commercial Stabilization

Treatability Group	MWIR Waste ID	RCRA Codes	Number of items	Net volume (m ³)
Soil with Heavy Metals	LA-W904-5	D004, D005, D006, D007, D008, D009, D010, D011	1	0.11
Totals			1	0.11

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Activities for items added as subgroup 5 of this treatability group.

Activity	Compliance Dates
D. Complete shipping of wastes to an off-site treatment facility	09/30/99
E. Provide documentation to NMED that waste was received at off-site facility	Within 45 days of receipt of waste at off-site facility

3.2.1 Hydrothermal Processing

Treatability Group(s):

LLMW for Hydrothermal Processing /Off-site Treatment (preferred option)

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Treatability group	MWIR waste ID	RCRA Codes	Number of items	Net volume (m3)
Liquid and solid oxidizers	LA-W923	D001, D003, D005	122	0.345
Totals			122	0.345

.....

3.3 Mixed Waste Requiring Further Characterization or for Which Technology Assessment Has Not Been Done (MWIR Treatment ID LA-S701)

Treatability Group(s):

Treatability group	MWIR waste ID	RCRA Codes	Number of items	Net volume (m3)
lead wastes-TBD	LA-W924	D003, D008	186	51.44
mercury wastes-TBD	LA-W925	D007, D008, D009, F001	100	18.72
compressed gases-TBD	LA-W926	D001, D007, D009, D022, P056, U080, U226	10	1.25
biochemical laboratory wastes	LA-W927	D001, D003	9	1.34
dewatered treatment sludge	LA-W928	see Subsection 3.3 in the Background Volume	61	12.71
explosives	LA-W932	D003	1	0.000001

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Treatability Group(s):

Treatability group	MWIR waste ID	RCRA Codes	Number of items	Net volume (m3)
labpacks	LA-W933	D001 D002 D003 D004 D005 D006 D007 D008 D010 D011 P012 P029 P098 P106 P113 P120 U131 U144 U145 U188 U190 U204 U216 U219	114	0.17
Totals			481	85.63

3.4.1 Lead Decontamination (MWIR Treatment ID LA-S001)/On- or Off-site Treatment (preferred option)

Treatability Group(s):

Treatability group	MWIR waste ID	Net volume (m³)	Preferred option
lead for surface contamination	LA-W930	56.20	lead decontamination trailer
Totals		56.20	

Treatment Technology:

This treatability group contains two categories of lead for decontamination. The first is amenable to decontamination in the on-site lead decontamination trailer, which was designed to decontaminate simple lead shapes, such as lead bricks, of certain physical dimensions. The trailer is on-site and has operated, but needs an upgrade for prolonged operation. The remaining lead, in the second category (not amenable to decontamination in the on-site lead decontamination trailer), will be processed using other on-site decontamination processes or sent to off-site lead decontamination services. Any lead not acceptable for on-site or off-site lead decontamination, plus any lead unsuccessfully decontaminated, will be designated for treatment by macroencapsulation and disposal at an off-site facility, or for recycle through an off-site capability (yet to be developed), such as metal melting to create shielding blocks or a DOE lead bank. Non-conforming items will be reassigned to appropriate treatability groups in accordance with the FFCO.

Should DOE decide to treat waste at an off-site non-commercial facility in lieu of plans to treat such waste on-site, the DOE shall notify the NMED Project Manager in writing as soon as possible and in any event within fourteen (14) working days after confirmation of a shipment date with the affected off-site facility. The NMED Project Manager shall approve in writing the off-site non-commercial treatment option proposed by DOE prior to any shipment by DOE.

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Any and all requirements imposed by the off-site (commercial or non-commercial) treatment facility and state regulatory, federal regulatory or other regulatory requirements applicable at the treatment site shall be met by DOE. DOE will notify the NMED Project Manager in writing as soon as possible and in any event within forty-five (45) working days of receipt of waste at the treatment facility.

Lead shapes and forms processed using the decontamination trailer.

Activity	Compliance Date
A. Complete lead decontamination	09/30/97

Lead shapes and forms not amenable to processing using the decontamination trailer.

Activity	Compliance Date
A. Provide schedule for development of lead processing techniques and options	06/30/96
D. Segregate lead waste into decontamination groupings	07/31/97
E. Complete shipment of waste to decontamination operations, or	09/30/98
F. Determine treatment/disposal or other recycle options for lead waste not acceptable for decontamination	09/30/98
G. Complete treatment and disposal operations or other recycle operations	12/02/98
H. Provide documentation to NMED that waste was received at off-site facility	Within 45 days of receipt of waste at off-site facility

3.4.2 Sorting, Surveying, and Decontamination (MWIR Treatment ID GJ-S804)

Treatability Group(s):

Treatability group	MWIR waste ID	Number of items	Net volume (m3)
1. nonradioactive or suspect waste items to be surveyed	LA-W929-0(1)	0	0
2. nonradioactive or suspect waste items to receive RCRA and radiological characterization	LA-W929-0(2)	0	0
3. nonradioactive or suspect waste items that cannot or should not be sampled	LA-W929-0(3)	0	0
Totals		0	0.00

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Treatability group	MWIR waste ID	Number of items	Net volume (m3)
Nonradioactive or suspect waste items that cannot or should not be sampled	LA-W929-5	1	0.00002
Totals		1	0.00002

Activities for items added as subgroup 5 of this treatability group.

Activity	Compliance Dates
J. Submit documentation assigning waste items to applicable treatability groups or proposing off-site shipment dates	3/31/98
K. Propose additional Compliance Dates if necessary	3/31/98

CPV APPENDIX A SUMMARY OF CPV INVENTORY CHANGES

The following table provides a comprehensive summary of changes to the CPV covered waste inventories (additions, deletions, and shifts of waste between treatability groups) occurring as of the date of this revision. The volumes given in the table reflect changes to the individual MLLW treatability group volumes due to increases or decreases, as noted.

Key to Reading the Subgroups

The original October 4, 1995 STP inventory in each MLLW treatability group has been modified through the revision process in the FFCO. The original STP inventory in each MLLW treatability group is now denoted as subgroup 0 of that treatability group (e.g., original STP treatability group LA-W906 became LA-W906-0). The following revisions have affected volumes in individual treatability groups to date:

<u>Revision</u>	<u>Effect on Volumes</u>
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Rev. 5.0	Added volumes to several treatability groups

Each revision that has since added volumes to individual treatability groups has resulted in creation of an additional subgroup, having the same number as the revision (e.g., LA-W906-4 was created in Revision 4.0, and LA-W906-5 was created in Revision 5.0).

Additions and Deletions to Date

To date, MLLW inventory increases and decreases have been incorporated into the covered waste inventories through Revisions 2.0, 4.0, and 5.0. Revision 2.0 incorporated decreases in treatability group LA-W928 due to deletion of covered waste items. Rev. 4.0 resulted in decreases to LA-W929 and increases in other TGs, primarily by transferring LA-W929 items to other TGs. Rev. 5.0 resulted in both additions to and deletions of covered waste volumes (i.e., increases and decreases) in a number of TGs. Therefore, the Appendix A table that follows shows subgroups -4 and -5 for some treatability groups.

This Appendix provides a master list of MLLW inventory changes presented in the *Annual Updates*, to enable users of the STP to track all changes in the LANL MLLW covered waste inventory that occurred since the original STP inventory was established in the October 4, 1995 FFCO/CPV.