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June 4, 2004

David Gregory, Federal Project Director
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U.S. Department of Energy
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G. Pete Nanos, Director
Los Alamos National Laboratory
Post Office Box 1663, Mail Stop A100
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RE: Technical Comments on Draft Storm Water Monitoring Plan, April 2004

Dear Messrs. Gregory and Nanos:

Enclosed are the technical comments of the New Mexico Environment Department (Department) on the draft Storm Water Monitoring Plan prepared by Los Alamos National Laboratory (LANL) and dated April 1, 2004. LANL views the plan as a requirement of the draft federal facility compliance agreement for surface water monitoring, dated April 7, 2004. Please note that the enclosed comments reflect only the Department's technical issues with the draft agreement. We are not through these comments expressing any views on any legal or procedural issues with the draft agreement, or with the form of the draft agreement, or with the legal authority for the agreement. These issues are the subject of ongoing discussions with EPA and DOE.

If you have any questions on these comments, please contact James Bearzi of my staff at (505) 428-2512.

Sincerely,

Charles Lundstrom
Director
Water and Waste Management Division

Enclosure



Messrs. Gregory and Nanos
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cc: with enclosure

J. Bearzi, NMED HWB
M. Leavitt, NMED SWQB
C. Voorhees, NMED DOE OB
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NMED Comments on LANL Draft Storm Water Monitoring Plan

General Comments:

The problem statement discusses the Federal Facilities Compliance Agreement (FFCA) as if it is already in effect. At this time no such agreement exists. Any reference to an FFCA should be denoted as "draft." NMED has consistently stated its view that such an agreement would be unenforceable as EPA is prohibited from enforcing against a sister agency.

The Plan should state that the New Mexico Environment Department (NMED) would be the primary administrative authority (AA) for any action related to remediation of a solid waste management unit (SWMU) or contaminated package of sediment. NMED will determine the appropriate corrective action in response to repeated water screening action level (wSAL) exceedances.

The Plan discusses corrective actions to be taken at individual sites and implementation of associated best management practices (BMPs); however, it does not mention corrective actions to address contamination found in the canyon systems. The source of much of the contamination observed at the gage stations may be from erosion of sediment packages already located in the canyon bottoms and not from poorly performing stabilization measures at upstream SWMUs. Corrective actions to be considered should not be limited to SWMUs but should also include potential remediation or stabilization of contaminated sediment packages located in the canyons.

The Plan must address continued monitoring of contaminant migration from sites and canyon areas where corrective action(s) have been implemented. The Plan must identify whether the same stabilization processes will be used to address contaminant migration or if corrective action(s) will include remediation of the site and/or canyon area to reduce contaminant migration. If remediation is required at a site and/or canyon source area, the NMED must approve the work plan prior to implementation of any corrective measures.

The Plan must state that the AAs will determine whether contamination results from LANL activities, and shall base such a determination on information and assessments furnished by the Environmental Protection Agency (EPA), University of California (UC), Department of Energy (DOE), NMED, or other sources, not just from UC or DOE.

NMED believes that the UC and DOE are out of compliance with their Multi-Sector General Storm Water Permit (MSGP). EPA has stated that it will issue a FFCA and Schedule Order to bring them into compliance. Notwithstanding NMED's fundamental concerns regarding the enforceability of a FFCA for LANL permittees, the UC and DOE must demonstrate to the AA(s) that they are in compliance with the applicable permit(s) and order(s). NMED believes UC and DOE need to report more frequently (quarterly) to allow more timely review of compliance.

DOE must commit to taking appropriate action when concentrations of radionuclides in storm water runoff exceed the wSALs for radionuclides. An assessment of the radiological and non-radiological results in comparison to the wSALs and any resulting actions taken should also be provided in accordance with FFCA and EPA Schedule Order reporting schedules. A discussion

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is needed on the process for determining wSALs for radionuclides. NMED has provided rationales for appropriate wSALs for radionuclides and has included them in Table 1 in the specific comments.

Specific Comments:

Section 1. Problem Statement; Page 4, First sentence

Comment: While the MSGP requires quarterly grab samples, the draft FFCA and EPA Schedule Order requires four grab samples per year to accommodate the seasonality of the monsoon storm season in New Mexico. One of these four samples in 2004 may be snowmelt. To clarify this intent, insert the following after the first sentence: "This monitoring plan was developed to conform to specific FFCA and EPA Schedule Order requirements that four samples be collected each year when precipitation causes sufficient flow for sampling to occur using automatic sampling devices. One of the four samples collected during 2004 may be collected during snowmelt runoff."

Section 1. Problem Statement; Page 4, Second sentence

Comment: Replace sentence with: "The purpose of this monitoring is to determine if the concentration of a constituent is greater than an established water screening action level (wSAL). The wSAL may be based upon an applicable State water quality criterion (Livestock Watering, Wildlife Habitat, or Human Health for toxics), an acute aquatic life criterion, or a MSGP Benchmark."

Section 1. Problem Statement; Page 4, Third Sentence

Comment: Replace sentence with: "At this time, the applicable criteria are the livestock watering, wildlife habitat, and human health criteria for toxics as adopted by the New Mexico Water Quality Control Commission (WQCC)." This does not include the Acute Aquatic Life (Fisheries) or the appropriate MSGP Sector Benchmarks as stated.

Section 1. Problem Statement continued; Page 5

Comment: A wSAL is not a standard. A standard is a combination of a use and the criteria designed to be protective of that use. The terms standards, criteria, wSALs, and benchmarks should not be used interchangeably because each term has a specific meaning.

The discussion of the "step-wise process" is not an accurate description of the process negotiated by NMED, LANL and DOE the week of March 15, 2004. NMED believes the distinction between chronic and acute wSALs is not necessary. The wSALs are water quality screening tools only. When the concentration reaches the wSAL, further action is required and the criterion used to develop the wSAL is not relevant. The exceedance requires assessment of BMP performance.

Replace "They will be used...through...(d)...Administrative Authority(s)" with the following:

"They will be used to assess best management practices (BMPs) performance.

These wSALs shall be determined in a step-wise process.

1. The applicable State of New Mexico Water Quality Standards for Interstate and Intrastate Surface Waters (20.6.4 NMAC) will be used as the first criteria for setting wSALs. The criterion for Wildlife Habitat, Human Health for Persistent Toxics, or Livestock Watering (whichever is lowest), measured as total concentration in water, will be used as the initial wSAL.
2. The acute aquatic life (fisheries) criterion for any compound found in the water quality standards, measured as total recoverable concentration in water, will be listed as the next choice for a wSAL.
3. NPDES Storm Water Multi-Sector General Permit benchmark values (MSGP, 65 FR 64767-64768) will be used as the next source of available wSALs.
4. If any constituents of concern (COCs) are not included in the above, or the wSALs are considered inappropriate, wSALs may be developed using procedures for developing acute criteria in the Standards for Interstate and Intrastate Surface Waters (20.6.4.12 F NMAC) and the National Recommended Water Quality Criteria 2002 (EPA-822-R-02-047), 40 CFR 131. Where information is unavailable to develop acute criteria, procedures used by EPA to develop NPDES effluent limitations and storm water benchmarks should be used.
5. Where no appropriate criterion is available, an acceptable wSAL can be developed in consultation with the AA(s).

NMED provides one deviation from the negotiated wSAL development process. NMED assessment protocol currently uses a multiplication factor of 1.5 for all criteria that are listed as chronic in 20.6.4 NMAC. This protocol may be modified over time as better assessment methods are developed to specifically address storm water. The NMED protocol compares all water quality to this value ($1.5 \times$ chronic criteria) to determine if an exceedance of a criterion is high enough to warrant further action. NMED believes it is appropriate to include the 1.5 multiplier in the wSAL development process for those criteria derived from long-term exposure parameters or those that are listed as chronic in 20.6.4 NMAC. We have provided a column in Table 1 to incorporate this process into the wSAL development process.

Table 1 lists wSALs derived using steps 1-3 of the above procedure. To account for the source of the criterion, the NMED radiological effluent concentrations, wildlife habitat, and human health criteria were multiplied by 1.5. The wSAL chosen was the lowest of the applicable chronic water quality criterion ($\times 1.5$), the livestock watering criterion, the acute aquatic life criterion, or the MSGP Benchmark as total concentration in water. Using the steps 1 through 3, wSALs were developed for thirty-nine constituents. The calculated values for acute aquatic life criterion should be checked for accuracy. The median hardness value from historic storm water data should be used as a background value. Additional benchmarks (for other constituents not included on Table 1) may be found in the MSGP (MSGP, 65 FR 64767-64768) and the New Mexico Radiation Protection Regulations.

Table 1. Applicable Water Quality Standards Criteria and corresponding wSALs

Constituent	State of New Mexico Radiation Protection Regulations (Effluent Concentrations)	DOE DCG for water ingestion in uncontrolled areas	Wildlife Habitat Criterion	Livestock Watering Criterion	Human Health Criterion	Lowest Chronic Criterion multiplied by 1.5	Aquatic Life Acute Criterion (100 mg/L hardness)	MSGP Benchmark	wSAL
	(pCi/L)	(pCi/L)	µg/L	µg/L	µg/L	µg/L or pCi/L	µg/L	µg/L	µg/L or pCi/L
Am-241	20	30				30			30
Cs-137	1,000	3,000				1500			1,500
Pu-238	20	30				30			30
Pu-239	20	30				30			30
Pu-240	20	30				30			30
Sr-90	50	1000				75			75
U-234	300	500				450			450
U-235	300	600				450			450
U-238	300	600				450			450
H-3 (Tritium)	1,000,000	2,000,000		20,000					20,000
Ra-226 & Ra-228	120	500		30					30
Adjusted Gross Alpha		15		15					15
Al							750	750	750
As					24.2	36.3	340	168.54	36.3
B				5,000					5,000
Cd							4.3	15.9	4.3
Cn			5.2		220,000	8	22	63.6	8
Cr				1,000			570		570
Cu				500			13	63.6	13
Co				1,000					1,000

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Constituent	State of New Mexico Radiation Protection Regulations (Effluent Concentrations)	DOE DCG for water ingestion in uncontrolled areas	Wildlife Habitat Criterion	Livestock Watering Criterion	Human Health Criterion	Lowest Chronic Criterion multiplied by 1.5	Aquatic Life Acute Criterion (100 mg/L hardness)	MSGP Benchmark	wSAL
	(pCi/L)	(pCi/L)	µg/L	µg/L	µg/L	µg/L or pCi/L	µg/L	µg/L	µg/L or pCi/L
Hg			0.77			1.16	2.4	2.4	1.16
Ni					4,600	6900	470	1,417	470
Pb				100			65	81.6	65
Ag							3.45	31.8	3.45
Se			5	50	11,000	7.5	20	238.5	7.5
Th					6.3	9.5			9.5
V				100					100
Zn					69,000	103500	120	117	117
Sb					4,300	6450		636	636
PCBs			0.014		0.0017	0.0026		0.20 - 100	0.0026
4,4'-DDT and derivatives			0.001		0.059	0.0015	1.1		0.0015
Chlorine			11			16.5	19		16.5
Aldrin,					110,000	165000	3		3
Benzo(a)pyrene,					0.49	0.74			0.74
Chlordane					0.022	0.033	2.4		0.033
Dieldrin					0.0014	0.0021	0.24		0.0021
2,3,7,8-TCDD Dioxin					1.40E-07	0.00000021			0.00000021
Hexachlorobenzene					0.0077	0.0116			0.0116
Tetrachloroethylene					88.5	132.8			132.8

Note: The rest of the existing table numbers in the document should be changed accordingly.

Section 1. Problem Statement continued; Page 5, Last paragraph

Comment: A discussion is needed on the process for determining wSALs for radionuclides. The radionuclide wSALs should be either the DOE derived concentration guidelines (DCGs) from DOE order 5400.5 or the annual limits for effluent concentrations in water found in the State of New Mexico Radiation Protection Regulations 20.3.4.461 NMAC (Table II, Column 2). The NMED preferred option is the use of the state regulatory effluent limits as they are based on a 50-mrem dose whereas the DOE DCGs are based on a 100-mrem dose. State effluent limits are therefore generally more protective. The requirement for DOE to take appropriate action when concentrations of radionuclides in storm water runoff exceed the wSALs for radionuclides must be discussed. An assessment of the radiological and non-radiological results against the wSALs and any resulting actions taken should also be provided in accordance with draft reporting schedules. DOE should insert: "Radionuclide wSALs shall be developed from the limits for effluent concentrations in water found in the State of New Mexico Radiation Protection Regulations 20.3.4.461 NMAC (Table II, Column 2)." Table 1 includes selected wSALs for radionuclides.

Section 3. Identify inputs to the Decisions; page 6, last sentence

Comment: Insert at the end of the paragraph: "... although they will be comparable to previously collected NMED DOE Oversight Bureau results."

Section 5. Decision Rules; Page 6

Comment: This section discusses actions to be taken at individual sites and associated BMPs. It does not mention corrective actions for contamination found in the canyon system. Much of the contamination observed at the gage stations may be from eroding sediment packages already located in the canyon bottom, and not represent breakthrough from poorly performing BMPs at upstream SWMUs. Actions to be considered should not be limited to the SWMUs, but should also include potential remediation or stabilization of contaminated sediment packages located in the canyons. Insert the following sentence: "If it is determined that erosion of contaminated canyon sediment packages are contributing to repeated wSAL exceedences, a corrective action plan will be developed within 30 days of detection of the second exceedance to stabilize or remove the contaminated sediment packages."

Section 5. Decision Rules; page 6, third sentence

Comment: Although conducting a "focused investigation of additional sampling, including background sampling where appropriate" may be appropriate, LANL must consider alternative BMPs at all sites that exceed wSALs. For example, where runoff controls are deemed to be performing as expected but wSALs are exceeded, enhanced run-on controls (e.g., re-grading to divert run-on from entering a SWMU) may be necessary. Alternatively, a rock check dam may need to be replaced with a silt fence that is more appropriate for reducing suspended sediment concentrations and, therefore, contaminant transport. Insert the following after the third sentence: "In the interim, enhanced run-on controls (e.g., re-grading to divert surface flow elsewhere, or installment of detention basins) will be installed if determined to be appropriate."

Section 5. Decision Rules; page 6, second paragraph

Comment: Since the uses of acute and chronic wSALs are not necessary, replace the decision rules section from the top of Page 7 through the bottom of page 8 with the following:

“Decision Rules for assessing data against wSALs

1. If only one unfiltered grab sample is collected in a season and the analytical result is greater than the wSAL, and it is determined that the cause represents a Laboratory impact, then the Laboratory will identify the source and implement corrective actions.
2. If more than one sample is collected in a season, the analytical result of two unfiltered grab samples is greater than the wSAL, and it is determined that the cause represents a Laboratory impact, then the Laboratory will identify the source and implement corrective actions.
3. If corrective actions are warranted according to Decision Rule 1 or 2, LANL will continue to monitor the station until three consecutive results are less than the wSAL. When this occurs, LANL may recommend that the sampling frequency be reduced and submit a proposal to modify the Plan, to EPA and NMED for review and approval. Revised monitoring plans must be submitted to EPA and NMED by March 31st following a monitoring period.
4. If four samples have been collected at a station not covered by the MSGP, and no analytical result is greater than the wSAL, then LANL may recommend that the sampling frequency be reduced, propose a modification of the Plan, and will submit it to EPA and NMED for review and approval. Monitoring plans must be submitted to EPA and NMED by March 31st following a monitoring period.”

Section 5, Decision Rules: page 6

Comment: The Plan indicates that baseline or upstream sampling will be conducted in all major watersheds. In addition, baseline or upstream water quality data (e.g., WQH data or NMED DOE Oversight Bureau data) is available for many canyon systems. If LANL determines that additional background data is needed, the Plan must include a description of proposed background sampling. Insert the following: “If UC and DOE determines that additional background sampling is necessary, UC and DOE will submit a background sampling and analysis plan to the AAs for comment prior to conducting additional background sampling.”

Section 5, Decision Rule for Acute wSALs: Page 7, Bullet 1

Comment: The AA determines whether the contamination results from LANL facility activities, not UC or DOE. Insert the following sentence: “The AA(s) will determine whether the contamination results from LANL facility activities based on information furnished to them by EPA, UC, DOE, NMED, or other sources.”

Section 5, Decision Rule for Acute wSALs: Page 7, Bullet 1

Comment: The Plan must include the requirement for notification within 24 hours and written notification within five working days of detection of exceedences of wSALs to the AAs. Insert the following sentence “ Based on the results of the assessment of the cause of wSAL exceedences, the need for and scope of corrective actions will be evaluated. UC and DOE will provide proposed corrective actions to the AAs for approval and oversight within 30 days of

discovery. Once the corrective action is implemented, the UC and DOE will submit a report summarizing the corrective actions taken to the AAs for review.”

Section 5, Decision Rule for Acute wSALs: Page 7, Bullet 2

Comment: The Plan must address continued contaminant migration from sites and canyon areas where corrective action(s) have been implemented. The Plan must identify if the same process will be followed or if the necessary corrective action(s) will be escalated to potential remediation of the site and/or canyon area. If remediation is required at a site and/or canyon area, the NMED HWB must approve the work plan describing the remediation. Insert the following sentence. “If remediation is determined to be necessary at a SWMU or canyon area, UC and DOE will submit a work plan describing the proposed remediation to the HWB for approval within 60 days or as otherwise required by HWB.”

Section 5, Decision Rule for Flow: page 8

Comment: Replace with: “If flow is observed at a station during one year and no sample is collected, the sample trip settings and/or the sample suction line height above the streambed shall be reevaluated and adjusted to allow for sample collection whenever the stream flows. If no flow is observed at a station for two calendar years, and the lack of documented flow is not due to a mechanical error or lack of local precipitation, then LANL can recommend that the sampling frequency be reduced. LANL may propose to modify the Plan, and submit the modified plan to EPA and NMED for review and approval. Revised monitoring plans must be submitted to EPA and NMED by March 31st following a monitoring period.”

Figure 1 Decision Logic Flow Chart; page 9

Comment: This chart needs to be modified based on the revised decision rule logic described above to remove the distinction between chronic and acute wSALs.

Section 6. Limits on Uncertainty; page 10

Comment: Replace “the calculated concentration is” with “two or more sample concentrations are” in both bullets.

Table 1 Stations and Suites to be sampled; page 11 - 13

Comment:

1. E110, Los Alamos above Rio Grande, must be included in the monitoring table along with a suite for radiological, metals, PCBs and Dioxin/Furan. This location is needed to characterize Los Alamos Canyon water before it enters the Rio Grande. Sampling this station also would measure the effects on water quality from discharges from Pueblo and Bayo Canyons to Los Alamos Canyon, which flows onto San Ildefonso Pueblo tribal land. Data from this location would also provide pertinent information for the determination of the effects of Los Alamos Canyon water quality on the Rio Grande.
2. The station located in South Fork Acid Canyon (no designation) needs to include the Radiological suite. It appears that the suite “X’s” have shifted to the right in the chart.
3. The Stations at TA-33 (E338 & E340) need the suite of PCBs due to the presence of four upstream SWMUs with PCB concentrations greater than 1 ppm.

4. The Station E056, Acid above Pueblo, is located too close to the confluence of Acid and Pueblo Canyons and is therefore influenced by flow from Pueblo Canyon. In its present location, flow readings may be inaccurate and samples collected there may not be representative of flow in Acid canyon and may actually be Pueblo Canyon storm flow. This gage station should be moved 50 to 100 feet further upstream in Acid Canyon to minimize Pueblo Canyon's influence.
5. Due to fires that occurred and MDAs B, C, G, and AA, sampling suites for gage stations down gradient of these sites must include dioxins and furans.

Conventional Industrial Sites; page 13

Comment: "In some instances, SWMUs are co-located within Conventional Industrial Site drainage areas." When this occurs, SWMU specific contaminants, not Sector K Benchmarks, are added to the analytical suite for monitoring, as stated.

Table 2 Priorities and Volumes; page 15

Comment: Footnote 3 outlines a process for sub sampling for filtered or non-filtered metal analyses. The method outlined may not produce representative samples. A sample splitter must be used to obtain a representative sample split.

Retrieving Samples from ISCOs; page 15

Comment: In those cases where insufficient water is collected to satisfy all the analytical requirements, the extra bottles (collected for insurance against analytical error, breakage etc.) should be used rather than not analyzing for certain parameters. For those events where insufficient water is collected, submit the absolute minimum needed for analyses to the lab for each analysis so any additional water can be used for the other analytes.

Retrieving Samples from ISCO Samplers; page 16, second paragraph

Comment: The method outlined may not produce representative samples. A sample splitter must be used to obtain a representative sample split.

Flow reporting; page 24

Comment: In 2002 the monitoring gage station clocks were not re-set when daylight savings time went into effect. This causes problems for data users when trying to correlate sample collection times and flows. All gages and samplers should be set for daylight savings time as appropriate.

Flow reporting; Table 8 Example of format for reporting flow, page 24

Comment: In addition to the reporting format in Table 8, the 5-minute discharge readings (in cubic feet per second) for all locations and flow events where samples were collected should be reported. This provides the data users with needed information for data assessment, for mass transport calculations, and contaminant transport trend assessment. Collection of instantaneous flow measurements for each sample time is extremely important data and must be provided in the flow reporting section.

Appendix A, Analytes, Analytical methods, and Detection Limits; page A-2

Comment: 1) The correct method for Dioxin/Furan is EPA 1613 B. 2). The detection limit for EPA Method 608, listed for PCB analysis, is too high to detect PCBs at the applicable PCB criteria and wSAL. Method 1668A should be used to determine attainment of the wSAL for PCBs.

Field Quality Control Samples; Page 20

The frequency of collection of quality control samples under each subsection (e.g., performance evaluation blanks, field blanks, field duplicates, etc.) must be specified. The minimum frequency/rate of quality control sample collection should be no less than 10%.

Quarterly Reporting; Page 21

Quarterly status reports must also be submitted to NMED.

Annual Reporting for Multi-Sector General Permit; Page 22

Discharge monitoring reports must be submitted to the AAs on a quarterly basis. NMED believes UC and DOE must report more frequently (quarterly) to allow the AAs to conduct more timely reviews of compliance submittals.

Annual Reporting for the Watershed Monitoring for FFCA; Page 22

Discharge monitoring reports must be submitted to the AAs on a quarterly basis. Any exceedance of the appropriate wSALs must be reported verbally to the AAs within 24 hours of discovery and in writing within five days of discovery. Corrective action(s) may be proposed by LANL; however, proposed corrective actions are subject to approval by the AAs.