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Task Plan for Floodplain Potential Release Site Assessments

DRAFT

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Acronyms

DOE	US Department of Energy
EPA	US Environmental Protection Agency
ER	environmental restoration
NFA	no further action
NMED	New Mexico Environment Department
PRG	preliminary remediation goal
PRS	potential release site
SAL	screening action level
TA	technical area

1.0 PURPOSE

This task plan documents the decision process, data analysis procedure, and documentation process followed by the Environmental Restoration (ER) Project to assess potential release sites (PRSs) identified in the Los Alamos National Laboratory (the Laboratory) watershed floodplains subsequent to the Cerro Grande fire. The project uses decision criteria and data analysis to determine appropriate accelerated actions needed for each site in response to potential flood threats. These actions are not intended to be final actions.

2.0 DEFINITIONS

The following definitions have been created for the purposes of this document.

accelerated action — Action taken at a site ahead of prioritized, planned schedule. Accelerated actions may include removal, protection, hardening, installation of best management practices, or collection of characterization data. Accelerated action may or may not be a final remedy.

floodplain — Portion of a canyon that is built of overbank sediment deposited when the river floods.

preliminary remediation goal (PRG) — Acceptable exposure level, protective of human health and the environment, that is used as a risk-based tool for evaluating remedial alternatives.

no further action (NFA) — Recommendation that no further investigation or remediation is warranted, based on specific criteria.

3.0 ASSESSMENT PROCEDURE FOR ACCELERATED ACTIONS

3.1 Selection of Floodplain PRSs

The ER Project has identified 77 sites in postfire floodplains (“affected sites”) in the most fire-damaged watersheds (the Pajarito, Pueblo, Los Alamos, Water, and Cañon de Valle watersheds). Five affected sites are the canyons themselves; the remaining 72 affected sites are located within the floodplains of the Pajarito and Los Alamos watersheds. These 72 sites are at Technical Areas (TAs) 2 and 41 in Los Alamos Canyon, and TAs-27 and -18, in Pajarito Canyon. Attachment A lists the 77 affected sites.

3.2 Decision Basis for Determining the Need for Accelerated Actions at Affected Sites

3.2.1 Phase I, Triage: Identifying Sites Where Accelerated Action Is Indicated

All 77 affected sites are subjected to the first phase of the accelerated-action decision process shown in Attachment B. The purpose of this decision logic is to identify sites that clearly warrant accelerated action, in order to mitigate potential accelerated transport of known contaminants. The decision basis for each step is described below.

- **NFA?** Any site that has been proposed for no further action (NFA) is removed from consideration. These sites are reevaluated under Phase II (see Section 3.2.2). The rationale for this first step is that if a site has been proposed for NFA, unacceptable levels of contamination are not expected

to be present. Accelerated actions may not be necessary (but still may be considered appropriate under Phase II) for affected sites that meet at least one of the following criteria:

- ◆ sites initially listed in Module VIII of the Laboratory's Hazardous Waste Facility Permit ("HWSA sites") that have since been removed from Module VIII;
 - ◆ HSWA sites that the New Mexico Environment Department (NMED) has approved for removal from Module VIII;
 - ◆ HSWA sites that NMED will approve for removal from Module VIII when additional confirmation sampling and analysis are completed;
 - ◆ non-HSWA sites that the US Department of Energy (DOE) has approved as complete; or
 - ◆ HSWA and non-HSWA sites that have been completed as part of the ER Project work-off process.
- **<PRGs?** Available sampling data for an affected site are screened to meet US Environmental Protection Agency (EPA) Region 6 industrial preliminary remediation goals (PRGs) (for inorganic and organic contamination) or ER Project screening action levels (SALs) (for radionuclides). If contaminant levels at the site are less than PRGs or SALs (whichever applies), accelerated actions are unnecessary, but still may be included in Phase II of the decision logic. The rationale for this step is that the sites that are located in canyons where present-day land use is limited to industrial use (TA-2, TA-18, TA-27, TA-41) have been shown to pose no unacceptable risk under industrial-use scenarios. For canyon media (e.g., sediment, water), trend analyses are conducted on sampling data to identify relative risk along west-to-east-running (downstream) canyon segments, generally in the manner documented in the canyons reach reports. Accelerated actions are unnecessary for sites and media for which data indicate no unacceptable residual risk. Sites with inadequate data are retained for further assessment in Phase II.
 - **Upstream burn?** Accelerated actions are unnecessary for sites downstream of drainages unaffected by the Cerro Grande fire.
 - **Protected?** Accelerated actions are unnecessary for sites where contamination is contained within or beneath structures.

All these criteria are applied to each affected site, documented on the Cerro Grande accelerated action PRS status sheet (Attachment C), and stated on the Phase I assessment table (Attachment D). Sites that are categorized as "potential accelerated actions indicated" are evaluated further to determine appropriate action.

3.2.2 Phase II, Good Stewardship: Identifying Sites Where Stewardship Action Is Indicated

After the first phase of accelerated action assessment is conducted, the ER Project applies the decision logic shown in Attachment E to all sites that satisfy the determination of "NFA" or "no residual risk," reevaluating those sites for potential stewardship action. Stewardship actions are distinguished from accelerated actions in that they may be performed on sites previously determined to require no action, based on human-health or environmental risk. This secondary assessment ensures that sites that were evaluated under prefire conditions present no undue risk under postfire conditions. The following criteria are applied to all sites in the secondary stewardship assessment phase (Phase II):

- **Erosion or scouring potential?** Stewardship actions are appropriate for sites that are subject to erosion or scouring based on the Emergency Response Team's calculations and best professional judgment.
- **Data gaps?** Sampling and analysis are appropriate for sites for whose data are inadequate to complete this stewardship assessment.
- **Residual risk?** Stewardship actions are appropriate for sites whose data indicate potential residual risk.
- **Debris?** Stewardship actions are appropriate for sites that contain debris that could enter a watercourse if flooding occurred, or that contain unused structures that could interfere with or be impacted by flood mitigation efforts.

If a site does not satisfy meet any of these criteria, it is designated as "no action required." "No action required" refers to accelerated actions that are conducted under potential flood conditions.

All these criteria are applied to each affected site; the decision process is documented on the Cerro Grande accelerated action PRR status sheet (Attachment C) and recorded on the Phase II good stewardship table (Attachment F).

3.3 Regulatory Interactions

An accelerated actions team meets as often as weekly to discuss progress on accelerated actions. The team is composed of representatives from the Laboratory, NMED, and DOE. The following information is shared with the DOE and NMED in a timely manner:

- decision criteria,
- documentation outlines,
- Cerro Grande accelerated action PRR status sheet format,
- task plan for floodplain PRR assessments,
- interim site results,
- sampling locations,
- data results, and
- final documentation.

3.4 Assessment Procedure for Accelerated Actions

3.4.1 Cerro Grande Accelerated Action PRR Status Sheet Development

A Cerro Grande accelerated action PRR status sheet is developed for each site (Attachment C). All status sheets are maintained in a Microsoft Access database.

3.4.2 Data Summary Table Development

Data summary tables are prepared for sites with available sampling data, for either pre-fire or accelerated action results. The chemical data are presented in three tables: one each for inorganic chemicals, radionuclides, and organic chemicals. An example of the table formats is included in Attachment G. Each table lists the chemical analyte, the number of samples analyzed, the number of detected results, and the minimum, mean, and maximum value for the detected results. The inorganic and radionuclide detected results are compared with the Laboratory-specific background values for canyon-bottom sediments. The background value is a threshold used to identify site sample results that may be greater than background levels. The Laboratory background data are summarized in "Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff at Los Alamos National Laboratory" (Ryti et al. 1998, 59730). The ER Project procedures for using background values are found in ER-SOP-15.12, "Performing Background Value Comparisons for Inorganic Chemicals," and ER-SOP-15.13, "Performing Background Value Comparisons for Radionuclides." There are no background values for organic chemicals.

In the inorganic and organic summary tables, the results are also compared with EPA Region 6 residential screening levels for soil. The soil screening levels are chemical concentrations that correspond to a fixed level of risk to an individual (i.e., either a one-in-one-million [10^{-6}] cancer risk for carcinogens or a hazard quotient of 1.0 for noncarcinogens). The values are derived using the most currently available toxicity information, default toxicity parameters, and equations, and are updated periodically by EPA Region 6. The values, along with the supporting information, are available with a textual discussion on the EPA Region 6 home page at www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm. Screening levels are intended to provide an initial generic assessment of potential risk under conservative exposure conditions. The exceedance of the screening level by a chemical does not necessarily mean that immediate action (e.g., remediation) is necessary, only that further evaluation should be undertaken. The evaluation may include additional sample collection leading to a baseline risk assessment or, if enough data are available, evaluating the potential risk under a more realistic context (e.g., more representative exposure conditions). Subsequently, a baseline risk assessment may be warranted to accurately assess the potential risk from exposure.

In the radionuclide data summary table, the sample results are compared with residential soil screening levels. Radionuclide screening levels are calculated using the residual radioactive material computer code (RESRAD) developed by Argonne National Laboratory for use by DOE sites. This model uses standard residential default values for variables that affect risk such as body weight, intake rate, and exposure duration. Doses are summed over multiple pathways, including inhalation, external gamma, soil ingestion, and plant ingestion. The target dose level used for radionuclide screening level calculations is 10 mrem/yr, which is one-tenth of DOE's annual effective dose limit of 100 mrem/yr from all sources (DOE Order 5400.5, "Radiation Protection of the Public and the Environment" [Proposed Rule, 10 CFR 834]).

3.4.3 Phase I Status Table: Triage

At the end of each week, the status of all PRSs in the triage phase (Phase I) is summarized in the status table for Phase I (see Attachment D) until the triage phase is complete.

3.4.4 Phase II Status Table: Good Stewardship

At the end of each week, the status of each PRS in the good stewardship phase (Phase II) is summarized in the status table for Phase II (see Attachment F).

3.4.5 PRS Fact Sheet Development

Upon completion of accelerated action at each site, the ER Project develops a standard fact sheet for that site (Attachment H).

4.0 RECORDS

The records listed below are produced when this plan is implemented. These records include

- a fact sheet for the affected sites;
- general site information, including a site map;
- regulatory history, if available;
- documentation of field campaigns associated with the PRS, such as
 - ◆ a readiness review checklist,
 - ◆ sample collection logs,
 - ◆ notebooks,
 - ◆ analytical summary data,
 - ◆ field activity logs,
 - ◆ field screening data summaries,
 - ◆ chain-of-custody forms; and
- other decision documents, including the Cerro Grande accelerated action PRS status sheet.

These records are managed and processed in accordance with QP-4.4, Record Transmittal to the Records Processing Facility. This records package is consistent with the standard ER Project package for a PRS closeout file.

5.0 ATTACHMENTS

Attachment A: List of Floodplain PRSs (2 pages)

Attachment B: Phase I: Triage Decision Flow (1 page)

Attachment C: Cerro Grande Accelerated Action PRS Status Sheet (1 page)

Attachment D: Status Table for Phase I: Triage (1 page)

Attachment E: Phase II: "Good Stewardship" Decision Flow (2 pages)

Attachment F: Status Table for Phase II: Good Stewardship (1 page)

Attachment G: Data Summary Table (3 pages)

Attachment H: PRS Fact Sheet (1 page)

6.0 REFERENCES

DOE Order 5400.5, "Radiation Protection of the Public and the Environment," Proposed Rule, 10 CFR 834

Ryti, R. T., P. A. Longmire, D. E. Broxton, S. L. Reneau, and E. V. McDonald, September 1998. "Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff at Los Alamos National Laboratory," Draft, Los Alamos National Laboratory Report LA-UR-98-4847, Los Alamos, New Mexico. (Ryti et al. 1998, 59730)

Appendix A

List of Floodplain PRSs

77 Floodplain PRSs

PRS Number	PRS Name	HSWA	Floodplain
02-003(a)	Reactor facility	No	Los Alamos
02-003(b)	Reactor facility	No	Los Alamos
02-003(c)	Reactor facility	No	Los Alamos
02-003(d)	Reactor facility	No	Los Alamos
02-003(e)	Holding tank (near reactor water boiler)	No	Los Alamos
02-004(a)	Reactor facility	No	Los Alamos
02-004(b)	Reactor facility Effluent Storage tank TA 2-54	No	Los Alamos
02-004(c)	Reactor facility effluent storage tank TA 2-55	No	Los Alamos
02-004(d)	Reactor facility effluent storage tank TA 2-56	No	Los Alamos
02-004(e)	Reactor facility acid pit TA 2-53	No	Los Alamos
02-004(f)	Reactor facility equipment building	No	Los Alamos
02-004(g)	Aboveground tank	No	Los Alamos
02-005	Systematic leak Cooling tower blowdown, Cr	Yes	Los Alamos
02-006(a)	Ind. or san. waste water treat.	Yes	Los Alamos
02-006(b)	Ind. or san. waste water treat.	Yes	Los Alamos
02-006(c)	Waste line	No	Los Alamos
02-006(d)	Waste line	No	Los Alamos
02-006(e)	Waste line	No	Los Alamos
02-007	Septic system	Yes	Los Alamos
02-008(a)	Outfall	Yes	Los Alamos
02-008(c)	Outfall	No	Los Alamos
02-009(a)	Non-intentional release	Yes	Los Alamos
02-009(b)	Non-intentional release	Yes	Los Alamos
02-009(c)	Non-intentional release	Yes	Los Alamos
02-009(d)	Non-intentional release	No	Los Alamos
02-009(e)	Reactor facility	No	Los Alamos
02-010	Building	No	Los Alamos
02-011(a)	Storm drain and outfall	No	Los Alamos
02-011(b)	Storm drain and outfall	No	Los Alamos
02-011(c)	Storm drain and outfall	No	Los Alamos
02-011(d)	Storm drain and outfall	No	Los Alamos
02-011(e)	Storm drain and outfall	No	Los Alamos
02-012	replaced w 2-1	No	Los Alamos
41-001	Septic system	Yes	Los Alamos
41-002(a)	Waste water treatment facility	Yes	Los Alamos
41-002(b)	Waste water treatment facility	Yes	Los Alamos
41-002(c)	Waste water treatment facility	Yes	Los Alamos
41-003	Sump	No	Los Alamos
C-00-006	Los Alamos Canyon	No	Los Alamos
C-02-001	Metal Nugget Pile - new PRS	No	Los Alamos
C-41-004	Storm drains	No	Los Alamos
18-001(a)	Lagoon	Yes	Pajarito
18-001(b)	Sewer lines	Yes	Pajarito
18-001(c)	Sump	Yes	Pajarito
18-002(a)	Firing site (abandoned)	Yes	Pajarito
18-002(b)	Firing site (abandoned)	Yes	Pajarito
18-002(c)	Drop tower	No	Pajarito
18-003(a)	Settling pit	Yes	Pajarito
18-003(b)	Septic system	Yes	Pajarito
18-003(c)	Septic system	Yes	Pajarito
18-003(d)	Septic system	Yes	Pajarito
18-003(e)	Septic system	Yes	Pajarito
18-003(f)	Septic system	Yes	Pajarito
18-003(g)	Septic system	Yes	Pajarito
18-003(h)	Septic system	Yes	Pajarito
18-004(a)	Waste lines containment	Yes	Pajarito
18-004(b)	Pit	Yes	Pajarito
18-005(a)	Storage area	Yes	Pajarito
18-009(a)	Transformer	No	Pajarito
18-010(b)	Outfall	No	Pajarito

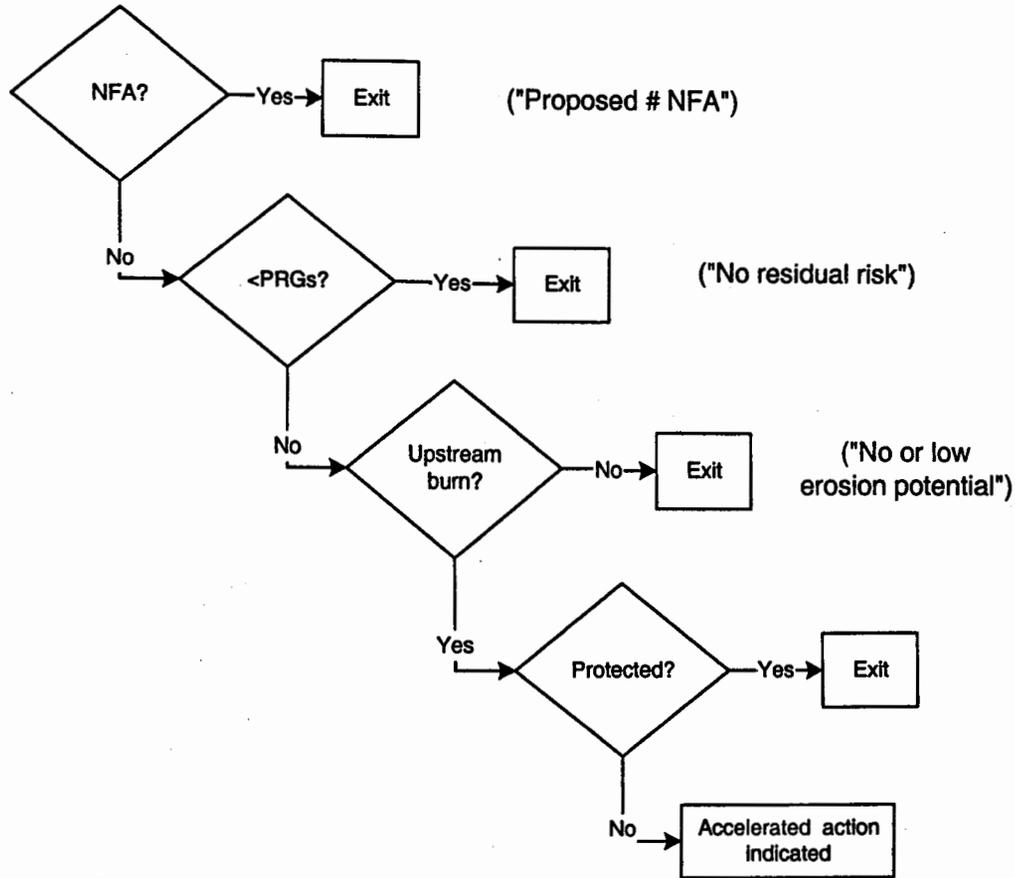
77 Floodplain PRSs

18-010(c)	Outfall	No	Pajarito
18-010(d)	Outfall	No	Pajarito
18-010(e)	Outfall	No	Pajarito
18-010(f)	Outfall	No	Pajarito
18-011	Soil containment	No	Pajarito
18-012(a)	Outfall	Yes	Pajarito
18-012(b)	Outfall	Yes	Pajarito
18-012(c)	Sump and drain lines	No	Pajarito
18-013	Waste Tank	No	Pajarito
27-002	Firing sites (abandoned)	Yes	Pajarito
C-00-011	Pajarito Canyon	No	Pajarito
C-18-003	Storage area	No	Pajarito
C-00-005	PuebloCanyon	No	Pueblo
C-00-014	Canon de Valle Canyon	No	Valle
C-00-016	Water Canyon	No	Water
C-00-008	Mortandad Canyon	No	Mortandad
00-001	Sediment Traps in Mortandad	Yes	Mortandad

Appendix B

Phase I: Triage Decision Flow

Phase 1: Triage Decision Flow



Decision Basis

- Permit modification
- Canyon reach risk assessment
- EPA Region VI industrial PRGs
- BAER evaluations
- EES-15 calculations
- Depth of burial
- Containment
- Onsite or upstream BMPs

Appendix C

Cerro Grande Accelerated Action PRS Status Sheet

PRS Number: 02-009(6)
Description: Non-intentional release

HSWA: Yes

Erosion Matrix Score: 27

Sampling Data: Yes

History:

This PRS consists of two areas of radioactive soil contamination south of former structure TA-2-48 identified during decommissioning activities in 1986. One area may be associated with a condensating trap from the gaseous effluent stack line for the Water Boiler Reactor and the other may be associated with a leach field that was part of PRS 2-007 septic tank. The first is a condensate trap that included a primary pit north of the stream and secondary pit south of the stream, which was used when TA-2-48 was being removed. Infiltrating groundwater and contaminated soil prevented removal of components, and groundwater was pumped to a secondary pit. As a result, Cs-137 was detected in the secondary pit during the decommissioning of TA-2-48. Contaminated soils were removed to a depth of 5 ft or more. Residual Cs-137 activity of 1000 pCi/g remains at depth and is covered with up to 7 ft of clean fill. The second feature consists of a leach field that was probably associated with the septic tank at TA-2-43. This tank was known to be contaminated. Initial activity was 2000-4000 pCi/g over an 83 by 22 ft area. After soil had been removed to groundwater level the beta/gamma activity was at 53-67 pCi/g, with no alpha detected. The area was backfilled with 6-8 feet of clean tuff. Field screening was conducted in 1995. Results showed no detectable concentrations of organics and no alpha activity above instrument background. Beta/gamma activity was elevated slightly above instrument background.

Related Document(s): Elder and Knoell, 1986. "TA-2 Water Boiler Reactor Decommissioning (Phase I)," LANL Report LA-10890-MS, LANL, October 1986. (Elder and Knoell, 6670) LANL, 1990. "Solid Waste Management Units Report," Vol I of IV (TA-0 through TA-9), LANL Report LA-UR-90-3400, Revised November 1990. (LANL, 07511.1)

1. Has site been proposed for NFA? N

6. Is there the potential for erosion or scouring? Y

2. Is existing data adequate? N

Explanation: This PRS is suspected source of Sr-90 contamination in alluvial groundwater. PRS is in close proximity to LA Creek.

Explanation: Extent of contamination not bounded.

7. Does site contain debris that could enter the flood watercourse? N

3. Does existing knowledge indicate residual risk? Y

Explanation: NA

4. Intensity of upstream burn: Low to Moderate

8. Does site contain structures that could interfere with or be impacted by flood mitigation efforts? N

5. Does site have a surface component? N

Explanation: Surface contamination removed by 1986 D&D action.

Explanation: NA

Accelerated Action: Additional Characterization samples collected August 29-September 5, 2000.

Accelerated Action Status: IN PROCESS

Appendix D

Status Table for Phase I: Triage

**PHASE I - TRIAGE
STATUS PRS's WITHIN FLOODPLAIN**

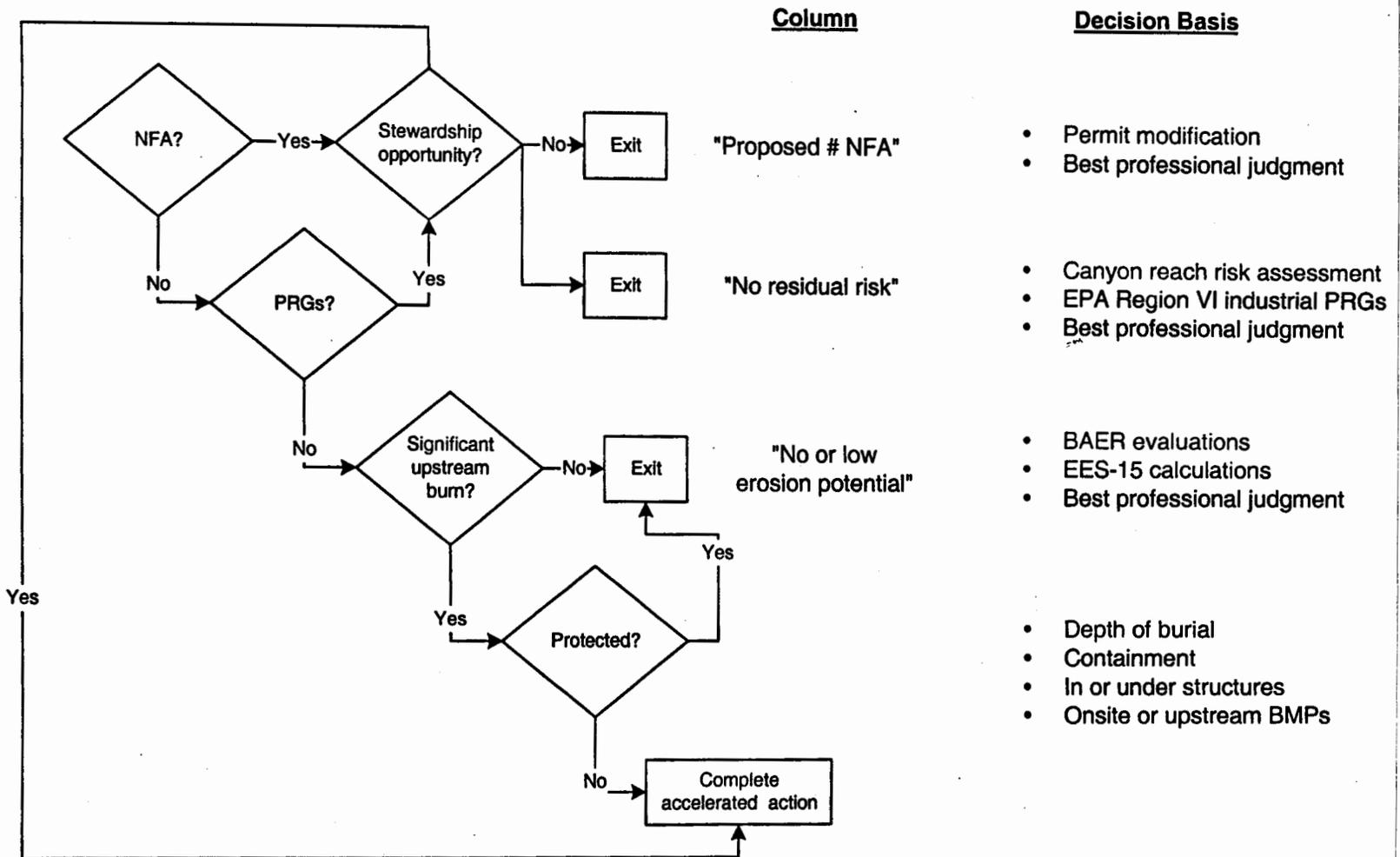
LOCATION	#PRS's	Proposed/NEA	No Residual Risk	No or Low Erosion Potential	Under Evaluation	Accelerated Actions in Progress	Accelerated Actions Complete
TA-2	34						
TA-18	29						
TA-27	1						
TA-41	6						
Mortandad Sed. Traps	1						
Pajarito Canyon	1						
Pueblo Canyon	1						
Canon de Valle Canyon	1						
Water Canyon	1						
Mortandad Canyon	1						
Los Alamos Canyon	1						
Totals	77	0	0	0	0	0	0

D-1

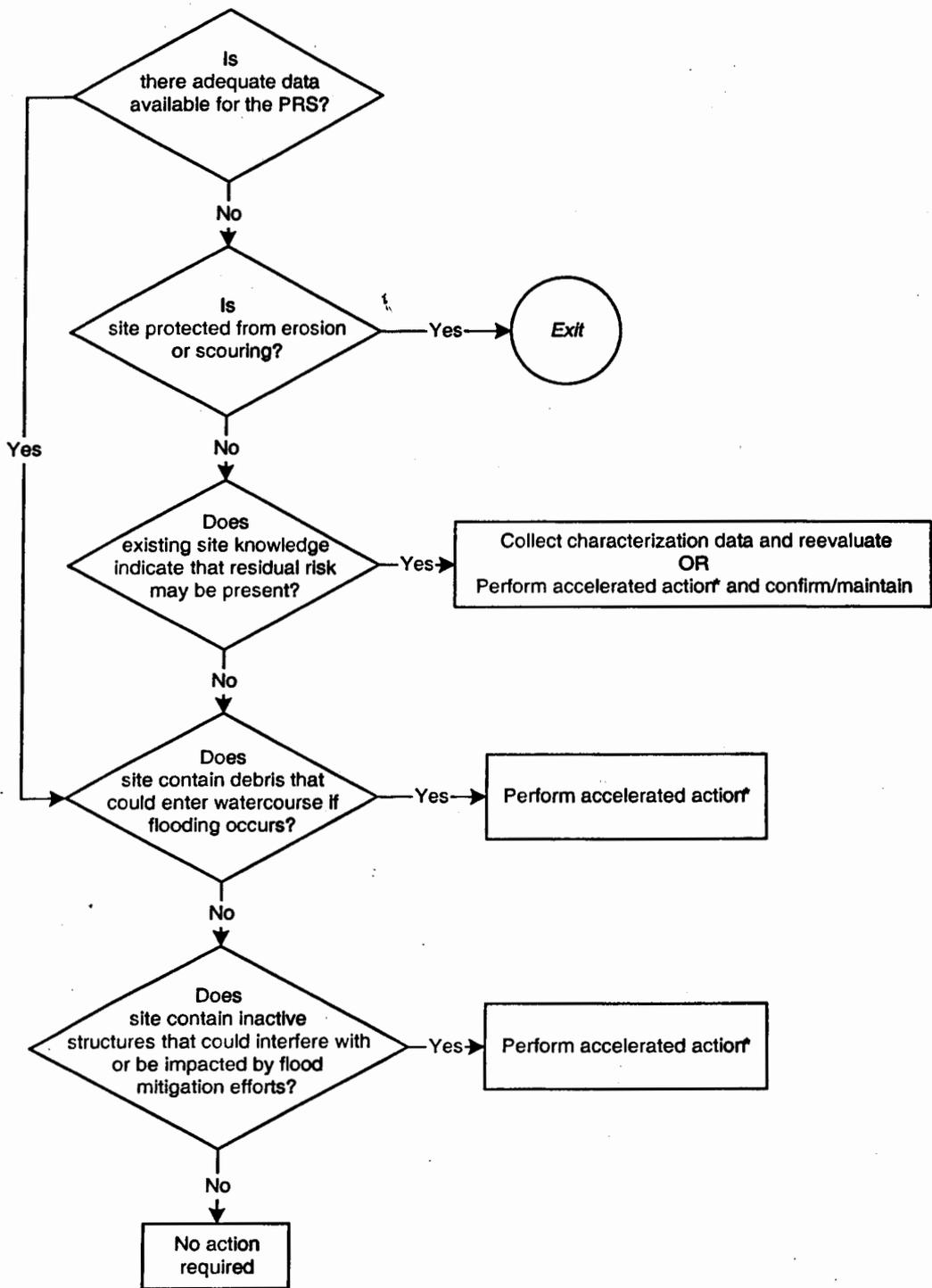
Appendix E

Phase II: “Good Stewardship” Decision Flow

Phase II: "Good Stewardship" Decision Flow



"Good Stewardship" Decision Flow: Detail



*Accelerated action may include removal, protection, hardening, or BMP installation

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Appendix F

Status Table for Phase II: Good Stewardship

**PHASE II - GOOD STEWARDSHIP
FLOODPLAIN PRSs
STATUS OF ACCELERATED ACTIONS**

LOCATION	#PRSs	Triage Action Required	No Accelerated Actions In Progress	Recommended for Corrective Action	Corrective Action Complete	"Stewardship" No Action Required
TA-2	34					
TA-18	29					
TA-27	1					
TA-41	6					
Mortandad Sed. Traps	1					
Pajarito Canyon	1					
Pueblo Canyon	1					
Canon de Valle Canyon	1					
Water Canyon	1					
Mortandad Canyon	1					
Los Alamos Canyon	1					
Phase II "Stewardship" Totals	77	0	0	0	0	0

F-1 * Accelerated Actions include additional site characterization and/or corrective actions.

Appendix G

Data Summary Table

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PRS 02-009(c): Summary of Pre-Fire Data for Inorganics

Analyte	Number of Analyses	Number of Detects	Minimum of Detects (mg/kg)	Mean of Detects (mg/kg)	Maximum of Detects (mg/kg)	Soil Background Value (mg/kg) ^a	Frequency of Detects Greater than Background Value	Industrial Screening Level (mg/kg) ^b	Frequency of Detects Greater than Industrial Screening Level
Aluminum	36	34	320	4600	26000	29200	0/36	100000	0/36
Antimony	36	0	0	0	0	0.83	0/36	820	0/36
Arsenic	36	23	0.36	1.4	3.3	8.17	0/36	2.3 ^c	2/36
Barium	36	19	0.35	82	370	295	1/36	100000	0/36
Beryllium	36	5	0.63	0.97	1.6	1.83	0/36	2200	0/36
Boron	36	6	1.3	6.6	31	na ^d	n/a ^e	56000	0/36
Cadmium	36	1	1	1	1	0.4	1/36	1000	0/36
Calcium	36	21	190	1100	3100	6120	0/36	na	n/a
Chromium, Total	36	29	1	6.8	42	19.3	1/36	64	0/36
Cobalt	36	0	0	0	0	8.64	0/36	29000	0/36
Copper	36	13	1.3	4.4	16	14.7	1/36	76000	0/36
Iron	36	36	2700	6200	12000	21500	0/36	100000	0/36
Lead	36	35	3.2	7.6	17.6	22.3	0/36	2000	0/36
Lithium	36	27	1.1	7.9	30	na	n/a	41000	0/36
Magnesium	36	15	96	763	2260	4610	0/36	na	n/a
Manganese	36	36	130	247	459	671	0/36	47000	0/36
Mercury	36	2	0.08	0.52	0.96	0.1	1/36	610	0/36
Molybdenum	36	3	1	1.13	1.3	na	n/a	10000	0/36
Nickel	36	3	2.1	2.5	2.9	15.4	0/36	41000	0/36
Potassium	36	15	190	740	1600	3460	0/36	na	n/a
Selenium	36	3	0.15	0.17	0.21	1.52	0/36	10000	0/36
Silicon Dioxide	36	13	70	24400	159000	na	n/a	na	n/a
Silver	36	1	2.6	2.6	2.6	1	1/36	10000	0/36
Sodium	36	10	140	311	888	915	0/36	na	n/a
Strontium	36	29	1	7.7	23	na	n/a	100000	0/36
Thallium	36	9	0.25	0.25	0.25	0.73	0/36	140	0/36
Uranium	36	10	0.25	1.3	2.6	1.82	1/36	6100	0/36
Vanadium	36	14	6.3	8.8	15	39.6	0/36	14000	0/36
Zinc	36	31	2.8	32	48	48.8	0/36	100000	0/36

^a Laboratory-specific background values are found in "Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff at Los Alamos National Laboratory." ER Project procedures for using background values are found in ER-SOP-15.12, "Performing Background Value Comparisons for Inorganic Chemicals," and ER-SOP-15.13, "Performing Background Value Comparisons for Radionuclides."

^b EPA Region 6 residential screening levels for soils are available at www.epa.gov/region06/6pd/rcra_c/pd-r/screen.htm.

^c Soil screening level is less than Laboratory-specific background value.

^d na = not available.

^e n/a = not applicable.

DRAFT
PRS 02-009(c): Summary of Pre-Fire Data for Radionuclides

Analyte	Number of Analyses	Number of Detects	Minimum of Detects (pCi/g)	Mean of Detects (pCi/g)	Maximum of Detects (pCi/g)	Soil Background Value ^a (mg/kg)	Frequency of Detects Greater than Background Value	Industrial Screening Level ^b (pCi/g)	Frequency of Detects Greater than Industrial Screening Level
Americium-241	4	0	n/a ^c	n/a	n/a	0.013	0/4	66	0/4
Cesium-134	5	0	n/a	n/a	n/a	na ^d	n/a	5.7	0/5
Cesium-137	24	21	0.24	3.5	31	1.65	21/24	15.3	1/24
Cobalt-60	4	0	n/a	n/a	n/a	na	n/a	3.3	0/4
Plutonium-238	36	0	n/a	n/a	n/a	0.023	n/a	81	0/36
Plutonium-239	36	19	0.011	0.181	1.36	0.054	19/36	72	0/36
Ruthenium-106	5	0	n/a	n/a	n/a	na	n/a	39	0/5
Sodium-22	5	0	n/a	n/a	n/a	na	n/a	3.9	0/5
Strontium-90	36	25	0.01	0.86	7.4	1.31	25/36	13.2	0/36
Technetium-99	2	0	n/a	n/a	n/a	na	n/a	84	0/2
Tritium	35	33	0.04	0.21	0.87	na	n/a	780	0/35
Uranium-234	36	36	1.16	1.54	2.15	2.59	0/36	39	0/36
Uranium-235	36	9	0.05	0.15	0.34	0.2	2/36	30	0/36
Uranium-238	36	36	1.2	1.55	2.1	2.29	0/36	201	0/36

^a Laboratory-specific background values are found in "Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff at Los Alamos National Laboratory." ER Project procedures for using background values are found in ER-SOP-15.12, "Performing Background Value Comparisons for Inorganic Chemicals," and ER-SOP-15.13, "Performing Background Value Comparisons for Radionuclides."

^b Radionuclide screening levels are calculated using the residual radioactive material computer code (RESRAD) developed by Argonne National Laboratory for use by DOE sites. The target dose level used for radionuclide screening level calculations is 10 mrem/yr, which is one-tenth of DOE's annual effective dose limit of 100 mrem/yr from all sources.

^c n/a = not applicable.

^d na = not available.

DRAFT
PRS 02-009(c): Summary of Pre-Fire Data for Organics

Analyte	Number of Analyses	Number of Detects	Frequency of Detects	Minimum of Detects (mg/kg)	Mean of Detects (mg/kg)	Maximum of Detects (mg/kg)	Industrial Screening Level ^a (mg/kg)	Frequency of Detects Greater than Industrial Screening Level
Bis(2-ethylhexyl)phthalate	10	6	6/10	0.037	0.061	0.095	120	0/10
Di-n-butylphthalate	10	1	1/10	0.14	0.14	0.14	62000	0/10

^aEPA Region 6 residential screening levels for soils are available at www.epa.gov/region06/6pd/rcra_c/pd-n/screen.htm.

Appendix H

PRS Fact Sheet

Potential Release Sites (PRSs) – 21-004(b and c)

Location: TA-21 Site

Category: Surface Units

Ten-Year Plan Description: Surface Units

History: PRS 21-004 (b) and PRS 21-004 (c) are aboveground tanks connected to sump TA-21-223. The tanks replaced outfall 21-004(d). Sump TA-21-223 received industrial waste from DP East and pumped the waste to treatment facilities located at DP West. There are no known releases from the tanks.

Current Regulatory Status: PRSs 21-004 (b and c) are on the HSWA Permit and were proposed for no further action (NFA) on the basis on human health risk, alone. The New Mexico Environment Department (NMED) has not yet concurred with this recommendation.

Proposed Remedy: No remedial action is anticipated to be necessary.

Future Actions Required: Coordinate confirmation sampling activities with D&D activities to support a recommendation for integrated NFA. This requires demonstrating that the site does not impact human health, the environment, and ground water and surface water quality.

References: "TA-21 Operable Unit RFI Work Plan for Environmental Restoration," May 1991, LA-UR-91-962. "Phase Report 1B TA-21 Operable Unit RFI Operable Unit Wide Surface Soil, Deposition Layer and Filter Building Investigation," January 1994, LA-UR-93-4390. "Phase Report Addendum 1B and 1C Operable Unit 1106," January 1995, LA-UR-4360.