General

NEW MEXICO ENVIRONMENT DEPARTMENT

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September 8, 2008

Bob Beers
Environmental Protection Division
Water Quality & RCRA Ground
P.O. Box 1663, Mail Stop K490
Los Alamos, New Mexico 87545

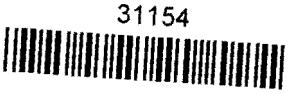
RE: NOTICE OF INTENT DECISION TREE: DRILLING, DEVELOPMENT, REHABILITATION, AND SAMPLING PURGE WATER

Dear Mr. Beers:

On July 2, 2008, the New Mexico Environment Department (NMED) received Los Alamos National Laboratory's (LANL) letter regarding "NOI Decision Tree, Land Application of Ground Water". This report summarizes the results of LANL's study into alternate methods for analyzing the following eight compounds: Acrolein, Acrylonitrile, Benzidine, Bis (2-chloroethyl) ether, Nitrosodiethylamine (N-), Nitrosodimethylamine (N-), Nitroso-di-butylamine (N-), and Nitrosopyrrolidine (N-) The study was undertaken to ensure that the Method Detection Limits (MDLs) for the analytical methods used to detect these compounds meet the screening levels set in the 2006 NMED approved "Decision Tree: Drilling, Development, Rehabilitiation and Sampling Purge Water" document. NMED's response to the study findings follows:

1. The MDLs for the eight compounds listed above using EPA Methods 8260B and 8270C do not meet the approved screening level for discharge. LANL has identified alternative methods to reach these screening limits, however, it is clear that although alternate methods exist the methods additional cost and questions of the reliability of the alternate methods make them unfeasible at this time.

   Therefore, NMED approves the use of EPA Methods 8260B and 8270C for the 8 compounds discussed above until a more sensitive, reliable and cost-effective method is identified or becomes available in the future. If such methods are identified, LANL will be required to implement them upon NMED approval.



2. LANL has proposed the use of the MDLs for methods 8260B and 8270C as the screening limits for discharging purged water with regard to these eight compounds.

   NMED approves LANL's proposal to use the MDLs for methods 8260B and 8270C as the screening limit for discharging purge water for the eight compounds. If at any time, these compounds are detected at or above the MDL of methods 8260B or 8270C, LANL must verify the results using the most sensitive method available. If the confirmation sample indicates that the compound exceeds the original screening limit for that compound, all future analysis for that compound will be performed using the most sensitive method available.

If you have any questions, please contact Jennifer Fullam of GWQB at 505-827-2909 or John Young of HWB at 505-486-2538. Thank you for your cooperation during the review of this issue.

Sincerely,

William C. Olson
Chief
Ground Water Quality Bureau

Sincerely,

James P. Bearzi
Chief
Hazardous Waste Bureau

WO/JF

Enclosure: Letter from Bob Beers dated March 25, 2008 with supporting documentation
NOI Decision Tree: Drilling, Development, Rehabilitation and Sampling Purge Water

cc: Steve Yanicak, LASO-GOV, Los Alamos National Laboratory, J993,
Los Alamos, NM 87545 (W/O enclosure)
Matthew Johansen, LASO-EO, Los Alamos National Laboratory, A316,
Los Alamos, NM 87545 (W/O enclosure)
Gene Turner, LASO-EO Los Alamos National Laboratory, A316,
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Mike Saladen, ENV-RCRA, Los Alamos National Laboratory, K490,
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Steven Rae, Group Leader, Water Quality & Hydrology Group, Risk Reduction &
Environmental Stewardship Division, Los Alamos National Laboratory, MS K497,
Los Alamos, NM 87545 (W/O enclosure)
Marcy Leavitt, NMED SWQB (enclosure)
John Young, NMED Hazardous Waste Bureau, (enclosure)
Jennifer Fullam, NMED Ground Water Quality Bureau (enclosure)

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Date: June 30, 2008
Refer To: ENV-RCRA-08-121
LA-UR: 08-03748

Mr. William C. Olson, Chief
Ground Water Quality Bureau
New Mexico Environment Department
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Mr. James P. Bearzi, Chief
Hazardous Waste Bureau
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Drive
P.O. Box 26110
Santa Fe, New Mexico 87502

Dear Mr. Olson and Mr. Bearzi:

SUBJECT: NOI DECISION TREE, LAND APPLICATION OF GROUND WATER

In an April 29, 2008, letter (Enclosure 1) you approved Los Alamos National Laboratory's March 25, 2008, proposal (Enclosure 2) to conduct a Method Detection Limit (MDL) study for the NMED-approved NOI Decision Tree[1]. The objective of the MDL study was to identify the best analytical methods for achieving the lowest MDLs for eight compounds whose current MDLs are greater than the NOI Decision Tree's screening limits. The Laboratory directed its contract analytical laboratory, General Engineering Laboratories (GEL), Inc., Charleston, SC, to conduct the study. This letter is intended to communicate the study's findings to you and your staff.

Table 1.0 below summarizes the EPA Region 6 2008 Residential Water Human Health Medium Specific Screening Levels (HHMSSLs), the NOI Decision Tree 90% screening limits, the current analytical MDLs, and the MDLs proposed by GEL based upon the MDL study. In the column titled, *GEL's Proposed MDL*, are the analytical MDLs proposed by GEL as a result of the MDL study; unfortunately, GEL reports that lower MDLs for Benzidine, Nitrosodiethylamine(N-), and Nitroso-di-n-butylamine are not achievable. Lower MDLs are possible for the remaining five analytes—Acrolien, Acrylonitrile, Bis (2-chloroethyl) ether, Nitrosodimethylamine (N-), and Nitrosopyrrolidine (N-)—but not at levels below the EPA Region 6 HHMSSLs.

[1] Notice of Intent (NOI) Decision Tree for the Land Application of Drilling, Development, Rehabilitation, and Sampling Purge Water (November 2006).

Table 1.0. NOI Decision Tree Screening Limits, Current and Proposed Analytical MDLs.

Analyte	Analytical Method	EPA Region 6 HHMSSL Screening Level[1] (µg/L)	NOI Decision Tree 90% Screening Limit (µg/L)	Current MDL (µg/L)	GEL's Proposed MDL (µg/L)
Acrolien	SW-846-8260B	0.042	0.038	3	0.5
Acrylonitrile	SW-846-8260B	0.39	0.35	1	0.5
Benzidine	SW-846-8270C	0.0009	0.0008	1.35	unchanged
Bis (2-chloroethyl)ether	SW-846-8270C	0.098	0.088	2.08	0.17
Nitrosodiethylamine (N-)	SW-846-8270C	0.001	0.0009	1.35	unchanged
Nitrosodimethylamine (N-)	SW-846-8270C	0.004	0.0036	2.2[2]	1.35
Nitroso-di-n-butylamine	SW-846-8270C	0.02	0.018	1.35	unchanged
Nitrosopyrrolidine (N-)	SW-846-8270C	0.32	0.29	1.35	0.10

[1]EPA Region 6 2008 Residential Water Human Health Medium Specific Screening Levels (HHMSSLs).
[2]Prior communications erroneously listed the current MDL for Nitrosodimethylamine (N-) as 0.22 µg/L.

Table 2.0 below summarizes the estimated annual cost to achieve the lower MDLs listed in Table 1.0 at all 160 ground water sampling locations. A 50% per sample surcharge will be levied by GEL to achieve the lower analytical MDLs: a $100 per sample increase for method SW-846-8260B (base cost=$200) and a $160 per sample increase for method SW-846-8270C (base cost=$320 per sample). Note that four VOA samples and three SVOA samples are required at each location due to the associated Consent Order Quality Control (QC) requirements. The additional cost to implement the lower MDLs proposed by GEL is estimated to be about $140,800 per year.

Table 2.0. Estimated Cost to Achieve Lower MDLs for Five VOA & SVOA Analytes.

Analytical Suite	Analytical Method	Cost (per sample)	50% Surcharge (per sample)	No. of Samples*	Additional Annual Cost
VOA	SW-846-8260B	$200	$100	640**	$64,000
SVOA	SW-846-8270C	$320	$160	480***	$76,800
Total					**$140,800**

*The Laboratory samples approximately 160 ground water locations annually.
**A total of four samples are required at each sampling location: the sample and three associated Consent Order QC samples.
***A total of three samples are required at each sampling location: the sample and two associated Consent Order QC samples.

In summary, GEL's MDL study determined that lower MDLs could be achieved for five of the eight analytes whose current MDLs are greater than the NOI Decision Tree's screening limits. However, none of the lower MDLs are below the EPA Region 6 HHMSSLs screening levels adopted for use in the NOI Decision Tree. In addition, the surcharge levied by GEL to achieve the lower MDLs would result in an estimated $140,800 per year increase in analytical costs at the 160 ground water locations.

The Laboratory requests the NMED's permission not to use the lower MDLs proposed by GEL, but default to the current MDLs as the screening limits for these eight analytes. Our request is based upon the following considerations.

1. As presented in the Laboratory's March 25, 2008, letter (Enclosure 2), the detection frequency for these eight analytes is extremely low; from 2003-2007 only one analyte, Acrolein, was detected in over 500 ground water samples. These eight analytes are not contaminants of concern that warrant the expenditure of additional resources.

2. The lower MDLs proposed by GEL are not lower than the EPA Region 6 HHMSSLs, and

3. The analytical methods being used are in compliance with the requirements of NMAC 20.6.2.3107.

Please call me at (505) 667-7969 if you have any questions regarding this request.

Sincerely,

Bob Beers
Water Quality & RCRA Group

BB/lm

Enclosures: a/s

Cy: John Young, NMED/HWB, Santa Fe, NM, w/enc.
Robert George, NMED/GWQB, Santa Fe, NM, w/enc.
Jennifer Fullman, NMED/GWQB, Santa Fe, NM, w/enc.
Steve Yanicak, NMED DOE/OB, w/enc., J993
Gene Turner, LASO-EO, w/enc., A316
Michael B. Mallory, PADOPS, w/o enc., A102
Richard S. Watkins, ADESHQ, w/o enc., K491
Tori George, ENV-DO, w/o enc., J978
Mike Saladen, ENV-RCRA, w/enc., K490
Mike Alexander, LWSP, w/o enc., K497
Keith Greene, WES-EDA, w/o enc., M992
ENV-RCRA, File, w/enc., K490
IRM-RMMSO, w/enc., A150

Enclosure 1

NEW MEXICO
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Lieutenant Governor

RON CURRY
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JON GOLDSTEIN
Deputy Secretary

April 29, 2008

Bob Beers
Environmental Protection Division
Water Quality & RCRA Ground
P.O. Box 1663, Mail Stop K490
Los Alamos, New Mexico 87545

RE: NOTICE OF INTENT DECISION TREE: DRILLING, DEVELOPMENT, REHABILITATION, AND SAMPLING PURGE WATER

Dear Mr. Beers:

In October 25, 2007 and November 6, 2007 email messages sent to staff of the New Mexico Environment Department (NMED), you raised an issue concerning analytical methods with method detection limits (MDLs) that exceed the screening limits used by LANL in the decision process[1] for assessing disposal of water produced during drilling, rehabilitation, development and sampling of ground water wells. Specifically, the methodologies SW-846-8260B and 8270C are unable to quantify contaminant concentrations at the screening limits of the following eight compounds: Acrolein, Acrylonitrile, Benzidine, Bis (2-chloroethyl) ether, Nitrosodiethylamine (N-), Nitrosodimethylamine (N-), Nitroso-di-butylamine (N-), and Nitrosopyrrolidine (N-).

In a subsequent meeting on March 14, 2008 with Robert George and Jennifer Fullam of the NMED Ground Water Quality Bureau, you provided data regarding the occurrence of these eight compounds in ground water samples taken from 2003 – 2007 and discussed the advantages and disadvantages of employing alternate methods with lower MDLs for these analytes. Also discussed was LANL's proposal to utilize existing data that has been generated using the 8260B-8270C methodologies to screen the extensive volume of purge water that LANL is currently storing. It is LANL's hope that the appropriate disposal of this water can commence without additional testing while LANL's contract laboratory (GEL) undertakes a study into the best analytical methods for achieving the lowest MDLs for these eight compounds in the future.

During the meeting, NMED raised questions regarding an error in the screening limits identified in LANL's initial communications on this topic. The discrepancy was discovered to be

[1] Decision making process is codified in the *Notice of Intent Decision Tree: Drilling, Development, Rehabilitation and Sampling Purge Water* document approved by NMED in November 2006.

attributable to a 2008 update to the Environmental Protection Agency's (EPA) Region 6 Human Health Media Specific Screening Levels (HHMSSL) which LANL had not yet incorporated. At the conclusion of the meeting, NMED requested that you submit a summary of the ongoing discussion and LANL's proposed actions in writing, which you did in a letter, dated March 25, 2008 (copy with enclosures attached for reference).

Based upon the discussion at the March 14, 2008 meeting and the March 25, 2008 submittal, NMED concurs with LANL's proposed actions. NMED recognizes that the alternate methodologies with lower MDLs (generally gas chromatography methods) are seldom utilized and the achievable MDLs for these methods may actually be less sensitive than the methods currently employed (8260B-8270C). The expense of re-testing the existing stored purge water is not justified, given the data which demonstrates that these compounds are very infrequently detected in the purge water and the minimal risk associated with disposal.

Therefore, NMED approves the following actions:

1. LANL will update the screening limits it utilizes for the evaluation of purge water quality to reflect EPA Region 6 revised (2008) HHMSSL.
2. LANL may commence appropriate disposal of existing stored purge water based upon the *NOI Decision Tree: Drilling, Development, Rehabilitation and Sampling Purge Water* document using existing data for the eight compounds generated with the 8260B-8270C methodologies.
3. LANL's consultant, GEL, will study alternate methods for analyzing the eight compounds with the lowest MDLs achievable, given considerations of practicality and cost. A report on the study findings will be submitted to NMED by June 30, 2008, at which time NMED will re-evaluate the available analytical methods for these compounds and make a final decision.

If you have any questions, please contact Jennifer Fullam of GWQB at 505-827-2909 or John Young of HWB at 505-486-2538. Thank you for your cooperation during the review of this issue.

Sincerely,

William C. Olson
Chief
Ground Water Quality Bureau

Sincerely,

James P. Bearzi
Chief
Hazardous Waste Bureau

WO/JF,RG

Enclosure: Letter from Bob Beers dated March 25, 2008 with supporting documentation
NOI Decision Tree: Drilling, Development, Rehabilitation and Sampling Purge Water

cc: Steve Yanicak, LASO-GOV, Los Alamos National Laboratory, J993,
Los Alamos, NM 87545 (W/O enclosure)
Matthew Johansen, LASO-EO, Los Alamos National Laboratory, A316,
Los Alamos, NM 87545 (W/O enclosure)
Gene Turner, LASO-EO Los Alamos National Laboratory, A316,
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Tori George, ENV-DO, Los Alamos National Laboratory, J978,
Los Alamos, NM 87545 (W/O enclosure)
Mike Saladen, ENV-RCRA, Los Alamos National Laboratory, K490,
Los Alamos, NM 87545 (W/O enclosure)
Mike Alexander, WES-RS, Los Alamos National Laboratory, K497,
Los Alamos, NM 87545 (W/O enclosure)
Steven Rae, Group Leader, Water Quality & Hydrology Group, Risk Reduction &
Environmental Stewardship Division, Los Alamos National Laboratory, MS K497,
Los Alamos, NM 87545 (W/O enclosure)
Marcy Leavitt, NMED SWQB (enclosure)
John Young, NMED Hazardous Waste Bureau, (enclosure)
Jennifer Fullam, NMED Ground Water Quality Bureau (enclosure)

Enclosure 2

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Date: March 25, 2008
Refer To: ENV-RCRA-08-065
LA-UR: 08-1709

Mr. Robert George, Domestic Team Leader
Ground Water Pollution Prevention Section
Ground Water Quality Bureau
New Mexico Environment Department
Harold Runnels Building, Room N2250
1190 St. Francis Drive
P.O. Box 26110
Santa Fe, New Mexico 87502

Dear Mr. George:

SUBJECT: NOTICE OF INTENT DECISION TREE, LAND APPLICATION OF GROUND WATER

On March 14, 2008, at your Santa Fe office we discussed several technical issues concerning the NMED-approved NOI Decision Tree for the land application of water produced by Los Alamos National Laboratory (LANL) during the drilling, rehabilitation, development, and sampling of ground water wells. Most important of these issues is the problem of analytical detection limits that are greater than the NOI Decision Tree's screening levels. I would like to review the history of our communications on this subject, the key points from our March 14th discussions, and then propose a path forward for resolving this issue.

In October 25, 2007, and November 6, 2007, emails (see Enclosure 1) LANL reported to the NMED that eight organic compounds had Method Detection Limits (MDLs) that were greater than the NOI Decision Tree criteria for land application. In these emails the Laboratory proposed to your agency that the MDLs for these eight compounds become the default screening limits because (1) there is regulatory precedence for defaulting to MDLs (e.g., LANL's NPDES permit), (2) the Laboratory's analytical methods are in compliance with the New Mexico Water Quality Control Commission (NM WQCC) regulations for the analysis of ground water (NMAC 20.6.2.3107), and (3) the NM WQCC allows for the substitution of an MDL for a standard when the MDL is larger (NMAC 20.6.4.12.E).

In your staff's reply to our emails (see Enclosure 2) on February 8, 2008, Ms. Jennifer Fullman pointed out several discrepancies between the screening limits used by LANL and the NMED for the eight compounds of concern. In addition, Ms. Fullman recommended that four analytical methods with lower MDLs be considered as substitutes for SW-846-8260B and SW-846-8270C, the methods currently being used by LANL. These two topics were discussed in detail at the March 14th meeting. Below, I have attempted to summarize our response to Ms. Fullman's technical points:

1. The discrepancies in screening limits discovered by Ms. Fullman were created when the EPA Region 6 posted their revised Human Health Media Specific Screening Levels (HHMSSLs) in early 2008. The 2006 HMSSLs incorporated by LANL into the NOI Decision Tree are no longer current and will be replaced with the HHMSSLs listed on EPA's website: http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screenvalues.pdf.

2. The analytical methods recommended by Ms. Fullman are older, gas chromatography (GC) methods that have been replaced by mass spectrometry (MS) methods. While the GC methods might be capable of producing a small reduction in the MDLs for 5 of the 8 compounds, using them will require duplicate analytical runs—analyzing each ground water sample by both SW-846-8260B/8270C and the four GC methods—making their use both impractical and expensive given the modest gains in sensitivity. In lieu of the GC methods, the Laboratory recommended that our contract analytical laboratory, General Engineering Laboratories (GEL), undertake an MDL study to see if lower MDLs might be achievable using the SW-846-8260B and SW-846-8270C methods.

3. To add context to the discussion, the Laboratory introduced at the March 14th meeting the frequency of detections for the eight compounds (see Table 1.0). Only one of the eight compounds, acrolein, was detected in ground water (excluding springs) during 2003-2007.

Table 1.0. Frequency of Detections in Ground Water (excluding springs), 2003-2007.

Eight Compounds	Detections	Number of Results
Acrolien	1	722
Acrylonitrile	0	722
Benzidine	0	652
Bis (2-chloroethyl)ether	0	825
Nitrosodiethylamine (N-)	0	553
Nitrosodimethylamine (N-)	0	771
Nitroso-di-n-butylamine	0	553
Nitrosopyrrolidine (N-)	0	553

In summary, the Laboratory and the NMED have been communicating since October 2007 on the subject of MDLs greater than NOI Decision Tree screening limits for eight organic compounds. The NMED has identified errors in the HHMSSL screening limits being used by the Laboratory in the NOI Decision Tree and those will be corrected. Further, the NMED's recommendation to use GC analytical methods is, in the Laboratory's opinion, not cost effective due to the modest gains in sensitivity that these methods would provide. And finally, the frequency of detections in ground water for these eight compounds is very low with only one compound detected in a five year period.

In consideration of the above, the Laboratory proposes to direct its contract analytical laboratory, GEL, to undertake a Method Detection Limit (MDL) study to determine the best analytical methods for achieving the lowest MDLs, at the lowest cost, for these eight compounds. The Laboratory will initiate this study within the next 30 days and will report the findings to the NMED in a written report by June 30, 2008. In the interim period, the Laboratory requests that the NMED allow the Laboratory to use the current MDLs for these eight compounds as the default screening limits for the NOI Decision Tree.

Please call me at (505) 667-7969 if you have any questions regarding this request.

Sincerely,

A R Beers for

Bob Beers
Water Quality & RCRA Group

BB/lm

Enclosures: a/s

Cy: Marcy Leavitt, NMED SWQB, Santa Fe, NM, w/enc.
John Young, NMED HWB, Santa Fe, NM, w/enc.
Jennifer Fullman, NMED GWQB, Santa Fe, NM, w/enc.
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ENV-RCRA, File, w/enc., K490
IRM-RMMSO, w/enc., A150

Enclosure 1

To: john.young@state.nm.us, JakeKnutson, dave.cobrain@state.nm.us, jennifer.montoya@state.nm.us
From: Robert Beers <bbeers@lanl.gov>
Subject: NOI Decision Tree for Land Application of Ground Water_take2
Cc: saladen, alexander, Rene, sherrard@lanl.gov, GRIEGGS, wbh@lanl.gov, RobertGeorge, george.schuman@state.nm.us
Bcc: bbeers@lanl.gov
Attached: T:\my documents\2007\NOIs\MDL vs Stds Issue\NOI Decision Tree_MDLs greater than Limits.xls;

Hi John, Dave, Jake, and Jennifer,

Let me start with a little background information to frame the situation. Last year the NMED approved the NOI Decision Tree for the management of drilling, development, rehabilitation, and sampling purge water. The NOI Decision Tree established specific criteria for determining if the produced ground water could be land applied. Because the Laboratory may produce ground water at as many as 200 wells in a typical year we immediately realized that we needed to develop a database tool that could compare current analytical results with the NOI Decision Tree criteria. The database tool has been built and we quickly identified a minor problem that needs to be corrected. The purpose of this email is to bring this problem to your attention and request your concurrence in the solution we are proposing to implement.

MDLs Greater Than Applicable Screening Limits
We have identified nine compounds (all NM WQCC toxic pollutants) whose Minimum Detection Limits (MDLs), as established by General Engineering Laboratories, are greater than the EPA Region 6 Tap Water Human Health Medium-Specific Screening Levels. For one of the nine compounds, nitrobenzene (CAS#98-95-3), we found another analytical method with a lower MDL that will permit us to meet the screening level. We are moving forward to use this alternate method in future sampling events. We could not, however, find any methods with lower MDLs for the compounds in the attached table.

We propose to resolve this conflict in the following manner,
1) Use existing nitrobenzene data (with an MDL=3.13 ug/L, Screening Limit=3.395 ug/L, 90% Screening Limit=3.056 ug/L) for all current NOI Decision Tree determinations. The MDL will be the screening limit. In addition, we will begin using the alternate method, with an MDL=0.13 ug/L, in future ground water sampling events.
2) For the eight compounds listed in the attached table, the MDL would become the screening limit for all NOI Decision Tree determinations.

If you would like, I am available to meet with you at your earliest convenience to discuss this matter further. I have some charts showing the distribution of MDL values over the past three years that I would be happy to share with you. I look forward to your reply to our proposed plan. We are unable to make any final determinations under the NOI Decision Tree regarding the management of produced ground water until this is resolved.

Sincerely,
Bob

NOI Decision Tree, Table of Analytes w/ MDLs Greater Than Screening Limits (DATA SOURCE: WQDB)

Acrolein	107-02-8	0.0416	0.03744	3	3	SW-846:8260B	N
Acrylonitrile	107-13-1	0.389	0.3501	1	1	SW-846:8260B	C
Benzidine	92-87-5	0.0029	0.00261	1.35	1.35-5	SW-846:8270C	C
Bis(2-chloroethyl)ether	111-44-4	0.098	0.0882	2.08	1.35-5	SW-846:8270C	C
Nitrosodiethylamine[N-]	55-18-5	0.0045	0.00405	1.35	1.35-5	SW-846:8270C	C
Nitrosodimethylamine[N-]	62-75-9	0.013	0.0117	0.22	0.22-8	SW-846:8270C	C
Nitroso-di-n-butylamine[N-]	924-16-3	0.02	0.018	1.35	1.35-5	SW-846:8270C	C
Nitrosopyrrolidine[N-]	930-55-2	0.32	0.288	1.35	1.35-5	SW-846:8270C	C

Note: All of the data contained in the above table is available to the public at: http://wqdbworld.lanl.gov/

To: RobertGeorge, JohnYoung, george.schuman@state.nm.us
From: Robert Beers <bbeers@lanl.gov>
Subject: Fwd: NOI Decision Tree for Land Application of Ground Water_take2
Cc: saladen, alexander, rene, GRIEGGS
Bcc:
Attached: T:\my documents\2007\NOIs\MDL vs Stds Issue\NOI Decision Tree_MDLs greater than Limits.xls;

Hi Robert and John,

Just on follow-up on my previous email concerning the problem of MDLs greater than NOI Decision Tree limits. I would like to make three additional points regarding our request.

First, there is a precedence in defaulting to the MDL when the limit is lower; several of the Laboratory's NPDES permit limits are lower than the analytical method MDL. The EPA defaults to the MQL (3.3*MDL) as the effective limit for those contaminants.

Second, the analytical techniques that we are employing for the analysis of ground water are in compliance with the requirements of NMAC 20.6.2.3107.

And third, NMAC 20.6.4.12, E. states, *The commission may establish a numeric water quality standard at a concentration that is below the minimum quantification level. In such cases, the water quality standard is enforceable at the minimum quantification level.*

We believe there is adequate justification for using the MDL as the screening limit for 8 contaminants in question.

In closing, our coordinated efforts to establish a process for the land application of ground water produced during drilling, development, rehabilitation, and sampling goes back over 18 months to March 2006. Since that time we have jointly developed the NOI Decision Tree, built a database tool to screen analytical data, and written a Standard Operating Procedure (SOP) to establish procedures for the land application of ground water. Pending resolution of this final issue we are ready to land apply ground water that meets the criteria of the NOI Decision Tree.

Our readiness to land apply does not come too soon; while the NOI Decision Tree, database tool, and SOP have been in development we have not land applied any of the sampling purge water generated during ground water monitoring. It is imperative that we proceed as quickly as is possible to begin land application of those waters that meet the criteria of the NOI Decision Tree before winter sets in. Therefore, your prompt response to this request would be greatly appreciated.

Sincerely,

Bob

Enclosure 2

X-Sieve: CMU Sieve 2.2
Subject: RE: NOI Decision Tree for Land Application of Ground Water
Date: Fri, 8 Feb 2008 15:20:00 -0700
X-MS-Has-Attach: yes
X-MS-TNEF-Correlator:
Thread-Topic: NOI Decision Tree for Land Application of Ground Water
Thread-Index: AcgWikszB/PhGM3PRnmoUmaUxB4EbBT74SOw
From: "Fullam, Jennifer, NMENV" <Jennifer.Fullam@state.nm.us>
To: "Robert Beers" <bbeers@lanl.gov>
Cc: "George, Robert, NMENV" <robert.george@state.nm.us>,
"Schuman, George, NMENV" <george.schuman@state.nm.us>,
"Pullen, Steve, NMENV" <steve.pullen@state.nm.us>,
"Young, John, NMENV" <john.young@state.nm.us>
X-OriginalArrivalTime: 08 Feb 2008 22:21:17.0128 (UTC) FILETIME=[EC447480:01C86AA0]
X-Proofpoint-Virus-Version: vendor=fsecure engine=4.65.5502:2.3.11,1.2.37,4.0.164 definitions=2008-02-08_06:2008-02-07,2008-02-08,2008-02-08 signatures=0
X-Proofpoint-Spam: 0
X-CTN-5-MailScanner-Information: Please see http://network.lanl.gov/email/virus-scan.php
X-CTN-5-MailScanner: Found to be clean
X-CTN-5-MailScanner-From: jennifer.fullam@state.nm.us
X-Spam-Status: No

Bob,

I am sorry I have not responded earlier to your request regarding the MDL/Screening limit issue. Before we are able to make a decision regarding your request I have a few questions regarding the table you provided which I hope you can clarify for me.

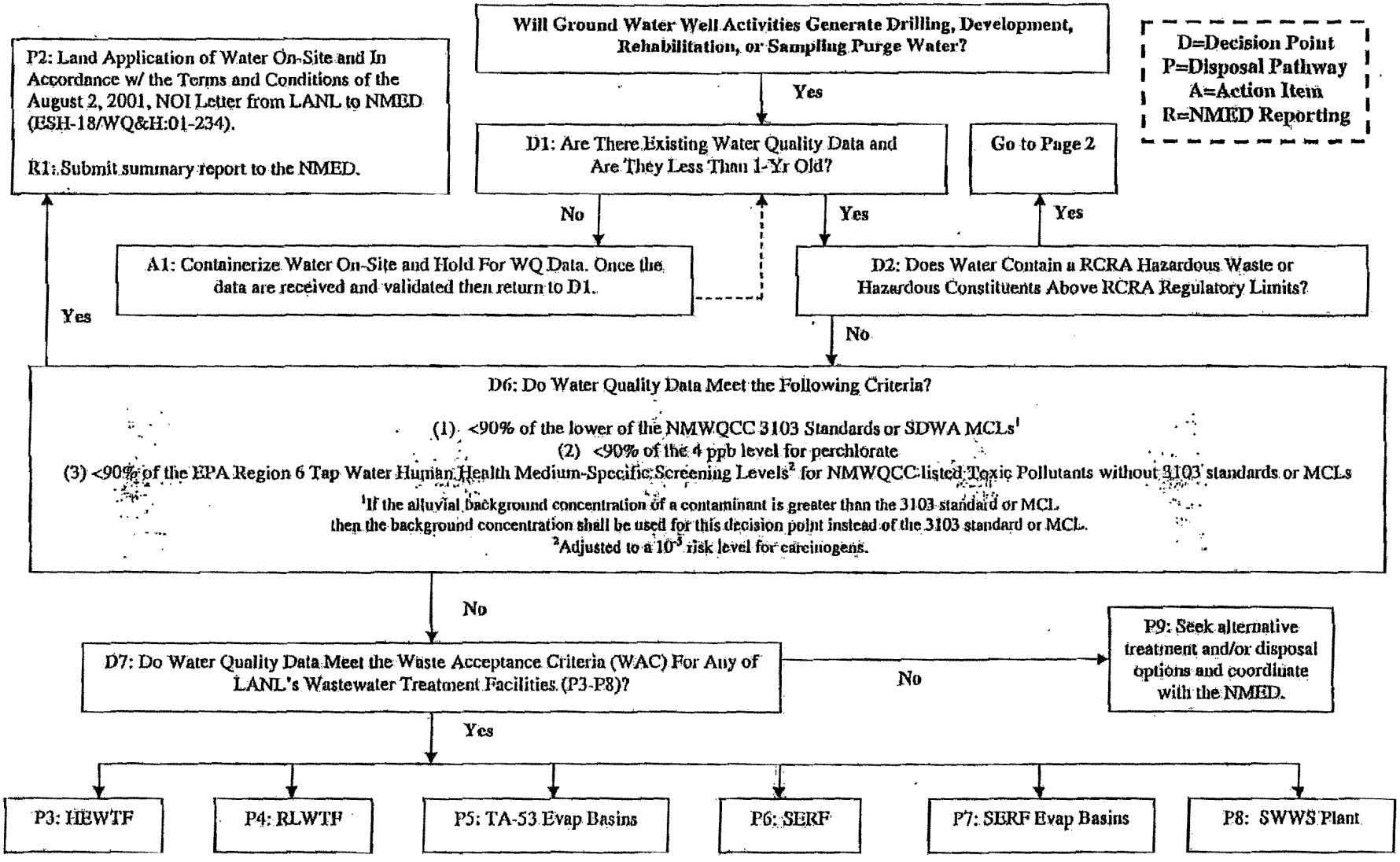
- *The screening limits we have were derived from EPA R6 (10^{-6}) Medium-Specific Screening Levels (December 2006) for tap water and are not consistent with what you have provided. Please clarify where your Screening Levels were derived from.*
- *How were the 10^{-5} values determined? Was this just and adjustment in an order of magnitude?*
- *NMED identified alternate methods with lower detection limits for five of the compounds in question. Please clarify why these methods were not proposed.*
- *Please clarify the units for the data (we have assumed µg/L)?*

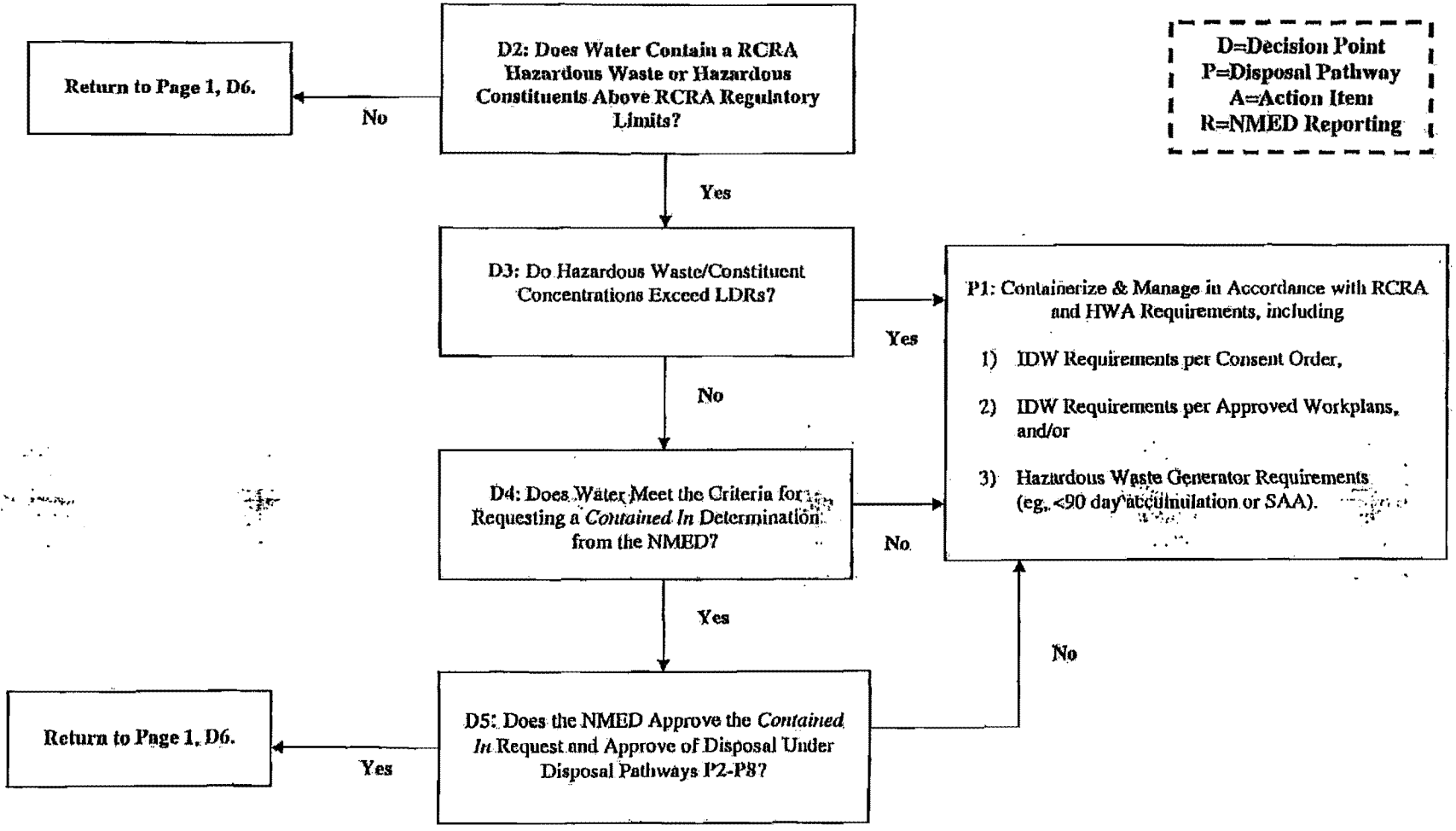
I have included a modified table based on what you submitted which includes our findings. I look forward to your response. If you have any questions please feel free to contact me. Thanks.

LANL

Analyte	CAS	LANL's Screening Limit (10-5) µg/L	NMED's understanding of EPA Screening Limit adjuated by 10 (10-5) (µg/L)	NMED's understanding of 90% Screening Limit (10-5) (µg/L)	LANL Proposed Analytical Method	LANL Liated MDL (µg/L)	NMED's identified Alternate MDL (µg/L)	NMED's Identified Alternate Method	Reference
Acrolein	107-02-8	0.0416	0.42	0.378	SW-846-8260B	3	0.7	EPA 603	http://www.atsdr.cdc.gov/toxprofiles/tp124-c7.pdf
Acrylonitrile	107-13-1	0.389	0.39	0.351	SW-846-8260B	1	0.5	EPA 1982a (GC/FID)	http://www.atsdr.cdc.gov/toxprofiles/tp125-c6.pdf
Benzidine	92-87-5	0.0029	0.00094	0.000846	SW-846-8270C	1.35	0.5	EPA 1982a (GC/FID)	http://www.atsdr.cdc.gov/toxprofiles/tp125-c6.pdf
Bis (2-chloroethyl)ether	111-44-4	0.098	0.098	0.0882	SW-846-8270C	2.08	0.3	EPA 1982a (GC/HSD)	http://www.atsdr.cdc.gov/toxprofiles/tp127-c6.pdf
Nitrosodiethylamine (N-)	55-18-5	0.0045	0.0014	0.00126	SW-846-8270C	1.35		None Found	
Nitrosodimethylamine (N-)	62-75-9	0.013	0.0042	0.00378	SW-846-8270C	0.22	0.00001	EPA 1976b (GC/ECD and GC/MS)	http://www.atsdr.cdc.gov/toxprofiles/tp94-c6.pdf
Nitroso-di-n-butylamine	924-16-3	0.02	0.02	0.018	SW-846-8270C	1.35		None Found	
Nitrosopyrrolidine (N-)	930-55-2	0.32	0.32	0.288	SW-846-8270C	1.35		None Found	

http://www.atsdr.cdc.gov/toxprofiles/


Will Ground Water Well Activities Generate Drilling, Development, Rehabilitation, or Sampling Purge Water?
D=Decision Point
P=Disposal Pathway
A=Action Item
R=NMED Reporting
Yes
P2: Land Application of Water On-Site and In Accordance w/ the Terms and Conditions of the August 2, 2001, NOI Letter from LANL to NMED (ESH-18/WQ&H:01-234).
R1: Submit summary report to the NMED.
D1: Are There Existing Water Quality Data and Are They Less Than 1-Yr Old?
Go to Page 2
No
Yes
Yes
A1: Containerize Water On-Site and Hold For WQ Data. Once the data are received and validated then return to D1.
D2: Does Water Contain a RCRA Hazardous Waste or Hazardous Constituents Above RCRA Regulatory Limits?
Yes
No
D6: Do Water Quality Data Meet the Following Criteria?
(1) <90% of the lower of the NMWQCC 3103 Standards or SDWA MCLs[1]
(2) <90% of the 4 ppb level for perchlorate
(3) <90% of the EPA Region 6 Tap Water Human Health Medium-Specific Screening Levels[2] for NMWQCC-listed Toxic Pollutants without 3103 standards or MCLs
[1]If the alluvial background concentration of a contaminant is greater than the 3103 standard or MCL then the background concentration shall be used for this decision point instead of the 3103 standard or MCL.
[2]Adjusted to a 10^{-5} risk level for carcinogens.
No
D7: Do Water Quality Data Meet the Waste Acceptance Criteria (WAC) For Any of LANL's Wastewater Treatment Facilities (P3-P8)?
No
P9: Seek alternative treatment and/or disposal options and coordinate with the NMED.
Yes
P3: HEWTF
P4: RLWTF
P5: TA-53 Evap Basins
P6: SERF
P7: SERF Evap Basins
P8: SWWS Plant


D=Decision Point
P=Disposal Pathway
A=Action Item
R=NMED Reporting
D2: Does Water Contain a RCRA Hazardous Waste or Hazardous Constituents Above RCRA Regulatory Limits?
No
Return to Page 1, D6.
Yes
D3: Do Hazardous Waste/Constituent Concentrations Exceed LDRs?
Yes
P1: Containerize & Manage in Accordance with RCRA and HWA Requirements, including
1) IDW Requirements per Consent Order,
2) IDW Requirements per Approved Workplans, and/or
3) Hazardous Waste Generator Requirements (eg. <90 day accumulation or SAA).
No
D4: Does Water Meet the Criteria for Requesting a Contained In Determination from the NMED?
No
Yes
D5: Does the NMED Approve the Contained In Request and Approve of Disposal Under Disposal Pathways P2-P8?
No
Yes
Return to Page 1, D6.