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Date: November 29, 1999
Refer to: E/ER:99-339

Mr. John Kieling
NMED-HRMB
P.O. Box 26110
Santa Fe, NM 87502

SUBJECT: ANNUAL SUBMITTAL OF THE WASTE MINIMIZATION AND POLLUTION PREVENTION AWARENESS PLAN

Dear Mr. Kieling:

Enclosed is the annual submittal of the Waste Minimization and Pollution Prevention Awareness Plan for the Los Alamos National Laboratory. This deliverable is required under the specific condition B.1. within Module VIII of the Resource Conversation and Recovery Act operating permit.

If you have any questions, please feel free to contact David McInroy at (505) 667-0819 or Joe Mose at (505) 667-5808.

Sincerely,

Julie A. Canepa, Program Manager
Los Alamos National Laboratory
Environmental Restoration

Sincerely,

Theodore J. Taylor, Program Manager
Department of Energy
Los Alamos Area Office

JC/TT/SE/ev

Enclosures: 1) Waste Minimization and Pollution Prevention Awareness Plan
2) Certification

CERTIFICATION

I certify under penalty of law that these documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation.

Document Title: IJ

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Los Alamos National Laboratory

ENVIRONMENTAL RESTORATION PROJECT
WASTE MINIMIZATION AWARENESS PLAN

December 1999 Submittal

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Los Alamos National Laboratory
Environmental Restoration Project

WASTE MINIMIZATION AWARENESS PLAN

1.0 INTRODUCTION

Waste minimization is an inherent goal within all the operating procedures of the Los Alamos National Laboratory (the Laboratory). The U.S. Department of Energy (DOE) and the Laboratory are required to annually a waste minimization plan the U.S. Environmental Protection Agency (EPA). to submit annually a waste minimization plan, as documented in the Laboratory's Hazardous Waste Facility Permit. This document represents the waste minimization and pollution prevention (WMin/PP) awareness plan for the Laboratory's Environmental Restoration (ER) Project.

This plan demonstrates that the Laboratory's ER Project supports WMin/PP as a goal and that there is an active and ongoing program in place to incorporate waste reduction practices into ER activities and procedures. The plan was prepared by the ER Project Office, in the Environmental Science and Waste Technology (E) Directorate, and it supports the requirements of module VIII, Section B.1 of the Laboratory's Hazardous Waste Facility Permit (NM0890010515-1). This plan is specific to the ER Project and should be considered a companion document to the Laboratory's site-wide plan, *Site Pollution Prevention Plan for Los Alamos National Laboratory,* May 1997.

1.1 Background

The mission of the Laboratory's ER Project is to protect human health and the environment by identifying risks posed by inactive and surplus DOE facilities and contaminated areas, and by remediating sites and facilities as necessary in the most cost efficient and responsible manner possible in order to provide for potential future beneficial use. In completing this mission, ER activities[1] have the potential to generate in large volumes of waste that may require special handling, treatment, storage, and disposal. Because the contamination is already present in the environmental media or facility (as a result of past DOE activities), the ER Project is not the original generator of the waste, in the traditional sense. However, the ER Project is faced with the responsibility and the challenge to minimize the amounts of waste that will require subsequent management or disposal. Minimization is necessary because of the high cost of waste management, the limited capacity for on-site or off-site waste treatment, storage, or disposal, and the need to protect the environment from future off-site releases caused by current waste management practices.

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[1]Throughout the text of this document, "ER" refers to both the clean-up of environmental media and the safe decontamination and decommissioning of inactive facilities.

In 1990, Congress passed the Pollution Prevention Act (PPA) which changed the focus of environmental policy from "end-of-pipe" regulation to encouraging source reduction or eliminating waste prior to treatment, storage, or disposal. Under the PPA and other institutional requirements for treatment, storage, and disposal of wastes, all waste generators must certify that they have a waste minimization "program in place". The elements of this program are further defined in the May 1993 EPA interim final guidance, "Elements of a Resource Conservation and Recovery Act (RCRA) Waste Minimization Program in Place." The program guidance lists what EPA considers the minimum level of infrastructure and effort which must be expended to have an acceptable program. This includes top management support, process evaluation, technology exchange, waste minimization employee training, and waste generation tracking and projections.

The DOE Office of the Secretary also requires a pollution prevention program as outlined in the 1996 Pollution Prevention Program Plan. The DOE program has specific program requirements for every waste generator which includes evaluating waste minimization options as early in the planning process as possible. The DOE Program also places responsibility for WMin/P2 implementation with the waste generating program. The DOE has also set a 10% reduction goal for all wastes generated from facility decommissioning and site stabilization activities, the Laboratory's approach to achieving this goal is addressed later in the report.

1.2 Purpose and Scope

The purpose of this plan is to establish an approach for minimizing the wastes generated by the Laboratory's ER Project. This plan discusses the goals, methods, and activities that will be routinely employed to prevent or reduce waste generation in Fiscal Year 2000 (FY00), and it reports historical waste generation quantities and significant waste minimization accomplishments for FY99. This plan also discusses the ER Project Leader's commitment to WMin/P2, provides a discussion of specific program elements of the ER WMin/P2 program, and presents the barriers to implementation of further significant reductions.

This plan is designed to fulfill the waste minimization requirements Module VIII, Section B.1. of the Laboratory's Hazardous Waste Facility Permit, and of the HSWAs.

The scope of this plan addresses all waste types generated by the ER Project during the course of planning and conducting the investigation and remediation of environmental media and the decontamination and decommissioning of DOE facilities funded by the DOE Office of Environmental Restoration (EM-40). Wastes generated by ER include "primary" and "secondary" waste streams: primary waste consists of contaminated material or environmental media that was present as a result of past DOE activities prior to

any containment and restoration activities and includes contaminated building debris, contaminated groundwater or soil from investigations and remedial activities; secondary waste streams consist of materials that were added to the investigative or remedial process or utilized in the process of remediation, such as investigative derived waste (e.g., personal protective equipment [PPE], sampling waste, drilling cuttings), wastes resulting from treatment, storage or handling operations, and additives used to stabilize waste. Types of wastes generated vary on a site-by-site basis and may include low-level radioactive (LLW); low-level mixed radioactive (LLMW); transuranic radioactive (TRU); chemical wastes (which includes RCRA hazardous, Toxic Substances Control Act (TSCA) hazardous, and New Mexico Special Waste); and/or solid waste.

The scope of a WMin/P2 effort for an individual ER Project will be dependent on the primary and secondary wastes expected and the feasibility of waste reduction for those waste types.

1.3 Requirements of the Operating Permit

Module VIII, Section B.1, of the Laboratory's Hazardous Waste Facility Permit, (Hazardous and Solid Waste Amendments Act Permit,) requires a waste minimization program in place and the submittal of an annual awareness plan. The specific requirements of the permit are listed in Table 1.3.1 along with the corresponding section of the plan that addresses the requirement.

Table 1.3.1

Los Alamos National Laboratory Hazardous Waste Facility Permit, Module VIII, Section B.1

Permit Requirement	Topic	Refer to Report Section
Section B.1.a.1	Policy Statement	Section 2.0
Section B.1.a.2	Employee Training	Section 6.3
Section B.1.a.2	Incentives	Section 6.10
Section B.1.a.3	Past Source Reduction and Recycling	Section 5.4
Section B.1.a.4	Itemized Capital Expenditures	Section 5.4
Section B.1.a.5	Barriers to Implementation	Section 7.0
Section B.1.a.6	Sources of Information	Section 6.4
Section B.1.a.7	Investigation of Additional WMin Efforts	Section 6.2
Section B.1.a.8	Utilization of Hazardous Materials	Section 5.2
Section B.1.a.9	Justification of Waste Generation	Section 5.0
Section B.1.a.10.a	Site Lead Inventory Program	Section 6.11
Section B.1.a.10.b	Steel for Lead Substitution Program	Section 6.11

Section B.1.a.10.c	Lead Shielding Coating Program	Section 6.11
Section B.1.a.10.d	Lead Decontamination Program	Section 6.6
Section B.1.a.10.e	Scintillation Cocktail Substitution Program	Section 5.2
Section B.1.a.10.f	Radioactive Waste Segregation Program	Section 6.6

2.0 PROGRAM DIRECTOR POLICY STATEMENT AND MANAGEMENT COMMITMENT

The Laboratory's ER Project Leader, Focus Area Leaders, and other Project personnel are committed to preventing or reducing the generation of waste from ER Project activities, as much as is technically and economically feasible and consistent with the ER Project mission.

The Laboratory's support for pollution prevention and waste minimization programs is documented in the Laboratory Implementing Requirement (LIR 404-00-02.1), General Waste, Waste Management Requirements. The ER Project additionally mandates waste minimization techniques in several Standard Operating Procedures. In addition, the E Division, Environmental Stewardship Office (ESO) is tasked by DOE and the Laboratory to champion and implement an aggressive waste minimization and environmental stewardship program.

The ER Project fully supports the Laboratory's and E's written WMin/P2 policies, programs, and commitments. The ER Project will support the goal of waste reduction by giving preference to source reduction, improved segregation and characterization, and environmentally and regulatory sound recycling practices over waste treatment and disposal techniques. Evidence of the ER Project commitment is demonstrated by this plan, as well as the documentation of past waste reduction efforts within the ER Project (Section 5.4). The ER Project will allocate sufficient resources necessary to pursue the goals and approaches established by this plan and will coordinate with the ESO, as necessary.

3.0 ORGANIZATIONAL STRUCTURE AND STAFF RESPONSIBILITIES

The ER Project is part of the Environmental Science and Waste Technology (E) Directorate at the Laboratory, and is subject to all Laboratory and E policies and requirements. The organizational structure of the ER Project as of October 1999 is shown in Figure 3.0.1.

Los Alamos National Laboratory
Environmental Restoration Project
Waste Minimization Organization Chart

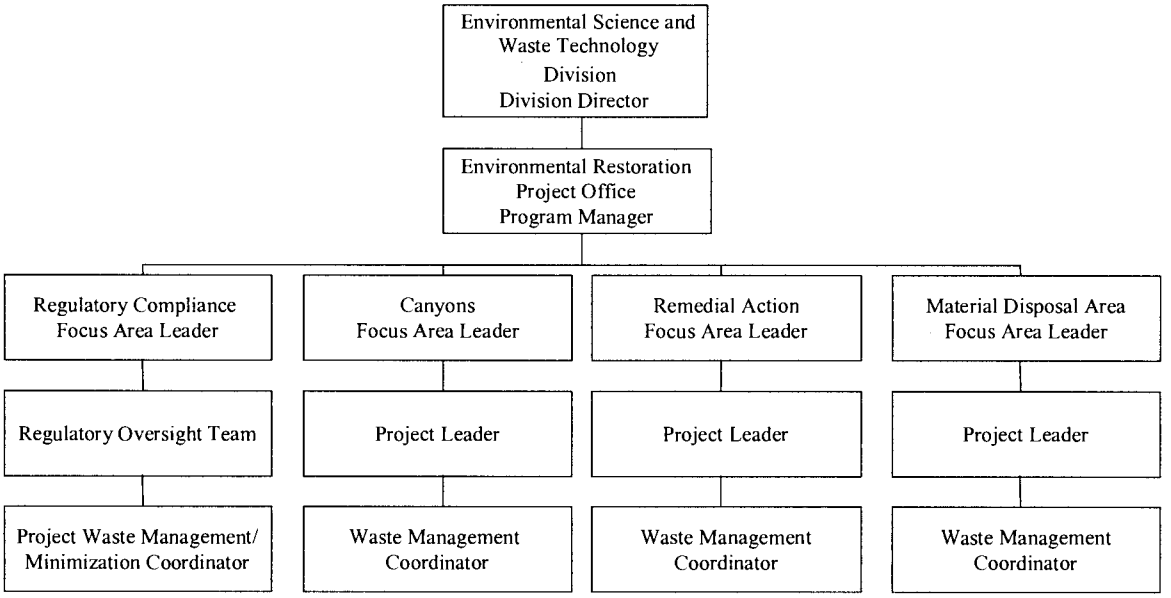

Figure 3.0.1

The organizational structure for developing and implementing WMin/PP programs in ER are outlined below:

- The Laboratory Director and the Deputy Director for Operations have oversight responsibilities and provide annual review of the Laboratory wide WMin/PP program goals and performance.

- The E Directorate has primary responsibility for the Laboratory-wide WMin/PP program and the ER Project.

- The E/ESO has been delegated by the E Directorate to develop and manage the Laboratory-wide WMin/PP and environmental stewardship program. The ESO provides oversight for WMin/PP implementation; a base of technical knowledge and resources for WMin/PP practices; assistance with identifying waste generation trends and WMin/PP opportunities; recommendations for WMin/PP solutions and applications; support in tracking and reporting waste generation trends and WMin/PP successes; assistance in preparing funding applications and proposals for WMin/PP projects; and facilitation of actions to overcome WMin/PP implementation barriers.

- The ER Project Leader has primary responsibility for developing and implementing WMin/PP programs and strategies for all ER projects that result in waste generation, as described in this plan. The ER Project must allocate sufficient resources to facilitate the successful attainment of the goals and approaches identified in this plan. The ER Project is responsible for establishing and submitting an annual WMin/PP plan to the Administrative Authority, establishing WMin/PP goals and performance measures, and coordinating with the ESO, as necessary, to implement WMin/PP activities and to report success stories.

- The ER Project Environmental Compliance Focus Area Leader, is the focal point for planning and implementing waste minimization activities and reporting of waste minimization successes for the ER Project. The ER Project Waste Management and Minimization Coordinator is the primary liaison between the ESO and the ER WMin/PP program.

- ER Project Focus Area Leaders report to the ER Project Program Manager. Focus Area Leaders are responsible for identifying and incorporating WMin/PP practices into project plans and field activities, as much as technically and economically feasible.

- The ER Project Waste Management and Minimization Coordinator is responsible for coordination of waste minimization activities, coordinating proposals for waste minimization implementation projects, advising project leaders on WMin technologies and techniques, recommending ER Project-wide policy, and compiling waste generation and minimization data.

4.0 GOALS AND PERFORMANCE MEASURES

The overall goal of the ER's WMin/PP strategy is to increase the routine implementation of WMin/PP practices in the planning and execution of ER activities so as to avoid or reduce waste requiring subsequent handling or disposal. Performance measures for the WMin/PP effort include:

- increased cognizance of WMin/P2 within the ER Project;
- reduced or avoided volume of waste;
- recyled or reused volume of material; and
- documentation of WMin/P2 successes.

Additionally, a 10% reduction goal has been established for the ER Project based upon the overall waste projections. Table 4.0.1, Los Alamos National Laboratory, Environmental Restoration Project, Fiscal Year 2000 Planned Waste Volume Projections, "Establishing a Waste Reduction Goal for Environmental Restoration and Stabilization Activities" presents the waste minimization goals submitted and approved by DOE.

Table 4.0.1
Los Alamos National Laboratory
Environmental Restoration Project
Fiscal Year 2000 Planned Waste Volume Projections [1]

"Establishing a Waste Reduction Goal
for Environmental Restoration and Stabilization Activities"

Waste Type (Solid Phase)	FY2000 Planned Waste Volume (m^3) from ER and Stabilization Activities	Volume (m^3) of Waste Targeted for Reduction/Recycle to Achieve Goal
Transuranic Radioactive	0.2[2]	0
Low-level Radioactive	8	0
Mixed Low-level Radioactive	8	0
Hazardous (Includes RCRA, TSCA, and NM Special)	11292	1538
Solid Waste	5285	618

(1) Based upon a September 14, 1999 Baseline Report of $60.9M.
(2) Investigation derived samples stored from a previous year facility investigation.

The ER FY00 WMin/PP approach will focus on:

- integrating waste minimization principles into the remedial planning process;
- recycling and reusing materials;
- developing subcontractor waste minimization incentives through contract specifications;
- dedicating waste minimization resources to assist with large remedial actions; and
- tracking, projecting, and analyzing waste data to improve waste management economies of scale.

Figure 4.1 shows the environmental hierarchy for ER wastes. The ER WMin/PP approach promotes source reduction and environmentally sound recycling practices in place of waste treatment and disposal techniques, when economically and technically feasible. Although source reduction is preferred, the ER WMin/PP approach recognizes that there may be limited opportunity for source reduction of primary wastes because much of the waste already exists and environmental and health concerns may require removal. When appropriate, source reduction of primary wastes will be accomplished through the application of risk-based cleanup criteria, land-use scenarios, and the consideration of in-situ or non-intrusive remediation technologies during project planning and negotiation stages, and improved characterization and segregation during the execution of field activities. Source reduction of secondary wastes will be accomplished through proper planning; improved housekeeping, segregation and characterization; and application of WMin/PP criteria during technology selection, design and construction activities. Recycling and reuse practices will be considered for all primary and secondary wastes. Volume reduction, including size reduction, compaction, and optimal packaging, will be considered for all primary and secondary wastes that cannot be avoided or recycled.

ENVIRONMENTAL MANAGEMENT
HIERARCHY
WITHIN ENVIRONMENTAL RESTORATION

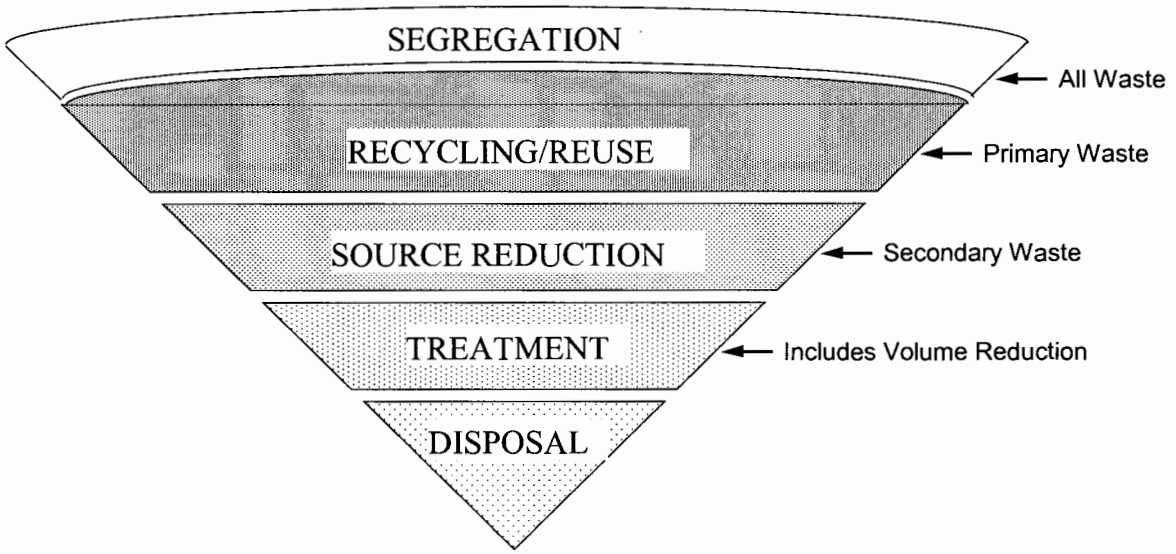

Figure 4.1

The WMin/PP approaches outlined above are consistent with the waste reduction priorities established by the Laboratory's site-wide waste minimization plan, which recognizes the severe limitations of on-site disposal capacity for LLW and on-site storage capacity for LLMW. In addition, the approach was adopted to address the variable and non-recurring nature of wastes coming from ER activities.

5.0 SITUATION ANALYSIS

The FY99 activities which resulted in waste generation included remedial action, site investigation, requests for no further action. These types of activities are anticipated to continue through the life of Laboratory's ER Project.

The FY00 planned activities include additional deep monitoring and intermediate well installation, completion of the Material Disposal Area P clean closure, an interim action at a high explosives site, and other small site investigations and corrective action projects.

5.1 Applicable Regulations

The LANL ER Project is subject to many environmental regulations. The key drivers for the WMin/P2 program are listed below. A complete description of these regulations may be found in the LANL Waste Minimization Awareness Plan or the "Waste Minimization and Pollution Prevention Regulations and Orders, Requirements and Identification List." (DOE/EM, May 1995).

Federal Acts/Regulations and Executive Orders

- Resource Conservation and Recovery Act (RCRA)
- Pollution Prevention Act (PPA)
- Executive Order 12873 - Federal Acquisition, Recycling, and Waste Prevention
- Executive Order 12856 - Federal Compliance With Right-to-Know Laws and Pollution Prevention

State of New Mexico Regulations

- New Mexico Solid Waste Act, NMAC 9.1
- New Mexico State Hazardous Waste Act, NMAC 4.1

DOE Policy

- DOE Order 5400.1, General Environmental Protection Program
- DOE Order 5400.3, Hazardous and Radioactive Mixed Waste Program
- DOE Order 5400.5, Radiation Protection of the Public and the Environment
- DOE Order 435.1, Radioactive Waste Management
- Secretary of Energy Notice 37-92, Waste Minimization Policy Statement
- DOE Pollution Prevention Program Plan, 1996

Los Alamos National Laboratory Directives and Policies

- Site Pollution Prevention Awareness Plan for Los Alamos National Laboratory
- Laboratory Implementing Requirement (LIR) 404-00-02.1, General Waste, Waste Management Requirements

5.2 Justification for the Usage of Hazardous Materials

ER Project activities currently introduce only small amounts of hazardous materials into field and support operations. During the past years, most usage of hazardous material has been substituted with less hazardous alternatives in an effort to reduce the generation of secondary hazardous or mixed waste. These efforts include the following list.

- Decontamination Solvents - In isolated instances, site conditions may warrant the addition of methanol or ethanol into decontamination fluids to aid in the removal of heavy organic compounds from sampling equipment. However, in most cases the methanol and ethanol have been replaced by a non-toxic soap product. The use of the hazardous solvents is unlikely to continue in future years.

- Scintillation Cocktails - The routine usage of scintillation cocktails media which results in a RCRA hazardous/mixed waste has been discontinued at the Laboratory. The scintillation media was substituted by a media which generates a non-regulated hazardous media. In rare instances, where substitutes are not available, a small amount of scintillation cocktail media may be generated from ER characterization, where sample analysis procedures dictate the usage of a substance which results in a RCRA regulated waste.

- Analytical Processes - Some of the sample analysis required for site characterization may involve the usage of hazardous substances as prescribed by EPA analytical procedures, SW-846. These analysis processes have been evaluated by EPA, private companies, and universities for potential alternative processes and material substitution. The usage of hazardous substances in the analysis is currently viewed as necessary. However, ER Focus Areas are making efforts to minimize the number of samples requiring laboratory analysis while providing defensible data, through the use of field screening, thus reducing the use of laboratory solvents.

5.3 FY99 Waste Generation Summary

The ER Project FY99 waste generation summary is listed in Table 5.3.1. Waste projections and reduction goals are included in Table 4.0.1.

Table 5.3.1

Fiscal Year 1999 Waste Generation Summary

Waste Type	FY1999 Waste Projection (m^3)	FY1999 Actual Waste Volume (m^3) from ER Activities	FY1999 Material Volume (m^3) Reduced/Recycled
Solid - Transuranic Radioactive	NR	0	0
Solid - Low-level Radioactive	NR	717[(1)]	664
Solid - Mixed Low-level Radioactive	NR	0.57	0
Solid - Hazardous (Includes RCRA, TSCA, and NM Special)	NR	5,657	2,800
Solid – Solid Waste	NR	NR	364
Liquid - Low-level Radioactive	NR	0	0
Liquid - Mixed Low-level Radioactive	NR	0	0
Liquid - Hazardous (Includes RCRA, TSCA, and NM Spec.)	NR	0.86	0
Liquid - Solid Waste	NR	152	722

NR - Not Reported

(1) Includes 285 cubic meters of wastes generated from the TA-33 Segmented Gate System project during FY99 but still stored at TA-33 and thus not included in the LANL waste management database.

5.4 Waste Minimization Accomplishments FY99

WMin/PP was an integral part of the FY99 ER planning activities and field projects through recycling, reuse, contamination avoidance, risk-based clean-up strategies, and many other practices. Waste reduction benefits are typically difficult to track and quantify because the data to measure the amount of waste reduced (as a direct result of a WMin/P2 activity) is often not available and is not easily extrapolated. In addition many waste minimization practices employed during previous years are incorporated into standard operating procedures and no longer reported.

High volume waste streams resulting from ER activities include contaminated soil and demolition debris such as metal and concrete. The WMin/PP techniques used in FY99 to reduce these high volume waste streams included the following:

- At Material Disposal Area P, stormwater runoff was collected for use as dust suppression during solid waste handling.
- At Material Disposal Area P, 1,100 cubic meters of steel was decontaminated, segregated, and sent to a commercial steel recycling facility;

- At Material Disposal Area P, 1,000 cubic meters of concrete was decontaminated and sent to a commercial concrete plant for crushing and reuse as aggregate;
- At Material Disposal Area P, 500 cubic yards of concrete and soil were sent to the LANL TA-54 "Area J" for fill material in site closure preparation;
- At TA-33 and TA-15 Firing Sites, a pilot project of the Segmented Gate System processed 1,000 cubic yards of radioactive material reducing the volume disposed by over 600 cubic meters;
- At TA-73 Contractors Row, 4 cubic meters of scrap steel was recycled at a commercial recycling facility;
- At the ER Project Support Facility, over 600 empty used containers were segregated and decontaminated for refurbishment at a commercial vendor;
- At TA-49, 4 cubic meters of radioactive steel were sent to a commercial recycling facility;
- At R-25 Deep Well, 360 cubic meters of drilling cuttings were returned to vicinity of well;
- At R-25 Deep Well, 60,000 gallons of purge water were discharged under a NOI

6.0 WASTE MINIMIZATION PROGRAM ELEMENTS

Listed below are program elements of the Laboratory's ER waste minimization program for FY99. Several of the elements are currently in place; however, several are in the planning stages. The elements which are listed as planned will be implemented if economically and technical feasible.

6.1 WMin Coordinator

The WMin/PP coordinator will have a primary role in FY00 for developing and implementing programmatic elements of the ER WMin/PP program by conducting the following activities:

- Improve WMin/P2 awareness and information exchange within the ER Project.

- Provide technical reviews and WMin/P2 input to ER documents and procedures, such as Corrective Measure Studies, Sampling and Analysis Plans, or other project work plans and provide working examples of "model" documents that incorporate WMin/P2 elements.

- Assist with an ER Equipment Sharing Program to identify equipment needs that may be served by use of equipment that is currently available at other DOE facilities, thus reducing the purchase or lease of new equipment.

- Technical Assistance and Consistency among Focus Areas to formalize standard approaches for WMin/PP in ER Project plans and procedures and institutionalize the use of design reviews, WMin/PP checklists, or value engineering for WMin/P2 applications.

- Develop WMin/P2 language for ER subcontractor documents and project specifications so as to provide incentives and measurable goals for waste reduction.

- Pilot test or demonstrate a site-specific waste reduction activities with a high potential for immediate return on investment.

The typical WMin/PP tools and practices that the WMin coordinator(s) will make available to the ER Project are summarized in Table 6.1. The specific application and waste reduction potential of a tool will be dependent of the specific ER Project and left to the judgment of the FPL.

Table 6.1 - Common WMin Tools for use in the ER Project
WMin/P2 tools for the *Negotiations and Planning Phases*
- Negotiate with regulators to recognize and implement WMin/P2 where appropriate
- Write WMin/P2 into ER program documents
- Include WMin/P2 in budgets and contracts
- Integrate WMin/P2 into construction team activities
- Train ER personnel on WMin/P2 and build WMin/P2 awareness
- Conduct workshops identifying WMin potentials for large sites
WMin/P2 tools for the *Assessment Phase* include
- Conduct efficient sample management and analysis
- Consider alternative sampling techniques
- Consider alternative drilling techniques
- Segregate materials and waste through field screening
- Utilize site control techniques
- Use bulk waste packaging
- Train ER personnel on WMin/P2 and build WMin/P2 awareness
WMin/P2 tools for the *Alternative Evaluation and Selection Phase* include
- Identify WMin/P2 as a criteria during treatment selection
- Incorporate WMin/P2 in key decision making documents
- Conduct treatability studies that support WMin/P2
- Train ER personnel on WMin/P2 and build WMin/P2 awareness
WMin/P2 tools for the *Implementation Phase* include
- Scour and decontaminate building materials
- Recycle and reuse materials from decommissioning activities
- Prevent contamination migration
- Dedicate a person on ER projects to promote WMin/P2 (e.g. a WMin Coordinator)
- Reuse equipment
- Train ER personnel on WMin/P2 and build WMin/P2 awareness

6.2 WMin Planning and Cost Analysis

Wmin/PP is best integrated during the project planning, design and engineering phases. WMin/P2 strategies incorporated during the planning (and negotiations) phases are one of the few opportunities for "source reduction" because they have the potential to avoid or reduce the generation of contaminated soil, groundwater and building debris, which represents a significant waste volume within the ER Project. Well defined agreements (with regulators and stakeholders) regarding land-use scenarios, cleanup performance standards and risk and pathway scenarios have shown to be highly effective in avoiding or reducing these primary wastes (e.g. soil, building debris) and secondary wastes.

As an example application, during FY00 a project-wide strategy to reuse crushed concrete debris and excess soils from facility demolition within material disposal area cap/barrier construction will be evaluated.

6.3 Employee Training and Awareness Plan

Waste minimization implementation is most effective when all employees consider WMin/P2 part of their job responsibilities. To accomplish this, a planned approach to building waste minimization awareness has been developed. The goals of the awareness program are to:

- improve recognition among employees that WMin/P2 practices apply to ER activities;
- educate employees about successful implementation at the Laboratory and within DOE; and
- improve documentation of WMin/P2 accomplishments.

In addition to awareness activities, the following training is mandatory for ER waste handling personnel and addresses various topics including waste minimization:

- "Waste Management Coordinator Requirements"
- "Waste Generator Overview"
- "Waste Documentation Forms"
- "Waste Packaging, Shipping, and Materials Handling"

In addition to the above classes, Field Unit's Waste Management Coordinators (WMC) are required to attend quarterly WMC meetings as ongoing training in issues important to performing the duties of a WMC.

6.4 Information and Technology Introduction

The introduction of new technologies for WMin/P2 and waste management approaches are important to minimizing wastes. To support technology exchange the waste minimization coordinators will be available to research technologies or WMin/P2 tools for ER Focus Area Leaders, necessary to attain information on technical or economic feasibility. They will also be available to train project personnel on the access and usage of several large information sources such as:

- DOE, Remedial Action Project Information Center, Oak Ridge, TN
- DOE, EPIC - the DOE Pollution Prevention Information Clearinghouse, Pacific Northwest Labs, Richland, WA
- EPA, Superfund Innovative Technology Evaluation (SITE) Database

6.5 Tracking and Reporting

A uniform and routine collection of waste minimization accomplishments was established in FY96. Project managers will be asked to provide a list of accomplishments as they occur, with a formal quarterly data consolidation effort.

6.6 Sort, Decontaminate, and Segregate

This task is currently implemented and is designed to sort and decontaminate LLW materials from decommissioning operations for the purpose of eliminating their disposal at TA-54 as low level radioactive waste. Typical sorting practices include collection of all metal debris in separate boxes destined for shipment to a decontamination facility or commercial smelter for metals recovery. Decontamination work will involve the removal of surface radioactive contamination on equipment to allow for its reuse either at Los Alamos or other DOE facilities.

Additionally, many sites containing heterogeneous contamination will place emphasis on proper segregation at the source to attain the maximum recycling and waste classification advantages. Additional use of the Segmented Gate System technology are likely in future years.

6.7 Compaction

The ER Project plans to improve implementation of this process by utilizing the compaction unit at TA-54 and transporting suitable waste to it prior to final disposal. The compactor at TA-54 has a higher compaction yield that other equipment available in the past.

6.8 Survey and Release

Past practices have conservatively classified non-indigenous investigative-derived waste (PPE, sampling materials, decontamination water) as contaminated based on association with contaminated areas. New policy within LANL allows the ER Project to develop procedures to survey and release these materials as non-radioactive. This will have a dramatic impact on volume of low level waste buried at Area G from ER activities. Waste Managers will be trained in the Laboratory Implementing Requirement (LIR 402-704-01) Contamination Control.

6.9 Risk Assessment

Human health risk assessments are routinely conducted for ER projects. The U.S. Environmental Protection Agency, draft "Risk Management Strategy" supports this concept. Risk assessments allow the ER Project to plan remediation activities on the basis of the future risk to health and the environment. Often the risk assessment may determine that it is adequately protective and appropriate or beneficial to leave the material in the ground, thus avoiding the generation of waste.

Properly designed land-use agreements and risk-based cleanup strategies can provide flexibility to select remedial actions (or other technical activities) that may avoid or reduce the need to excavate or conduct other actions that typically generate high volumes of contaminated soil, groundwater, or demolition debris. This is one of the few opportunities for source reduction. For example, if the community and regulators agree that the future land use of a site will be grazing and agriculture, then it would not be practicable to clean the site to levels established for future human residents. Similarly, contaminated sites that will remain under DOE administrative control or be slated for commercial use may be able to consider in-situ treatments that could reduce the need for excavation and disposal of contaminated soil and debris.

6.10 Incentives Programs

The ER Project participates in the Laboratory-wide "Waste Minimization/Waste Generation Set-aside Tax" system. This system charges the ER Project based on the volumes and toxicity of wastes generated from the program. This financial burden is an incentive for ER Project managers to reduce waste generation to lower total project costs. The ER Project will be actively soliciting Return on Investigation (ROI) proposals for WMin/P2 projects that are eligible for funding through this tax.

6.11 Lead Handling Procedures

The ER Project does not routinely procure or use lead, or handle excess lead. The inventory and decontamination of existing lead at the Laboratory has been conducted as part of a milestone of the Laboratory's FFCA agreement, and is out of the scope of the ER Project.

ER activities will manage and minimize the amount of lead contaminated waste using the following approaches.

- Projects will specify a preference to avoid the procurement or use of lead, when possible, giving preference to the use of steel in place of lead.

- Projects will specify the use of strippable or washable coatings for any lead materials that must be used and have the potential to become contaminated.

- Projects will plan for the decontamination of lead materials, when economically feasible, using blast grit, carbon dioxide blast (or other non-destructive blast), or chemical decontamination techniques. Preference will be given to decontamination techniques that minimize the generation of secondary waste (from the treatment process).

- Projects that handle non-contaminated lead waste as a primary waste from the removal action or decommissioning activity will make efforts to recover and redistribute the lead for use at the Laboratory or at another DOE facility.

- Projects will coordinate with the Laboratory's waste management group for the appropriate handling and disposition of radioactively contaminated lead that can not be decontaminated or redistributed.

6.12 Equipment Reuse

The reuse of equipment and materials such as plastic gloves, sampling scoops, plastic sheeting and PPE will produce significant waste reduction and cost savings in FY00. Launderable PPE was used throughout the project in FY99.

In addition, the Laboratory has initiated a equipment exchange program which attempts to identify surplus or inactive equipment for use at the Laboratory. This not only saves capital equipment dollars by not purchasing the equipment, but it also avoids the eventual disposal of the equipment when no longer needed. In FY97, the Decommissioning Project obtained a surplus concrete crusher from a DOE Formerly Utilized Site Remedial Action Project site.

7.0 BARRIERS TO WASTE MINIMIZATION IMPLEMENTATION

The most significant barrier to waste minimization implementation is the generally small extent of contamination at each release site, which equates to a small amount of material requiring remediation. In most cases, due to high fixed costs, the unit cost to permit and implement an on-site remedial option is higher than the unit cost for commercial treatment, storage, and disposal. This barrier can potentially be overcome through negotiation between NMED and the Laboratory to approve remedial technologies for use at multiple sites to gain economies of scale.

An additional barrier to waste minimization is historical site remedial action plans submitted to regulatory agencies specify clean closure of some disposal areas. Specifically at MDA P, some materials from the area upon sampling and segregation, could be proven within acceptable clean-up criteria and left on-site for use in final site grading. But due to prior commitments this material is being shipped off-site as waste. Future remedial plans will be submitted to leave acceptable materials on-site pending regulatory concurrence.

REFERENCES

"Site Pollution Prevention Awareness Plan for Los Alamos National Laboratory", Los Alamos National Laboratory, May 1997.

"Waste Minimization and Pollution Prevention Regulations and Orders, Requirements and Identification List." U.S. Department of Energy, Office of Environmental Restoration and Waste Management, Revision 0, May 1995.

Laboratory Implementing Requirement (LIR) 404-00-02.1, General Waste, Waste Management Requirements, Los Alamos National Laboratory, January 5, 1999.

LIR 402-704-01.2, Contamination Control, Los Alamos National Laboratory, March 6, 1998.

"Excess Government Personal Property", Administrative Requirement No. 10-6 .*The Laboratory Manual, Chapter 1: Environment, Safety, and Health,* Los Alamos National Laboratory, Chapter 1, April 26, 1993.

Waste Minimization/Pollution Prevention Cross Cut Plan, 1994, U.S. Department of Energy, Office of the Secretary.

Resource Conservation and Recovery Act (*Solid Waste Disposal Act) 1984,* as amended, 42 U.S.C 6901, et seq.

Pollution Prevention Act of 1990 (*Omnibus Budget Reconciliation Act of 1990*), Public Law 101-508.

EPA Region 6 and DOE Los Alamos Area Office. 1993. *Federal Facility Compliance Agreement Regarding Land Disposal Restriction Requirements at the Los Alamos National Laboratory.*

"Guidance to Hazardous Waste Generators on the Elements of A Waste Minimization Program", Environmental Protection Agency, Federal Register Notice, Vol. 58, No. 102, May 28, 1993.

Draft, "Risk Management Strategy," U.S. Environmental Protection Agency, December 1998.

Attachment 1
Los Alamos National Laboratory
Watershed Management Planning
September 16, 1999

Introduction

Los Alamos National Laboratory (LANL) has written a draft Watershed Management Plan that pertains to the 43-square mile area within the LANL boundaries. Comments from stakeholders criticized the development of a watershed management plan that did not include the entire watershed and did not include the perspectives of the stakeholders. In response, LANL is seeking stakeholder involvement in revising the draft plan.

On September 16 the Laboratory invited stakeholders to a meeting to provide an overview of the draft Watershed Management Plan and to ask the stakeholders what degree of involvement they want to have in this planning process.

The Department of Energy supports the watershed planning effort. It is the overall DOE goal to fit in with efforts by others and work cooperatively.

Draft Watershed Management Planning Overview

Ken Mullen gave an overview of the watershed planning process used to develop the draft plan. In 1972 the Clean Water Act focused on point sources. Twenty-five years later the Clean Water Action Plan recognizes that a more holistic approach is need to improve water quality.

There are a number of reasons to work with our neighbors as partners in the watershed. One reason is the impact the Lab has had on neighbors. An example, there is measurable radioactivity in sediments that have washed down from the Laboratory onto San Ildefonso. Another reason is the potential to improve watershed management based on the findings of others. An example is the work on erosion being done at Bandelier. An additional reason is to allow our watershed partners to use LANL data. An example is the Forest Service may want LANL data to quantify the impacts of forest management practices.

The Watershed Management Plan was started in 1996 with a number of overall goals. One goal was to be a good steward of the natural resources entrusted to our care. Another goal was to be a long-term confirmation that the ER project has acceptably cleaned up sites. Other goals include compliance with the stormwater NPDES program and upgrading the LANL environmental surveillance program that has been ongoing since the 1940's.

There are three major objectives in the Draft Watershed Management Plan. The first is definition of the drainage system. There will be over 50 gaging stations over a 43-square mile area in a part of the country where it really doesn't rain much. But flashy systems like this require more data to adequately characterize them than watershed systems with more consistent flow. The second objective is to relate strategies for the protection of surface water and groundwater. The third objective is to provide enhanced

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Date: Tue, 28 Sep 1999 17:10:57 -0700

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If you have any questions, please call or e-mail me or Ken Mullen (667-0818, kmullen@lanl.gov.)

Thank you,

Kelly

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documentation for Lab outreach. The water data has to be accessible to our partners and stakeholders. Right now the data is scattered all over the Lab. We have started development of a database and web interface with all of the surface water and groundwater data.

The Data Quality Objective (DQO) process was used in the development of the draft plan. Through this process issues were identified, criteria was developed to define what levels constitute a problem, and management actions that will be taken when the criteria are exceeded were established. Six issues were identified.

The first issue is water quality. Water quality indices were used in the criteria to define when water quality is a problem. If the water quality exceeds an index, the actions include verifying the exceedance is real, identifying the source, and doing something about the source. This is the general pattern of management actions defined for all of the issues.

The second issue is sediment impacts and the detrimental effects of erosion and sedimentation. Issue three is land use changes leading to hydrologic adjustments that adversely impact the water quality. Protection of wetlands is issue four. Wetlands are recognized as valuable resources that must be protected from anthropogenically-induced stresses. Similarly, issue five recognizes the link between water quality and protection of habitat. Although this focuses on threatened and endangered species, our goal is to protect wildlife habitat. Finally, issue six is intended to protect groundwater quality. The surface water and alluvial groundwater are inseparable, so the surface water quality is important to maintaining groundwater quality.

The draft Watershed Management Plan crosswalks with the Clean Water Action Plan. Ten elements of the Clean Water Action Plan are addressed to some degree by various parts of the plan.

Steve Rae emphasized LANL support for the planning effort. The Lab wants to move toward a larger, more encompassing approach. A major objective of this effort is to solicit input. This effort could become a model for how DOE facilities manage resources in cooperation with other agencies and organizations.

Santa Fe National Forest Watershed Activities

John Bruin described the Valle Fuels Reduction project. The project covers 15,000 acres, although most of the treatment is focused on 4,000 acres in the southwestern area. The planned treatments include thinning and some prescribed burning. Although the primary purpose of the project is fuel reduction, there are additional benefits anticipated, including expanding meadows and rejuvenating aspens. The project is in the final stages of the Environmental Assessment. Collection of hydrologic data is not part of the project, but the data that LANL collects will be useful.

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To: Watershed Management Planning Distribution
From: Ken Mullen

Subject: Summary and Schedule for Watershed Management Planning Meetings

The interest in watershed management planning shown in the September 16 meeting was inspiring and the watershed integration group at Lab is looking forward to making progress on an expanded and improved Watershed Management Plan with your participation. A summary of the September 16 meeting is included with this letter (Attachment 1).

We have set out an ambitious schedule of watershed planning meetings. We would like to meet with the entire group two times per month, the first and third Wednesday. Attachment 2 is that schedule for the first six meetings with an indication of the material the meeting is expected to cover. The material covered will have to be revised as we see the progress we make over these first meetings. A more specific agenda will be e-mailed or faxed before each meeting. All meetings will occur between 9:30 and 12:00 in the Pueblo Complex conference room at 1600 Diamond Drive in Los Alamos. A map to the meeting location will be sent to you prior to the meeting.

We will try to have materials prepared for each meeting that will make the meetings productive. Once we have started meeting, we will need your feedback on how to make our working sessions efficient while allowing all participants to provide input. Please contact me with suggestions on how to improve the way in which we work together.

I look forward to working with you to develop a plan that serves the needs of the watershed partners and allows us to reach our common goal: a healthy watershed. If you have any questions, contact me at 667-0818 (kmullen@lanl.gov) or Kelly Bitner at 884-8455 (Albuquerque) (bitner@neptuneandco.com).

Ken Mullen

Attachment 1
Los Alamos National Laboratory
Watershed Management Planning
September 16, 1999

The project is a cooperative effort between Los Alamos County and the National Forest. The Forest Service wants to do more in watershed management, particularly as a complement to other efforts. Sharing data and maintaining a broader perspective is important.

Participant Responses

The participants at the meeting were asked to respond to three questions:

1. Is your organization interested in participating in developing this plan and what level of involvement is desired?
2. Should the scope of the watershed plan be expanded to include the entire watershed?
3. What other issues (other than the six issues described earlier) should be addressed in the plan?

The responses to the first question are summarized in the following table:

Participant	Organization	Degree of Involvement?
John Parker	NMED/DOE-OB	Receive meeting minutes
Ralph Ford-Schmid	NMED/DOE-OB	Participate in all meetings
Raymond Montoya	NMED/DOE-OB	Participate in all meetings
Robert Wingo	NMED/DOE-OB	Canyon-specific, sampling/analysis, data release
David Sarracino	San Ildefonso Pueblo	Participate in meetings; particularly interested in storm events and sediment
Neil Weber	San Ildefonso Pueblo	Canyons that drain onto pueblo land; data availability
John Bruin	Forest Service	Participate in all meetings
Kristen Dors	EPA/NMED-SWQB	Sampling/analysis; nonpoint sources; other sections
Barbara Hoditschek	NMED/SWQB	Participate in all meetings
J. Michael Chavarria	Santa Clara Pueblo	Receive announcements of all meetings, participate in sections of interest; receive meeting minutes
Brian Jacobs	Bandelier	Participate in sections that affect the park
Tim Glasco	Los Alamos County	Participate in all meetings
David Gordon	Cochiti Pueblo	Receive announcements of all

Attachment 1
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Participant	Organization	Degree of Involvement?
		meetings; participate as resources allow
Kim Birdsall-Hill	NMED/HRMB	Participate in meetings involving the technical aspects, e.g. sampling/analysis; specific canyons

In response to the second question regarding the scope of the plan, there was general consensus among all of the meeting participants that is should be broadened to include the entire watershed. The organizations occupying the watershed indicated their willingness to become partners in developing the expanded Watershed Management Plan.

The third question about issues that should be included in the plan drew the following responses:

- Address the impact of watershed processes on cultural resources
- The plan should assess impacts that are not captured by risk assessment
- The focus is too narrow, it should consider all receptors, not just threatened and endangered species
- The land use issue should include transfers of land and transfer of water supply
- Management and institutional integration should be explicit
- Impacts of fish consumption, e.g. from Cochiti Lake
- Outreach/education – how will information be provided to the public, newsletter
- Nonpoint source pollution – management actions seem weak
- Implementation – what is the time frame and how can the public and stakeholders participate
- Existing vegetation and wildfire potential
- Natural Resource Trustee involvement
- Mesa top erosion in woodland areas
- Impact of erosion on cultural resources
- Hydrologic effects of fires
- Characterization of the surface water-groundwater interface
- Monitoring of aquatic organisms in the Rio Grande
- Incorporation of ER-funded sediment studies
- Broaden the scope beyond compliance; this is not a compliance-driven document
- Funding – Funding available to county and pueblos through EPA (319), Department of Agriculture; Natural Resource Conservation Service; assistance with grant writing

Attachment 1
Los Alamos National Laboratory
Watershed Management Planning
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Participants		
Karen Agogino	DOE	kagogino@doeal.gov, 845-6100
Mike Alexander	LANL/ESH-18	mikea@lanl.gov
Naomi Archuleta	Pueblo of San Ildefonso/DECP	archuleta@trail.com
Anthony R. Armijo	Pueblo of Nambe	denr1nambe@aol.com
Kim Birdsall-Hill	NMED/HRMB/EPA	talbotb@hotmail.com ; 827-1558 x 1048
Kelly Bitner	Neptune and Co.	bitner@neptuneandco.com ; 884-8455
John Bruin	USFS	jbruin/r3_santafe@fs.fed.us ; 667-5120
J. Michael Chavarria	Pueblo of Santa Clara/OEA	747-4354
Kristen Dors	EPA-NMED	dors.Kristen@epa.gov; 827-2904
Dennis Erickson	LANL/ESH-DO	derickson@lanl.gov ; 667-4218
Ralph Ford-Schmid	NMED/DOE-OB	Ralph_FordSchmid@nmenv.state.nm.us ; 827-1536
Tim Glasco	Los Alamos County	glascot@lac.losalamos.nm.us; 662-8148
David C. Gordon	Cochiti Environmental Protection Office	weagle@ix.netcom.com; 465-0617
Todd Haagenstad	LANL/ESH-20	hth@lanl.gov; 665-2936
Barbara Hoditschek	NMED/SWQB	barbara_hoditschek@nmenv.state.nm.us; 827-0596
Brian Jacobs	Bandelier	brian_jacobs@nps.gov; 672-3861
Raymond Montoya	NMED/DOE-OB	Raymond_Montoya@nmenv.state.nm.us
Ken Mullen	LANL-ESH-18	kmullen@lanl.gov; 667-0818
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Marja Springer	LANL/E-Div/S&T/PD	marja@lanl.gov; 665-7112
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Neil Weber	Pueblo of San Ildefonso	ildefonso@trail.com; 455-2273
Robert Wingo	NMED/DOE-OB	rowingo@excite.com; 672-315?

Attachment 2
Watershed Planning Meetings
Tentative Schedule

Date	Time	Subject
October 6	9:30-12:00	Formalizing Watershed Partnership and scope
October 20	9:30-12:00	Formalizing Watershed Partnership and scope
November 3	9:30-12:00	Chapter 1
November 17	9:30-12:00	Chapter 1
December 1	9:30-12:00	Chapter 2
December 15	9:30-12:00	Chapter 2

All meetings will be held in the Pueblo Complex conference room, 1600 Trinity Drive, Los Alamos