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Date: October 21, 2008
Refer To: ENV-RCRA-08-213

VIA HAND DELIVERY

Ms. Rebecca Kay
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building
Santa Fe, New Mexico 87505-6303

Dear Ms. Kay:

**SUBJECT: SUPPLEMENTAL INFORMATION ON PROPOSED EXTENSION THE
LOS ALAMOS NATIONAL LABORATORY SITE TREATMENT PLAN
(STP) FISCAL YEAR 2007 (FY07) UPDATE AND REVISION 18.0
COMPLIANCE DATES**

In a letter dated June 23, 2008, the National Nuclear Security Administration (NNSA)/Los Alamos National Security LLC (LANS) requested extensions from the New Mexico Environment Department (NMED) for milestone activity compliance dates in the Los Alamos National Laboratory (LANL) Fiscal Year 2007 (FY07) Revision 18 Site Treatment Plan (STP). Information supporting the proposed extensions was provided in a signed affidavit by Charles (Chris) Duy, in a table with information on each treatability group and copies of email correspondence between Mr. Duy and various treatment facility representatives. In past correspondence, NMED required that NNSA/LANS provide five items of information for any proposed milestone activity compliance date extension. The five items are:

- “A description of the waste in the treatability group(s);”
- “A list of the EPA hazardous waste numbers associated with those wastes;”
- “A description of the treatment processes required for the treatability group(s);”
- “A full list of all commercial facilities the Respondents contacted requesting treatment and acceptance of the treatability group(s);”
- “All correspondence, formal or otherwise, between the commercial facilities identified in item 4 above including the reasons for their denial of acceptance and treatment of the two treatability group(s).”



During an October 14, 2008 meeting between representatives of the NMED and LANS, NMED requested the information presented June 23, 2008 letter be reformatted and, where possible expanded, into narrative form organized by STP Compliance Plan Activity number. Accordingly, NNSA/LANS submits the following information for each STP Section milestone activity.

I.) Section 3.1.8 Compressed Gases Requiring Scrubbing, Treatability Group LA-W917

Activity 3.1.8 (A) "Complete shipping of existing wastes to an off-site treatment facility or complete parallel option". Current approved compliance date: 8/28/2008. Proposed Revision 18 compliance date: 8/28/2009.

1. Description of the waste in the treatability group:

Gas cylinders with internal radioactive contamination. Container number and volume (m³) currently in storage: C98100432, 0.0020; C98100433, 0.0030; C98100434, 0.0030.

2. List of the EPA hazardous waste numbers associated with the wastes
D001

3. Description of the treatment processes required for the treatability group:

Requires scrubbing or oxidation, reaction to strip and recycle tritium or other options.

4. Full list of all commercial facilities the Respondents contacted requesting treatment and acceptance of the treatability group:

- a) Permafrix of Florida (they also own the following TSDFs: M&EC in TN, DSSI in TN and PFNW in WA). Primary contacts are Stacey McNamara (865-599-0211) and Tammy Monday (865-813-1309).
- b) Waste Control Specialists (WCS), Texas. Primary contact is Sherrod Reavis (972-488-1495).
- c) Energy Solutions of Utah. Primary contact is Jose Jerez (801-243-3506).
- d) Bear Creek Operations in TN (now owned by Energy Solutions). Primary contact is now Jose Jerez (801-243-3506).
- e) Nuclear Fuel Services (NFS), TN. Primary contact is Norm Jacobs (423-743-2503).
- f) Lawrence Livermore (LLNL), CA. Primary contact is Charley Hunt (925-422-3813).
- g) Integrated Environmental Services (IES), TN. Primary contact is Jeff Gold (404-866-8175)
- h) NSSI, TK. Primary contact is Bob Gallagher (713-641-0391).
- i) Commercial and DCE facilities with previous successes treating LANL STP waste: WERF, IT Corp/TSCAI, LANL, ARS, CUA/VSL, CMRI/ADA, PEcoS.
- j) Commercial and DCE facilities contacted but unable so far to give more than advice: ORNL, NTS, Sandia, Hazen Research, StataG, Argonne/Chicago Office, Portsmouth DOE facility.

5. All correspondence, formal or otherwise, between the commercial facilities identified in item 4 above including the reasons for their denial of acceptance and treatment of the two treatability group.

- a) Permafrix of Florida. No written correspondence: telephone/personal contacts made by Chris Duy. Reason for declining to accept waste: Won't build a special facility or won't get necessary exceptions or changes to their RCRA Permit or NRC license.
- b) Waste Control Specialists (WCS), Texas. No written correspondence: telephone/personal

contacts made by Chris Duy. Reason for declining to accept waste: Won't build a special facility or won't get necessary exceptions or changes to their RCRA Permit or NRC license.

c) Energy Solutions of Utah. No written correspondence: telephone/personal contacts made by Chris Duy. Reason for declining to accept waste: Won't build a special facility or won't get necessary exceptions or changes to their RCRA Permit or NRC license.

d) Bear Creek Operations in TN. No written correspondence: telephone/personal contacts made by Chris Duy. New Part B Permit allows them to treat - developing process and costs for bid. Development of process could take 6 months to one year.

e) Nuclear Fuel Services (NFS), TN. No written correspondence: telephone/personal contacts made by Chris Duy. Not compatible with their NRC license or RCRA Permit.

f) Lawrence Livermore (LLNL), CA. Email correspondence dated 4-2-2008 from Charles Hunt. Unable to accept waste in 2008.

g) Integrated Environmental Services (IES), TN. No written correspondence: telephone/personal contacts made by Chris Duy. No Part B permit, but could do a treatability study - working through Permafrix.

h) NSSI, TX. Possible treatment/recycle options under discussion - contingent upon license and permit modifications. Audit and NNSA approval needed for exception to DOE 435.1.

Justification for extension of Activity 3.1.8 (A).

A disposal option had been developed with Lawrence Livermore National Laboratory in California (LLNL) who had planned to perform a treatability study on them and arrangements were in progress. Before they could be shipped, LLNL management stopped the project because their transition to a new Prime Contractor put all non-essential projects on hold. A new option was developed at Energy Solutions of Tennessee, but that shipment was also halted because of an accidental tritium release at their facility. It is hoped that Energy Solutions can accept the cylinders during FY09. Currently no permitted treatment facilities are available to accept the waste. NNSA/LANS will continue to seek treatment options. Until such a treatment option is secured, the only option is continued onsite storage of the waste. NNSA/LANS requests the activity date be extended to 8-28-2009.

II.) Section 3.1.9 Compressed Gases Requiring Oxidation. Treatability Group LA-W918

Activity 3.1.9 (A) "Complete shipping of existing wastes to an off-site treatment facility or complete parallel option". Current approved compliance date: 8/28/2008. Proposed Revision 18 compliance date: 8/28/2009.

1. Description of the waste in the treatability group:

Gas cylinders with internal radioactive contamination. Container number and volume (m³) currently in storage: C94042517, 0.0602.

2. List of the EPA hazardous waste numbers associated with the wastes
D001

3. Description of the treatment processes required for the treatability group:

Requires scrubbing or oxidation, reaction to strip and recycle tritium or other options.

4. Full list of all commercial facilities the Respondents contacted requesting treatment and

acceptance of the treatability group:

- a) Permafrix of Florida. Primary contacts are Stacey McNamara (865-599-0211) and Tammy Monday (865-813-1309).
- b) Waste Control Specialists (WCS), Texas. Primary contact is Sherrod Reavis (972-488-1495).
- c) Energy Solutions of Utah. Primary contact is Jose Jerez (801-243-3506).
- d) Bear Creek Operations in TN. Primary contact is now Jose Jerez (801-243-3506).
- e) Nuclear Fuel Services (NFS), TN. Primary contact is Norm Jacobs (423-743-2503).
- f) Lawrence Livermore (LLNL), CA. Primary contact is Charley Hunt (925-422-3813).
- g) Integrated Environmental Services (IES), TN. Primary contact is Jeff Gold (404-863-8175).
- h) NSSI, TX. Primary contact is Bob Gallagher (713-641-0391).
- i) Commercial and DOE facilities with previous successes treating LANL STP waste: WERF, IT Corp/TSCAI, LANL, ARS, CUA/VSL, CMRI/ADA, PEcoS.
- j) Commercial and DOE facilities contacted but unable so far to give more than advice: ORNL, NTS, Sandia, Hazen Research, StataG, Argonne/Chicago Office, Portsmouth DOE facility.

5. All correspondence, formal or otherwise, between the commercial facilities identified in item 4 above including the reasons for their denial of acceptance and treatment of the two treatability group.

- a) Permafrix of Florida. No written correspondence: telephone/personal contacts made by Chris Duy. Reason for declining to accept waste: Won't build a special facility or won't get necessary exceptions or changes to their RCRA Permit or NRC license.
- b) Waste Control Specialists (WCS), Texas. No written correspondence: telephone/personal contacts made by Chris Duy. Reason for declining to accept waste: Won't build a special facility or won't get necessary exceptions or changes to their RCRA Permit or NRC license.
- c) Energy Solutions of Utah. No written correspondence: telephone/personal contacts made by Chris Duy. Reason for declining to accept waste: Won't build a special facility or won't get necessary exceptions or changes to their RCRA Permit or NRC license.
- d) Bear Creek Operations in TN. No written correspondence: telephone/personal contacts made by Chris Duy. New Part B Permit allows them to treat - developing process and costs for bid. Development of process could take 6 months to one year.
- e) Nuclear Fuel Services (NFS), TN. No written correspondence: telephone/personal contacts made by Chris Duy. Not compatible with their NRC license or RCRA Permit.
- f) Lawrence Livermore (LLNL), CA. Email correspondence dated 4-2-2008 from Charles Hunt. Unable to accept waste in 2008.
- g) Integrated Environmental Services (IES), TN. No written correspondence: telephone/personal contacts made by Chris Duy. No Part B permit, but could do a treatability study - working through Permafrix.
- h) NSSI, TX. Possible treatment/recycle options under discussion - contingent upon license and permit modifications. Audit and NNSA approval needed for exception to DOE 435.1.

Justification for extension of Activity 3.1.9 (A).

A disposal option had been developed with Lawrence Livermore National Laboratory in California (LLNL). They had planned to perform a treatability study on them and arrangements were in progress. However, LLNL management stopped the project because their transition to a new Prime Contractor

put all non-essential projects on hold. A new option was developed at Energy Solutions of Tennessee, but that shipment was also halted because of an accidental tritium release at their facility. It is possible that Energy Solutions may be able to accept the cylinders during FY09, but this is not certain.

Currently no permitted treatment facilities are available to accept the waste. NNSA/LANS will continue to seek treatment options. Until such a treatment option is secured, NNSA/LANS only option is continued onsite storage. NNSA/LANS requests the activity date be extended to 8-28-2009.

III.) Section 3.2 Mixed Waste Requiring Further Characterization or for Which Technology Assessment Has Not Been Done. Treatability Group LA-W925

Activity 3.2 (J) "Complete shipping of existing wastes to an off-site treatment facility or complete parallel option". Current approved compliance date: 12/31/2008. Proposed Revision 18 compliance date: 12/31/2010.

1. Description of the waste in the treatability group:

Tritiated items with mercury contamination. Container number and volume (m³) currently in storage: 908448, 0.1136; 908476, 0.2082; 908477, 0.1136.

2. List of the EPA hazardous waste numbers associated with the wastes

D009

3. Description of the treatment processes required for the treatability group:

Requires disassembly, sorting of debris, removal and treatment of the mercury by amalgamation and stabilization, and macroencapsulation of the debris.

4. Full list of all commercial facilities the Respondents contacted requesting treatment and acceptance of the treatability group:

a) Permafrix of Florida (they also own the following TSDFs: M&EC in TN, DSSI in TN and PFNW in WA). Primary contacts are Stacey McNamara (865-597-0211) and Tammy Monday (865-813-1309).

b) Waste Control Specialists (WCS), Texas. Primary contact is Sherrod Reavis (972-488-1495).

c) Energy Solutions of Utah. Primary contact is Jose Jerez (801-243-3506).

d) Bear Creek Operations in TN (now owned by Energy Solutions). Primary contact is now Jose Jerez (801-243-3506).

e) Nuclear Fuel Services (NFS), TN. Primary contact is Norm Jacobs (423-743-2503)

f) Integrated Environmental Services (IES), TN. Primary contact is Jeff Gold (404-868-8175).

g) NSSL, TX. Primary contact is Bob Gallagher (713-641-0391)

h) Commercial and DOE facilities with previous successes treating LANL STP waste: WERF, IT Corp/TSCAI, LANL, ARS, CUA/VSL, CMRI/ADA, PEcoS.

i) Commercial and DOE facilities contacted but unable so far to give more than advice: ORNL, NTS, Sandia, Hazen Research, StataG, Argonne/Chicago Office, Portsmouth DOE facility.

5. All correspondence, formal or otherwise, between the commercial facilities identified in item 4 above including the reasons for their denial of acceptance and treatment of the two treatability group.

- a) Permafrix of Florida. No written correspondence: telephone/personal contacts made by Chris Duy. Reason for declining to accept waste: Recent bid of \$400,000, but cannot currently take waste because it is contingent upon facility modifications. Additionally, it is dependant on modification to Permafrix's RCRA Permit that could take until 2010 or later.
- b) Waste Control Specialists (WCS), Texas. No written correspondence: telephone/personal contacts made by Chris Duy. Reason for declining to accept waste: Will not take any non-routine items until done with their permitting process (Spring of 2010).
- c) Energy Solutions of Utah. No written correspondence: telephone/personal contacts made by Chris Duy. Reason for declining to accept waste: Requires further characterization.
- d) Bear Creek Operations in TN. No written correspondence: telephone/personal contacts made by Chris Duy. New Part B Permit allows them to treat - developing process and costs for bid. Development of process could take 6 months to one year.
- e) Nuclear Fuel Services (NFS), TN. No written correspondence: telephone/personal contacts made by Chris Duy. Will work with WCS to treat by DeMerc, when WCS can accept them (Spring of 2010).
- f) Lawrence Livermore (LLNL), CA. Not Permitted for treatment of hazardous waste.
- g) Integrated Environmental Services (IES), TN. No written correspondence: telephone/personal contacts made by Chris Duy. Reason for declining to accept waste: Won't build a special facility or won't get necessary exceptions or changes to their RCRA Permit or NRC license.
- h) NSSI, TX. Possible treatment/recycle options under discussion - contingent upon license and permit modifications. Audit and NNSA approval needed for exception to DOE 435.1.

Justification for extension of Activity 3.2 (A).

A disposal option may be available, but it would require Permafrix to make facility modification. This may also require the facility to seek modifications to their RCRA permit. It is anticipated that this may take until at least 2010 to complete. An alternative option is being developed, but requires further characterization and repackaging of the waste items. This could be accomplished but only if the repackaging is successful. NNSA/LANS may secure a treatment option for the waste at a permitted treatment facility in 2009. NNSA/LANS will continue to seek treatment options. Treatability group LA-W925 shares an activity compliance date with another difficult to treat waste in treatability group, LA-934.

Until a treatment option is secured, NNSA/LANS only option is continued onsite storage. NNSA/LANS requests the activity date be extended to 12-31-2010.

IV.) Section 3.2 Mixed Waste Requiring Further Characterization or for Which Technology Assessment Has Not Been Done. Treatability Group LA-W934

Activity 3.2 (J) "Complete shipping of existing wastes to an off-site treatment facility or complete parallel option". Current approved compliance date: 12/31/2008. Proposed Revision 18 compliance date: 12/31/2010.

1. Description of the waste in the treatability group:

Very high tritium with very reactive Lithium. Container number and volume (m³) currently in storage: C93033648, 0.1893; C00130818 0.0125; C00130819, 0.0100; C00130820, 0.0100; C00130821, 0.0100. **Tritium traps and tritiated squib assemblies** with very high tritium (up to 50,000 Curies - requires reacting and recapture or destruction of tritium. Transported by Road Closure - Not DOT shippable in current form.). C93033648, 0.1893; C00130818, 0.0125; C00130819, 0.0100; C00130820, 0.0100; C00130821, 0.0100. **Lead-lined Gloveboxes.** Container number and volume (m³) currently in storage: C01144644, 7.9000; C03158872, 7.0800; C03158895, 4.7578; C05179323 (stored at TA-55), 19.3900; **Portsmouth Debris.** C01136479, 0.2082; C01136480, 0.2082; C05180336, 0.2082; **Copper solder joints** C02151368, 0.2082; C01143673, 0.2082.

2. List of the EPA hazardous waste numbers associated with the wastes
D001, D003, D004, D008, D009

3. Description of the treatment processes required for the treatability group:

Very high tritium with very reactive Lithium (requires sorting, reacting of LiH, recapture and recycle of tritium, or other options.) Tritium traps and tritiated squib assemblies with very high tritium (up to 50,000 Curies - requires reacting and recapture or destruction of tritium. Transported by Road Closure - Not Department of Transportation (DOT) shippable in current form.) Lead-lined Gloveboxes (Possibly TRU when lead is removed - requires decontamination of Plutonium, shredding of metal or stripping of lead for macroencapsulation.) Many of these coming over next few years. Portsmouth Debris (requires sorting, stabilization of the special nuclear material (SNM) and Technetium 99, and micro or macroencapsulation of the solids.) Copper solder joints, could be segregated at LANL or shipped to Bear Creek (requires sorting of high Plutonium items for WIPP and low items for macroencapsulation at Energy Solutions).

4. Full list of all commercial facilities the Respondents contacted requesting treatment and acceptance of the treatability group:

- a) Permafix of Florida. Primary contacts are Stacey McNamara (865-599-0211) and Tammy Monday (865-813-1309).
- b) Waste Control Specialists (WCS), Texas. Primary contact is Sherrod Reavis (972-488-1495).
- c) Energy Solutions of Utah. Primary contact is Jose Jerez (801-243-3506).
- d) Bear Creek Operations in TN. Primary contact is now Jose Jerez (801-243-3506).
- e) Nuclear Fuel Services (NFS) TN. Primary contact is Norm Jacobs (423-743-2503)
- f) Lawrence Livermore (LLNL), CA. Primary contact is Charley Hunt (925-422-3813).
- g) Integrated Environmental Services (IES), TN. Primary contact is Jeff Gold (404-863-8175).
- h) NSSL TX. Primary contact is Bob Gallagher (713-641-0391)
- i) Commercial and DOE facilities with previous successes treating LANL STP waste: WERF, IT Corp./TSCAI, LANL, ARS, CUA/VSL, CMRI/ADA, PECO.
- j) Commercial and DOE facilities contacted but unable so far to give more than advice: ORNL, NTS, Sandia, Hazen Research, StataG, Argonne/Chicago Office, Portsmouth DOE facility.

5. All correspondence, formal or otherwise, between the commercial facilities identified in item 4 above including the reasons for their denial of acceptance and treatment of the two treatability group.

- a) Permafrix of Florida. No written correspondence: telephone/personal contacts made by Chris Duy. Reason for declining to accept waste: **Tritiated wastes**: won't build a special facility or won't get necessary exceptions or changes to their RCRA Permit or NRC license. **Gloveboxes**: Profiled to them - may take at PFNW with further characterization. Informal bid of \$450,000, but contingent upon facility modifications and dependant on modifications to PFNMW RCRA Permit. Timeline could take until 2010 or later. Cannot currently take waste. **Portsmouth Debris**: Successfully profiled - recent DOT regulatory change requires repackaging. Contingent upon development of new contracting mechanism. Scheduled for January 2009. **Copper solder joints**: Disposal option developed - in process.
- b) Waste Control Specialists (WCS), Texas. No written correspondence: telephone/personal contacts made by Chris Duy. Reason for declining to accept waste: Won't build a special facility or won't get necessary exceptions or changes to their RCRA Permit or NRC license for tritiated wastes. **Gloveboxes**: Will not take any non-routine items until done with their permitting process (Spring of 2010).
- c) Energy Solutions of Utah. No written correspondence: telephone/personal contacts made by Chris Duy. Reason for declining to accept waste: **Tritiated wastes, Gloveboxes, Portsmouth Debris**: won't build a special facility or won't get necessary exceptions or changes to their RCRA Permit or NRC license.
- d) Bear Creek Operations in TN. No written correspondence: telephone/personal contacts made by Chris Duy. Won't build a special facility or won't get necessary exceptions or changes to their RCRA Permit or NRC license for tritiated wastes. **Gloveboxes**: Facility could decontaminate or macroencapsulate, contingent on development of process. Informal bid of \$300,000, but contingent upon development of process and the timeline is not fixed, but could take 6 months to one year. Cannot currently take waste.
- e) Nuclear Fuel Services (NFS), TN. No written correspondence: telephone/personal contacts made by Chris Duy. Won't build a special facility or won't get necessary exceptions or changes to their RCRA Permit or NRC license for tritiated wastes.
- f) Integrated Environmental Services (IES), TN. No written correspondence: telephone/personal contacts made by Chris Duy. **Tritiated wastes and Gloveboxes**: Facility won't build a special facility or won't get necessary exceptions or changes to their RCRA Permit or NRC license for tritiated wastes.
- h) NSSI, TX. Possible treatment/recycle options under discussion - contingent upon license and permit modifications. Audit and NNSA approval needed for exception to DOE 435.1 for **tritiated wastes**.

Justification for extension of Activity 3.2 (A).

This activity includes various waste types. Included are highly tritiated traps and squib assemblies (These have many thousands of Curies of tritium, and there is no current disposal option.) Other items may have at least one probable disposal option, and funding has been requested to dispose of these wastes in FY09. Regarding the highly tritiated items, the tritium cannot be recycled because it is contaminated with mercury. Only one facility has shown interest in treating them, but it appears it would require a modification to the facility's RCRA Permit, including negotiations with the host state. It would also require an exemption to DOE Order 453.1 from the local NNSA Los Alamos Site Office. To get NNSA permission to ship requires a current acceptable audit of the commercial facility, and the facility was historically considered a high risk for receiving DOE waste. To overcome this hurdle,

NNSA/LANS has requested funding this year to work with the regulators, develop an audit team to inspect the facility, and get buy-in from DOE and the host state. Currently, no permitted treatment facilities are available to accept all of the waste covered under this activity. NNSA/LANS will continue to seek treatment options and will ship treatable waste. Until treatment options are secured for all of the LA-934 waste types, NNSA/LANS only option is continued onsite storage for some waste items. NNSA/LANS request the activity date be extended to 12-31-2010.

NNSA/LANS will continue in the long term to seek viable treatment options for its STP covered wastes. For the short term, continued on-site storage is the only option. We request the above activity compliance dates be extended. Thank you and if you have any questions, please call Jack Ellvinger at 667-0633 or Gene Turner at 667-5794.

Sincerely,

Jack Ellvinger
RCRA Team Leader
Water Quality & RCRA Group
Los Alamos National Laboratory

Gene Turner
Environmental Operations
Los Alamos Site Office

JE:GT:AD/lm

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