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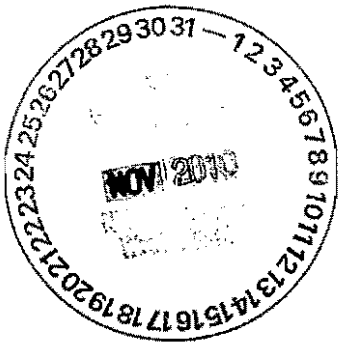

National Nuclear Security Administration
Los Alamos Site Office, MS A316
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Date: NOV 30 2010
Refer To: EP2010-0545

James Bearzi, Bureau Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

Subject: Request for Extension of Date for Submittal of Material Disposal Area B Investigation/Remediation Report

Dear Mr. Bearzi:

Los Alamos National Laboratory (the Laboratory) has conducted a comprehensive assessment of our excavation strategy and schedule to determine an achievable end date for remediation at Material Disposal Area (MDA) B, taking into consideration our progress, the field conditions, and the waste characteristics encountered to date. This letter requests an extension from the December 31, 2010, date for the MDA B investigation/remediation report to a new date of August 31, 2011.

MDA B is a challenging project because of the uncertainties associated with the historical disposal of radioactive, hazardous, and toxic materials and the potential health and safety risks to the public and site workers. The Laboratory must comply with a complex set of requirements—the Compliance Order on Consent (the Consent Order); the Clean Air Act, including radioactive National Emissions Standards for Hazardous Air Pollutants (rad-NESHAPs); and U.S. Department of Energy (DOE) regulations and orders—to ensure any potential risk to the public and site workers from exposure to radioactive wastes is minimized.

The engineers and safety professionals from the Laboratory have incorporated stringent safety and environmental protocols into this remediation project from the initial planning stages through current excavation activities. The combination of stringent safety and environmental protocols and the need to address waste issues as they arise has resulted in the need for an extension. The detailed basis for this extension request is provided below.

Background

A significant amount of preparatory work was required before excavation activities could begin. This preparatory work proceeded on the following three parallel paths:

- Consent Order. The Laboratory submitted the MDA B investigation/remediation work plan to the New Mexico Environment Department (NMED) in March 2006, received a notice of disapproval in August 2006, and received the approval with modifications in January 2007.

- Safety Analysis (SA). The Laboratory began compiling historical records to provide detailed process information since no actual waste disposal records were kept for MDA B. This research involved declassification of Laboratory reports and memoranda archived from the operating groups, review of log books and aerial photographs, and personal interviews of retired personnel. This effort provided the body of knowledge regarding waste generation, management, and disposal during the MDA B operational period from 1944 to 1948, including waste types, depths, locations and characteristics of disposal trenches. Based on the available data, a total inventory of 200 g of plutonium was assumed to be distributed throughout the disposal unit. This report was completed in August 2007 and formed the basis for the hazards analysis and development of safety controls required of the Laboratory by 10 Code of Federal Regulations (CFR) Part 830, Nuclear Safety Management. These safety controls addressed hazards to the worker, the public, and the environment. The SA required by the regulation was submitted to DOE–Los Alamos Site Office on March 26, 2008, and went through comment resolution until December 17, 2008, when the Safety Evaluation Report approving the analysis and safety controls was issued.

- NESHAP. The SA served as the basis for dose calculations inherent in the preconstruction application for the MDA B project required by 40 CFR Part 61. DOE was required to request preconstruction approval from U.S. Environmental Protection Agency (EPA) Region 6 for all new activities that had the potential to emit greater than 1% of the Laboratory's 10-mrem limit under the rad-NESHAP, 40 CFR Part 61, Subparts A and H, Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities. The preconstruction application was submitted to EPA Region 6 on December 31, 2008, and was approved on February 6, 2009. The final approvals of the SA and NESHAPs controls provided the bases to complete the engineering designs of the equipment and enclosures required to perform the MDA B waste removal activities.

Additionally, some of the engineering and site construction were performed during the course of these administrative processes. The design and construction of the haul road, east and west support areas, stormwater controls, and the high-voltage electrical supply were completed in September 2008. Engineering design activities to define the procurement specifications for the enclosures were performed. These engineering design activities resulted in the June 2009 initiation of procurement activities for the current enclosures and ventilation systems. Direct-push sampling was used to support the Laboratory's SA and proposed safety controls as well as to provide site field characterization data. This approach was selected instead of the more disruptive methods such as test pits and trenches because air emissions could be controlled appropriately using the direct-push technology. Although NMED's request to trench rather than conduct direct-push sampling may have provided more detailed characterization information, the Laboratory had concerns with

this approach given the proximity of MDA B to the public and given rad-NESHAP requirements. The direct-push sampling was conducted in open-air conditions, without the enclosures, because emissions from the small intrusions were controlled through local ventilation units. This sampling, conducted in three phases, began in August 2009 and was completed in October 2009. Investigations in the low-hazard trenches (i.e., Trenches 9 and 10) on the west end of MDA B were conducted in February 2010. Installation and construction of the ventilated enclosures started in April 2010, and excavation of waste started in June 2010.

Current Status of Remediation

To date, the Laboratory has made substantial progress on the remediation of MDA B. The Laboratory has completed both mobile enclosures and five of the seven fixed enclosure buildings are complete, with the remaining two under construction. The Laboratory has completed remediation of approximately 50% of initially projected volumes (including Trenches 9 and 10, which were trenched and did not require excavation, as previously reported). Alternatively, the volume excavated to date represents 40% of the total volume the Laboratory currently projects will require excavation. The Laboratory is currently conducting excavation work simultaneously in five enclosures. Waste is segregated, packaged, characterized, and properly stored, and shipping is ongoing.

Impacts from Unanticipated Field Conditions

The detailed review of the available historical records and the multiple phases of field investigations associated with MDA B led the Laboratory to anticipate a total inventory of 200 g of plutonium within MDA B and to assume it would be widely distributed. As discussed above, the heterogeneous nature of waste and the inherent limitations in site characterization driven by radiological safety concerns may still result in unanticipated conditions in the field. As a result, the Laboratory's initial radiological safety protocols for MDA B were developed to address both daily excavation activities and the expected range of field conditions.

On August 24, 2010, the Laboratory encountered an unanticipated field condition when a pipelike object (approximately 2 to 2.5 ft long and 3 to 4 in. in diameter) and associated soils containing approximately 10 g of plutonium were excavated in Enclosure 1. This object's high plutonium-contamination level was significantly more than the Laboratory expected to encounter in a single excavation area. Although the object did not exceed the radiological-control threshold established for this operation, under the radiological hazards analysis, the associated soils exceeded the threshold. In accordance with established procedures, the Laboratory immediately paused work at MDA B to evaluate excavation and waste-handling procedures and to ensure existing safety measures continued to be protective of the public and workers.

In response to this unanticipated radiological field condition, the Laboratory reevaluated its radiological field-monitoring instrumentation. The radiological field instrumentation was upgraded by installing FIDLERs (Field Instrument to Detect Low Energy Radiation) on each excavator boom. The FIDLER system replaced the original sodium iodide detection system to better monitor radiological field conditions. These FIDLERs transmit data to the control room trailer for the purpose of monitoring work conditions in real time. The new boom-mounted sytem has lower detection capabilities and an audible alarm function. In addition, appropriate procedural changes

associated with excavation were implemented and prestart mockups were performed. In the original procedure the equipment operator spread the waste/soil in thin layers so a composite sample could be collected and all anomalous objects could be scanned. As part of the enhanced monitoring procedure, the dig face is monitored, and then each bucket is scanned before the contents are placed in the waste bin. Buckets that reach an operational radiological threshold are sampled, and an analysis is performed at the field laboratory before the bucket is emptied into the waste bin. Work resumed 28 days later, on September 20, 2010.

On October 13, 2010, a second unanticipated radiological field condition occurred when radiologically contaminated soil above expected levels was encountered. This second radiological exceedance occurred while Enclosure 1 was being excavated using the revised procedures and detection equipment described above. A high FIDLER reading occurred and in accordance with operating procedures, a sample was collected and analyzed for radioactive concentration on the same day. The data showed the radiological limit had been exceeded. The enclosures were placed in a safe condition, and work was paused in conformance with MDA B operating procedures. No release outside of the enclosure and no contamination of personnel occurred. All safety systems performed as expected.

At this point, the Laboratory reevaluated the radiological threshold given the frequency and risk associated with the safety basis accident scenarios and determined that the MDA B radiological threshold could be increased without significant risks. While the field instrumentation can readily detect the new radiological limits, the Laboratory worked with DOE under the provisions of DOE-STD-1027-92, Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, to obtain an exemption to certain requirements of 10 CFR 830, Subpart B, Safety Basis Requirements, allowing operation as a radiological facility with a higher radiological-threshold limit. A revised facility authorization is not a standard procedure. The Laboratory worked closely with DOE–Headquarters to expedite the process and to adhere as closely as possible to the original schedule.

The regulations associated with this exemption required project procedures to be updated to incorporate the revised MDA B Facility Safety Plan. DOE then reviewed and approved the procedural changes, after which the Laboratory retrained employees to these new procedures. Excavation resumed on the morning of October 24, 2010, 11 days from the beginning of the pause. Approximately 50 yd^3 of soil was excavated.

In addition to these two pauses, a third unanticipated condition was encountered in Enclosure 2. Based on the Laboratory's review of historical records and ground-penetrating radar surveys, the depth to the bottom of the trench in Enclosure 2 was anticipated to be approximately 12 to 13 ft deep. During excavation activities, the Laboratory discovered that this trench is greater than 30 ft deep. This significantly decreased the excavation rate and increased the excavation volume. Although excavation of Enclosure 2 is not complete, the decreased excavation rate and the additional volume of waste have necessitated an additional 27 days thus far.

The three unanticipated field conditions have had four primary impacts on the Laboratory's schedule.

- The first impact was from the pauses themselves. The two MDA B-wide pauses totaled 39 days. Further, Enclosure 1, which is on the project's critical path, was closed for an additional 14 days (for a total of 53 days).

- The second impact is the additional time needed to excavate the waste, given the necessary procedural changes that reduced the excavation rate. These changes ensure that safety measures continue to be protective of the public and site workers. Although the additional radiological waste process steps described above facilitate waste segregation and compliance with waste management regulations, the additional steps take more time than originally factored into the schedule. For example, the time it takes to load a waste box has doubled. The original planned excavation rate was 59 yd^3 per day per enclosure. Before the additional radiological process protective measures were implemented, the Laboratory was excavating only in mobile enclosures and was averaging 44 yd^3 per day per enclosure. Since the implementation of these additional measures, the actual MDA B excavation rates have averaged 36 yd^3 per day for the mobile enclosures and 54 yd^3 per day fixed enclosures. This change in excavation rates quantifies the impact of these additional mesures. Based upon these actual rates, an additional 62 working days of excavation are necessary for Enclosure 1 (a mobile enclosure), which is on the MDA B project critical path to completion.

- The third impact is on the MDA B weekly work schedule. When the MDA B excavation began, the Laboratory was working a 7 day per week/12 hours per day schedule. This schedule was established because it was believed that a concentrated work period would allow the Laboratory to accomplish this remediation in a safe manner over the planned short field campaign. The duration of the pauses and the time impacts associated with new radiological work steps have significantly lengthened the original planned short field campaign schedule. The Laboratory modified the MDA B work schedule to 5 days per week/10 hours per day and reorganized to enhance worker efficiency and maintain a strong worker safety environment. As we informed your staff, the Laboratory began this new work schedule on November 15, 2010.

- The fourth impact is the unexpected depth within Enclosure 2. To date, an additional 27 days have been required to excavate the planned trench area and will continue to impact the schedule for Enclosure 2. However, Enclosure 2 is not currently on the critical path.

Based upon these impacts, a revised excavation schedule has been developed. A copy of the excavation production schedule is included in Attachment 1.

Investigation/Remediation Report

As outlined above, the revised schedule for MDA B supports the completion of excavation on June 28, 2011. Following termination of excavation activities, confirmatory samples must be collected in accordance with the approved investigation remediation work plan. Given the unanticipated field conditions encountered during excavation activities, it may be necessary to

perform more than one round of confirmatory sampling. Therefore, additional time is needed to (1) collect all confirmatory samples, (2) send samples to off-site analytical laboratory, (3) receive analytical results from off-site laboratory, (4) evaluate the data to determine whether cleanup standards have been met or if additional excavation is necessary, (5) incorporate analytical results into the investigation/remediation report, and (6) complete the investigation/remediation report. The Laboratory therefore requests an additional 2 months to accomplish the activities described above and submit the MDA B investigation/remediation report.

Extension Request

The Laboratory has worked diligently to address the challenges posed by excavating MDA B, a 60 year-old landfill in close proximity to the public. We have committed considerable resources to minimize the schedule impacts resulting from the issues described above. As discussed above, significant preexcavation activities were required to ensure compliance with all applicable regulatory requirements, including DOE requirements. Once excavation activities commenced, unanticipated field conditions led to a combination of factors that have significantly impacted the MDA B excavation schedule. The excavation schedule completion date of June 28, 2011, reflects (1) time directly lost to work pauses, (2) the additional time impacts on the excavation efficiency, and (3) the change in work schedule to 5 days per week/10 hours per day. Further, the time needed to receive final confirmatory sampling results and to complete the MDA B investigation/ remediation report necessitates an additional 2 months. Therefore, the Laboratory is requesting an extension of the submittal date for the investigation/remediation report to August 31, 2011.

Thank you for your consideration of this request. If you have any questions, please contact Andy Baumer at (505) 665-0343 (andybaumer@lanl.gov) or Everett Trollinger at (505) 665-0343 (etrollinger@doeal.gov).

Sincerely,

Michael J. Graham, Associate Director
Environmental Programs
Los Alamos National Laboratory

Sincerely,

George J. Rael, Manager
Environmental Projects Office
Los Alamos Site Office

MG/GR/AB/SP:sm

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Stephen Pulsford, EP-TA-21 Closure Project, MS C349 (date-stamped letter emailed)
Bruce Schappell, EP-ARRA Project, MS C348 (date-stamped letter emailed)
Andy Baumer, EP-ARRA Project, MS C348 (date-stamped letter emailed)
Al Chaloupka, EP-ARRA Project, MS C348 (date-stamped letter emailed)
Victoria George, EP-REG, MS M991 (date-stamped letter emailed)
Michael J. Graham, ADEP, MS M991 (date-stamped letter emailed)
William Alexander, EP-BPS, MS M992 (date-stamped letter emailed)
RPF, MS M707

Attachment 1

LANL ARRA BASELINE SCHEDULE — 30-Nov-10 15:06

Activity ID	Activity Name	OD	Start	Finish
C3.05.0W.01.B3.NOV-0	STIMULUS - MDA-B / WASTELINES	208	01-Nov-10	06-Sep-11
C3.05.0W.01.B3.NOV-0.1	DOE/HQ	208	01-Nov-10	06-Sep-11
C3.05.0W.01.B3.NOV-0.1.4	EM	208	01-Nov-10	06-Sep-11
C3.05.0W.01.B3.NOV-0.1.4.3	DOE / LASO	208	01-Nov-10	06-Sep-11
C3.05.0W.01.B3.NOV-0.1.4.3.5	ARRA SOIL & GW REMEDIATION VL-LANL-0030.R1	208	01-Nov-10	06-Sep-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01	MDA B EMRAP VL-LANL-0030.R1.1	208	01-Nov-10	06-Sep-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03	DP SITE	208	01-Nov-10	06-Sep-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R	MDA-B	208	01-Nov-10	06-Sep-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LM	Site Grading, Foundations, and Sampling	49	22-Nov-10	09-Feb-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LM.1	Grading and Sampling	49	22-Nov-10	09-Feb-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LM.1.1	Grading Areas 4 through 8	14	21-Jan-11	09-Feb-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LM.1.3	Sampling Areas 1-3	35	22-Nov-10	20-Jan-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LN	Hazardous Material Excavation Areas 1-8	169	01-Nov-10	12-Jul-11
B32RLN0200	BCP 11-MB11: October MAR Limit Excavation Work Pause	19	01-Nov-10*	30-Nov-10
B32RLN0201	BCP 11-MB11: Equipment Rental & Excavation Support Crews	158	01-Nov-10*	24-Jun-11
B32RLN0111	BCP 11-MB11: Cont Subcontractor Project Management	40	30-Nov-10	03-Feb-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LN.2	Enclosures 3-6	37	13-Dec-10	10-Feb-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LN.2.3	Enclosure 5 (9/10/11)	30	13-Dec-10	01-Feb-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LN.2.4	Enclosure 6 (5/6)	37	13-Dec-10	10-Feb-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LN.4	Excavation and Waste	169	01-Nov-10	12-Jul-11
B32RLN5431	BCP 11-MB11: Analyze Waste Characterization Samples Activity 1	80	01-Nov-10*	08-Mar-11
B32RLN5441	BCP 11-MB11: Analyze Waste Characterization Samples Activity 2	80	08-Mar-11	29-Jun-11
B32RLN5451	Fixed Enclosure Excavation Complete	0		24-May-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LN.4.1	Excavation	160	01-Nov-10	28-Jun-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LN.4.1.1	Enclosure #1 Excavation Sequence	134	01-Nov-10	20-May-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LN.4.1.2	Enclosure #2 Excavation Sequence	110	01-Nov-10	18-Apr-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LN.4.1.3	Enclosure #3 Excavation Sequence	38	01-Nov-10	04-Jan-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LN.4.1.5	Enclosure #5 Excavation Sequence	38	01-Nov-10	04-Jan-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LN.4.1.7	Enclosure #3/4 Excavation Sequence	18	01-Nov-10	29-Nov-10
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LN.4.1.8	Enclosure #5/6 Excavation Sequence	45	11-Feb-11	15-Apr-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LN.4.1.9	Enclosure #7/8 Excavation Sequence	32	01-Nov-10	17-Dec-10
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LN.4.1.10	Enclosure #9/10/11 Excavation Sequence	91	02-Feb-11	10-Jun-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LN.4.1.11	Enclosure #12/13 Excavation Sequence	32	01-Nov-10	17-Dec-10
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LN.4.1.12	Area 5 Excavation Sequence	26	23-May-11	28-Jun-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LN.4.2	Waste PT&D	150	01-Dec-10	12-Jul-11
C3.05.0W.01.B3.NOV-0.1.4.3.5.01.03.2R.LP	Verification Sampling and Site Restoration	90	29-Apr-11	06-Sep-11

Actual Work — Critical Remaining Work
Remaining Work — Milestone

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TASK filter: (Untitled Filter).