Department of Energy
National Nuclear Security Administration
Sandia Field Office
P. O. Box 5400
Albuquerque, NM 87185

FEB 18 2015

Mr. John E. Kieling
Chief
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Dr. East, Bldg. 1
Santa Fe, NM 87505

Subject: Documentation of Public Notices, Meeting, and Comments Related to Request for Class 3 Modification to Module IV of the Hazardous Waste Permit for Sandia National Laboratories/New Mexico, EPA ID NM5890110518

Dear Mr. Kieling:

The Department of Energy/National Nuclear Security Administration (DOE/NNSA) and Sandia Corporation (Sandia) are providing to the New Mexico Environment Department (NMED) information associated with our October 20, 2014 request for a Class 3 Modification to the Hazardous Waste Permit NM5890110518-1 (Permit) for Sandia National Laboratories (SNL), Albuquerque, New Mexico. In this permit modification, DOE/NNSA and Sandia requested that NMED designate Solid Waste Management Unit (SWMU) 76, Mixed Waste Landfill (MWL) as approved for Corrective Action Complete with Controls status.

DOE/NNSA and Sandia requested the Permit Modification in accordance with *Title 20, Chapter 4, Part 1, Subpart IX of the New Mexico Administrative Code (20.4.1.900 NMAC)* incorporating *Title 40 of the Code of Federal Regulations Part 270 Section 42(c) (40 CFR 270.42(c)).*

The regulations in *40 CFR 270.42(c)* specify that DOE/NNSA and Sandia must perform certain activities in conjunction with the Permit Modification request. To verify the completion of these activities in accordance with the regulations, each activity is discussed below.

<u>Public and legal notice (40 CFR 270.42(c)(2))</u>

- A legal notice of the request for a Class 3 Permit Modification was published in the Albuquerque Journal on October 20, 2014. The notice announced a 60-day public comment period ending on December 19, 2014, the name and address of the NMED contact to whom comments must be sent, and a public meeting to be held on November 18, 2014.

- DOE/NNSA and Sandia obtained the SNL facility mailing list maintained by NMED and compiled an additional mailing list of state and local government agencies in the Albuquerque area. A public notice of the Permit Modification request, with all the information specified in *40 CFR 270.42(c)(2)(i-vi)*, was mailed to the list of state and local government agencies on October 22, 2014.

DOE/NNSA and Sandia inadvertently omitted the persons on the facility mailing list maintained by NMED from this initial mailing and distributed the notice in a second mailing to those persons on November 3, 2014.

- Due to the delay in mailing some copies of the initial notice, DOE/NNSA and Sandia extended the 60-day comment period by 10 days, to December 29, 2014.
  On November 5, 2014, a legal notice with the extended comment period was published in the Albuquerque Journal, and a revised notice was sent to all persons on both mailing lists.

- Citizen Action requested an additional 6-day extension to the comment period to address the delay in the initial mailing. DOE/NNSA and Sandia extended the comment period another 7 days, to January 5, 2015. A third revised public notice was mailed to all persons on both mailing lists on November 25, 2014.

- The two legal notices and three public notices, together with the 17-day extension of the comment period, served to fully satisfy the requirements of *40 CFR 270.42(c)(2)*. Copies of both legal notices and all three public notices are included in Enclosure 1.

Documents accessible to the public (*40 CFR 270.42(c) (3)*)

- The Permit Modification request includes two enclosures. One is a history of SWMU 76, and the other is a list of supporting documents. The supporting documents have been compiled in the SWMU 76 Justification Binder (eight-volume set).

- The 8-volume set of supporting documents was delivered to the NMED Hazardous Waste Bureau office in Santa Fe (one hard copy and one electronic copy), the NMED District 1 office in Albuquerque (one electronic copy), and the Government Documents Section at Zimmerman Library on the University of New Mexico (UNM) main campus in Albuquerque (3 hard copies) on October 14, 2014.

- The Permit Modification request and 8-volume set of supporting documents were available to the public during the entire comment period. Paper copies were available at Zimmerman Library and Centennial Library on the UNM main campus in Albuquerque, and at the NMED office in Santa Fe. The request and supporting documents were also available electronically at http://repository.unm.edu/handle/1928/24676 through the UNM Hosted Collections in the UNM Lobo Vault online database.

- The electronic document collection continues to be available. The availability of paper and electronic copies of the documents in Albuquerque and Santa Fe meets the requirements of *40 CFR 270.42(c) (3)*.

Public meeting (40 CFR 270.42(c) (4))

- DOE/NNSA and Sandia presented information on why corrective action is complete at SWMU 76 in poster format at a meeting on Tuesday, November 18, 2014. The meeting lasted from 4:00 to 8:00 pm and was held at the Manzano Mesa Multigenerational Center, 501 Elizabeth SE, in Albuquerque. The Center is located in a neighborhood adjacent to Kirtland Air Force Base. DOE/NNSA and Sandia personnel were available to answer questions during the entire meeting.

- The November 18, 2014 meeting was held later than 15 days after the start of – and earlier than 15 days before the (originally scheduled) end of – the public comment period, meeting the requirements of *40 CFR 270.42(c)(4)*.

- The posters and handouts from the meeting were made available electronically before the meeting at http://repository.unm.edu/handle/1928/24676 and continue to be available. One of the handouts, an overall fact sheet about SWMU 76, is included in Enclosure 2.

- Approximately 60 people signed in when they attended the meeting. Several additional visitors declined the opportunity to sign in. The sign-in sheet is included in Enclosure 2.

Public comment period (*40 CFR 270.42(c) (5)*)

- The comment period started on October 20, 2014 with publication of the first legal notice. It was extended twice, and lasted for a total of 77 days. Members of the public were instructed to provide written comments to a point of contact at the DOE/NNSA and another at the NMED.

- DOE/NNSA and Sandia accepted written comments from members of the public during the November 18, 2014 public meeting.

- An email address for the DOE/NNSA point of contact was added to the public notice in response to a request from Citizen Action.

- All comments received before 5:00 pm January 5, 2015 are included in Enclosure 3.

DOE/NNSA and Sandia are available to provide additional information as needed.

If you have questions regarding this submittal, please contact me at (505) 845-6036 or John Weckerle at (505) 845-6026.

Sincerely,

FOR

James W. Todd
Assistant Manager for Engineering

Enclosures and cc: See Page 4

FEB 18 2015

3 Enclosures:
1. Legal Notices and Public Notices
2. Public Meeting Information
3. Comments Received During Public Comment Period

cc w/ enclosures:
William Moats
Hazardous Waste Bureau
New Mexico Environment Department
5500 San Antonio Dr. NE, Albuquerque, NM 87109

David Cobrain
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Dr. E., Building 1, Santa Fe, NM 87505

Susan A. Lucas Kamat, Staff Manager
Sandia and WIPP Oversight Sections, DOE Oversight Bureau
New Mexico Environment Department
P.O. Box 5400, MS-1396, Albuquerque, NM 87185-5400

Laurie King
U.S. Environmental Protection Agency, Region 6
Federal Facilities Section (6PD-F)
1445 Ross Ave, Suite 1200, Dallas, TX 75202-2733

SNL Customer Funded Records Center, MS-0651
SFO Legal File
SFO Waste Management File

cc w/o enclosures:
Amy Blumberg, SNL/NM
Peter Davies, SNL/NM
David Miller, SNL/NM
Pamela Puissant, SNL/NM
John Cochran, SNL/NM
Anita Reiser, SNL/NM
Michael Mitchell, SNL/NM
Cynthia Wimberly, SFO/Legal
Ben Underwood, SFO/Legal
James Todd, SFO/ENG
David Rast, SFO/ENG
John Weckerle, SFO/ENG
612887

Enclosure 1

Legal Notices and Public Notices
Request for Class 3 Permit Modification

Solid Waste Management Unit 76
Mixed Waste Landfill

Sandia National Laboratories
NM5890110518

October 20, 2014

NOTICE
Sandia National Laboratories Request for a Class 3 Permit Modification to Module IV of Hazardous Waste Permit NM5890110518-1

On behalf of the Department of Energy (DOE) and Sandia Corporation (Sandia), DOE hereby notifies you that DOE and Sandia are requesting a Class 3 modification to a Hazardous Waste Permit for designation of one solid waste management unit (SWMU) as approved for completion of corrective action at Sandia National Laboratories/New Mexico (SNL/NM).

The SWMU under consideration is SWMU 76, known as the Mixed Waste Landfill. DOE and Sandia have completed corrective action under plans approved by the New Mexico Environment Department (NMED). NMED made a preliminary determination in October 2014 that corrective action is complete at this SWMU.

DOE and Sandia request that this SWMU be listed on Table A.2 "List of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) not Currently Requiring Corrective Action" in Module IV of Hazardous Waste Permit NM5890110518-1. DOE and Sandia further request that NMED require implementation of the controls established in the Long-Term Monitoring and Maintenance Plan that NMED approved on January 8, 2014.

COMMENT PERIOD

A 60-day public comment period associated with this permit modification request begins on October 20, 2012. Comments on this request will be accepted through December 19, 2014. Comments should be directed to both:

Mr. John Kieling, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Dr. E, Bldg 1
Santa Fe, NM 87505

Mr. John Weckerle
US Department of Energy
Sandia Site Office
PO Box 5400
Albuquerque, NM 87185

PUBLIC MEETING

The information about SWMU 76 will be presented in poster format at a meeting:
Tuesday, November 18, 2014
4:00 - 8:00 p.m.
Manzano Multigenerational Center
Journal: October 20, 2014

November 5, 2014

Gov't Legals

and Engineering Office at (505) 552-5190.
Journal: November 5, 9, 14, 16, 2014

REQUEST FOR PROPOSAL

BID NO. 14-10-1296LE - COMPREHENSIVE CLASSIFICATION AND WAGE SCALE STUDY FOR THE NAVAJO NATION JUDICIAL BRANCH

TO OBTAIN PROPOSAL DOCUMENTS, GO TO THIS WEBSITE www.nnooc.org LINK/PURCHASING SECTION/RFP'S/ADVERTISEMENTS

Journal: November 1, 5, 8, 12, 2014

REVISED NOTICE
Sandia National Laboratories
Request for a Class 3 Permit Modification to Module IV of Hazardous Waste Permit NM5890110518-1

On behalf of the Department of Energy (DOE) and Sandia Corporation (Sandia), DOE hereby notifies you that DOE and Sandia are requesting a Class 3 modification to a Hazardous Waste Permit for designation of one solid waste management unit (SWMU) as approved for completion of corrective action at Sandia National Laboratories/New Mexico (SNL/NM).

The SWMU under consideration is SWMU 76, known as the Mixed

Gov't Legals

Waste Landfill. DOE and Sandia have completed corrective action under plans approved by the New Mexico Environment Department (NMED). NMED made a preliminary determination in October 2014 that corrective action is complete at this SWMU.

DOE and Sandia request that this SWMU be listed on Table A.2 "List of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) not Currently Requiring Corrective Action" in Module IV of Hazardous Waste Permit NM5890110518-1. DOE and Sandia further request that NMED require implementation of the controls established in the Long-Term Monitoring and Maintenance Plan that NMED approved on January 8, 2014.

COMMENT PERIOD

A 60-day public comment period associated with this permit modification request began on October 20, 2014 and was scheduled to conclude December 19, 2014. Due to an inadvertent 10-day delay in mailing some copies of a notice to interested parties, the comment period has been extended 10 days. Comments on this request will be accepted through December 29, 2014. Comments should be directed to both:

Mr. John Kieling, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Dr. E, Bldg 1
Santa Fe, NM 87505

Mr. John Weckerle
US Department of Energy
Sandia Field Office
PO Box 5400
Albuquerque, NM 87185

PUBLIC MEETING

The information about SWMU 76 will be presented in poster format at a meeting:
Tuesday, November 18, 2014
4:00 - 8:00 p.m.
Manzano Multigenerational Center
501 Elizabeth SE
(located between Eubank and Juan Tabo, at the corner of Southern and Elizabeth, SE)

Gov't Legals

The posters will be available for review, and personnel from SNL/NM will be available to answer questions during the entire meeting. Attendees will also be able to make written comments during the meeting. All written comments submitted during the meeting will be forwarded to the NMED.

Manzano Mesa Multigenerational Center is accessible to persons with disabilities. For additional information, please contact the Center at 505-275-8731.

PUBLIC INSPECTION OF DOCUMENTS

The permit modification request consists of a letter with two enclosures:
1. A brief history of corrective action at SWMU 76.
2. An index of the supporting documents that comprise the justification for the permit modification request.

The supporting documents are included in an 8-volume set: Justification for Class 3 Permit Modification for Corrective Action Complete With Controls, Solid Waste Management Unit 76, Mixed Waste Landfill

The permit modification request and supporting documents are available at the following locations:

1. An electronic copy is available at http://repository.unm.edu/ through the University of New Mexico (UNM) LoboVault online database.

2. A paper copy is available at Zimmerman Library on the UNM main campus in Albuquerque. The copy is available as a course reserve at the Reference Desk on Level 1 in the library. Current schedule information for all UNM libraries is available online at http://library.unm.edu/index.php

3. A paper copy is available at Centennial Library on the UNM main campus in Albuquerque. The copy is available as a course reserve at the Reference Desk on Lower Level 1 in the library. Current library schedule information is available online at http://library.unm.edu/index.php

4. A paper copy is available at the NMED Hazardous Waste Bureau, 2905 Rodeo Park Drive East, Building 1, in Santa Fe. For further information regarding access to this copy, please contact Pam Allen at 505-476-6064, 505-476-6000, or pam.allen@state.nm.us. Note: Anyone wishing to access this copy must complete an Inspection of Public Record Request Form, available at http://www.nmenv.state.nm.us/Common/documents/public_information_request.pdf

A copy of the request for permit modification is available for public inspection at the Government Information Department, Zimmerman Library, University of New Mexico, Albuquerque, NM 87131-1466.

COMPLIANCE HISTORY

The permittee's compliance history during the life of the permit being modified is available from the NMED contact person.

Any questions regarding this permit modification may be directed toward any of the following contacts:

Department of Energy contact: John Weckerle, (505) 845-6026.

Sandia National Laboratories contact: David Miller, (505) 284-2574.

New Mexico Environment Department contact: John Kieling, (505) 476-6000.
Journal: November 5, 2014

NOTICE
Sandia National Laboratories

Notice of a Request for a Class 3 Permit Modification to Module IV of Hazardous Waste Permit NM5890110518-1

On behalf of the Department of Energy (DOE) and Sandia Corporation (Sandia), DOE hereby notifies you that DOE and Sandia are requesting a Class 3 modification to a Hazardous Waste Permit for designation of one solid waste management unit (SWMU) as approved for completion of corrective action at Sandia National Laboratories/New Mexico (SNL/NM).

The SWMU under consideration is SWMU 76, known as the Mixed Waste Landfill. DOE and Sandia have completed corrective action under plans approved by the New Mexico Environment Department (NMED). NMED made a preliminary determination in October 2014 that corrective action is complete at this SWMU.

DOE and Sandia request that this SWMU be listed on Table A.2 "List of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) not Currently Requiring Corrective Action" in Module IV of Hazardous Waste Permit NM5890110518-1. DOE and Sandia further request that NMED require implementation of the controls established in the Long-Term Monitoring and Maintenance Plan that NMED approved on January 8, 2014.

Comment Period. A 60-day public comment period associated with this permit modification request begins on October 20, 2014. Comments on this request will be accepted through December 19, 2014. Comments should be directed to both:

Mr. John Kieling, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Dr. E, Bldg. 1
Santa Fe, NM 87505

Mr. John Weckerle
US Department of Energy
Sandia Field Office
PO Box 5400
Albuquerque, NM 87185

Public Meeting. Information about SWMU 76 will be presented in poster format at a meeting:

Tuesday, November 18, 2014, 4:00 – 8:00 p.m.
Manzano Mesa Multigenerational Center
501 Elizabeth SE
(located between Eubank and Juan Tabo, at the corner of Southern and Elizabeth, SE)

The posters will be available for review, and personnel from SNL/NM will be available to answer questions during the entire meeting. Attendees will also be able to make written comments during the meeting. All written comments submitted during the meeting will be forwarded to the NMED.

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(continued on next page)

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NOTICE
Sandia National Laboratories
(concluded)

Public Inspection of Documents. The permit modification request consists of a letter with two enclosures:

- A brief history of corrective action at SWMU 76.
- An index of the supporting documents that comprise the justification for the permit modification request.

The supporting documents are included in an 8-volume set: *Justification for Class 3 Permit Modification for Corrective Action Complete With Controls, Solid Waste Management Unit 76, Mixed Waste Landfill*

The permit modification request and supporting documents are available at the following locations:

- An electronic copy is available at at http://repository.unm.edu/ through the University of New Mexico (UNM) LoboVault online database.

- A paper copy is available at Zimmerman Library on the UNM main campus in Albuquerque. The copy is available as a course reserve at the Reference Desk on Level 1 in the library. Current schedule information for all UNM libraries is available online at http://library.unm.edu/index.php

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- A paper copy is available at the NMED Hazardous Waste Bureau, 2905 Rodeo Park Drive East, Building 1, in Santa Fe. For further information regarding access to this copy, please contact Pam Allen at 505-476-6064, 505-476-6000, or pam.allen@state.nm.us Note: Anyone wishing to access this copy must complete an Inspection of Public Record Request Form, available at http://www.nmenv.state.nm.us/Common/documents/public_information_request.pdf

Compliance History. The Permittees' compliance history during the life of the permit being modified is available from the NMED contact person listed below.

Contacts. Any questions regarding this permit modification may be directed toward any of the following contacts:

Department of Energy contact John Weckerle, (505) 845-6026.

Sandia National Laboratories contact David Miller, (505) 284-2574.

New Mexico Environment Department contact John Kieling, (505) 476-6000.

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REVISED NOTICE
Sandia National Laboratories

Revised Notice of a Request for a Class 3 Permit Modification to Module IV of Hazardous Waste Permit NM5890110518-1

On behalf of the Department of Energy (DOE) and Sandia Corporation (Sandia), DOE hereby notifies you that DOE and Sandia are requesting a Class 3 modification to a Hazardous Waste Permit for designation of one solid waste management unit (SWMU) as approved for completion of corrective action at Sandia National Laboratories/New Mexico (SNL/NM).

The SWMU under consideration is SWMU 76, known as the Mixed Waste Landfill. DOE and Sandia have completed corrective action under plans approved by the New Mexico Environment Department (NMED). NMED made a preliminary determination in October 2014 that corrective action is complete at this SWMU.

DOE and Sandia request that this SWMU be listed on Table A.2 "List of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) not Currently Requiring Corrective Action" in Module IV of Hazardous Waste Permit NM5890110518-1. DOE and Sandia further request that NMED require implementation of the controls established in the Long-Term Monitoring and Maintenance Plan that NMED approved on January 8, 2014.

Comment Period. A 60-day public comment period associated with this permit modification request began on October 20, 2014 and was scheduled to conclude December 19, 2014. Due to an inadvertent 10-day delay in mailing some copies of this notice, the comment period has been extended 10 days. **Comments on this request will be accepted through December 29, 2014.** Comments should be directed to both:

Mr. John Kieling, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Dr. E, Bldg. 1
Santa Fe, NM 87505

Mr. John Weckerle
US Department of Energy
Sandia Field Office
PO Box 5400
Albuquerque, NM 87185

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Tuesday, November 18, 2014, 4:00 – 8:00 p.m.
Manzano Mesa Multigenerational Center
501 Elizabeth SE
(located between Eubank and Juan Tabo, at the corner of Southern and Elizabeth, SE)

The posters will be available for review, and personnel from SNL/NM will be available to answer questions during the entire meeting. Attendees will also be able to make written comments during the meeting. All written comments submitted during the meeting will be forwarded to the NMED.

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REVISED NOTICE
Sandia National Laboratories
(concluded)

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- A paper copy is available at Centennial Library on the UNM main campus in Albuquerque. The copy is available as a course reserve at the Reference Desk on Lower Level 1 in the library. Current library schedule information is available online at http://library.unm.edu/index.php
- A paper copy is available at the NMED Hazardous Waste Bureau, 2905 Rodeo Park Drive East, Building 1, in Santa Fe. For further information regarding access to this copy, please contact Pam Allen at 505-476-6064, 505-476-6000, or pam.allen@state.nm.us Note: Anyone wishing to access this copy must complete an Inspection of Public Record Request Form, available at http://www.nmenv.state.nm.us/Common/documents/public_information_request.pdf

Compliance History. The Permittees' compliance history during the life of the permit being modified is available from the NMED contact person listed below.

Contacts. Any questions regarding this permit modification may be directed toward any of the following contacts:

Department of Energy contact John Weckerle, (505) 845-6026.

Sandia National Laboratories contact David Miller, (505) 284-2574.

New Mexico Environment Department contact John Kieling, (505) 476-6000.

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SUPPLEMENTAL REVISED NOTICE
Sandia National Laboratories

Revised Notice of a Request for a Class 3 Permit Modification to Module IV of Hazardous Waste Permit NM5890110518-1

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The SWMU under consideration is SWMU 76, known as the Mixed Waste Landfill. DOE and Sandia have completed corrective action under plans approved by the New Mexico Environment Department (NMED). NMED made a preliminary determination that corrective action is complete at this SWMU and issued a Certificate of Completion on October 8, 2014.

DOE and Sandia request that this SWMU be listed on Table A.2 "List of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) not Currently Requiring Corrective Action" in Module IV of Hazardous Waste Permit NM5890110518-1. DOE and Sandia further request that NMED require implementation of the controls established in the Long-Term Monitoring and Maintenance Plan that NMED approved on January 8, 2014.

Extended Comment Period. A 60-day public comment period associated with this permit modification request began on October 20, 2014 and was scheduled to conclude December 19, 2014. Due to an inadvertent 10-day delay in mailing some copies of the original notice, the comment period was extended 10 days. DOE and Sandia are now extending the comment period an additional 7 days in response to a citizen's request. **Comments on this request will be accepted through 5:00 pm on January 5, 2015.** Comments should be directed to both:

Mr. John Kieling, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Dr. E, Bldg. 1
Santa Fe, NM 87505

Mr. John Weckerle
US Department of Energy
Sandia Field Office
PO Box 5400
Albuquerque, NM 87185
nnsa.sandia@nnsa.doe.gov

All comments directed to John Weckerle will be forwarded to John Kieling.

Public Meeting. Information about SWMU 76 was presented in poster format at a meeting on November 18, 2014 at the Manzano Mesa Multigenerational Center in Albuquerque. All posters and handouts from the meeting are available online at http://repository.unm.edu/ through the University of New Mexico (UNM) LoboVault online database. Follow the Solid Waste Management Unit link.

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SUPPLEMENTAL REVISED NOTICE
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The permit modification request and supporting documents are available at the following locations:

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Enclosure 2

Public Meeting Information
Request for Class 3 Permit Modification

Solid Waste Management Unit 76
Mixed Waste Landfill

Sandia National Laboratories
NM5890110518

Exceptional service in the national interest

Sandia National Laboratories

Class 3 Permit Modification for Corrective Action Complete with Controls Solid Waste Management Unit 76, Mixed Waste Landfill

November 18, 2014 Public Meeting - Manzano Mesa Multigenerational Center

Welcome to the Department of Energy (DOE) and Sandia Corporation (Sandia) public meeting for the Solid Waste Management Unit (SWMU) 76, Mixed Waste Landfill (MWL) at Sandia National Laboratories, New Mexico (SNL/NM). The following information is provided as a general orientation for this meeting, which is being presented in a poster session format. Information is available at several stations as discussed in this handout. Please refer to the map attached at the back that shows the location of the various stations.

- Station 1 – General information on how to access the Administrative Record documents associated with this Permit Modification, and an area with support personnel to provide written or verbal comments that will be considered and responded to by the New Mexico Environment Department (NMED).
- Station 2 – Background information related to this Class 3 Permit Modification.
- Stations 3 through 6 - More specific technical information related to the regulatory steps associated with this Class 3 Permit Modification.

What is Solid Waste Management Unit 76, Mixed Waste Landfill, where is it, and what is the depth to groundwater?

SWMU 76, MWL is 2.6-acre site in the north-central portion of Technical Area III at SNL/NM, which is within the boundaries of the federally-owned Kirtland Air Force Base immediately southeast of the City of Albuquerque in Bernalillo County, New Mexico (see Figure 1 and Station 2). The MWL is located 4 miles south of SNL/NM central facilities and 5 miles southeast of the Albuquerque International Sunport.

The MWL consists of two distinct disposal areas: the classified area (occupying 0.6 acres) and the unclassified area (occupying 2.0 acres). Waste disposal at the MWL took place from March 1959 through December 1988.

Approximately 100,000 cubic feet (approximately 3,700 cubic yards) of low-level radioactive and mixed waste were disposed of in the MWL. Classified wastes were buried in cylindrical pits in the classified area, and unclassified wastes were buried in shallow trenches in the unclassified area. The maximum depth of burial is approximately 25 feet below the ground surface. At and near the MWL, groundwater occurs in fine-grained Santa Fe Group alluvial fan sediments (silt and sand with clay, typically transported and deposited by water flowing off the mountains to the east), approximately 500 feet below the ground surface. See Poster Stations 2 and 6 for more information.

What is the purpose of this public meeting?

This public meeting is part of the process for a Class 3 modification to the SNL/NM Hazardous Waste Facility Operating Permit (the Permit). The DOE and Sandia (the Permittees) requested the Class 3 modification to the Permit on October 20, 2014. Permittees who request a Class 3 modification to a hazardous waste permit are required to issue a public notice, accept public comments for 60 days, and hold a public meeting (this meeting).

The requirements for a Class 3 permit modification are described in the State of New Mexico Regulations [Title 20, Chapter 4, Part 1, Subpart IX of the New Mexico Administrative Code (20.4.1.900 NMAC) incorporating Title 40 of the Code of Federal Regulations (CFR) Part 270 Section 42(c)].

What is the topic of this permit modification? What is involved?

DOE and Sandia are requesting that the NMED take two actions that are reflected in the Permit:

1. Determine that corrective action is complete at SWMU 76, Mixed Waste Landfill. This is formalized in the Permit by removing SWMU 76 from the table listing "SWMUs requiring corrective action" to the table listing "SWMUs for which corrective action is complete with controls."
2. Establish the long-term monitoring, maintenance, and controls needed to provide ongoing protection of human health and the environment. This is formalized by incorporating the MWL Long-Term Monitoring and Maintenance Plan (LTMMP), approved by NMED on January 8, 2014, into the Permit and specifying that the controls established in the LTMMP are required for SWMU 76, MWL.

What is a Solid Waste Management Unit, and what is corrective action?

A **SWMU** is defined in the Permit as "any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at a facility at which solid wastes have been routinely and systematically released." [solid waste includes radioactive waste]

As required by the regulations (20.4.1.500 NMAC incorporating 40 CFR 264.101), DOE and Sandia are required to "institute corrective action as necessary to protect human health and the environment for all releases of hazardous waste or constituents from any solid waste management unit at the facility, regardless of the time at which waste was placed in such unit."

Corrective action is a process that consists of several steps:

- Initial identification and assessment of potential SWMUs.
- Investigation to characterize each SWMU (i.e., collecting the data necessary to determine the nature and extent of any releases of contaminants), and evaluating whether hazardous wastes and hazardous constituents that are present or may have been released pose an unacceptable risk to human health and the environment.
- Evaluation of corrective measures alternatives or remedies (i.e., methods for cleaning up releases, if necessary).
- Selection of final measures and remedies by NMED.
- Implementation and completion of selected corrective measures or remedies.
- Maintenance of controls after completion of the selected corrective measures, where appropriate.

The schedule and specific requirements for DOE and Sandia at SNL/NM are included in the Permit and other documents issued by the NMED.

Why are DOE and Sandia requesting this Class 3 permit modification now?

NMED has issued a Certificate of Completion, indicating all the required corrective action steps have been completed.

The requirements for completion of the corrective action steps listed above at SWMU 76, MWL are defined in two documents issued by NMED:

- The Compliance Order on Consent (COOC) issued by NMED in April 2004. The COOC contains the general regulatory framework and requirements for the corrective action process at all SNL/NM SWMUs, including SWMU 76, MWL.
- The Final Order In the Matter of Request for a Class 3 Permit Modification for Corrective Measures for the Mixed Waste Landfill, No. HWB 04-11(M) (Final Order) issued by the NMED Secretary on May 26, 2005. The Final Order documents the approval of the requested Class 3 Permit Modification and is specific to SWMU 76, MWL; it documents the specific requirements for corrective measures planning, implementation, reporting, and long-term controls (i.e., the roadmap for SWMU 76, MWL corrective measure implementation, completion, and controls).

How does the Final Order relate to this Class 3 Permit Modification for Corrective Action Complete with Controls? What is the background?

The Final Order was issued by the NMED Secretary on May 26, 2005 as part of the first Class 3 permit modification for corrective measures at SWMU 76, MWL. This first permit modification was for the selection of a final remedy. The Final Order detailed all requirements associated with implementing the final remedy, including the need for long-term controls. The final remedy selected by the NMED Secretary consisted of a vegetative soil cover with bio-intrusion barrier (herein referred to as an evapotranspirative [ET] cover).

The earlier work at SWMU 76, MWL that resulted in the NMED Final Order is not part of the scope for this Class 3 permit modification. However, it is summarized to provide context at Station 2 (Background Information, Regulatory Process, & Final Order).

This Class 3 permit modification addresses corrective action during the 9-year period from 2005 through 2014.

How were the corrective action requirements met?

There are several corrective action requirements, and a brief summary of completion is provided below in chronological order for each of them. Completing these requirements over the 9-year period from 2005 through 2014, and providing information on the work involved, is the topic of both this Class 3 permit modification and this public meeting. Stations 3 through 6 provide additional information.

Describe the corrective actions.

The corrective actions fall into four categories:

- Planning for implementation of corrective measures (Poster Station 3)
- Implementing the corrective measures and reporting on them (Poster Station 4)
- Long-term monitoring and maintenance to maintain the corrective measures (Poster Station 5)
- Groundwater studies and documents (Poster Station 6)

Each category is described in more detail below.

Station 3: Corrective Measures Implementation Plan – This construction plan for the ET cover described how the cover was to be constructed.

The plan also included a report of fate and transport modeling, describing a computer-modeling process that DOE and Sandia used to estimate and predict the potential movement of contaminants in the subsurface soils beneath SWMU 76, MWL under various scenarios. NMED required DOE and Sandia to perform the modeling to address public concerns and uncertainty associated with the inventory and characterization data, and to provide a technical basis for monitoring requirements and trigger levels to be included later in the LTMMP.

A brief history of the Corrective Measures Implementation (CMI) Plan:

- CMI Plan submitted to NMED on November 3, 2005.
- Public comment period from December 9, 2005

through February 7, 2006; public meeting on May 25, 2006; an additional 14-day public comment period from May 25 to June 8, 2006.

- NMED provided a Notice of Disapproval (NOD) with two sets of comments in November 2006 and added an additional requirement (i.e., not included in the Final Order) for a field investigation of soil-vapor volatile organic compounds, tritium, and radon to confirm the earlier Phase 2 Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) results based on public concerns.
- DOE and Sandia submitted the Soil-Vapor Sampling and Analysis Plan in December 2006 that was approved by NMED in February 2008 after a 30-day public comment period and public meeting. The Soil-Vapor Investigation was completed in 2008 and confirmed the Phase 2 RFI results. DOE and Sandia submitted the Soil-Vapor Investigation Report in August 2008 that was approved by NMED in September 2008.
- DOE and Sandia responded to all NMED technical comments, including a second NOD issued in October 2008, and the CMI Plan was conditionally approved on December 22, 2008.
- During the CMI Plan review and approval process, DOE and Sandia began initial preparations for construction of the ET Cover. From June through October 2006, native soil fill material was excavated and mechanically screened, and the subgrade (ground surface upon which the ET Cover is constructed) was prepared.

Station 4: CMI and Final CMI Report – This report documents construction of the ET cover in accordance with the NMED-approved CMI Plan, and includes a Construction Quality Assurance Report certified by a professional engineer registered in the State of New Mexico.

A brief history of ET cover construction and CMI Report:

- ET cover construction was completed from May through September, 2009.
- CMI Report was submitted to NMED in January 2010.
- Public comment period from November 29, 2010 to February 28, 2011; public meeting held on December 14, 2010; and NMED issued eight technical comments in May 2011.
- DOE and Sandia responded to NMED technical comments in August 2011 and issued Revision 1 of the CMI Report.
- NMED approved Revision 1 of the CMI Report in October 2011, requested submittal of the MWL LTMMP within 180 days, and clarified the first 5-Year Reevaluation Report required by the Final Order would be due to NMED five years after NMED approval of the LTMMP.

Station 5: LTMMP – This plan defines the monitoring, inspection, maintenance/repairs, and reporting requirements that are part of the final remedy. These requirements represent the controls that are required as part of the Corrective Action Complete determination by NMED. As required by the LTMMP that was approved by NMED on January 8, 2014 and immediately implemented by DOE and Sandia, annual reports documenting all monitoring, inspection, and maintenance/repair activities and results must be submitted to NMED by June 30 of each calendar year.

A brief history of the LTMMP:

- As requested by NMED based on public input during the CMI Plan public comment period, DOE and Sandia submitted an LTMMP in September 2007 in advance of the required submittal timeframe in the Final Order.
- NMED conducted a public comment period from October 31, 2007 to January 31, 2008 (90 days); but in October 2011 requested withdrawal of the 2007 document and submittal of a revised LTMMP due to significant changes since 2007 (e.g., replacement of the compliance groundwater monitoring well network in 2008 and completion of ET cover construction in 2009).
- DOE and Sandia submitted the revised LTMMP in March 2012.
- Public comment period from September 14, 2012 to February 11, 2013 (150 days) and a public meeting on October 14, 2011.
- Revised LTMMP approved by NMED on January 8, 2014.

- All monitoring, inspection, maintenance/repair, and reporting activities implemented by DOE and Sandia upon NMED approval.
- First MWL Annual Long-Term Monitoring and Maintenance Report submitted to NMED in June 2014 and approved by NMED in August 2014.
- First 5-Year Reevaluation Report will be submitted to NMED by January 8, 2019.

Station 6: Groundwater Documents and Studies

DOE and Sandia continued to conduct groundwater monitoring and reporting as required by the COOC. The COOC groundwater monitoring requirements for this time period are addressed in Annual Groundwater Monitoring Reports and other groundwater documents that have been submitted to the NMED.

If this Permit Modification is approved by NMED, does that mean that DOE and Sandia are done at Solid Waste Management Unit 76, Mixed Waste Landfill?

No. DOE and Sandia have an ongoing requirement to ensure that conditions at SWMU 76, MWL remain protective of human health and the environment, and protective of the regional groundwater aquifer. The LTMMP for SWMU 76, MWL (described above and at Poster Station 5) will be incorporated into the Permit as part of this modification. The Permit is a legally binding document with penalties for non-compliance.

The LTMMP defines plans for monitoring the air, surface soil, biota (surface soil and plants), the 500-foot thick zone between the ground surface and regional groundwater (i.e., the vadose zone), and groundwater. DOE and Sandia must perform this monitoring and submit annual reports of the monitoring activities to NMED for the foreseeable future. The monitoring is designed to ensure SWMU 76, MWL remains in a condition that is protective of groundwater, human health, and the environment. The requirements of the Permit can only be changed with NMED approval.

In addition to the ongoing monitoring, DOE and Sandia will periodically analyze the effectiveness of the ET cover and reevaluate the feasibility of excavation of SWMU 76, MWL. DOE and Sandia will report the reevaluation results to NMED every 5 years; the first report is due in January 2019. The results of the ongoing monitoring will be used to update the fate and transport model originally presented in the CMI Plan, and to reevaluate the likelihood of contaminants reaching groundwater. These reevaluation reports and supporting documentation will be made readily available to the public, and NMED will provide a process whereby members of the public may comment on their contents. NMED is responsible for responding to public comments and offering the final approval of the reports.

If monitoring results indicate that conditions have changed and are no longer consistent with previous investigation and modeling results (i.e., established monitoring trigger levels are exceeded), additional actions must be implemented by DOE and Sandia as stipulated in the LTMMP to protect groundwater and human health and the environment.

Why didn't DOE and Sandia dig up the Mixed Waste Landfill like they did other Solid Waste Management Units and the Chemical Waste Landfill?

Like the other SWMUs at SNL/NM, SWMU 76, MWL was extensively investigated and releases were characterized to determine the nature and extent of contamination. The Chemical Waste Landfill (CWL) was also extensively investigated, releases were characterized, and corrective measures were performed voluntarily during closure.

The same basic steps were applied to both the CWL and MWL. An important difference is that free liquids were not disposed of at the MWL, with one exception (the 1967 disposal of 204,000 gallons of ultra-pure reactor coolant water containing incidental short-lived activation products in Trench D of the unclassified area). Small quantities of liquid waste, typically less than five gallons, were solidified with commercially available materials prior to containerization and disposal in the MWL. At the CWL, thousands of gallons of organic liquid waste were disposed of in open pits over many years of landfill operations. As a result, the movement of waste contaminants from the disposal areas at the MWL was minimal as compared to the CWL.

The minimal movement of contaminants at the MWL was verified by the Phase 2 RFI and 2008 Soil-Vapor Investigation results, which confirmed tritium as the primary contaminant of concern, and defined the depth of tritium as limited to approximately 110 feet below ground surface beneath the classified area. Concentrations of volatile organic compound in the shallow vadose zone are low (the highest concentrations are in the low part per millions by volume to a depth of 50 feet below the original ground surface), and do not indicate a threat to groundwater. The results of the extensive SWMU 76, MWL Phase 2 RFI, together with 24 years of groundwater monitoring, follow-up investigations since completion of the Phase 2 RFI, and ongoing long-term monitoring (soil-vapor and groundwater), indicate there have not been any releases from SWMU 76, MWL that have impacted groundwater.

In contrast, during investigation of the CWL, DOE and Sandia found that volatile organic compounds released from the disposal areas had migrated approximately 500 feet downward to groundwater, resulting in trichloroethylene concentrations exceeding the regulatory standard in the groundwater. The corrective measures taken voluntarily during closure of the CWL were appropriate for the environmental conditions.

After considering the administrative record in its entirety, the NMED Secretary issued the Certificate of Completion and approved long-term controls as defined in the LTMMP. Upon NMED granting this Class 3 permit modification, DOE and Sandia will be legally bound by the Permit to continue long-term controls for the foreseeable future to ensure the current and future conditions at SWMU 76, MWL are protective of groundwater, human health, and the environment.

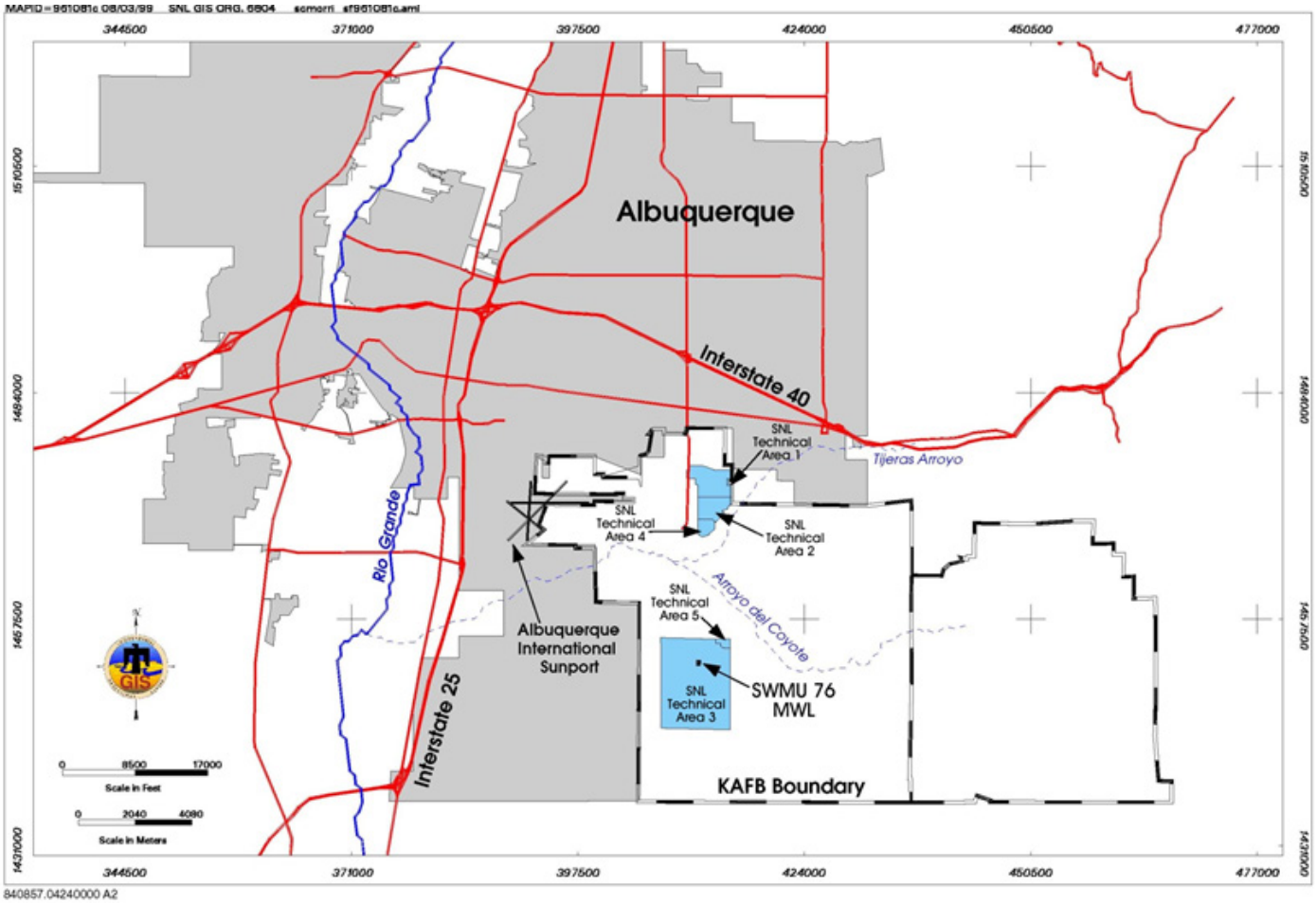
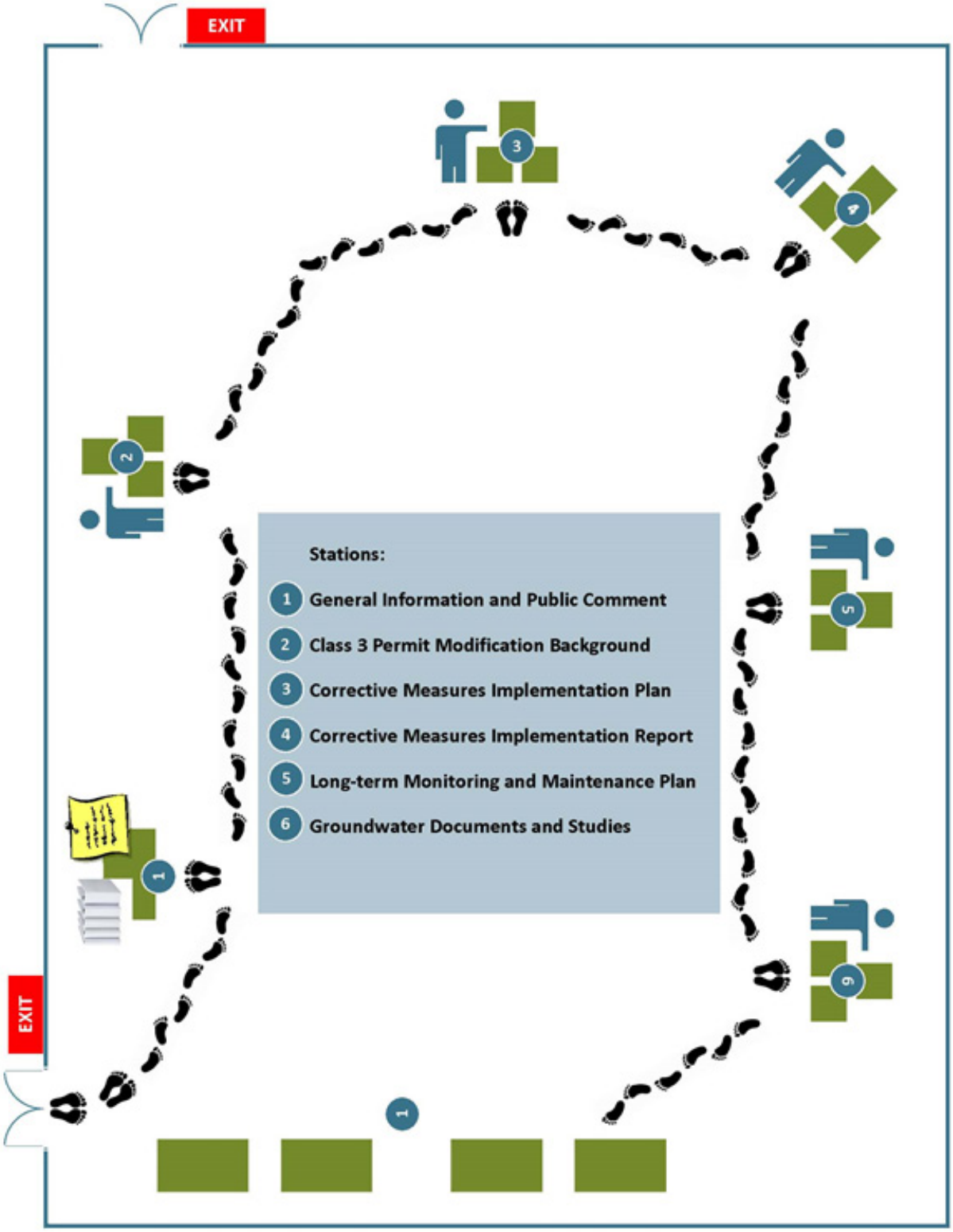


Figure 1
Location of Kirtland Air Force Base, Sandia National Laboratories, New Mexico, and SWMU 76, Mixed Waste Landfill

Map Showing the Layout of Information Stations



Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

Solid Waste Management Unit 76 Mixed Waste Landfill
Class 3 Permit Modification for Corrective Action Complete with Controls
November 18, 2014 Public Meeting Sign In Sheet

PLEASE PRINT YOUR NAME AND THANKS FOR COMING TO OUR MEETING!

Marcie Summerlin
Kirsten Matier
BEN MARTINEZ
William Moats
SANDRA SEDICO
Margaret Wallace
Paul Eichhorn
Eric Nuttall
Victor Werbin
SALLY BEERS
JOHN ECHERD
ED WILLIAMS
EMILY AIKINS
Jim MISKA
FRAN NIMICK
Eric Bozman
David Correa
Dr Robin Falkor
TOM SKIBITSKI
Caroline Byrd
Susan Rodriguez

Solid Waste Management Unit 76 Mixed Waste Landfill
Class 3 Permit Modification for Corrective Action Complete with Controls
November 18, 2014 Public Meeting Sign In Sheet

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BILL WADMAN
Dave McCoy
Amy Tapia
Sylvia Saltzstein
Curtis Miller
Dick Fate
MIKE SANDERS
DARIO RODRIGUEZ
Terry Cooper
Michael Barthel Mike Barthel
Arthur Alfred C
Ramona M. Montoya
Karen Bonime
Camila Pansarasa
Jal Collazo
Jill Turner

Solid Waste Management Unit 76 Mixed Waste Landfill
Class 3 Permit Modification for Corrective Action Complete with Controls
November 18, 2014 Public Meeting Sign In Sheet

PLEASE PRINT YOUR NAME AND THANKS FOR COMING TO OUR MEETING!

S.D. Domville
[illegible]
Eloy J. Barrett
Connie Carrico
Diane Lenny
J. Ross
[illegible]
Joleen Carrico
Paige Murphy
Diane Edgar
Joe Hartsch
Jill Jurkiewicz

Solid Waste Management Unit 76 Mixed Waste Landfill
Class 3 Permit Modification for Corrective Action Complete with Controls
November 18, 2014 Public Meeting Sign In Sheet

PLEASE PRINT YOUR NAME AND THANKS FOR COMING TO OUR MEETING!

Katrina Wheelock
Timothy Wheelock
Pamela Irvin
EJ GARCIA
Alex Bazan (U.S. Rep Lujan Grisham)

Solid Waste Management Unit 76 Mixed Waste Landfill
Class 3 Permit Modification for Corrective Action Complete with Controls
November 18, 2014 Public Meeting Sign In Sheet

PLEASE PRINT YOUR NAME AND THANKS FOR COMING TO OUR MEETING!

Dezbah Jesus dezts0@gmail.com

TOM BLAINE

Enclosure 3

Comments Received During Public Comment Period
Request for Class 3 Permit Modification

Solid Waste Management Unit 76
Mixed Waste Landfill

Sandia National Laboratories
NM5890110518

Comments Received During the November 18, 2014 Public Meeting

Request for Class 3 Permit Modification

Solid Waste Management Unit 76
Mixed Waste Landfill

Sandia National Laboratories
NM5890110518

COMMENT
Continuation

Name: Arthur Alfreds.

I would request a Public Hearing, for maximum transparency.

COMMENT

Request for Class 3 Permit Modification for
Solid Waste Management Unit 76, Mixed Waste Landfill
Sandia National Laboratories

Name: Robert Aly Date: 11/18/14

Contact information: email address and/or phone number with area code: room2@bigfoot.com
(not required, will be used only if someone has a question about your comment)

It is immoral to leave the mixed waste landfill to our children to clean up.

We need a hearing!
We need
!! Public Hearing !!

Use as many continuation pages as needed. On each continuation page, please write your name, the page number, and the total number of pages

Page _____ of _____

COMMENT

Request for Class 3 Permit Modification for
Solid Waste Management Unit 76, Mixed Waste Landfill
Sandia National Laboratories

Name: Floy Barrett Date: 11/18/2014

Contact information: email address
and/or phone number with area code:
(not required, will be used only if someone has a question about your comment)

There have been too many delays in Sandia National Lab. completing necessary requirements for the corrective action to further the groundwater monitoring that is necessary. The Environment Dept. gave permission to leave the waste under a dirt cover. There is no intent by authorities to excavate these dangerous wastes.

I demand a public hearing is necessary. We deserve no less.

Use as many continuation pages as needed. On each continuation page, please write your name, the page number, and the total number of pages

Page _____ of _____

COMMENT

Request for Class 3 Permit Modification for
Solid Waste Management Unit 76, Mixed Waste Landfill
Sandia National Laboratories

Name: SALLY BEERS Date: 11-18-14

Contact information: email address and/or phone number with area code: shelly1648@yahoo.com
(not required, will be used only if someone has a question about your comment)

WE NEED A WELL ADVERTISED PUBLIC HEARING ON THIS.
NOT ENOUGH PEOPLE KNOW ANYTHING ABOUT THIS. AND I CAN SEE + HEAR THEIR ARE SERIOUS PROBLEMS WITH THIS.

Use as many continuation pages as needed. On each continuation page, please write your name, the page number, and the total number of pages

Page _____ of _____

COMMENT

Request for Class 3 Permit Modification for
Solid Waste Management Unit 76, Mixed Waste Landfill
Sandia National Laboratories

Name: Sylviana D Dourilly Date: 11-18-14

Contact information: email address
and/or phone number with area code:
(not required, will be used only if someone has a question about your comment)

Because of conflicting & newly recovered information AND continuing concern about the times & money the laboratory is willing to expend to ensure very long term monitoring. We need a hearing. We want a hearing. We deserve a ~~hearing~~. Public hearing.

Use as many continuation pages as needed. On each continuation page, please write your name, the page number, and the total number of pages

Page _____ of _____

COMMENT

Request for Class 3 Permit Modification for
Solid Waste Management Unit 76, Mixed Waste Landfill
Sandia National Laboratories

Name: Dick Fate Date: 18 Nov 2014

Contact information: email address
and/or phone number with area code:
(not required, will be used only if someone has a question about your comment)

This is a very impressive display of the relevant technical information leading to the Class 3 Permit Mod. I am very impressed that the MWL is ~~pog~~ progressing so well down its regulatory path. The work done on the MWL merits its final resolution with a Permit Mod — and it appears that it will happen. Many kudos to the folks that are doing the work!

Use as many continuation pages as needed. On each continuation page, please write your name, the page number, and the total number of pages

Page _____ of _____

COMMENT

Request for Class 3 Permit Modification for
Solid Waste Management Unit 76, Mixed Waste Landfill
Sandia National Laboratories

Name: Janet Greenwald Date: 11/18/14

Contact information: email address and/or phone number with area code: contactus@cardnm.org
(not required, will be used only if someone has a question about your comment)

Sandia's position is very different from the positions of the stakeholder groups. Sandia and the stakeholder groups base their positions on different sets of facts most of which come from SNL historical documents. We need a public hearing so that we can hear experts explain the very different positions presented by both groups and assess the facts and allow the hearing officer to assess the facts and come to an independent decision

Use as many continuation pages as needed. On each continuation page, please write your name, the page number, and the total number of pages

(over)

Page _____ of _____

COMMENT
Continuation

Name: Janet Greenwald

Concerning this very dangerous waste site perched above our tap water aquifer.

COMMENT

Request for Class 3 Permit Modification for
Solid Waste Management Unit 76, Mixed Waste Landfill
Sandia National Laboratories

Name: Kirsten Mather Date: 11/18/14

Contact information: email address
and/or phone number with area code:
(not required, will be used only if someone has a question about your comment)

I think this meeting was very well put together. The posters and the people were all very helpful and informative. I think they did a wonderful job with everything! And the justification binders ~~were~~ particularly looked well put together.

Use as many continuation pages as needed. On each continuation page, please write your name, the page number, and the total number of pages

COMMENT

Request for Class 3 Permit Modification for
Solid Waste Management Unit 76, Mixed Waste Landfill
Sandia National Laboratories

Dec 18/14

Name: Susan Shotland-Rodriguez Date: 899855

Contact information: email address and/or phone number with area code:
(not required, will be used only if someone has a question about your comment)

We Demand ~~an public~~ Hearing

We Need to you need to show what is in the landfill
The land should be excavated & properly & Safely
dealt with. There should be no final Solution
~~until~~ We are ~~stay~~ sure that the waste is
Not leaked into the aciqifer

These meetings Need to be Deserved ~~place~~
in Albuquerque & with the pueblos

Thank you for your attention
Susan Rodriguez

Use as many continuation pages as needed. On each continuation page, please write your name, the page number, and the total number of pages

Page _____ of _____

COMMENT

Request for Class 3 Permit Modification for
Solid Waste Management Unit 76, Mixed Waste Landfill
Sandia National Laboratories

Name: Marcie Summerlin Date: 11/18/14

Contact information: email address and/or phone number with area code:
(not required, will be used only if someone has a question about your comment)

I found both the displays and the people who were working the meeting to be extremely clear and informative. It appears clear that the Mixed Waste Landfill has been well handled and does not pose a threat to our groundwater.

Use as many continuation pages as needed. On each continuation page, please write your name, the page number, and the total number of pages

COMMENT

Request for Class 3 Permit Modification for
Solid Waste Management Unit 76, Mixed Waste Landfill
Sandia National Laboratories

Name: Michael Swick Date: 11-18-14

Contact information: email address and/or phone number with area code: mswick47@gmail.com
(not required, will be used only if someone has a question about your comment)

According to the Environmental Protection Agency, "All landfills will eventually fail and leak leachate into ground and surface water." The public is concerned about what long term plans SNL have to deal with the obvious inevitability of this potentially life threatening situation. We deserve & demand a public hearing to address & study this problem.

Use as many continuation pages as needed. On each continuation page, please write your name, the page number, and the total number of pages

Page _____ of _____

COMMENT

Request for Class 3 Permit Modification for
Solid Waste Management Unit 76, Mixed Waste Landfill
Sandia National Laboratories

Name: Victor Werbin Date: 11-18-2014

Contact information: email address
and/or phone number with area code:
(not required, will be used only if someone has a question about your comment)

victorw1313@gmail.com

I request a public hearing regarding this issue.
It should be well publicized with plenty of time for experts from the community to present their data.

Without such a meeting, I believe the NMED has no credibility regarding the oversight of this continuing problem.

Use as many continuation pages as needed. On each continuation page, please write your name, the page number, and the total number of pages

Page _____ of _____

Comments Received After the November 18, 2014 Public Meeting

Request for Class 3 Permit Modification

Solid Waste Management Unit 76
Mixed Waste Landfill

Sandia National Laboratories
NM5890110518

"Genius"

LOS ANGELES CA 900

11 DEC 2014 PM 8 L

Mr John Weckerle
US department of Energy
Sandia Field Office
PO Box 5400
Albuq NM 87185

REC'D DEC 15 2014

87185540000

about the Landfill near the Pueblo of Isleta! What are you? a bunch of Phypathic Weirdos?

Shut down Los alomos and Sandia Labs, use the Money to Clean up the Mess!!!

I Cant believe how these so Called experts are destroying the whol Planet!

When the water, air and Earth are Porsoned, good luck

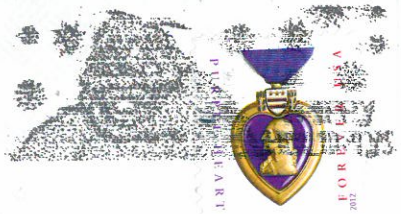
Genius

PS you not Potecting anyone with your weapons of mass destruction! not ~~to~~ mention the Jet fuel Spill!

Mr. John Mulhouse
1112 Roma Vae NE
Albuquerque, NM 87106

ALBUQUERQUE NM 870

17 DEC 2014 PM 2 L



REC'D DEC 18 2014

Mr. John Wecterle
US Department of Energy
Sandia Field Office
PO Box 5400
Albuquerque, NM 87165

87185540000

Mr. John Weckerle
US Department of Energy
Sandia Field Office
PO Box 5400
Albuquerque, NM 87185

December 16, 2014

Dear Mr. Weckerle,

I wish to submit a public comment regarding the conditional approval granted to Sandia National Laboratories' (SNL) Certificate of Completion for its permit to store high-level nuclear waste. I strongly oppose the granting of a permit allowing the permanent storage of such high-level waste, along with other carcinogens and volatile compounds, to SNL. The landfill currently being used is in no way suited to the long-term storage of these materials. It contains no liner and is essentially a series of pits in the earth. If construction of such a facility was proposed today, it would violate both state and federal laws regarding the regulation of radioactive and toxic wastes.

Further, SNL has clearly not complied with the conditions of their permit as they have not completed the required excavation and removal feasibility study. Given that investigations in 1994 found high levels of volatile organic compounds and tritium in the subsoil, and analyses of water wells detected elevated cadmium, chromium, and nickel concentrations, it is almost certain that the storage facility has been breached and material may well be moving toward groundwater, if it is not there already. Thus there are many proponents for excavating the landfill and building an advanced, secure facility for permanent storage.

Finally, it is worth considering the words of Sandia engineer John Cochrane, who has publicly insisted that the current facility is safe. When asked how he was so certain that waste from the site has not and will not make its way to groundwater, he replied, "These are unlined pits holding high-level nuclear wastes, after all. I know. It feels wrong." It doesn't just feel wrong, it clearly *is* wrong.

Again, I would like to recommend that SNL's permit request be denied.

Sincerely,

John Mulhouse, M.S.

1112 Roma Ave. NE
Albuquerque, NM 87106

jmhouse@cityofdust.com

cc: John Kieling

Richard Rushforth
PO Box 1443
Santa Fe, NM 87504

REC'D DEC 17 2014

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Richard Rushforth

John Weckerle
US Department of Energy Sandia Field Office
PO Box 5400
Albuquerque, NM 87185

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December 4,2014

John Kieling, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2950 Rodeo Park Dr. E Bldg 1
Santa Fe, NM 87505

John Weckerie
US Department of Energy Sandia Field Office
PO Box 5400
Albuquerque, NM 87185

No permit.

Somebody is going pay for this. And I hope it is not going to be the victims of this crime. I think of all the government agencies whose job it is to protect the people's water, the commons. And instead government agencies are now protecting the companies crimes.

Heads should roll in at least the Sandia National Laboratory, Sandia Mixed Waste Landfill, US Department of Energy, New Mexico Environment Department and National Regulatory Commission NRC.

But I think every one who is complicit in this crime should held accountable.

A Heinous crime has been committed. A crime against humanity, land, air and water, are our common property. I would hope harsh penalties and jail are in order.

Is there radiation already in the aquifer?

When where you going tell us?

Is this a super fund site?

No permit.

1. Immediate radiation remediation procedures need to started immediately.

2. All radiation found on site needs to be removed.

3. All costs for remediation will be incurred to those companies found accountable.

4. A community health testing program on humans in the effected area should be started immediately.

5. All costs for health testing program will be incurred to those companies or the possibly the government found to be accountable.

6. Also a health care service in the effected area should be started immediately.

7. All costs for health care service program will be incurred to those companies accountable.

8. What about the water? Testing? I would certainly hope 3rd party testing is in order. I hope this is not going be an issue.

No permit.

Sincerely, Richard Rushforth

Richard Rushforth
PO Box 1443
Santa Fe, NM 87504

Don SCHRADER
1806 Walter SE
Albuquerque, N.M.
87102

ALBUQUERQUE NM 870
28 NOV 2014 PM 2 L

PERSONAL
ATTENTION

Mr. John Weckerle
U.S. Dept. of Energy
Sandia Field Office
P.O. Box 5400
Albuquerque
N.M.
87185

Don Schrader -
69 yr old, longtime
health activist

and pleasing your superiors
more important than
preventing excessive
cancer deaths? Take
a strong public stand
as a person of conscience
and balls!

Mr. John Weckerle- 11/27/2014

I strongly OPPOSE the Sandia Mixed Waste landfill! It is full of extremely hazardous and highly radioactive materials buried in shallow, unlined pits covered in dirt. This is prohibited by federal law! and violates state laws!

In order to protect our ground water, the environment and our health, it must be excavated and landfilled in a secure, engineered facility!

Do YOU have the conscience and courage to do the right thing even if it means risking your job as a bureaucrat?

Our lives and future are at stake! Have YOU ever sat beside a close loved one dying of cancer? Is following orders

OVER

S Smith
HC 63 Box 3
Peña Blanca
NM 87041

Sarah Smith

ALBUQUERQUE NM 871

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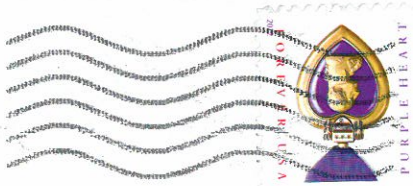

REC'D DEC 17 2014

Mr. John Weckerle
US Dept. of Energy
Sandia Field Office PO Box 5400
Albuquerque, NM 87185

87185$5400

12-06-14

Dear Sir,

I urge you to do whatever needs doing in order to prevent problems of contamination regarding Sandia toxic waste. Please take this situation into personal consideration. Just do whatever you can do for your children or children of loved ones. This is in regard to the Nuclear Meltdown, Welcome to Albuquerque article in the Alibi.

Thank you,
Sarah J. Smith

Ms Carol Benson

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Mr John Weckerle
US Dept. of Energy
Sandia Field Office
P.O. Box 5400
ABQ, N.M. 87185

REC'D DEC 19 2014

87185$5400

Mr John Weckerle
US Dept of Energy, Sandia Fd Off.
P.O. Box 5400
ABQ, NM 87185

Mr John Kieling, Chief
Hazardous Waste Bureau
N.M. Environment Dept.

1749 Miraceros Pl NE
Albuquerque, NM. 87106
Dec. 17, 2014
CAROLBENS@Gmail.com

Dear Mr. Kieling; Mr John Weckerle;

It is most distressing to see the lack of responsiveness on the Mixed Waste Landfill problem. This issue drags on and on, while endangering the lives of Albuquerqueans unreasonably. To see the 5 yr. reviews ignored, knowing the dangerous toxins buried there, is especially disturbing.

I have a reverse mortgage here, which means I need to remain in ABQ, economically speaking. But with the extra possibility of an explosion at Sandia, the jet fuel, or alternatively, arsenic, in my water, EDB's + radionuclides, or no water at all as a result of extreme drought, spread + contamination, wisdom might dictate relocation.

I am quite concerned about the devaluation of my home in the very near future. Perhaps I must sell + jump off the deep end! We are all aware now that the water from all wells is blended. It is not right that the community be put in this situation. Time for proper clean up + storage!

Yours truly;
(Ms) Carol Benson

-----Original Message-----
From: michael.barcelona@wmich.edu [mailto:michael.barcelona@wmich.edu]
Sent: Monday, January 05, 2015 2:12 PM
To: NNSA.Sandia
Subject: Request for a Class 3 permit modification to module IV of Waste Permit NM5890110518-1

Dear Mr. Weckerle and Mr. Kieling, I write as a very concerned citizen and ground water scientist to express my continued outrage over the shameful record of both oversight (by NMED) and history of work at the Sandia Mixed Waste (SWMU 76) Landfill dump by SNL-DOE. I have also attached my resume which details the work that I was able to contribute to the USEPA's efforts to establish identification, monitoring, and maintenance guidelines for the Resource Conservation and Recovery Act's oversight for hazardous waste sites. We did extensive work in establishing safe reliable sampling methods, selection of materials for wells, pumps, etc. and well construction techniques. The documents are listed in the reports from the University of Illinois, Western Michigan University and the University of Michigan.

I can truthfully say that after working at hundreds of waste sites and some DOE and DOD sites, I have never seen a more troubling site than the Sandia MWL dump. The disposal of high level nuclear and chemical materials without adequate inventory, unlined waste sites with no effective cover, and the ridiculous monitoring well network that NMED told them was faulty in the early 1990's with repeated Notices of Denial through 1998 (the Garcia report) borders on criminal in proportion to the continuing damage to the environment. The recent (Sept, 2014) soil vapor monitoring results collected under the MWL dump Long Term Monitoring and Maintenance Plan (LTMMP) alone show that many volatile organic compounds have been released that have appeared at depths up to 400 feet below land surface. The dump has no doubt been leaking since it's inception in 1959.

-- I have read and agree with the numerous documents submitted to NMED, DOE and various citizen groups over the past 15 years by Mr. Robert Gilkeson, Registered Geologist, Mr David McCoy, (Citizen Action), and Ms. Joni Arends, (Concerned Citizens for Nuclear Safety), and Dr. Eric Nuttall, formerly of the University of New Mexico that have detailed the major issues on this and other sites (LANL Area G) that cry out for responsible action on the part of NMED. I strongly urge NMED to deny the permit modification request and reject the inclusion of the existing monitoring well network in the LTMMP. I would also request that a public hearing be held to openly air the serious issues that are at stake if the status quo is allowed to continue.

Dr. Michael J. Barcelona, Professor of Chemistry, Western Michigan University,3342 Wood Hall, 1903 W. Michigan, Kalamazoo, MI, 49008-5413, 269-387-2837, FAX 269-387-2909

MICHAEL JOSEPH BARCELONA

Professor
Department of Chemistry
Western Michigan University
3442 Wood Hall
Kalamazoo, MI 49008
Phone: 269 387-2837
Fax: 269-387-2909
email:michael.barcelona@wmich.edu

EDUCATION: Ph.D., Marine Chemistry/Chemical Oceanography (1977), University of Puerto Rico, Mayaguez, Puerto Rico
M.S., Inorganic Chemistry (1974), Northeastern University, Boston, Massachusetts

B.A., Chemistry (1971), St. Mary's College, Winona, Minnesota

LANGUAGES: English, Spanish (speaking), Italian (speaking)

PROFESSIONAL SOCIETIES: American Chemical Society, Union of Concerned Scientists, Association of Ground Water Scientists and Engineers-National Ground Water Association

PROFESSIONAL EXPERIENCE:

8/01-Present: Professor of Chemistry, Chairperson (10/02-08/07), Department of Chemistry, Western Michigan University, Environmental Organic and Analytical Chemistry Research

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1/94-8/01: Research Professor, University of Michigan-Ann Arbor, MI Department of Civil and Environmental Engineering, Group Leader - Environmental Geochemistry Research, Director of Operations - National Center for Integrated Bioremediation Research and Development (NCIBRD)

Leader of an environmental geochemistry and remediation technology program with a 16 to 24 person research group focused on organic contaminant transformations in sedimentary and subsurface geochemical environments. Direct responsibility for student advising, staff recruitment and program development, supervision of technology evaluation activities and marketing of group capabilities within the Department of Defense Strategic Environmental Research and Development (SERDP) National Environmental Technology Test Sites (NETTS). Both efforts were entirely funded by external grants and contracts.

Michael J. Barcelona

Professional Experience (continued)

12/89-12/93 **Professor of Chemistry (with tenure); Adjunct Prof. of Geology; Director, Institute for Water Sciences, Western Michigan University, Kalamazoo, MI.**

Responsible to the Vice President for Research (Dr. Donald Thompson) for the administration of the Institute for Water Sciences, a University center for research and graduate instruction in environmental chemistry, geology, hydrology, geochemistry, geography, engineering and statistics. Also, the leader of a 4 to 8 person research group conducting organic geochemical and contaminant geochemistry research in natural water systems. The Institute was primarily funded by external grants and contracts.

10/79-12/89 **Aquatic Chemistry Section Head, and Principal Scientist. Aquatic Chemistry Section, Water Survey Division, Illinois Department of Energy & Natural Resources - University of Illinois, Champaign-Urbana, IL.**

Responsible for the recruitment, support and supervision of 24 chemists, geochemists, and engineers in a multidisciplinary program of environmental chemistry, water, and solid waste treatment research and services. Applied research on the transport and fate of chemical constituents in water or sediment systems was an ongoing activity of the group which was primarily funded by external grants and contracts.

6/84-6/85 **Acting Director, Hazardous Waste Research and Information Center (HWRIC), (Now the Illinois Sustainable Technology Center) Illinois Department of Natural Resources, Champaign, IL.**

Responsible to the Department Director for the planning, presentation to legislators, and implementation of a comprehensive program to address the critical research, information and technical assistance needs of Illinois on hazardous waste issues. Staff recruiting, research program development, facilities planning and liaison activities with industry, the public and state agencies were part of the assignment. The effort was funded by a special state appropriation targeted at Industrial assistance with waste management.

1/77-9/79 **National Institute of Environmental Health Sciences. Research Postdoctoral Fellow with Dr. James J. Morgan, Environmental Engineering Sciences, California Institute of Technology, Pasadena, CA.**

Responsible for the planning, execution, data analysis and interpretation of chemical and physical oceanographic studies supporting the engineering of marine biomass projects; and the direct supervision of four chemists. Applied research was conducted on mass balances for atmospheric carcinogens in the Los Angeles Air Basin, sampling and analytical techniques, and the geochemistry of organic compounds in sedimentary coastal marine and other aquatic environments.

6/75-12/76 **Research Associate and Instructor of Chemical Oceanography, Department of Marine Sciences**
University of Puerto Rico, Mayaguez, PR

9/73-6/75 **Senior Chemist and Manager of Environmental Chemistry Section, Omni Research Incorporated,**
San German, PR

Michael J. Barcelona

HONORS & AWARDS

1985, Director's Research Excellence Award, Illinois Department of Natural Resources, presented by the Director of IDNR for meritorious accomplishment as Initial Director of Illinois Hazardous Waste and Information Center (now Illinois Sustainable Technology Center)

1992-1993, Outstanding Service Award for service on National Ground Water Association and Ground Water Publishing Company Editorial Board; Awarded to outgoing associate editors ~ 3/yr.

1998, Outstanding Research Scientist Award, University of Michigan, College of Engineering, $1,000 (Annual award presented to Faculty and Research Scientists for research accomplishment; 1 or 2/yr.)

2002, Keith Anderson Award, National Ground Water Association – Association of Ground Water Scientists and Engineers Division (now Scientists and Engineers Division). Annual award (1) for Significant Contributors and Commitment to the Division.

2008, Fulbright Senior Lecturing Award, J. William Fulbright Foreign Scholarship Board Commission for Cultural, Educational and Scientific Exchange; University of Las Palmas, Grand Canary Island, Spain (Fall 2008 taught a graduate Marine Chemistry class and a number of seminars); ~6,000 awards/yr.

2009, NRC Senior Research Scientist, National Research Council – National Academy of Sciences; (conducted research at Ground Water and Environmental Research Division – U.S. Environmental Protection Agency R.S. Kerr Environmental Research Laboratory, Ada, OK) January-July 2009.

2010, Distinguished Faculty Scholar Award, Western Michigan University, $2000 (at most 1 or 2 per year)

VISITING PROFESSORSHIPS/ SCIENTIST

1988; 2000; 2005; Visiting Scientist, National Research Council of Italy Institute for Water Research, Rome and Bari, Italy, one-month summer visits to conduct groundwater research with collaborators, ~1/yr.

1992; Visiting Professor, Department of Environmental Engineering Technical University of Denmark Lyngby, Denmark, one-month visit to conduct research and serve as external examiner on Mr. Gorm Heron's Ph.D. committee Dr. Thomas Christiansen Advisor, ~ 1/yr.

1996; Visiting Professor, Department of Soil Protection, University of Calabria, Consenza, Italy, one month visit to conduct research and present workshops, Dr. Salvatore Troisi advisor, ~1/yr.

1997; Visiting Professor, Ground Water Research Centre, Department of Civil and Environmental Engineering, University of Waterloo, Waterloo, Canada; visit to serve as external examiner on Ph.D. committee of Mr. Mark King, Dr. James Barker, advisor, ~1/yr.

2003; Visiting Professor, Department of Geochemistry, University of Utrecht, Utrecht, Netherlands, two-week visit to serve as an external examiner on the Ph.D. committee of Mr. Neils Hartog, advisor Dr. C.H.vanderWeijden, ~1/yr.

MAJOR AREAS OF EXPERTISE

Marine Chemistry and Organic Geochemistry
Soil and Ground Water Monitoring and Remediation
Analytical Chemistry
Environmental Statistics
Hazardous and Solid Waste Management
Consulting (last 5 years): DOE,DOD,EPA, Exxon Mobil.
Fulbright Foundation .

HOSTED VISITING SCIENTISTS

Western Michigan University, Mr. Giuseppi Passarella, Water Research Institute , IRSA-CNR, Bari, Italy (September-October 1994)

University of Michigan, Mr. Jeffrey Barbaro, Ph.D. Student of Dr. James Barker ,University of Waterloo (2012, U.S. Geological Survey) (June-August, 1995)

University of Michigan, Dr. Luis E. Marin – Professor of Geologia y Geophysica, Institute of Geophysics, Universidad Nacional Autonoma de Mexico (Sabbatical Year 1997-1998)

University of Michigan, Mr. Jaime Nomocatcat, Ph. D Student of Dr. T. A. Abrajano, Rensselaer Polytechnic Institute (1999-2000)

HOSTED VISITING SCIENTISTS: (continued)

Western Michigan University, Dr. Yerdos Ongarbayev, Professor and Chair, Department of Chemistry, Al-Farabi Kazakh National University, Republic of Kazakhstan (September-December 2006)

PROFESSIONAL ACTIVITIES

1991-1993, Board Member, Association of Ground Water Scientists and Engineers Division (now Scientists and Engineers Division) National Ground Water Association (NGWA)

1992-2002, Editor Ground Water Monitoring and Remediation, NGWA

2002-Present, Associate Editor, Editorial Board, Ground Water Monitoring and Remediation (NGWA)

2012-Present, International Advisory Board Member, Journal of Organic Chemistry Research, Natural Sciences Publishing Corporation

Committee Activities: WMU-Academic Integrity Committee Member, 2013-Present, Institute of International Education-Technical Reviewer 2013-Present. Fulbright Foundation Council for International Exchange- Discipline reviewer, 2011-Present, Canadian Water Network Proposal Review Committee- Water Management Adaptation for Climate Change 2007- Present, Michigan Environmental Science Review Board member 2/04-8/06, National Groundwater Association Ground Water Monitoring and Remediation Association Editor 1/05-Present, UM-College of Engineering Chair- Honors and Awards Committee '98-`01, National Academy of Sciences-National Research Council, Water Science Technology Board Committee on Environmental Remediation of Naval Facilities '97-'99, Chair, National Water Research Institute, Ground Water Disinfection Review Committee '97, UM-Department of Civil and Environmental Engineering Research Committee '96-'99, Chair, Joint Task Group 2580 Redox Potential, Standard Methods APHA, AWWA, WEF, '95-present, participant in Remediation Technology Development Forum Bioremediation Working Groups '94-`00; Science Committee Member Relative Risk Assessment Project - Michigan Department of Natural Resources '91-'92; Chairman; (AGWSE) Editorial Policy Committee '87-95, JWPCF Ground Water Committee'87-'92, ACS Ground-Water Policy Task Force Committee '86-'91, Ground-Water Advisory Subcommittee, Science Advisory Board-USEPA '85-'87; Technical Advisory Panel-USEPA Hazardous Waste Ground Water Task Force '85, State of California Ground-Water Advisory Group '85-'86, Illinois Department of Public Health-Health Hazardous Substances Registry '84'85, Illinois Attorney General's Hazardous Waste Task Force-Alternative Technologies Committee '83'84.

Instructor and Graduate Student Research Supervisor:

Instructor in: Field Methods in Hydrogeochemistry (CEE 595-UM); Hazardous Waste Processes (CEE 584-UM); Solid Waste Management (CEE 585-UM); Environmental Chemistry of Subsurface Systems (WMU), Analytical Chemistry (CHEM 2250, CHEM 2260), Environmental Organic Chemistry (CHEM 6680), Chemical Safety (CHEM 5060), Ethical Chemical Practice (CHEM 5070) Physical Chemistry Laboratory(CHEM 4360) and Special Problems Courses in Subsurface Characterization and Geochemistry of Subsurface Contamination (Chemistry 14188) Introduction to Chemical Oceanography-University of Las Palmas, GC, Spain.

M.S. Student Theses Chair:

(WMU-Geology) Mr. Gary Blinkiewicz-3/93-"Spatial and Temporal Variability in a Large Volatile Organic Contaminant Plume".

(WMU-Chemistry) Mr. Jie Lu-3/94-" Application of a Modified Analytical Derivatization Method to the Determination of Volatile Fatty Acid Microbial Metabolites in Aquifer Systems".

(WMU-Chemistry) Mr. Daniel Tomczak-3/94-" Identification of Aromatic Acids as Microbial Metabolites of Fossil Fuel Compounds in Aquifer Systems".

(WMU-Geology) Mr. Jiang Wu (8/94) "Total Organic Carbon in a Glacial Aquifer: Measurement and Effects on the Transport of Organic Compounds".

(WMU-Geology) Mr. John Ring (12/95) "Spatial and Temporal Variations of C02 Distributions in Vadose Zone Gas Mixtures".

M.S. Student Advisees (UM) Chris Till, Briana Sye, Michael Beebe, Nurul Amin.

(WMU-Chemistry) Charlene Wiglesworth (6/08) "Process Analytical Chemistry for Pharmaceutical Agent Synthesis."

(WMU-Chemistry) Mr. William Lizik (12/09) "A field trial of Nutrient Stimulation of Methanotrophic Microorganism to Reduce Methane Emissions from Landfill Cover Soils"

M.S. Student Committee Member (last three years) WMU Geology, Nathaniel Barnes, Daniel Peabody; WMU Chemistry (Deepti Goel, Jennifer Bunce, Paul Knoll)

PROFESSIONAL ACTIVITIES: (continued)

Ph.D. Student Theses Chair:

Ms. Elizabeth Semkiw (WMU) Field and Lab Evaluation of Organic Election Donors for the Dechlorination of Chlorinated Ethenes (12/08). Chair

Mr. Guibo Xie (9/01) Characterization of Subsurface Petroleum Contaminants and Their Chemical and Biological Remediation with Redox Manipulation, (UM-CEE) Chair.

Current Advisees, Co Chair. 1 Ph.D. student

Ph.D.Committee Member UM-CEE (J. Lendvay, 2000; Michael McCormick, Sonny Lontoh, Karen Skubal, 2001; Noemi Barabas, 2002; Hirotaka Saito, 2003, Karlin Danielson, 2003; An-Tsung Huang UM Dept of Public and Environmental Health, 2003); WMU (Amy Lachance,1992; W. Richard Laton, 1997; Pedro Gonzalez, 2004; Ke Du, 2006; Eric Gato, 2006) Lisa Anderson (3/09), Sandhya Nair 2009

Reviewer: Analytical Chemistry, Organic Geochemistry, Science, Environmental Engineering, Geochimica Cosmochimica Acta, Limnology and Oceanography, Ground Water, Ground Water Monitoring and Remediation Environmental Science and Technology, Water Resources Bulletin, Journal of Hydrology, Marine Chemistry Contaminant Hydrology and Water Research; and proposals submitted to the: National Science Foundation Marine Chemistry, Earth Sciences, and Environmental Engineering Program and Earth Sciences Division - U.S.-Israel Binational Research Foundation - University of Illinois and University of Wisconsin Water Resources Centers, U. S. Geological Survey - Office of Water Research, USEPA--NRML, Ada, OK, EMSL-Las Vegas, ERL-Athens, GA, Environmental Affairs Division of Illinois DENR. U.S. Department of Energy (1997-Present), Kuwait Foundation for the Advancement of Science(2011-Present), Department of Defense, Strategic Environmental Research Program (SERDP), (2011-Present) Global Innovation Initiative-British Council; U.S. Department of State- Institute of International Education (2013-Present) Fulbright Foundation (2012-Present)

NGWA Board Member: Association of Ground Water Scientists and Engineers (AGWSE), NGWA '91-'93. Ad Hoc Board Member 1992-1995. Chairperson, Education Committee `97-2001. Professional Development Committee 2001-present. Ground Water 2020 Futures Planning 2000-present.

Consultant: A number of private firms, consultants, industrial and government groups, as well as the following: National Water Research Institute, `96-present, USDOE Field Research Center Advisory Committee '98-2006, USDOE-Westinghouse Savannah River Co., Hydrogeology Review Team `95-2004, Italian National Research Council '88-Present, USEPA Superfund Technical Oversight '88-'93, Battelle Pacific Northwest Laboratories '87-'91, USEPA-CERI '85-'94, USEPA-U.S. Dept. of Justice '85, Wisconsin and Illinois Attorneys General (Expert Witness), USEPA -Office of Solid Waste, U.S. EPA-ERL (Athens, GA), USEPA/NRMRL, (Ada Oklahoma), USEPA Water Quality Criteria Scientific Advisory Committee '80-'82, NOAA Ocean Chemistry Laboratory '77.

Program Coordinator: U.S. Air Force Education With Industry Program-SWS Water Chemistry/Corrosion Training '82-'86.

Outreach: Workshops for and Collaborations with: IRSA,,Instituto Richerche Sulle Acqua, Italian Water Research Institute, Bari, Italy, 1987-Present; Michigan Dept. of Environmental Quality, 1990-Present, Washington State Department of Ecology, Oregon Department of Environmental Protection, Maine Department of Environmental Protection, USEPA-HSRC-GLMAC Technical Outreach to Superfund Communities, 1998-2002. Pro Bono consulting for: Concerned Citizens for Nuclear Safety 2009-Present, Clean Water Action 2009-Present, H.O.P.E. (Honor our Pueblo Existence) 2009-Present. Kalamazoo Rotary Club Member 2014-Present, Board Member Kalamazoo Ballet Theater 2014-Present.

Patents: U.S. Patent Office #4,803,869, Flow-Through Analytical Measurement Apparatus and Method for Water Sampling. (With M.R. Schock and E.E. Garske.)

PEER-REVIEWED PUBLICATIONS: (Most Recent Publications)

Modeling Underground Gypsum Barriers to stop Seawater Intrusion in a Fractured Aquifer at Salento (Southern Italy), Costantino Masciopinto, Michael J. Barcelona, and MoonKoo Kim, (In review, J. of Water and Climate Change, May, 2014)

Discussion of Papers "We've Been Here Before" M.J Barcelona, Ground Water, 51, 6.p 815 (2013)

Michael J. Barcelona

Bathymetric influence on dissolved methane in hydrothermal plumes revealed by concentration and stable carbon measurements at newly discovered venting sites on the Central Indian Ridge (2014). O.You, S.Son, J.Son, M. Barcelona, M. Kim Deep-Sea Research,1,91,17-26.

A field trial of nutrient stimulation of Methanotrophs to reduce methane emissions from landfill cover soils. (2013) W. Lizik, J. Im, J.D. Semrau, and M.J. Barcelona Journal of Air and Waste Management, 63(3):300-309.

Editorial: "Déjà Vu All Over Again" (2012) Ground Water Monitoring and Remediation 32,4,p.28

Field Study of Enhanced TCE Reductive Dechlorination by a full-scale dairy whey PRB. E.S. Semkiw and M.J. Barcelona (2011); Ground Water Monitoring and Remediation. 31, 1, 68-78

Field Application of nitrogen & phenylacetylene to mitigate greenhouse gas emissions from landfill cover soils: Effects on microbial community structure J. Im, Sung-Woo Lee, Bodrossy, M.J. Barcelona, J.D. Semrau, Appl. Microbial Biotechnology (published on-line 31 August 2010)

Effect of Nutrient and Selective Inhibitor Amendments on Methane Oxidation, Nitrous Oxide Production, and Key Gene Presence and Expression in Landfill Cover Soils: Characterization of the Role of Methanotrophs, Nitrifiers, and Denitrifiers. S. Lee, J. Im, A. Dispirito, L. Bodrossy, M. J. Barcelona, J. D. Semrau, Applied Microbiology and Biotechnology, (2009) 85, 389-403.

Evaluation of Three Electron-Donor PRB Materials for Enhanced Reductive Dechlorination of TCE. E.S. Semkiw, M.J. Dybas, M.J. Barcelona. Bioremediation Journal, 13, 1, p. 7-20. (2009).

Editorial: "Whither Superfund" M.J. Barcelona Ground Water Monitoring and Remediation, 28, 4, 36-40, (2008)

Readers Comment on " Knowledge – Not Technology –Drives Remediation Success". , Ground Water Monitoring and Remediation (2007) 27 (3), 133-137: **Ground Water Monitoring and Remediation**, 27,4, Fall 2007 p.40.

Design of an MTBE Remediation Technology Evaluation. Ann Azadpour-Keeley and Michael J. Barcelona. (2006) **Ground Water Monitoring and Remediation**. 26,2,103-113

Numerical Simulations to Assess the Monitoring Zone Achieved During Low Flow Purging and Sampling, Mark D. Varljen, M. J. Barcelona, James Obereiner, and David Kaminiski. (2005) **Ground Water Monitoring and Remediation**, 26,1,44-52

Development and Applications of Ground Water Remediation Technologies, M. J. Barcelona. (2005) (Invited paper to "Futures" special issue) **Hydrogeology Journal**., 13, 288-294.

Ground Water Purging and Sampling History versus Hysteria , M. J. Barcelona , M.D. Varljen, R.W. Puls and D.B.Kaminski. (2005) **Ground Water Monitoring and Remediation**., 25, 1, 52-62.

Trimethylbenzoic acids as metabolite signatures in the biogeochemical evolution of an aquifer contaminated with jet fuel hydrocarbons, J. A. Nomocatcat, J. Fang, M. J. Barcelona, A. T. O. Quibuyen, and T. J. Abrajano. (2003), J. **Contaminant Hydrology**, 67, 177-194.

Sequential Chemical Oxidation and Aerobic Biodegradation of Equivalent Carbon Number-Based Hydrocarbon Fractions in Jet Fuel, Guibo Xie and Michael J. Barcelona. (2003), ***Environmental Science and Technology***, 37, 20, 4751-4760.

Bioreactive Barriers: Bioaugmentation and Biostimulation for Chlorinated Solvent Remediations, J. M. Lendvay, F. E. Loffler, M. Dollhopf, M. R. Aiello, G. Daniels, B. Z. Fathepure, M. Gebhard, R. Heine, J. Shi, R. Krajmalnik-Brown, C. L. Major Jr., M. J. Barcelona, E. Petrovskis, R. Hickey, J. M. Tiedje and P. Adriaens. (2003), 37, 1422-1431, ***Environmental Science and Technology.***

Cokriging Optimization of Monitoring Network Configuration Based on a Fuzzy and non- Fuzzy Variogram Evaluation, G. Passarella, M. Vurro, V. D' Agostino and M. J. Barcelona (2003) ***Environmental Monitoring and Assessment*** 82: 1-21,.

A Probabilistic Methodology to Assess the Risk of Ground Water Quality Degradation, G. Passarella, M. Vurro, V. D'Agostino, G. Giuliano and M. J. Barcelona (2002) ***Environmental Monitoring and Assessment,*** 79, 57-74.

Coupled oxidation of aromatic hydrocarbons by horseradish peroxidase and hydrogen peroxide. J. Fang and M.J. Barcelona. (2001) **Chemosphere**, 50, 105-109.

Michael J. Barcelona

Isotopic Composition of Fatty Acids of Extremely Piezophilic Bacteria from the Mariana Trench at 11,000 Meters, J. Fang, M J. Barcelona, T.J. Abrajano, Y. Nogi, and C. Kato. (2002), ***Marine Chemistry***, 80, 1-9.

An Assessment of Natural Biotransformation of Petroleum Hydrocarbons and Chlorinated Solvents at an Aquifer Plume Transect, Karen L. Skubal, Michael J. Barcelona, Peter Adriaens (2001) ***Journal of Contaminant Hydrology*** 49, 151-169.

In-Situ Lifetimes and Kinetics of a Reductive Whey Barrier and an Oxidative ORC Barrier in the Subsurface. M. J. Barcelona and G. Xie. (2001) ***Environmental Science and Technology,*** 35, 16,3378-3385.

Efficient Quantification of Total Petroleum Hydrocarbon: Applications at Two Contaminated Sites, G. Xie and M. J. Barcelona., (2001) ***Ground Water Monitoring and Remediation,*** 21, Spring, 64-70.

Phospholipid Patterns of Five Pseudomonad Archetypes for Different Aerobic Toluene Degradation Pathways, J. Fang, M. J. Barcelona, and P. J. Alvarez, (2000) ***Bioremediation,*** 4, 181-185.

Characterization of Methanotrophic Bacteria on the Basis of Intact Phospholipid Profiles, J. Fang, M. J. Barcelona, and J. Semrau, (2000) ***FEMS Microbial Ecology,*** 189, 67-72.

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M. J. Barcelona, C. Carter, J. Means, J. Parker, S. Rao and M. Tomson. 1985. Report to Subsurface Processes Branch, USEPA-RSKERL, Ada, OK, 16 pp.

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Hazardous Waste Research and Information Center-FY '85 Plan for Action. M. J. Barcelona and S. A. Chagnon. Report to Governing Board of HWRIC, July 1984, 33 pp. (HWRIC 001).

Ground Water Sampling Quality Assurance. Gibb, J. P. and M. J. Barcelona. 1984. Report to USEPA Office of Solid Waste and Emergency Response -Energy Resources Corporation, 215 pp.

Chemical Considerations in Preservation and Handling of Samples. M. J. Barcelona. Chapter XII in Proceedings of Ground Water Monitoring Workshop. SWS-SGS, February 27-28, 1984, Ramada Inn, Champaign, IL

Hazardous Waste in Ogle and Winnebago Counties: Potential Risk Via Ground Water Due to Past and Present Activities. J. P. Gibb, M. J. Barcelona, S. C. Schock and M. W. Hampton. ISWS Contract

Report to Illinois Department of Energy and Natural Resources, #83/26, 100 pp., plus Appendices, September 1983.

A Guide to the Selection of Materials for Monitoring Well Construction and Groundwater Sampling.
M. J. Barcelona, J. P. Gibb, and R. A. Miller. USEPA - R. S. Kerr Environmental Research Laboratory, Ada, OK, #CR-809 966-01, (1983), 142 pp. ISWS Contract Report #327 (EPA 600/82-84-024).

Chemical Problems in Ground Water Monitoring. M. J. Barcelona. Presented at the 3rd National Symposium on Aquifer Rehabilitation and Groundwater Monitoring, National Water Well Association, Columbus, Ohio, May 24-27, 1983, p. 263-2

The Feasibility and Benefits of Reclaiming a Man-Made Lake: A Case Study of Lake Paradise Mattoon, IL. G. E. Stout, R. Buhr, S. Deo, M. J. Barcelona, J. Absher and D. Musser, University of Illinois, Water Resources Center Research Report #170, July 1982, 39 pp.

Lake Sediment for Land Use Improvements. G. E. Stout and M. J. Barcelona. Proceedings of the Second Annual Conference-North American Lake Management Society Lake Restoration, Protection and Management, Oct. 26-29, 1982. USEPA Office of Water Regulations and Standards, EPA 440-5-83-001.

Usefulness of Sediment Oxygen Demand as a Tool for Impoundment Management. M. J. Barcelona and Woodrow Wang. University of Illinois at Urbana-Champaign Water Resources Center Research Report No. 169, August 1982, UILU-WRC-82-0169, 35 pp.

Groundwater Resources in Illinois: A Scientific View. Michael J. Barcelona and James P. Gibb. Illinois Issues, July 1982, p. 40-41.

Handling, Preservation, and Analysis of Groundwater Samples. M. J. Barcelona. Chapter 10 in the Proceedings of the Groundwater Monitoring Workshop, State Water Survey - State Geological Survey - American Water Works Association, February 22-23, 1982, Ramada Inn, Champaign, Illinois.

Lake Paradise Wet Dredging Operations - Feasibility Study. M. J. Barcelona. Water Resources Center UI- UC, August 1980, 42 pp.

Sampling Frequency for Water Quality Monitoring. R. H. Harmeson and M. J. Barcelona. USEPA Environmental Monitoring Systems Laboratory, Advanced Monitoring Systems Laboratory, Las Vegas, Nevada, (1980), 88 pp.

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Emission/Human Dosage Relationships for Selected Environmental Carcinogens. S. K. Friedlander, J. J. Morgan, W. H. White, M. J. Barcelona, and A. H. Miguel. USEPA-EMSL Surveillance and Monitoring Section, Las Vegas, Nevada (1978).

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Comparison of Manual and Automated Methods of Inorganic Micro-Nutrient Analyses. NOAA—Ocean Chemistry Laboratory, Technical Memo. NOAA-TM-ERL-AOML-40, NOAH-80020502; PB80-160997; 31 pp. (November, 1979), G. A. Berberian and M. J. Barcelona.

Results of Oceanographic Survey of Manati Offshore Discharge Site: Manati, P. R. (for Black and Veatch Consulting Engineers) D. K. Atwood and M. J. Barcelona (1975).

An Oceanographic Evaluation of the Puerto Rico Site for Location of an Ocean Thermal Energy Conversion Plant. D. K. Atwood, M. Stalcup, C. P. Duncan, and M. J. Barcelona. Interim and Final Reports to NSF-RANK, January 1976 and July 1976.

Final Report on CICAR Oceanographic Methods; Intercalibration Experiment--CINTEX II (NSF - IOC, UNESCO). D. K. Atwood, Tom van't Hof, M. J. Barcelona, C. P. Duncan, and M. C. Stalcup (1975).

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Atmospheric Ethylene Distributions Near a Petrochemical Complex in S.W. Puerto Rico (May 1974) M. J. Barcelona (for PPG Industries, Caribe).

Ethylene Concentrations in the Lajas Valley: Effect of Point vs.Vehicular Sources (July 1975) M. J. Barcelona for PPG Industries, Caribe).

An Oceanographic Survey for a Proposed Sewage Outfall at El Mani, P.R. (for R. M. Guzman and Assoc., under contract with Puerto Rico Aqueducts and Sewer Authority) (May 1974) M. J. Barcelona and W. Marshall.

Economic Reclamation of Copper from Electroplating Solutions in Order to Meet Discharge Requirements (for Diceon Electronics, Naguabo, P.R.) (January 1975) M. J. Barcelona.

Mercury in Nearshore Waters and Marine Organisms of So. Puerto Rico (for PPG Industries, Caribe). W. Marshall, M. J. Barcelona and O. Wheeler (1974, 1975).

RECENT INVITED LECTURES/WORKSHOPS

NGWA Ground Water Sampling short course, 12/6/13 with David Kaminski , Nashville, TN
Invited Lecturer, Nutrient Stimulation of Methane Oxidizing Bacteria to minimize greenhouse for emissions from a landfill WMU Dept of Geology 12/24/2014.

Low Flow Ground Water Sampling Update, 12/8/12; NGWA National Meeting
Invited Panelist- Problem with the MOA-G site at los Alamos National Labs, Concerned Citizens for Nuclear Safety, June 2012.

Invited Lecturer, 2/22/12, "Effective Ground Water Sampling Methods for volatile organic compounds," Department of Geology Wayne State University, Detroit, MI

Invited Speaker, 11/30/11, "Updated Sampling Technique for volatile organics and microorganisms in ground water," National Ground Water Association, National Meeting, Las Vegas, NV

Invited Lecturer, 7/30/09 "Innovations in "in-situ" Bioremediation of Organic Compounds." Society for Industrial Biotechnology, Toronto, Canada

Michael J. Barcelona

Invited Lecturer, 2/25/09, Serious Water Resources Issues in a Rebuilding Economy, California Ground Water Resources Association, Santa Ana, CA.

Invited Lecturer, 8/21/08, Hydrogeochemical Constraints on Subsurface Bioremediation. Society for Industrial Biotechnology, San Diego, CA.

Invited Speaker, 10/7/07 Monitoring Ground Water Quality with Low-Flow Purging and Sampling Workshop With Mr. James Boiseneau , AIPG (America institute of Professional Geologists) 44th Annual Meeting Traverse City, MI

Invited Speaker and Proceeding Paper, 10/7/07 A Gypsum Barrier Design to Stop Saltwater Intrusion in a Fractured Aquifer at Salento (South Italy) M. J. Barcelona, M. Kim, C. Masciopinto, R. LaMantia.

Invited Speaker, 5/3/06 Ground Water Sampling, Advantage of The Low-Flow Purging and Sampling Approach, M.J. Barcelona, at Ohio Environmental Protection Agency, Columbus, OH

Invited Speaker, 4/24/06 What Information is Needed to Better Define and Protect Future Ground Water Resources? Protecting Strategic Water Resources, Superfund Reauthorization and National Preparedness at National Ground Water Association Ground Water Summit, San Antonio, TX

Invited Speaker, 7/27/05 Low-Flow Sampling of Ground Water in Contaminated Environments, at WMU- Department of Geological Sciences Annual Field Camp, Kalamazoo, MI

Invited Speaker, 7/1/05 Monitoring and Remediation of Seawater Intrusion in Coastal Environments, at National Research Council Water Investigations Laboratory- IRSA, Bari, Italy

Invited Speaker, 5/6/05 Continuing Education Workshop on Ground Water Geochemistry and Sampling, Michigan Association of Environmental Professionals, at St. John's Convention Center, Plymouth, MI

Invited Speaker, 4/7/05 Methyl-t-Butyl Ether and Fuel Plume Remediation Constraints in the Subsurface, Chemistry Department at Ball State University, Muncie, IN

Invited Speaker, 3/22/05 Geochemical Sampling and Analysis of Contaminated Ground Water, Michigan Association of Environmental Professionals Annual Training Course at Westside Sheraton Hotel, Lansing, MI

Invited Speaker, 2/15/05 Sampling Ground Water Efficiently for Remediation and Geochemical Analyses, MDEQ- Remediation and Restoration Division Geological and Leaking Underground Storage Tank Program, Lansing, MI

Invited Speaker, 11/7/04 Future Developments in Ground Water Remediation Strategies, Geological Society of America, at National Meeting Featured Forum organized by the American Institute of Hydrology

Invited Speaker, 8/3/04 Effective Remediation Strategies for Recalcitrant Contaminants Methyl-t-Butyl Ether, at WMU Department of Geological Sciences Seminar, Rood Hall, Kalamazoo, MI

Invited Speaker, 1/13/04 Ground Water Sampling Workshop, Low-Flow Purging and Monitoring Well Dynamics, with D. Kaminski and G.R. Robbins, at Nielsen Ground Water Field Schools, Tampa, FL

Invited Speaker, 11/13/03 Geochemical Considerations for Ground Water Sampling Programs, M. J. Barcelona, at Ground Water Sampling Seminar Am Cham- American Chamber of Commerce, Sao Paulo, Brasil sponsored by Clean Environment, Brasil.

Guest Speaker, 10/2/03 Subsurface Biological and Chemical Reactive Barriers for Ground Water Remediation,
M. J. Barcelona, at Midwest Ground Water Conferences. Western Michigan University, Kalamazoo, MI.

Invited Speaker, 9/29/03 Subsurface Geochemical Manipulation to Promote Bioremediation, M. J. Barcelona, Dept of Geochemistry, University of Utrecht, Utrecht, The Netherlands.

Low-Flow Purging and Sampling of Ground Water, M. J. Barcelona at WMU-Geological Sciences Field Camp 8/13/03, Kalamazoo, MI.

Invited Speaker, 2/27/03 Subsurface Geochemistry and the Bioremediation of Fuel Spills, M. J. Barcelona, Dept of Chemistry, Andrews University, Berrien Springs, MI.

Michael J. Barcelona

Invited Speaker, Effective Strategies for Monitoring Water Quality in the Coastal Zone, M. J. Barcelona, at Second International Conferences in Salt Water Intrusion and Coastal Zone Aquifers, Monitoring, Modeling, and Management, National Autonomous University and Mexican Academy of Sciences, Yucatan Mexico. April, (2003).

Invited Speaker, 2002 Borchardt Conference, University of Michigan, Michigan Dept. of Public Health Drinking Water Plant Operators. February (2002) "Fate, Transport, and Remediation of MTBE in Ground Water"

Invited Speaker, AIPG (American Institute of Professional Geologists) Michigan Section. February (2002) Low Flow Minimal-Drawdown Purging and Sampling of Ground Water.

Invited Keynote Speaker, Groundwater Quality 2001 Sheffield, England, (June 2001). "Sequential Chemical and Biological Degradation of Jet Fuel"

Debate Segment June 2001 Ground Water Quality 2001, Sheffield, England (June 2001) with Dr. Linda Abriola, University of Michigan. Lead discussion of "pro" position for appropriate ground-water remediation at all costs.

Invited Speaker, ASCE Rochester, N.Y. Section- Sampling Innovation for Remedial Ground Water Programs (April 25, 2001)

Invited Speaker, University of Florida, Dept. of Civil and Environmental Engineering (April 16, 2001) A Natural Gradient MTBE/BTEX Tracer Experiment

Michigan Assoc. of Environmental Professionals -Groundwater Sampling Innovation or Obfuscation? (May,2001) Novi, MI.

Univ. of Michigan CEE 260 - Hazardous Waste Investigations and Personnel Protective Equipment Lecture/ Demonstration (February 18, 2001)

Guest Lecturer, UM-Engin. 540, Cellular Biotechnology, Bioremediation Principles and Practice, (2/4/99; 2/8/00).

Guest Lecturer, CEE 260, UM, State of the Art of In-Situ Bioremediation (3/29/99).

Guest Lecturer, Wayne State University, Department of Chemical Engineering, CHE659/HWMTSI, In-Situ Hazardous Waste Treatment (3/23/99).

Geochemical Enhancement of Biotransformations of MTBE. M. J. Barcelona, Center for Environmental Risk Assessment Dept. of Chemistry and' Geochemistry Colorado School of Mines, Golden, CO, 10/18/99,

Summary of Remedial Investigation,, of Meridian Road Landfill. M. J. Barcelona, Meridian United Concerned Citizens, Fortville, IN 10/6/99.

Environmental Geochemistry Research in Support of Bioremediation. M. J. Barcelona, University of Michigan Environmental and Water Resources Engineering, 9/24/99.

Advanced Monitoring,Methods in Support of In-situ Remediation Technology Evaluations, at Michigan Department of Environmental Quality (1999), Geologist Outreach Biennial Training Meeting, Kalamazoo, MI (5/13/99).

Indicators of Bioremediation Effectiveness, Arcadis/Geraghty and Miller, Inc., Remediation Technology Meeting, Tampa, FL (5/8/99).

Mixed Contaminant Source Magnitude and Plume Stability: Fuels and Chlorinated Solvents. M. J. Barcelona, C. L. Major, J. Fang, and M. D. Varljen, In-Situ and On Site Bioremediation 4/19-22/99 San Diego, CA, Battelle Memorial Institute.