Review and comments of the LANL Draft Storm Water Monitoring Plan
5/6/2004

NMED DOE-OB and HWB

Comments on LANL Draft Storm Water Monitoring Plan

General Comments:

The problem statement discusses the Federal Facilities Compliance Agreement in terms that it is in effect. At this time no such agreement exists. These should be referred to as "draft" until finalized.

The Plan should define the administrative authority (AA) as the Environmental Protection Agency. The Plan should also note that if remediation of a SWMU or contaminated package of sediment is determined to be the appropriate "corrective action" in response to repeated wSAL exceedences, the NMED Hazardous Waste Bureau (HWB) would be the administrative authority for such an action.

The Plan discusses actions to be taken at individual sites and associated BMPs; however, it does not mention corrective actions for contamination found in the canyon system. Much of the contamination observed at the gage stations might be from eroding sediment packages already located in the canyon bottom, not just from poorly performing BMPs at upstream SWMUs. Actions to be considered should not be limited to the SWMUs only but should also include potential remediation or stabilization of contaminated sediment packages located in the canyons.

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 Hazardous Waste Bureau must approve the work plan describing the remediation.

The AA should determine whether the contamination results from LANL facility activities based information and assessments furnished by UC, DOE, or NMED not UC or DOE as the Plan states.

The UC and DOE have been out of compliance with the Multi-Sector General Storm Water Permit (MSGP), and are receiving a Schedule Order and Federal Facility Compliance Agreement respectively to bring them into compliance. The UC and DOE must demonstrate to the regulating agency and NMED that they are in compliance with the applicable permit(s) and order(s). NMED believes this cannot be accomplished via annual reporting and self-regulation. UC and DOE need to report more frequently (quarterly) to allow more timely review of compliance.

Specific Comments:

Section 1. Problem Statement; Page 4, First sentence
Comment: While the MSGP does require 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.

General (Surface water, Federal Facility Compliance Agreement)

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. These require 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) that 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 as they are not interchangeable.

The discussion of the step-wise process is a distortion of the process negotiated for the FFCA by NMED, LANL and DOE. NMED believes the distinction between chronic and acute wSALs is not valid. wSALs are water quality screening tools only. When the concentration reaches the wSAL it's time to take a closer look and it really doesn't matter whether criterion used to develop the wSAL is chronic or acute, it's simply time to assess BMP performance. The distinction is simply an unnecessary branch on the decision tree.

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 recoverable 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, or where information is unavailable to develop acute criteria, procedures used by EPA to develop NPDES effluent limitations and storm water benchmarks.
5. Where no appropriate criterion is available, an acceptable wSAL can be developed in consultation with the AA(s).

Table 1 lists wSALs derived using steps 1-3 of the above procedure. The wSAL chosen was the lowest of the applicable water quality criterion, the acute aquatic life criterion, or the MSGP Benchmark as total recoverable. Using the steps 1 through 3, wSALs were developed for thirty-four constituents. The values for acute aquatic life criterion were calculated using an unapproved spreadsheet and should be checked by hand for accuracy. The value of 100 for hardness used may not be appropriate and the median value from historic storm water data should be used if different. Additional benchmarks (for other constituents not included on Table 1) may be available from the MSGP (MSGP, 65 FR 64767-64768).

Table 1. Applicable Water Quality Standards Criteria and corresponding wSALs

Constituent	Wildlife Habitat Criterion	Livestock Watering Criterion	Human Health Criterion (Persistent Toxics)	Aquatic Life Acute Criterion (100 mg/L hardness)	MSGP Benchmark	wSAL
	µg/L (total recoverable)	µg/L (total recoverable)	µg/L (total recoverable)	µg/L (total recoverable)	µg/L (total recoverable)	µg/L (total recoverable)
Ag				3.45	31.8	3.45
Al				750	750	750
As			24.2	340	168.54	24.2
B		5,000				5,000
Be					130	130
Cd				4.3	15.9	4.3
Cn	5.2		220,000	22.0	63.6	5.2
Cr		1,000		570		570
Cu		500		13	63.6	13
Co		1,000				1,000
Fe					1,000	1,000
Hg	0.77	10		2.4	2.4	0.77
Mg					63.6	63.6
Mn					1,000	1,000
Ni			4,600	470	1,417	470
Pb		100		65	81.6	65
Sb			4,300		636	636
Se	5.0	50	11,000	20.0	238.5	5.0

Constituent	Wildlife Habitat Criterion	Livestock Watering Criterion	Human Health Criterion (Persistent Toxics)	Aquatic Life Acute Criterion (100 mg/L hardness)	MSGP Benchmark	wSAL
	µg/L (total recoverable)	µg/L (total recoverable)	µg/L (total recoverable)	µg/L (total recoverable)	µg/L (total recoverable)	µg/L (total recoverable)
Th			6.3			6.3
V		100				100
Zn			69,000	120	117	120
Adjusted gross alpha		15 pCi/L				15 pCi/L
Radium 226 + Radium 228		30.0 pCi/L				30.0 pCi/L
Tritium		20,000 pCi/L				20,000 pCi/L
PCBs	0.014		0.0017		0.20 - 100	0.0017
4,4'-DDT and derivatives	0.001		0.059	1.1		0.001
Chlorine	11			19		11
Aldrin,			110,000	3.0		3.0
Benzo(a)pyrene,			0.49			0.49
Chlordane			0.022	2.4		0.022
Dieldrin			0.0014	0.24		0.0014
2,3,7,8-TCDD Dioxin			1.4E-7			1.4E-7
Hexachloro benzene			0.0077			0.0077
Tetrachloro ethylene			88.5			88.5

"

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 20.3.4.461 effluent limits as they are based on a 50-mrem dose whereas the DOE DCGs are based on a 100-mrem dose and in most cases the NMED

effluent limits are more protective. DOE's commitment to taking 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 FFCA and EPA Schedule Order reporting schedules. Therefore, insert: "Radionuclide wSALs shall be 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)."

The following Table 2 displays DOE DCGs and NM effluent limits for comparison purposes.

Table 2 wSALs for radionuclides

	State of New Mexico Radiation Protection Regulations (Effluent Concentrations)	DOE DCG for water ingestion in uncontrolled areas	Most protective of the two
	Based on 50mr/yrdose	Based on 100mr/yrdose	wSAL
	(pCi/L)	(pCi/L)	(pCi/L)
Am-241	20	30	20
Cs-137	1,000	3,000	1,000
Pu-238	20	30	20
Pu-239	20	30	20
Pu-240	20	30	20
Sr-90	50	1000	50
U-234	300	500	300
U-235	300	600	300
U-238	300	600	300

Section 3. Identify inputs to the Decisions; page 6, last sentence
Comment: Insert at the end of the paragraph: "... though, 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; however, it does not mention corrective actions for contamination found in the canyon system. Much of the contamination observed at the gage stations might very well be from eroding sediment packages already located in the canyon bottom, not just from poorly performing BMPs at upstream SWMUs. Actions to be considered should not be limited to the SWMUs only 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 to stabilize or remove the contaminated sediment packages."

Section 5. Decision Rules; page 6, third sentence
Comment: Though a "focused investigation of additional sampling, including background sampling where appropriate, shall be conduced" 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 SWMU) may be appropriate. Alternatively, a rock check dam may need to be replaced with a silt fence that may perform better at reducing suspended sediment concentration and therefore contaminant transport. Therefore, insert following the third sentence: "In the interim, enhanced run-on controls (e.g., re-grading to divert elsewhere, or installment of detention basins) may be determined appropriate and installed."

Section 5. Decision Rules; page 6, second paragraph
Comment: The decision rules should be similar to the protocol used by the Surface Water Quality Bureau to interpret data for assessment of attainment of use found in the NMED assessment protocol. Since the use of Acute and Chronic wSALs is not valid, 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 (i.e., 2-4) samples are collected in a season and 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, the Laboratory will continue to monitor the station until three consecutive results are less than the wSAL. When this occurs the Laboratory may recommend that the sampling frequency be reduced, may 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.
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 the Laboratory may recommend that the sampling frequency be reduced, may 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 is available for many canyon systems (either WQH data or NMED DOE Oversight Bureau data). If LANL determines additional background data is needed, the Plan must include a description of what constitutes 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 Administrative Authority and NMED for comment prior to conducting additional background sampling."

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

Comment: The AA must determine whether the contamination results from LANL facility activities rather than UC or DOE. Insert the following sentence "The AA will determine whether the contamination results from LANL facility activities based on information furnished to them by UC, DOE, or NMED."

Section 5, Decision Rule for Acute wSALs: Page 7, Bullet 1
Comment: The Plan must identify a reporting time of 24 hours verbal, 5 working days writing of exceedences of wSALs to the AA and NMED. 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 AA and NMED for approval and oversight. Once the corrective action is implemented, the UC and DOE will submit a report summarizing the corrective actions taken to the AA and NMED 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 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 the Laboratory can recommend that the sampling frequency be reduced. The Laboratory can 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."

Figure 1 Decision Logic Flow Chart; page 9
Comment: This chart needs to be modified based on the proposed revised, simplified decision rule logic 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, needs to be included in the monitoring table along with a FFCA Suite for radiological, metals, PCBs and Dioxin/Furan. This location is needed to characterize Los Alamos Canyon water before it enters the Rio Grande. This

station also would integrate the effects of Pueblo and Bayo Canyons influence on Los Alamos Canyon water quality on San Ildefonso Pueblo. Data from this location would 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 FFCA Suite. It appears that the FFCA Suite "X's" have shifted to the right in the chart.
3. The Stations at TA-33 (E338 & E340) need the FFCA 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 reading 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 remove it from Pueblo Canyon's influence.
5. Due to fires located 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 are added to the analytical suite for monitoring, not Sector K Benchmarks, 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. We recommend that a sample splitter 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, it would be better to use the extra bottles (collected for insurance against analytical error, breakage etc.) than to not analyze 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 ISCOs; page 16, second paragraph
Comment: The method outlined may not produce representative samples. We recommend that a sample splitter be used to obtain a representative sample split.

Flow reporting; page 24
Comment: In 2002 and 2003, the monitoring gage station clocks were not re-set when daylight savings time went into effect. This causes problems for NMED and other data users when trying to correlate sample collection times and flows. All gages and samplers should be set for daylight savings time.

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. Instantaneous flows for each sample time is extremely important data and should 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) Method EPA: 608, listed for PCB analysis is unable 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 at which quality control samples must be specified 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 5%.

Quarterly Reporting; Page 21
Quarterly status reports should also be submitted to NMED.

Annual Reporting for Multi-Sector General Permit; Page 22
Discharge monitoring reports must be submitted to the AA and NMED quarterly. The UC and DOE have been out of compliance, are receiving a Schedule Order and Federal Facility Compliance Agreement respectively and must show the regulating agency and NMED that they are in compliance with the applicable permit(s) and order(s). This cannot be accomplished through annual reporting and self-correction.

Annual Reporting for the Watershed Monitoring for FFCA; Page 22
Discharge monitoring reports must be submitted to the AA and NMED quarterly. Any exceedance of the appropriate wSALs must reported to the AA and NMED within 24 hours verbally and 7 days in a written form. Corrective Action(s) may be proposed by the LANL facility; however, must be subject to approval by the AA with NMED input.