

ROCKY FLATS STEWARDSHIP COUNCIL

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Jefferson County -- Boulder County -- City and County of Broomfield -- City of Arvada -- City of Boulder
City of Golden -- City of Northglenn -- City of Westminster -- Town of Superior
League of Women Voters -- Rocky Flats Cold War Museum -- Rocky Flats Homesteaders
Arthur Widdowfield

Board of Directors Meeting – Agenda

Monday, August 16, 2010, 8:30 AM – 11:00 AM*

**Rocky Mountain Metropolitan Airport, Terminal Building, Mount Evans Room
11755 Airport Way, Broomfield, Colorado**

- 8:30 AM Convene/Agenda Review
- 8:35 AM Business Items (briefing memo attached)
1. Consent Agenda
 - o Approval of meeting minutes and checks
 2. Executive Director's Report
- 8:50 AM Public Comment
- 9:05 AM Roundtable Discussion on Changes to RFLMA Point of Compliances and Dam Breach EA (briefing memo attached)
- o DOE is proposing to move the existing surface water and groundwater points of compliance stationed along Indian Street to the eastern edge of the COU.
 - o Because DOE will manage ponds A-4, B-5 and C-2 in a flow-through configuration and later breach them, DOE is also proposing to eliminate the batch and release protocols and replace them with flow-paced sampling.
 - o The conversation will include the DOE dam breach proposal, as changing the points of compliance, eliminating the batch and release protocols, and breaching the dams are linked activities.
- 10:50 AM Public comment
- 11:00 AM Updates/Big Picture Review
1. Executive Director
 2. Member Updates
 3. Review Big Picture

Adjourn

Next Meetings: September 13 (2nd Monday)
November 8 (2nd Monday)

*We have the room until noon should more time be needed.

9:20 AM
08/06/10

Rocky Flats Stewardship Council Check Detail May 14 through August 5, 2010

Type	Num	Date	Name	Account	Paid Amount	Original Amount
Check		5/27/2010		CASH-Wells Fargo-Operating		-2.00
				Admin Services-Misc Services	-2.00	2.00
TOTAL					-2.00	2.00
Check		6/25/2010		CASH-Wells Fargo-Operating		-2.00
				Admin Services-Misc Services	-2.00	2.00
TOTAL					-2.00	2.00
Check	1428	6/6/2010	Qwest	CASH-Wells Fargo-Operating		0.00
TOTAL					0.00	0.00
Bill Pm...	1429	6/6/2010	Crescent Strategies, LLC	CASH-Wells Fargo-Operating		-7,264.17
Bill	5/31/...	5/31/2010		Personnel - Contract	-6,850.00	6,850.00
				Telecommunications	-126.65	126.65
				TRAVEL-Local	-45.50	45.50
				Postage	-15.99	15.99
				Printing	-226.03	226.03
TOTAL					-7,264.17	7,264.17
Bill Pm...	1430	6/6/2010	Erin Rogers	CASH-Wells Fargo-Operating		-450.00
Bill	5/24/...	5/24/2010		Personnel - Contract	-450.00	450.00
TOTAL					-450.00	450.00
Bill Pm...	1431	6/6/2010	HUB SW	CASH-Wells Fargo-Operating		-2,980.82
Bill	134380	5/28/2010		Insurance	-2,980.82	2,980.82
TOTAL					-2,980.82	2,980.82
Bill Pm...	1432	6/6/2010	Jennifer A. Bohn	CASH-Wells Fargo-Operating		-229.50
Bill	10-40	5/31/2010		Accounting Fees	-229.50	229.50
TOTAL					-229.50	229.50
Bill Pm...	1433	6/6/2010	The Hartford	CASH-Wells Fargo-Operating		-500.00
Bill	34 11...	5/6/2010		Insurance	-500.00	500.00
TOTAL					-500.00	500.00
Bill Pm...	1434	6/6/2010	Wagner Barnes, P.C.	CASH-Wells Fargo-Operating		-4,550.00
Bill	16288	5/1/2010		Annual Audit	-4,550.00	4,550.00
TOTAL					-4,550.00	4,550.00
Bill Pm...	1435	7/1/2010	Blue Sky Bistro	CASH-Wells Fargo-Operating		-235.00
Bill	302	6/7/2010		Misc Expense-Local Government	-235.00	235.00
TOTAL					-235.00	235.00
Bill Pm...	1436	7/1/2010	Energy Communities All...	CASH-Wells Fargo-Operating		-950.00
Bill	0019	6/10/2010		Subscriptions/Memberships	-950.00	950.00

9:20 AM

08/06/10

Rocky Flats Stewardship Council
Check Detail
 May 14 through August 5, 2010

Type	Num	Date	Name	Account	Paid Amount	Original Amount
TOTAL					-950.00	950.00
Bill Pm...	1437	7/1/2010	Jennifer A. Bohn	CASH-Wells Fargo-Operating		-425.00
Bill	10-57	6/30/2010		Accounting Fees	-425.00	425.00
TOTAL					-425.00	425.00
Bill Pm...	1438	7/1/2010	Seter & Vander Wall, P.C.	CASH-Wells Fargo-Operating		-625.00
Bill	58401	6/1/2010		Attorney Fees	-625.00	625.00
TOTAL					-625.00	625.00
Bill Pm...	1439	7/7/2010	Crescent Strategies, LLC	CASH-Wells Fargo-Operating		-7,043.65
Bill	6/30/...	6/30/2010		Personnel - Contract	-6,850.00	6,850.00
				Telecommunications	-125.40	125.40
				TRAVEL-Local	-50.50	50.50
				Postage	-17.75	17.75
TOTAL					-7,043.65	7,043.65
Bill Pm...	1440	7/7/2010	Qwest	CASH-Wells Fargo-Operating		-57.83
Bill	303-4...	6/24/2010		Telecommunications	-28.64	28.64
Bill	303-4...	7/24/2010		Telecommunications	-29.19	29.19
TOTAL					-57.83	57.83

ROCKY FLATS STEWARDSHIP COUNCIL
Monday, June 7, 2010, 8:30 AM – 11:30 AM
Rocky Mountain Metropolitan Airport, Terminal Building
11755 Airport Way, Broomfield, Colorado

Board members in attendance: Marc Williams (Director, Arvada), Clark Johnson (Alternate, Arvada), Lisa Morzel (Director, City of Boulder), Lori Cox (Director, Broomfield), David Allen (Alternate, Broomfield), Bill Fisher (Director, Golden), Faye Griffin (Director, Jefferson County), Kate Newman (Alternate, Jefferson County), Joe Cirelli (Director, Superior), Chris Hanson (Alternate, Superior), Bob Briggs (Director, Westminster), Ron Hellbusch (Alternate, Westminster), Sue Vaughan (Alternate, League of Women Voters), Roman Kohler (Director, Rocky Flats Homesteaders), Arthur Widdowfield.

Stewardship Council staff members and consultants in attendance: David Abelson (Executive Director), Rik Getty (Technical Program Manager), Barb Vander Wall (Seter & Vander Wall, P.C.), Erin Rogers (consultant).

Attendees: James Campbell (citizen, Arvada), Raymond Reling (City of Northglenn), Tamara Moon (City of Northglenn), Hank Stovall (citizen, Broomfield), Doug Young (Sen. Udall), John Dalton (EPA), Vera Moritz (EPA), Carl Spreng (CDPHE), Scott Surovchak (DOE-LM), Rick DiSalvo (Stoller), Jeremiah McLaughlin (Stoller), Jody Nelson (Stoller), George Squibb (Stoller), John Boylan (Stoller), Linda Kaiser (Stoller), Lynn Bowdidge (Stoller), Cathy Shugarts (City of Westminster), Eric Barnes (Wagner & Barnes), Jennifer Bohn (RFSC accountant).

Convene/Agenda Review

Chair Lori Cox convened the meeting at 8:40 a.m. Lori introduced and welcomed two new Board Members –Trustee Joe Cirelli, the new Director representing Superior, and his Alternate, Trustee Chris Hanson.

The next item was the consent agenda. Bob Briggs moved to approve the April Board meeting minutes and the checks. The motion was seconded Lisa Morzel. Prior to the vote, Hank Stovall interjected with a point of order challenging a statement from the April minutes by DOE that site has encountered 25-year flood. Mr. Stovall contends that the 1995 event was 10-year storm event and not the 25-year event as DOE stated. He noted that this is what he found based on his research. David Allen referred to a statement in the minutes on page four, in which a site representative stated that GS01 and GS03 were removed as POC's. David would like the record to reflect that this was not necessarily a statement of fact. He also noted on pages six and seven that Dallas Griggs should instead be Briggs. Lori Cox suggested a clarification in the last sentence on page six that the particular vote that failed by a margin of 8-3 was a request by Lisa Morzel to call the question, and it was not a vote regarding sending the letter in question. The motion to accept the minutes as corrected passed 11-0.

Bob Briggs moved to approve the April checks. The motion was seconded Lisa Morzel. The motion passed 11-0.

Business Items

At the last Stewardship Council meeting, staff was directed to circulate two letters to the Board. One was related to funding for the Rocky Flats National Wildlife Refuge; the other addressed Federal Advisory Committee Act (FACA) issues and the Stewardship Council. After vetting and incorporation of Board members' changes, the letters were sent. The letters still need official ratification of the Board. Roman Kohler moved to ratify both letters. The motion was seconded by Lisa Morzel. The motion passed 11-0.

Executive Director's Report

David Abelson provided several updates to the Board. First, he spoke about his recent attendance at the Department of Energy, Office of Environmental Management, Site-Specific Advisory Board (EMSSAB) semi-annual chairs meeting. For the benefit of the newer Stewardship Council members, David noted that the SSAB at Rocky Flats, the Rocky Flats Citizens Advisory Board (RFCAB), had been very active, and was made up primarily of non-elected stakeholder representatives. David pointed out that SSABs provide an important forum for DOE to reach out to the communities surrounding EM sites. SSAB's are FACA groups and are now focused on long term stewardship. David served on a panel that discussed long term stewardship at closed sites and spoke to the group about lessons learned at Rocky Flats. He emphasized the importance of engaging the stakeholders early and often, and that stewardship is fundamentally a cleanup decision. He also touched on the need for redundancies in physical controls. There was also a discussion about the issue of maintaining federal ownership of the sites. For David, it was interesting to hear about the sites where this is not the case. Finally, David shared with the attendees the importance of maintaining a separate funding stream for LM, and maintaining high levels of oversight and active stakeholder involvement. David was also pleased that he received requests for copies of Rocky Flats Stewardship Toolbox that the Rocky Flats Coalition of Local Governments and Rocky Flats Citizens Advisory Board jointly developed in 2002.

Next, David discussed State Representative McKinley's effort to secure late bill status for a resolution regarding signage at Rocky Flats. The resolution mirrored Rep. McKinley's bill that died in committee earlier this year. The resolution, if approved, would not be law, but is instead a sense of the General Assembly. The resolution was defeated on a tie vote. David was not sure what would happen next session of the state legislature. He said that although Rep. McKinley had expressed his desire to work with local governments, it was proving difficult for David to even obtain a copy of the resolution, much less establish a working relationship with Rep. McKinley. Lisa Morzel noted that the activity regarding the resolution took place at the last minute in a session that was very busy. She ended up getting a copy of the resolution the day before the vote. She reported that Rep. McKinley was very open to her suggested changes and took all the language that she recommended, which significantly changed the original language and intent laid out in the draft bill. She said she just would have liked a more timely response to the suggested changes.

David next brought up the Rocky Flats dam breach environmental assessment that DOE was preparing. He noted that he had not seen such intense community interest since the site was closed.

In other business, David reported that the Stewardship Council's annual dues had been received from each of the member local governments. He also discussed his vacation schedule, and directed the Board to contact Rik Getty in his absence.

Rik announced that the Stewardship Council's annual site tour was to take place the next day. Everyone was to meet at 9:00 am on the west side of the site. Participants should wear sturdy footwear and sunscreen, and bring water. He noted that the roads were in good condition. There was still room available if anyone was interested.

Public Comment

Lori Cox noted that this public comment period was for all issues with the exception of the dam breach EA, as the agenda allowed a separate public comment period for this topic. There was no public comment.

Receive Stewardship Council 2009 Financial Audit

Eric Barnes (Wagner & Barnes) presented the 2009 audit of Stewardship Council finances. Mr. Barnes explained that this was a financial statement audit, and not a more detailed "forensic audit." As part of the review, the auditors examined over records, focusing on areas where fraud would be most likely to occur. They found the Stewardship Council's records to be well-kept. He spent a few minutes reviewing the draft report. The beginning of the report includes an independent audit report, using generally accepted auditing standards. It was the auditor's opinion that the Stewardship Council's financial statements presented a fair representation of its financial position. This finding is what is known as a 'clean opinion'.

Mr. Barnes reviewed the Stewardship Council's balance sheet, assets and liabilities, grant revenue, and budget vs. actual expenses. He reported that the Board takes a low risk, prudent approach to its finances. Overall, no material problems were found and the Stewardship Council was deemed to be in compliance with all applicable laws and regulations.

Marc Williams moved to accept the 2009 audit. The motion was seconded Lisa Morzel. The motion passed 11-0. David noted that, due to the excellent work of the Board's accountant, Jennifer Bohn, the annual audits always go well. He offered his thanks to Jennifer on behalf of the Board.

DOE 2009 Annual Meeting

DOE briefed the Stewardship Council on site activities for calendar year 2009. DOE posted the report on its website. Activities included surface water monitoring, groundwater monitoring, ecological monitoring, and site operations (inspections, maintenance, etc.).

Surface Water Monitoring – George Squibb

All three terminal ponds were discharged during the year. Pond A-4 was discharged in May and December. Ponds B-5 and C-2 were also discharged in May. In order to manage volumes, DOE also transferred water from Pond A-3 to Pond A-4 four times throughout the year. As of the beginning of 2010, Ponds A-3, A-4, B-5, C-2 and the Present Landfill Pond were holding approximately 15% of their capacity. Current levels range from 14-35%. DOE is evaluating discharging Pond C-2 in next month or so, and will be collecting pre-discharge samples soon.

As part of the dam breach project, the breaching of Dams A-1, A-2, B-1, B-2, B-3, and B-4 were completed in March 2009. Hydrologic data for the year showed precipitation of 13.1 inches, which was 107% of the average from calendar years 1993-2008. George noted that, overall, it was a pretty impressive year for flow rates, mostly due to a big snow in April. The flow rates ranged from 26-88% of average. In recent years, there has been no flow at many of these spots.

George next reviewed the 2009 water quality plots. Water quality at all points of evaluation, except GS10, was below applicable standards. Reportable values for total uranium at GS10 continued to be observed through March 31. These concentrations were likely caused by groundwater contributions of naturally occurring uranium to South Walnut Creek. The total uranium standard was changed effective April 1. The plots show both standards. This year's results at GS10 remain below reportable levels. David Allen asked if samples at GS01 will include any impacts of the future release from Pond C-2. George said that it will. Lori Cox asked if it is normal for levels to go up and down throughout year. George said that it is normal and has to do with dilution and runoff.

Samples for nitrates throughout the year were mostly undetectable. George said that it appears there will be one reportable value for plutonium at the end of the South Interceptor Ditch (SID), which empties into Pond C-2. Rather than waiting for the result, DOE is initiating the RFLMA process. Site personnel are going to start walking the area looking for excessive erosion, areas requiring additional revegetation, or anything else unusual. George said that plutonium and americium usually move with dirt, so the solutions to stop this movement are based on containment of the dirt. Rik Getty asked if this area includes drainage from the 903 pad area. George said that it does come from the south side of the former Industrial Area, but it is the smallest drainage of three in this area. David Allen asked whether the flow rates take dams into account (i.e. impaired or unimpaired runoff). George said they just look at total volume, and that the annual report contains any more details.

George next discussed performance monitoring, which is performed downstream of specific components of the remedy. At the Original Landfill, surface water quality results during 2009 triggered monthly sampling for dissolved silver. After dissolved silver was not detected in three subsequent monthly samples, monthly sampling was discontinued. At the Present Landfill, surface water quality results triggered monthly sampling for selenium, dissolved silver, and vinyl chloride. After these analytes were not detected in three subsequent monthly samples, monthly sampling was discontinued. David Allen asked if dam operations were changed during that period of monthly sampling. George said they were not changed, and explained that if unacceptable results were found three months in a row, the pond would be sampled. If increased

levels were found in the pond, that would be the point at which changes in dam operation would be considered.

Groundwater – John Boylan

For the 4th quarter, RFLMA required monitoring included monitoring of all Area of Concern (AOC), Sentinel, and RCRA wells, as well as at treatment system locations. Results are included and evaluated in the 2009 Annual Report. Non-RFMLA monitoring included collection of additional samples at and around the solar ponds treatment system (SPPTS), and supporting optimization of the Phase II (uranium) and Phase III (nitrate) upgrades.

Highlights from 2009 included:

- All RFLMA-required monitoring was performed
- Dry conditions affected a few locations, but was reduced compared to pre-closure (better wells, direct recharge)
- Groundwater treatment systems continue to remove contaminants from the groundwater
- SPPTS Phase II (uranium), III (nitrate) upgrades were installed
- East Trenches Plume Treatment System (ETPTS) media was replaced, and plumbing was upgraded
- Data from AOC wells and surface water performance locations indicate the remedy continues to function as intended

David Allen asked about the cause for the settling in the sump pump/storage tank at the SPPTS. John answered that a geotechnical engineer who studied the system could not determine an exact cause. However, the root cause was poorly compacted subsurface materials. The site is high moisture, as it sits very near the former location of Walnut Creek; additionally, a drain that was removed at closure. Sue Vaughan asked how the AOCs are defined. John explained that an AOC is a formal category of wells which are listed in RFLMA. Reportable conditions that apply to AOC wells are based on regulatory standards and are found in a flow chart in RFLMA. Lisa Morzel asked where the samples are analyzed. John said they use labs in Denver and Golden that are EPA-certified to dispose of samples. For samples that are outside of RFLMA, DOE uses its own lab in Grand Junction. This lab is quicker and requires less paperwork, because it uses more of a screening level of analysis. Both John's presentation slides and the Annual Report contain a great deal of additional information regarding specific groundwater monitoring data.

Site Inspection – Rick DiSalvo

For this project, a team was assembled to walk the entire surface of former Industrial Area, which was divided into various zones. Although personnel are onsite every day, this inspection is much more organized and thorough. It also includes representatives from CDPHE. The annual inspection is performed in the early spring when grasses are not yet high enough to cover anything on the ground. The team was tasked with looking for visual signs of erosion or precursors of erosion, effectiveness of institutional controls, and evidence of adverse biological conditions. They always try to accomplish the inspection in a single day since weather can change rapidly that time of year. The team found all institutional controls to be in place as required and no significant erosion or adverse biological conditions. Photos from the inspection can be found in the Annual Report.

Rick also provided an update on Colorado Water Quality Control Commission (WQCC) rulemaking. In 2009, the WQCC revised Rocky Flats' site-specific uranium standard to the 16.8 µg/L (approximately 11.5 pCi/L) health-based standard. A higher ambient-based standard may be addressed in the future, based on data and what is practical. Gross alpha and gross beta standards were removed; however, specific radionuclides (uranium, plutonium, and americium) continue to be monitored. To date, the site has not exceeded the 16.8 µg/L standard.

Also in 2009, a Triennial Review of the South Platte River Basin was conducted. The WQCC revised the arsenic standard (previously 50 µg/L) to conform with the new statewide water supply standard, effective January 1, 2010. The new standard is .02 to 10 µg/L. This range reflects the range between the WQCC risk-based water consumption and EPA's maximum contaminant level (MCL) for drinking water supply. Water below the MCL (based on 85th percentile of data) is considered in attainment with standard. Water at Rocky Flats is in attainment with new standard.

The WQCC also changed the stream segment 4b use classification from N (no recreation use) to P (potential recreation use) effective January 1, 2010, based on the establishment of the Rocky Flats National Wildlife Refuge outside of the Central Operable Unit (COU). Although the resulting change in the eColi standard does not really matter to site activities, DOE does feel it is necessary to document that this area (COU) is officially non-recreational currently.

Hank Stovall (citizen, Broomfield) asked for the health-based risk of changing the uranium standard from 12 to 20 pCi/L. Rick said that the health-based standard is 16.8 µg/L and the MCL is 30 µg/L. The new standard is roughly half of the MCL, which is based on a 10^{-6} incremental lifetime cancer risk assuming that two liters of water were drunk per day over a lifetime. Arthur Widdowfield asked if any animals found during the site inspection were tested for contamination. Rick said they were not, although if any dead elk or deer were found, the DOW would want to sample for diseases. In previous years, USFWS and DOW have performed extensive deer sampling, and found no significant risk from consumption of grazing animals on Rocky Flats. Arthur asked about the possibility of contamination being transferred upwards via burrowing animals. Rick said that they have not found any dead animals on-site during the post-closure period. Years ago a dead crow was found with fishing line around a leg, and a dead hawk was found and sent to DOW for analysis. Prairie dogs that were moving toward the COU during the past year contracted plague and died off.

Lisa Morzel asked if DOE keeps track of prairie dogs bringing soil to surface. Rick noted that the Soil Action Levels (SAL) that were developed in 2003 took this scenario into consideration. They also used a rural resident scenario, which included the growing of vegetables onsite for consumption and many other related assumptions. The specific scenarios and results can be found in the Rocky Flats RI/FS. The site also had to meet the decommissioning criteria for NRC licensees. The SAL's are well below an unrestricted use level for this rural scenario. Lisa asked if there was a policy for handling things like prairie dogs moving in. Rick said that a study was planned, but was never able to be implemented before they all died.

Ecological Monitoring – Jody Nelson

Site ecologists provided project assistance for OLF projects, 2009 roads projects, the East Trenches project, the annual dam mowing and riprap spraying project, Solar Ponds Plume Treatment System projects, and annual weed control efforts. Ecological monitoring projects included:

- Original and Present Landfill vegetation surveys
- Monthly weed surveys in the mitigation wetlands
- Revegetation monitoring
- Weed monitoring/mapping
- Preble's mouse mitigation monitoring
- Wetland mitigation monitoring
- Bluebird box monitoring.

Weed spraying took place on approximately 355 acres. Jody showed several slides that compared various areas of the site during both pre- and post-closure. He also noted that all three prairie dog towns were wiped out by plague.

Site Operations – Jeremiah McLaughlin

At the Original Landfill, 12 monthly inspections were performed in 2009. Fourth-quarter inspections were completed on October 27, November 30, and December 30, 2009. Settlement Monuments were surveyed in March, June, September, and December. Data were within the expected range per the Monitoring and Maintenance Plan (which is between 1.34 and 2.86 feet depending on the location). Surface cracking was found to be continuing in the vicinity of Berm 1, indicating localized instability. A new surface expression of the Seep #7 area (located approximately 10 feet southwest of inclinometer 82608) was documented in November. Observation of area is ongoing. Adjustment to the drain may be needed to carry additional water observed after heavy precipitation.

Inclinometers at the Original Landfill were measured in October, November, and December. Very little inclinometer deflection was noted during fourth quarter. A review by a geotechnical engineer was consistent with 2008 Geotechnical Report findings. Localized slumping occurs as groundwater levels saturate the organic layer near bedrock. DOE will continue monitoring and implementing maintenance to fill/grade surface cracking.

At the Present Landfill, four quarterly inspections were completed in 2009. The fourth-quarter inspection was completed on November 30; the vegetation inspection was completed on December 1; and the settlement monument surveys were completed in January and December 2009.

Continue Discussing Dam Breach Environmental Assessment (EA)

The next agenda item was a continued discussion of DOE's Environmental Assessment related to the breaching of dams A-4, B-5 and C-2. At the April meeting, the Stewardship Council approved a letter opposing DOE's plan.

The public was invited to share comments prior to additional conversation between the Board, DOE and CDPHE. Hank Stovall introduced himself by noting that he was a 40-year resident of Broomfield, a former City Council member, and also participated on Health Advisory Panel's dose reconstruction project. He said he thinks it is hypocrisy that DOE wants to restore the dams to their natural state and that they really just want to dilute the contamination. He would like to hear from DOE and the regulators how much contamination was left, where it is, and what was done to keep it under control. He said radioactive contamination requires substantial seals and double liners, such as at the Last Chance site and other licensed hazardous waste sites. He cited many reasons for being concerned, such as the 1957 fire in which B771 filters were breached and subsequent fires. He also mentioned routine operations in B776/771 and the 903 pad. He referred to estimates of the number of curies released over the years. He said the decision to breach the dams is 90-100 years premature because the site has not stabilized. He expects contaminated groundwater to begin seeping shortly if it has not already. He described what he called DOE's callous disregard for downstream communities over the years. Mr. Stovall also referred to a study of Great Western Reservoir that showed contamination. He also said a study has demonstrated that above-background radiation was found in a 4-5 mile radius around Rocky Flats. He said the ponds have provided Broomfield with a first line of defense from contamination and asked the Stewardship Council to continue to demand and advocate for the 'No Action' alternative.

David Allen asked DOE for their path forward on the dam breach EA, as well as on decisions related to a potential change to POCs. Lynn Bowdidge said Stoller will present the final EA to DOE in late July. DOE will then choose one of the alternatives. Carl Spreng said that a draft final will be sent to the regulators, and a comment period will take place in July. David Allen said he is concerned that this group has not had a sufficient chance to provide comment. He added that, as DOE moves forward and considers changes to POC's, he hopes that the Stewardship Council will be able to have a meeting during the public comment period. He pointed to the need to continue to work together, and suggested a special meeting during the comment period. Lori Cox noted that a special meeting of the Stewardship Council can be called by any three members. David Allen said he would like the opportunity to review a summary of comments from the last public meeting.

At this point, Chair Lori Cox noted that the Board had veered away from discussing the details of the EA. Rick DiSalvo commented that the details of the proposal had not changed since the briefing and technical meeting in April. Lori asked whether there was a way to schedule the comment period to end after the Board's September meeting. After a bit more discussion, the Board scheduled a tentative meeting for August 16, pending the actual dates of the comment period. Joe Cirelli said he supported holding the special meeting because waiting until September might not give the Board enough time to formulate comments. Sue Vaughan suggested that the talking points from the letters written by the downstream municipalities be used as a starting point for discussion at the special meeting. David Allen noted that they may bring additional points for consideration. Marc Williams moved to schedule a special meeting for August 16. The motion was seconded by Joe Cirelli. The motion passed 11-0.

Lori Cox asked again for comments on the EA. She summarized that the Board has said repeatedly that it is too soon to make this decision, and that there are too many unanswered

questions. She said that the public meeting went well, and many questions were raised, although there were not as many answers as the attendees may have liked. Lisa Morzel asked if notes were taken at the meeting. Scott Surovchak said that because it was a public meeting and not a formal hearing, there were no requirements for formal note-taking. DOE did take notes on flipcharts, and these will be included in the final EA. Lisa asked for a copy of these notes. Scott pointed out that the reason some of the questions were not answered was because they will be better dispositioned in the EA's Response to Comments. He said DOE also received some written comments. Doug Young (Sen. Udall) asked if there was a way that DOE could respond to the primary issues prior to the release of the EA. He said he was worried this was becoming an adversarial scenario, and would like to see additional discussion, negotiation and hopefully a consensus agreement. Carl Spreng agreed with Doug and said that throughout a series of meetings with technical staff members from the concerned cities, the comments have narrowed and focused.

David Abelson pointed out that, over the years, there has been an unofficial practice among the local governments in which they have deferred to the downstream communities on water issues. This practice has impacted the level of engagement and nature of comments offered by the other communities. He said that, in looking for consensus, it may make sense for the downstream communities to have those dialogues directly with DOE and the regulators. He recapped the primary issues of concern to date, including the ability to test the flow-through conditions at other dams but not at C-2, and the lack of contingency plans for addressing any potential future contamination flowing offsite through the C-2 area. David noted his belief that there is ample opportunity to really discuss these issues, and that the downstream communities are in the best position to accomplish this. He asked the Board if it made sense to entrust the downstream communities to work on these issues with DOE, and then report back to the Board. David Allen said that they are willing to do this, but that it has been proving difficult because they do not have specific information about DOE's plans and will not know what they are until the official release of the EA. He noted that there needs to be willingness on both sides to have this dialogue. Scott Surovchak replied that DOE has met with the communities many times, and has been very consistent in outlining their plans. He said there will not be any surprises in the EA. David Allen said that the communities have been openly communicating their desire for a contingency plan since last year, as well as their position that it is too soon in the post-closure period to make this decision. Sue Vaughan said that, through the discussions between the downstream communities and the agencies, she would like to see if there is common ground on the issues identified by David Abelson before the special meeting. Carl Spreng noted that he had proposed late last week that the agencies meet with the cities on a staff level, and that he thinks this would be good way to move forward. Faye Griffin said she would also like to receive updated information from the downstream communities based on any new discussions with the agencies prior to the special meeting. David Abelson and Rik Getty will be available to compile this information. Bill Fisher acknowledged that Golden was comfortable with the path forward being discussed. Ron Hellbusch said that Westminster was also interested in pursuing a consensus on these issues, as suggested by Doug Young. He would like the technical discussions to proceed, followed the technical staff members meeting with city officials to look for a consensus position to bring to the Board. Lori Cox noted that the discussion on August 16th will cover both the dam breach EA and possible relocation of POC's.

Continue Discussing Signs for Rocky Flats

Because the meeting ran behind schedule, this agenda item was postponed.

Public comment

There was none.

Updates/Big Picture Review

August 16, 2010 (special meeting)

September 13, 2010 (second Monday)

Potential Business Items

- Initial review of 2011 RFSC budget

Potential Briefing Items

- Host LM quarterly public meeting
- Surface water briefing
- Annual review of RFSC activities
- Begin discussing 2011 RFSC Work Plan
- Continue discussing interpretive signs for Rocky Flats

November 8, 2010 (second Monday)

Potential Business Items

- Budget Hearings for 2011 RFSC budget

Potential Briefing Items

- Host LM quarterly public meeting
- Approve 2011 RFSC Work Plan
- Review history of RFSC
- Continue discussing interpretive signage for Rocky Flats

Lisa Morzel would like a map of the surface water systems included in the materials for the next meeting.

The meeting was adjourned at 11:55 a.m.

Respectfully submitted by Erin Rogers.

List of Attachments

- 1. Cover Memo**
- 2. Proposed Modifications to Rocky Flats Legacy Management Agreement**
- 3. Contact Record**
- 4. Rocky Flats Stewardship Council's April Letter Re: Points of Compliance Move**
- 5. City of Northglenn Letter re: Points of Compliance Move**
- 6. City of Westminster Letter re: Points of Compliance Move**
- 7. Woman Creek Reservoir Authority Letter re: Points of Compliance Move**

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City of Golden -- City of Northglenn -- City of Westminster -- Town of Superior
League of Women Voters -- Rocky Flats Cold War Museum -- Rocky Flats Homesteaders
Arthur Widdowfield

MEMORANDUM

TO: Board
FROM: David Abelson
SUBJECT: August 16th Special Meeting – Changes to Monitoring Points of Compliance and Dam Breach EA
DATE: August 6, 2010

At its June 7th meeting, the board agreed to host a special meeting on August 16th focused solely on DOE's plan to move the surface water and groundwater points of compliance (POCs) from Indiana Street to the eastern boundary of the DOE-managed lands (known as the Central Operating Unit or COU). The board also agreed to weave into this discussion the dam breach environmental assessment (EA), as moving the POCs and the dam breach are linked activities. Following is background information for the meeting.

As you review this material, please note that the public comment period on moving the POCs has been extended until September 28, 2010, thereby allowing the board to approve a comment letter at its September 13th meeting.

Changes to Points of Compliance (POCs)

As the board discussed at its April and June meetings, DOE currently monitors water quality at the eastern edge of the refuge boundary along Indiana Street where Walnut Creek and Woman Creek cross under Indiana Street. DOE's management responsibilities, however, stop at the eastern boundary of the COU. Accordingly, DOE, with the support of CDPHE, is proposing to move the surface water and groundwater POCs from Indiana Street to the eastern edge of the COU, and to combine at these points the existing POCs found at the outflows of ponds A-4 and B-5 on Woman Creek, and C-2 on Woman Creek. (See maps on pages 9-10 of the attached contact record.)

Elements of Proposed Changes

The proposed changes are:

1. Move the surface water and groundwater POCs from Indiana Street to the eastern edge of the COU.
2. Delete provisions regarding batch and release testing of the water in ponds A-4, B-5 and C-2 prior to discharge, and replace with flow-through sampling. This change is directly

tied to DOE's upcoming decision to manage ponds A-4, B-5 and C-2 in a flow-through condition. Because water will not be held behind the dams, there will not be a "batch" to test prior to discharge. Batch and release will be replaced with flow-paced sampling, which DOE tells me is more accurate.

These changes are regulatory changes to the Rocky Flats Legacy Management Agreement (RFLMA). Following the memo are the redline changes to the RFLMA and the contact record between DOE and CDPHE.

In addition, due to concerns communities have raised about moving the POCs from Indiana Street to the eastern edge of the COU, DOE has agreed to continue, for 1-2 years, to capture flows at the existing Indiana Street POCs. Should testing upstream at the new POCs indicate a problem, DOE could then test the water captured at Indiana Street to help gauge the extent of the problem.¹ Importantly, capturing flows at Indiana Street for possible future testing will not be part of DOE's RFLMA compliance requirements. For that reason, this proposal is not captured in the proposed RFLMA changes. Instead, as DOE explains, that data will provide "additional data points."

Issues About POCs the Stewardship Council Raised In Its April 2010 Letter

In its April 8, 2010, letter to DOE (attached), the Stewardship Council raised three issues:

1. The lack of information related to the monitoring frequency, standards, and requirements associated with the new sites;
2. The uncertainty on how collected data will be used to measure remedy performance, maintain public and environmental safety, comply with regulatory standards, and demonstrate the effectiveness of the existing physical and institutional controls; and
3. The absence of a Contingency Plan to ensure downstream surface water quality is protected at all times.

As I understand the proposed changes, following are preliminary answers to these questions:

1. Monitoring frequency, etc: The monitoring frequency, standards and requirements will not change. DOE is simply proposing to move the monitoring/compliance locations.
2. Uncertainties, etc: Data collection methodologies will not change. Likewise, DOE and CDPHE will continue to measure remedy performance, etc, using existing standards and protocols. The only change is where the data will be collected.
3. Contingency plan: As I understand this issue, the question is more of how the ponds will be managed rather than where surface water and groundwater compliance will be measured. This concern lies at the nexus of the dam breach and changes to the POCs.

In addition to the Stewardship Council's letter, attached are letters Northglenn, Westminster and the Woman Creek Reservoir Authority issued in late May. Those letters raise additional issues and concerns.

¹ This approach mirrors the approach DOE took when it phased out the air monitoring program following closure.

Dam Breach EA

At the June meeting, the board asked Broomfield to work with DOE to try to reach agreement on the many outstanding issues. At the meeting, Broomfield will tee up the dam breach conversation by updating the board on steps it is taking to resolve the many issues. While there have been many meetings and conversations between DOE and Broomfield, Westminster and Northglenn, some issues and concerns remain.

Nevertheless, DOE tells me that based on concerns the governments and others have raised, they will amend their plans as follows:

1. Operate C-2 in a flow-through configuration for the next 7-10 years (that aligns C-2 with A-4 and B-5, which will also be managed in a flow-through configuration). Initially, C-2 was to be breached in 2010-2011.
2. Push back the timeline for breaching dams A-4, B-5 and C-2 to 2017-2020. DOE had planned to breach A-4 and B-5 in 2015-2018, and C-2 in 2010-2011. This new date is important as the next CERCLA five-year review is in 2012, followed by another in 2018.

Please let me know what questions you have. Thanks.

Attachment 2

Legacy Management Requirements

ROCKY FLATS LEGACY MANAGEMENT AGREEMENT

Document History Rocky Flats Legacy Management Agreement Attachment 2, Legacy Management Requirements

Date	Description of Changes
February 2007	Original document, effective on RFLMA effective date, March 14, 2007.
March 2008	Modification to Section 5.3.2 to change reference for <i>Present Landfill Monitoring and Maintenance Plan and Post-Closure Plan</i> (PLF M&M Plan) to "as approved," to allow modification of the PLF M&M Plan, without need to update the specific date in Attachment 2 each time.
March 2008	Modification to Table 2 regarding PLF Area sampling frequency for GWISINFNORTH and GWISINF SOUTH from "Quarterly; Monthly (if required by decision)", to "Discontinued". Table 2 Note 11 changed to add "GWISINFNORTH and GWISINF SOUTH may be used for investigative purposes." See RFLMA Contact Record 2007-08.
March 2008	Modification to Table 3 regarding frequency of PLF inspections and exit strategy to reflect reduction in frequency based on results of inspections since closure. Based on modification of PLF M&M Plan. See RFLMA Contact Record 2007-08.
September 2009	Modification to Section 5.3.1 to change reference for <i>Final Landfill Monitoring and Maintenance Plan, RFETS, Original Landfill</i> (OLF M&M Plan) to "as approved," to allow modification of the OLF M&M Plan, without need to update the specific date in Attachment 2 each time.
September 2009	Modification to Table 1 to make standards consistent with changes promulgated by the Colorado Water Quality Control Commission (WQCC) through June 2009, as follows: <ul style="list-style-type: none"> • gross alpha/beta removed from analyte list; • Uranium standard changed to 16.8 µg/L; • Arsenic standard changed from 50 µg/L to 0.02 -10 µg/L; • Footnote [a] modified to change the reference to the December 31, 2005 effective date of the Colorado WQCC regulations to "promulgated", and added, "If relevant, effective date information is included in subsequent footnotes", for simplicity; • Deleted PRG acronym in Footnote [b] because not used in Table 1; • Deleted reference to segment specific ambient uranium standards in Footnote [l] and added explanation of radiological parameter units; and, • Footnote [n] added for arsenic, "Standard is 50 µg/L until December 31, 2009. Beginning January 1, 2010, the second number in the range is applied as the applicable or corresponding Table 1 standard the flowcharts in Figures 5 through 13." This is based on footnote 13 to Table III of WQCC Regulation 31, "Water bodies will be considered in attainment of this standard, and not included on the Section 303(d) List, so long as the existing ambient water quality does not exceed the second number in the range."
September 2009	Modification to Table 2 and Figure 1 to reflect changes to Table 1 for uranium and changes to monitoring locations, as follows: <ul style="list-style-type: none"> • U** replaced with U, and note ** referring to uranium isotopes deleted; • Well 45605 removed and replaced with well 45608; and, • Well TH046992 removed and SPPMM01 replaced by SPOUT. See RFLMA Contact Records 2007-07, 2008-04, and 2008-09.
September 2009	Modification to Table 3 regarding frequency of OLF inspections and exit strategy to reflect reduction in frequency based on results of inspections since closure and based on modification of OLF M&M Plan. See RFLMA Contact Record 2008-07. Clarified frequency for vegetation surveys and vegetation monitoring, and made PLF and OLF requirement read the same.

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September 2009	Modification of Section 5.3.7 and Table 5 to reflect completion of additional ecological sampling. See RFLMA Contact Record 2008-01.
September 2009	Modification of Section 7.2 to change reference "DOE 2006" to "as approved" for the PLF and OLF M&M Plan for consistency with modification to Sections 5.3.1 and 5.3.2.
December 2009	Modification to Table 1, Footnote [m] making 1,4-dioxane standard effective through 3/21/2012, consistent with changes promulgated by the WQCC in November 2009.
• Proposed 2010	<p><u>Modification to Section 5.</u></p> <ul style="list-style-type: none"> • <u>Section 5.1 revised to reflect removal of POCs GS01 and GS03 at Indiana St. and adding new Walnut Creek and Woman Creek POCs near the COU boundary.</u> • <u>Section 5.4.1 deleted, to reflect removal of Boundary wells as RFLMA monitoring points.</u> • <u>Section 5.4.2 revised to reflect elimination of protocol for pond pre-discharge samples when Pond A-4, B-5 or C-2 is operated in flow through mode or when the dams have been removed. Duplicate or split sample protocol is retained, with reference to RFLMA consultative process and right of entry provisions.</u>
Proposed 2010	<u>Modification to Section 6 to delete reference to Figure 13.</u>
Proposed 2010	<p><u>Modification to Figure 1, Water Monitoring Locations</u></p> <ul style="list-style-type: none"> • <u>Deleted surface water locations GS01, GS03, GS08, GS11, GS31, POND A-4, POND B-5 and POND C2.</u> • <u>Deleted treatment system monitoring location PLFPONDEFF and added monitoring location NNG01.</u> • <u>Deleted Boundary wells 10394 and 41691.</u> • <u>Added new surface water monitoring locations WALNUT POC and WOMAN POC</u> • <u>Errata. Deleted note in Key referencing Attachment 3.</u>
Proposed 2010	<u>Modification to Figure 5 to continue calculation of 30-day and 12-month rolling average concentrations for nitrate and americium, plutonium and uranium, and 85th percentile for nitrate. Changed terminology from "compliance value" to "calculated value" in flowchart and note 1. Revised text in note 1 to clarify 12-month rolling average used in evaluating remedy performance standard compliance. Deleted reference to Indiana St. and Terminal Pond POCs in note 1.</u>
Proposed 2010	<u>Figure 6 errata. Corrected the reference in note 1. Note 2 (explanation of 30-day average calculation) and note 3 (explanation of 12-month rolling average calculation), were inadvertently reversed in the original Figure 6. Changed terminology from "compliance value" to "calculated value" in flowchart and note 1.</u>
Proposed 2010	<u>Modification to Figure 7 to remove reference to Boundary wells.</u>
Proposed 2010	<p><u>Modification to Figure 11 to remove reference to PLFPONDEFF as sampling point, and added new sampling point NNG01. Deleted note 8 regarding evaluating pond operations.</u></p> <p><u>Errata. Deleted reference to SPPMM01 in note 5. Replaced by SPOUT in September 2009 modification.</u></p>
Proposed 2010	<u>Deleted Figure 13, Pre-discharge Pond Sampling.</u>
Proposed 2010	<u>Modification to Table 2 to make consistent with changes to Figures 1, 5, 7, 11 and 13. Deleted reference to Boundary wells from note 7. Deleted note 13 to remove reference to Predischarge locations.</u>

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ROCKY FLATS LEGACY MANAGEMENT AGREEMENT

1.0 PURPOSE AND BACKGROUND

The purpose of this attachment to the Rocky Flats Legacy Management Agreement (RFLMA) is to specify the legacy management requirements that will ensure the response action selected and approved in the final Corrective Action Decision and Record of Decision (CAD/ROD) for the Central Operable Unit (OU) remains protective of human health and the environment. The remedy specified in the final CAD/ROD is supported by a Comprehensive Risk Assessment, which is based on a specific land use. The remedy, therefore, relies on certain physical and institutional controls, which must be maintained to ensure long-term protectiveness. The remedy also includes engineered features – landfills and water treatment systems – which must be maintained to remain protective. Reduced levels of residual soil contamination remain at the site and may continue to affect surface water. Contaminated groundwater also exists at the site and may impact surface water quality. Continued routine monitoring for groundwater and surface water is therefore required. Air, soil, and ecological receptors have been extensively monitored for many years and routine monitoring is no longer required.

Legacy management requirements described in this attachment are intended to address the requirements of the following statutes:

- Resource Conservation and Recovery Act (RCRA);
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) including applicable or relevant and appropriate requirements (ARARs); and
- Colorado Hazardous Waste Act (CHWA).

Modifications to this attachment will occur in accordance with the provisions of Part 10 of RFLMA.

2.0 REMEDY PERFORMANCE STANDARDS AND REQUIREMENTS

Remedy performance standards and requirements are enforceable numerical values or narrative descriptions of conditions or restrictions, designed to protect existing or potential uses, against which remedy performance can be measured. These standards and requirements are derived from state surface water standards and from requirements established in the final CAD/ROD.

2.1 Surface Water Standards

Protection of surface water was a basis for making soil and groundwater response action decisions during the cleanup period so that surface water on site and leaving the site would be of sufficient quality to support all uses. The applicable surface water uses are consistent with the following Colorado Water Quality Control Commission (WQCC) surface water use classifications:

- Water Supply,
- Aquatic Life – Warm 2,

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- Recreation 2, and
- Agriculture.

The remedy performance standards for surface water at the Rocky Flats Site are found in Table 1 and are based on the tables found in the WQCC Regulation No. 31: Basic Standards and Methodologies for Surface Water (5 CCR 1002-31) and on the site-specific standards in the WQCC Regulations No. 38 (5 CCR 1002-38). If the numeric values from the basic standards and the site-specific standards differ, the site-specific standard applies, except where temporary modifications are in place. Temporary modifications for six organic compounds, nitrate and nitrite, as listed in Table 1, have been granted through the year 2009 by the WQCC. In addition to practical quantitation levels (PQLs) allowed by the WQCC regulations, site-specific PQLs may be proposed to Colorado Department of Public Health and Environment (CDPHE) for approval. Any changes to the standards will be discussed in the annual legacy management report.

The WQCC-designated groundwater use classification at the site is surface water protection. The numeric values for measuring potential effects of contaminated groundwater on surface water quality are the surface water standards in Table 1. Exceedances of water quality standards at a surface water POC may be subject to civil penalties under Sections 109 and 310(c) of CERCLA.

Criteria and strategies for comparing analytical results to these numeric values are established in Section 5 and in attached flowcharts.

2.2 Requirements of the Final CAD/ROD

Some response actions taken under Rocky Flats Cleanup Agreement decision documents specified conditions or restrictions that extend into the legacy management period. These requirements are captured in the final CAD/ROD and are specified in this attachment.

3.0 PHYSICAL CONTROLS

3.1 Engineered Remedies

DOE will maintain physical controls as necessary to protect engineered elements of the remedy, such as landfill covers, groundwater treatment systems, and monitoring equipment.

3.2 Signs

DOE will post signs legible from at least 25 feet at intervals around the perimeter of the Central OU, sufficient to notify persons that they are at the boundary of the Central OU. These signs will measure at least 11 inches by 14 inches and will include the following language: "U.S. Department of Energy – No Trespassing". In addition, signs listing use restrictions and providing contact information will be posted at access points to the Central OU.

4.0 INSTITUTIONAL CONTROLS

Institutional controls in the form of use restrictions are established in the final CAD/ROD. These controls are embodied in an environmental covenant granted by DOE to the CDPHE and are listed in Table 4. The covenant is recorded by Reception Number 2006148295 in Jefferson County, Colorado.

DOE will employ administrative procedures to control all site modification, maintenance, or other activities requiring excavation within the Central OU in accordance with the institutional controls to ensure to prevent violation of the restrictions listed in Table 4. DOE shall ensure that all such site activities will not compromise the integrity or function of the remedy or result in uncontrolled releases of or exposures to subsurface contamination, in accordance with the land use restrictions in Table 4.

DOE will utilize work control procedures to help maintain the use restrictions and ensure protection of the integrity of the institutional controls. These procedures derive from EPA and State of Colorado regulation and guidance and DOE Orders and guidance. The DOE Integrated Safety Management System (ISMS) utilizes processes such as the job hazard analysis (JHA) to identify and mediate environmental, health and safety risks to ensure all work is done in a safe and environmentally protective manner.

5.0 MONITORING REQUIREMENTS

Monitoring will provide measurements for remedy performance, safety, compliance with standards, and effectiveness of physical and institutional controls. Monitoring requirements are designed to provide data that meet designated monitoring objectives (as outlined in Table 2 and in attached flowcharts) and that support operational and regulatory decision making. Legacy Management operational documents relating to the monitoring and maintenance performed by DOE will be provided to CDPHE and the Environmental Protection Agency (EPA) and will be available to the public.

Environmental sampling, analysis, and data management required by this attachment will conform to the Legacy Management CERCLA Sites Quality Assurance Project Plan (QAPP) and meet the quality assurance and quality control requirements in current EPA guidance. DOE will submit the QAPP to the CDPHE and EPA within two months of execution of the RFLMA. DOE will ensure that laboratories generating data have procedures for assuring that the precision, accuracy, representativeness, completeness, and comparability (and sensitivity in the case of radiological analyses) of data are known and documented. DOE will also perform periodic assessments of analytical data, including laboratory audits. Upon request, all analytical data including QA/QC procedures, audits, and reports will be provided to CDPHE and/or EPA.

Standard EPA analytical methods will be used with the intent that detection limits will be less than the respective standards. If standard analytical methods cannot attain the standard, then alternative methods or PQLs will be proposed to CDPHE. The currently accepted PQLs are listed in Table 1.

5.1 Monitoring Surface Water

Compliance with the surface-water standards in Table 1 will be measured at the Points of Compliance (POCs) downstream of the terminal ponds in Woman Creek and Walnut Creek. ~~If the terminal ponds are removed, new monitoring and compliance points will be designated and will~~ The POC locations consider take into consideration groundwater in alluvium, based on the designated groundwater monitoring locations described in Section 5.2. Points of Evaluation (POEs) and additional performance monitoring locations serve to monitor the quality of surface water in the Central OU. The data evaluation methods described in the attached flowcharts will be used to evaluate sampling data collected at these locations. POCs, POEs and performance monitoring locations are shown in Figure 1; sampling criteria are identified in Table 2.

- **Points of Compliance (POCs):** Located in Woman and Walnut Creeks near the Central OU boundary downstream of the terminal ponds and at Indiana Street. These locations are used to demonstrate compliance with the surface-water standards in Table 1.
- **Points of Evaluation (POEs):** Located in the Central OU upstream of the ponds and POCs. These locations are used to evaluate water-quality in comparison to the surface-water standards in Table 1.
- **Performance monitoring locations:** Located downstream of specific remedies to determine the short and long-term effectiveness of these remedies where known contaminants may affect surface water.

5.2 Monitoring Groundwater

Groundwater is monitored in or near areas of groundwater contamination that might adversely affect surface water quality (Figure 2). Contaminated groundwater emerges to surface water before leaving the Central OU. DOE will maintain a network of groundwater monitoring wells to assess the potential effects of contaminated groundwater on surface water quality. These wells and sampling criteria are identified in Table 2 and shown in Figure 1 with the following well classifications:

- **Area of Concern (AOC) Wells:** Located within a drainage and downgradient of a contaminant plume or group of contaminant plumes. These wells are monitored to determine whether the plume(s) may be discharging to surface water.
- **Sentinel Wells:** Typically located near downgradient edges of contaminant plumes, in drainages, and downgradient of groundwater treatment systems. These wells are monitored to determine whether concentrations of contaminants are increasing, which could indicate plume migration or treatment system problems.
- **Evaluation Wells:** Typically located within plumes and near plume source areas, or in the interior of the Central OU. Data from these wells will help determine when monitoring of an area or plume can cease. A subset of these wells is located in areas that may experience significant changes in groundwater conditions as a result of closure activities.

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- RCRA Wells: Dedicated to monitoring the Present Landfill and Original Landfill.

5.3 Remedy Monitoring and Maintenance

5.3.1 Original Landfill

Groundwater and surface water monitoring details, including criteria and analytes, are listed in Table 2. Table 3 summarizes the inspection and maintenance requirements contained in the approved *Original Landfill Monitoring and Maintenance Plan*, which is incorporated by reference as an enforceable requirement of the RFLMA.

5.3.2 Present Landfill

Groundwater and surface water monitoring details, including criteria and analytes, are listed in Table 2. Table 3 summarizes the inspection and maintenance requirements contained in the approved *Present Landfill Monitoring and Maintenance Plan and Post-Closure Plan*, which is incorporated by reference as an enforceable requirement of the RFLMA.

5.3.3 Groundwater Treatment Systems

Each system will be monitored, at a minimum, for untreated influent and treated effluent, and for impacts to surface water downstream of the effluent discharge point according to the sampling criteria in Table 2 and the decision rules in the attached flowcharts. The systems will be maintained to ensure the effluent meets Table 1 standards.

5.3.4 Residual Subsurface Contamination

The Central OU will be monitored for significant erosion annually and following major precipitation events. DOE will evaluate whether the erosion is in proximity to the subsurface features shown in Figures 3 and 4. Monitoring will include visual observation (and measurements, if necessary) of precursor evidence of significant erosion (cracks, rills, slumping, subsidence, sediment deposition, etc.).

5.3.5 Monitoring Physical Controls

The condition of signs and other physical controls maintained by DOE will be inspected on a quarterly basis.

5.3.6 Monitoring Institutional Controls

The effectiveness of the institutional controls described in Table 4 of this attachment and in the Environmental Covenant will be determined by inspecting the Central OU at least annually for any evidence of violations of those controls. DOE will also annually verify that

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the Environmental Covenant for the Central OU remains in the Administrative Record and on file with the Jefferson County Planning and Zoning Department.

5.3.7 Ecological Sampling

The Ecological Risk Assessment determined that residual contamination does not represent a significant risk of adverse ecological effects. The CAD/ROD, however, requires that specific additional sampling be conducted to reduce the uncertainties determined in the Ecological Risk Assessment. Additional ecological sampling listed in Table 5 was completed and approved by CDPHE on April 2, 2008.

5.4 Operational Monitoring

Operational monitoring is not a requirement of the CAD/ROD, but is a requirement of this Attachment. Operational monitoring provides information that will supplement CAD/ROD required monitoring.

5.4.1 ~~Boundary Wells Deleted~~

~~Boundary wells are located on the east boundary of the Rocky Flats Site (see Figure 1) where Walnut Creek and Woman Creek exit Rocky Flats. These wells are used to demonstrate that contaminants listed in Table 2 are not migrating offsite. Action determinations for Boundary wells are found in Figure 7.~~

5.4.2 ~~Pre-discharge Pond Duplicate or Split Sampling~~

~~DOE will collect pre-discharge samples from Pond A-4, Pond B-5, and Pond C-2, and as needed from any other upstream pond temporarily functioning as a terminal pond. DOE will notify appropriate parties in accordance with Figure 13 in advance of pre-discharge pond sampling. CDPHE and EPA will be allowed the opportunity to collect duplicate or split samples for any monitoring. This opportunity shall be coordinated in accordance with the consultative process and the right of entry provisions in RFLMA paragraphs 11 and 18. Samples will be analyzed for POC constituents far enough in advance of a routine discharge to allow action to be taken if exceedances are suggested, but near enough to the time of discharge to be representative of the discharge composition. Figure 13 shows how actions are determined based on the results of pre-discharge samples. Ponds will be operated to maintain dam safety regardless of the status or results of pond sampling.~~

5.4.3 Adverse Biological Conditions

DOE will note evidence of adverse biological conditions (e.g., unexpected mortality or morbidity) observed during other monitoring and maintenance activities described above.

6.0 ACTION DETERMINATIONS

Whenever any of the following reportable conditions are observed, DOE shall follow the appropriate procedures in this section. Reportable conditions include:

- Exceedances of surface water standards at surface water and groundwater monitoring locations consistent with the attached flowcharts;
- Evidence of significant erosion in areas of residual subsurface contamination;
- Evidence of adverse biological conditions;
- Conditions affecting the effectiveness of the landfill covers;
- Evidence of violation of the institutional controls;
- Physical control failure that adversely affects the remedy; or
- Other abnormal conditions that adversely affect the remedy.

When reportable conditions occur (except in the case of evidence of violation of institutional controls as described below), DOE will inform CDPHE and EPA within 15 days of receiving the inspection reports or validated data. Within 30 days of receiving inspection reports or validated analytical data documenting a reportable condition, DOE will submit a plan and a schedule for an evaluation to address the condition. DOE will consult as described in RFLMA Paragraph 11 to determine if mitigating actions are necessary. Final plans and schedules for mitigating actions, if any, will be approved by CDPHE in consultation with EPA. DOE is not, however, precluded from undertaking timely mitigation once a reportable condition has been identified.

In the case of evidence of violation of institutional controls, DOE will notify EPA and CDPHE within 2 days of discovering any evidence of such a violation, and at that time will initiate the consultative process to address the situation. In no case will DOE notify EPA and CDPHE more than 10 days after the discovery of a situation that may interfere with the effectiveness of the institutional controls. DOE will notify EPA and CDPHE of the actions it is taking within 10 days after beginning the process to address the situation.

The RFLMA Parties will consult whenever reportable conditions are observed or at the request of one of the Parties when routine communication processes are not sufficient or appropriate. The objective of the consultation will be to determine a course of action to address the reportable condition and to ensure the remedy remains protective. Results of consultation will be documented in contact records and/or written correspondence.

Surface water and groundwater monitoring results will be evaluated as described in the following flowcharts:

- Figure 5 Flowchart – Points of Compliance
- Figure 6 Flowchart – Points of Evaluation

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- Figure 7 Flowchart – Area of Concern Wells, Boundary Wells, and SW018
- Figure 8 Flowchart – Sentinel Wells
- Figure 9 Flowchart – Evaluation Wells
- Figure 10 Flowchart – RCRA Wells
- Figure 11 Flowchart – Groundwater Treatment Systems
- Figure 12 Flowchart – Original Landfill Surface Water
- ~~Figure 13 Flowchart – Pre-discharge Pond Sampling~~

Exceedances of water quality standards at a POC may be subject to civil penalties under Sections 109 and 310(c) of CERCLA. In addition, failure of DOE to notify the State and EPA of such exceedances or other reportable occurrences, or failure to undertake source evaluations or mitigating actions as described above, will be enforceable consistent with the terms of Part 8 of the RFLMA.

7.0 PERIODIC REPORTING REQUIREMENTS

In addition to notifications of reportable conditions described in Section 6, periodic reporting will provide CDPHE, EPA, and the public with updated information pertaining to the surveillance and maintenance of the remedy prescribed in the final CAD/ROD. Analytical data and other information will be clearly presented along with summaries and evaluations to help interpret the data. Reports will be posted on the LM website and available for regulatory and public review in accordance with the following schedule:

- Quarter ending March 31 will be posted by July 15
- Quarter ending June 30 will be posted by October 15
- Quarter ending September 30 will be posted by January 15
- Year and Quarter ending December 31 will be posted by April 30

7.1 Quarterly Legacy Management Reports

The various reporting requirements may be combined into a summary report of surveillance and maintenance activities that occurred during the applicable quarter. The following topics will be included in quarterly reports:

- Surface water monitoring data;
- Groundwater monitoring data;
- Groundwater treatment system monitoring data;
- Ecological sampling data;
- Adverse biological conditions;
- Inspection reports; and
- Summary of maintenance and repairs.

7.2 Annual Legacy Management Reports

The various reporting requirements may be combined into a comprehensive report of all surveillance and maintenance activities that occurred during the applicable calendar year. Annual reports may include a summary for the previous quarter. The following will be included in annual reports:

- Discussion of surface water monitoring data;
- Discussion of groundwater monitoring data;
- Discussion of groundwater treatment system monitoring data;
- Discussion of ecological sampling data;
- Adverse biological conditions;
- Summary of actions taken in response to reportable conditions;
- Summary of maintenance and repairs;
- Inspection reports;
- Verification of the Environmental Covenant and evaluation of the effectiveness of institutional controls;

- Original Landfill Monitoring Report (see Table 3 and Section 6.1 of the *Original Landfill Monitoring and Maintenance Plan*, as approved);
- Present Landfill Monitoring Report (see Table 3 and Section 6.1 of the *Present Landfill Monitoring and Maintenance Plan and Post-Closure Plan*, as approved);
- Assessments of analytical data, including laboratory audits; and
- Other conditions or actions taken that are pertinent to the continued effectiveness of the remedy.

7.3 CERCLA 5-Year Review

A statutory 5-year review is required under CERCLA for the Central OU because the selected remedy will result in hazardous substances, pollutants or contaminants remaining above levels that allow for unrestricted use and unlimited exposure. DOE will prepare the 5-year review consistent with EPA-OSWER Directive 9355.7-03B-P (or subsequent EPA directives), as applicable to Rocky Flats. DOE will submit the 5-year review to EPA by August 1, 2007 so as to allow for EPA approval by September 17, 2007. DOE will prepare subsequent reviews at five-year intervals from the aforementioned date, until such time as EPA determines that CERCLA periodic reviews are no longer required. The 5-year review will evaluate site conditions and determine whether the selected remedy remains protective of human health and the environment. In doing so, the 5-year review will evaluate the components of the remedy (including, but not limited to, requirements for monitoring, maintenance and inspections, institutional controls, and reporting.) The 5-year review will

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determine whether such remedy components will be continued, modified, or discontinued. The public will be notified when the review will be conducted. Results of 5-year reviews will be made available to the public.

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Table 1. Surface Water Standards

Analyte	CAS Reference Number	Standards [a] (mg/L)	Basis [b]	Temporary Modifications [c] (mg/L)	PQLs [d] (mg/L)
Acenaphthene	83-32-9	4.20E-01	W+F, WS		
Acrolein	107-02-8	3.50E-03	W+F, WS		2.50E-02
Acrylamide	79-06-1	7.80E-06	WS		3.20E-04
Acrylonitrile	107-13-1	5.10E-05	W+F		2.50E-02
Alachlor	15972-60-8	2.00E-03	W+F, WS		
Aldicarb	116-06-3	7.00E-03	WS		
Aldicarb sulfone	1646-88-4	7.00E-03	WS		
Aldicarb sulfoxide	1646-87-3	7.00E-03	WS		
Aldrin	309-00-2	4.90E-08	W+F		5.00E-05
Ammonia, un-ionized	7664-41-7	[e]	[e]		
Aniline	62-53-3	6.10E-03	WS		1.00E-02
Anthracene	120-12-7	2.10E+00	W+F, WS		
Aramite	140-57-8	1.40E-03	WS		2.00E-02
Arsenic, total recoverable	7440-38-2	2.00E-5 to 1.00E-02 [n]	SS		
Atrazine	1912-24-9	3.00E-03	WS		
Azobenzene	103-33-3	3.20E-04	WS		3.00E-02
Benzene	71-43-2	2.20E-03	W+F	5.00E-03	
Benzidine	92-87-5	8.60E-08	W+F		4.00E-02
alpha-BHC	319-84-6	2.60E-06	W+F		3.00E-05
beta-BHC	319-85-7	9.10E-06	W+F		6.00E-05
gamma-BHC [Lindane]	58-89-9	8.00E-05	AL		
Benzo(a)anthracene	56-55-3	3.80E-06	W+F		2.00E-02
Benzo(a)pyrene	50-32-8	3.80E-06	W+F		1.00E-02
Benzo(b)fluoranthene	205-99-2	3.80E-06	W+F		1.00E-02
Benzo(g,h,i)perylene	191-24-2	3.80E-06	W+F		1.00E-02
Benzo(k)fluoranthene	207-08-9	3.80E-06	W+F		1.00E-02
Benzotrichloride	98-07-7	2.70E-06	WS		1.00E-02
Benzyl chloride	100-44-7	2.10E-04	WS		1.00E-03
Beryllium	7440-41-7	4.00E-03	SS		
Boron, total	7440-42-8	7.50E-01	AG, SS		
Bromate	15541-45-4	5.00E-05	WS		1.00E-03
Bromodichloromethane	75-27-4	5.50E-04	W+F [f]		1.00E-03
Bromoform [Tribromomethane]	75-25-2	4.30E-03	W+F [f]		
Bromomethane [Methyl Bromide]	74-83-9	9.80E-04	W+F		1.00E-03
Butylbenzylphthalate	85-68-7	1.40E+00	W+F, WS		
Cadmium, dissolved	7440-43-9	1.50E-03	TVS [g]		
Carbofuran	1563-66-2	4.00E-02	WS		
Carbon tetrachloride	56-23-5	2.30E-04	W+F	5.00E-03	1.00E-03
Chlordane	57-74-9	8.00E-07	W+F		2.00E-04
Chlorobenzene	108-90-7	1.00E-01	W+F, WS		
Chlorodibromomethane (HM)	124-48-1	5.40E-02	W+F		
bis(2-Chloroethyl)ether	111-44-4	3.00E-05	W+F		1.00E-02
Chloroform [Trichloromethane]	67-66-3	3.40E-03	W+F [f]		
bis(2-Chloroisopropyl)ether	108-60-1	2.80E-01	W+F, WS		

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Table 1 (continued). Surface Water Standards

Analyte	CAS Reference Number	Standards [a] (mg/L)	Basis [b]	Temporary Modifications [c] (mg/L)	PQLs [d] (mg/L)
Chloromethane [Methyl chloride]	74-87-3	5.60E-03	W+F		
Bis(chloromethyl)ether (BCME)	542-88-1	1.00E-07	W+F		1.00E-02
4-Chloro-3-methylphenol	59-50-7	3.00E-02	AL		
Chloronaphthalene	91-58-7	5.60E-01	W+F, WS		
2-Chlorophenol	95-57-8	3.50E-02	W+F, WS		
Chloropyrifos	2921-88-2	4.10E-05	AL		5.00E-03
Chromium III, Total Recoverable	16065-83-1	5.00E-02	SS		
Chromium VI, dissolved	18540-29-9	1.10E-02	TVS [g]		2.00E-02
Chrysene	218-01-9	3.80E-06	W+F		1.00E-02
Copper, dissolved	7440-50-8	1.60E-02	TVS [g]		2.50E-02
Cyanide	57-12-5	5.00E-03	SS		
4,4-DDD	72-54-8	3.10E-07	W+F		1.10E-04
4,4-DDE	72-55-9	2.20E-07	W+F		5.00E-05
4,4-DDT	50-29-3	2.20E-07	W+F		1.20E-04
Dalapon	75-99-0	2.00E-01	WS		
Demeton	8065-48-3	1.00E-04	AL		1.00E-02
Dibenzo(a,h)anthracene	53-70-3	3.80E-06	W+F		1.00E-02
Dibromochloromethane	124-48-1	8.00E-02	W+F, WS [f]		
1,2-Dibromo-3-chloropropane	96-12-8	2.00E-04	WS		1.00E-03
Di-n-butylphthalate	84-74-2	7.00E-01	W+F, WS		
Dichloroacetic acid	79-43-6	7.00E-04	WS		5.00E-04
1,2-Dichlorobenzene	95-50-1	4.20E-01	W+F		
1,3-Dichlorobenzene	541-73-1	9.40E-02	W+F, WS		
1,4-Dichlorobenzene	106-46-7	6.30E-02	W+F		
3,3-Dichlorobenzidine	91-94-1	2.10E-05	W+F		2.00E-02
1,2-Dichloroethane	107-06-2	3.80E-04	W+F	5.00E-03	1.00E-03
1,1-Dichloroethene	75-35-4	7.00E-03	W+F, WS	7.00E-03	
1,2-Dichloroethene (cis)	156-59-2	7.00E-02	WS		
1,2-Dichloroethene (trans)	156-60-5	1.00E-01	W+F, WS		
2,4-Dichlorophenol	120-83-2	2.10E-02	W+F, WS		
Dichlorophenoxyacetic acid [2,4-D]	94-75-7	7.00E-02	WS		
1,2-Dichloropropane	78-87-5	5.00E-04	W+F		1.00E-02
1,3-Dichloropropylene	542-75-6	3.40E-04	W+F		1.00E-02
Dichlorvos	62-73-7	1.20E-04	WS		1.00E-02
Dieldrin	60-57-1	5.20E-08	W+F		2.00E-05
Di(2-ethylhexyl)adipate	103-23-1	4.00E-01	WS		
Diethylphthalate	84-66-2	5.60E+00	W+F, WS		
Diisopropyl methyl phosphonate	1445-75-6	8.00E-03	WS		1.00E-02
2,4-Dimethylphenol	105-67-9	1.40E-01	W+F, WS		
Dimethylphthalate	131-11-3	7.00E+01	W+F, WS		
4,6-Dinitro-2-methylphenol	534-52-1	2.70E-04	WS		5.00E-02
2,4-Dinitrophenol	51-28-5	1.40E-02	W+F, WS		5.00E-02
2,4-Dinitrotoluene	121-14-2	1.10E-04	W+F, WS		1.00E-02
2,6-Dinitrotoluene	606-20-2	2.30E-01	AL		

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Table 1 (continued). Surface Water Standards

Analyte	CAS Reference Number	Standards [a] (mg/L)	Basis [b]	Temporary Modifications [c] (mg/L)	PQLs [d] (mg/L)
Dinoseb	88-85-7	7.00E-03	WS		
1,4-Dioxane	123-91-1	6.10E-03	WS [m]		1.00E-02
Dioxin (2,3,7,8 TCDD)	1746-01-6	5.00E-12	W+F		1.00E-05
1,2-Diphenylhydrazine	122-66-7	3.60E-05	W+F		1.00E-02
Diquat	85-00-7	2.00E-02	WS		
Endosulfan	115-29-7	5.60E-05	AL		
Endosulfan, alpha	959-98-8	5.60E-05	AL		2.00E-04
Endosulfan, beta	33213-65-9	5.60E-05	AL		
Endosulfan sulfate	1031-07-8	5.60E-05	AL		6.60E-04
Endothall	145-73-3	1.00E-01	WS		
Endrin (technical)	72-20-8	3.60E-05	AL		6.00E-05
Endrin aldehyde	7421-93-4	2.90E-04	W+F		
Epichlorohydrin	106-89-8	3.50E-03	WS		1.00E-02
Ethylbenzene	100-41-4	5.30E-01	W+F		
Ethylene dibromide [1,2-Dibromomethane]	106-93-4	5.00E-05	WS		1.00E-03
bis(2-Ethylhexyl)phthalate	117-81-7	1.20E-03	W+F		1.00E-02
Fluoranthene	206-44-0	1.30E-01	W+F		
Fluorene	86-73-7	2.80E-01	WS		
Folpet	133-07-3	1.00E-02	WS		
Furmecyclox	60568-05-0	1.20E-03	WS		1.00E-02
Glyphosate	1071-83-6	7.00E-01	WS		
Guthion	86-50-0	1.00E-05	AL		1.00E-01
Heptachlor	76-44-8	7.80E-08	W+F		5.00E-05
Heptachlor epoxide	1024-57-3	3.90E-08	W+F		1.00E-03
Hexachlorobenzene	118-74-1	2.80E-07	W+F		1.00E-02
Hexachlorobutadiene	87-68-3	4.40E-04	W+F		5.00E-03
Hexachlorocyclohexane, Technical	608-73-1	1.20E-05	W+F		1.00E-02
Hexachlorocyclopentadiene	77-47-4	5.00E-03	AL		1.00E-02
Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-hcdd)	19408-74-3	5.60E-09	WS		2.50E-05
Hexachloroethane	67-72-1	4.00E-04	W+F		1.00E-03
Hydrazine/Hydrazine sulfate	302-01-2	1.20E-05	WS		1.00E-02
Indeno(1,2,3-cd)pyrene	193-39-5	3.80E-06	W+F		1.00E-02
Isophorone	78-59-1	1.30E-01	W+F		
Lead, dissolved	7439-92-1	6.50E-03	TVS [g]		
Malathion	121-75-5	1.00E-04	AL		1.00E-02
Mercury, total	7439-97-6	1.00E-05	SS		1.00E-03
Methoxychlor	72-43-5	3.00E-05	AL		1.80E-03
4,4-Methylene bis (N,N'- dimethyl)aniline	101-61-1	7.60E-04	WS		1.00E-02
Methylene chloride [Dichloromethane]	75-09-2	4.60E-03	W+F		
Mirex	2385-85-5	1.00E-06	AL		1.00E-02
Naphthalene	91-20-3	1.40E-01	W+F, WS		
Nickel, dissolved	7440-02-0	1.23E-01	TVS [g]		

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Table 1 (continued). Surface Water Standards

Analyte	CAS Reference Number	Standards [a] (mg/L)	Basis [b]	Temporary Modifications [c] (mg/L)	PQLs [d] (mg/L)
Nitrate	14797-55-8	1.00E+01	AG, SS	100 [h]	
Nitrite	14797-65-0	5.00E-01	AL [i], SS	4.5 [h]	
Nitrobenzene	98-95-3	3.50E-03	W+F, WS		
Nitrophenol 4	100-02-7	5.60E-02	WS, W+F		
Nitrosodibutylamine N	924-16-3	4.30E-06	W+F		1.00E-02
N-Nitrosodiethanolamine	1116-54-7	1.30E-05	WS		1.00E-02
Nitrosodiethylamine N	55-18-5	2.30E-07	W+F, WS		1.00E-02
Nitrosodimethylamine N	62-75-9	6.90E-07	W+F, WS		2.00E-02
n-Nitrosodiphenylamine	86-30-6	3.30E-03	W+F		1.00E-02
n-Nitrosodipropylamine	621-64-7	5.00E-06	W+F, WS		1.00E-02
N-Nitroso-N-methylethylamine	10595-95-6	1.60E-06	WS		1.00E-02
Nitrosopyrrolidine N	930-55-2	1.60E-05	W+F		4.00E-02
Oxamyl(vydate)	23135-22-0	2.00E-01	WS		
PCBs	1336-36-3	6.40E-08	W+F [j]		5.00E-04
Parathion	56-38-2	1.30E-05	AL		1.00E-02
Pentachlorobenzene	608-93-5	1.40E-03	W+F		1.00E-02
Pentachlorophenol	87-86-5	2.70E-04	W+F		5.00E-02
Phenol	108-95-2	2.10E+00	W+F, WS		
Picloram	1918-02-1	4.90E-01	WS		
Propylene oxide	75-56-9	1.50E-04	WS		1.00E-02
Pyrene	129-00-0	2.10E-01	W+F, WS		
Quinoline	91-22-5	1.20E-05	WS		
Selenium	7782-49-2	4.60E-03	AL		
Silver, dissolved	7440-22-4	6.00E-04	TVS [g]		1.00E-03
Simazine	122-34-9	4.00E-03	WS		
Sulfide	18496-25-8	2.00E-03	SS		
Styrene	100-42-5	1.00E-01	WS		
1,2,4,5-Tetrachlorobenzene	95-94-3	9.70E-04	W+F		1.00E-03
1,1,2,2-Tetrachloroethane	79-34-5	1.70E-04	W+F		1.00E-03
Tetrachloroethene	127-18-4	6.90E-04	W+F	5.00E-03	1.00E-03
Toluene	108-88-3	1.00E+00	W+F, WS		
Toxaphene	8001-35-2	2.00E-07	AL		2.50E-03
Tributyltin (TBT)	56573-85-4	7.20E-05	AL		1.00E-02
1,2,4-Trichlorobenzene	120-82-1	3.50E-02	W+F		
1,1,1-Trichloroethane	71-55-6	2.00E-01	WS		
1,1,2-Trichloroethane	79-00-5	2.70E-03	W+F		
Trichloroethene	79-01-6	2.50E-03	W+F	5.00E-03	
2,4,6-Trichlorophenol	88-06-2	1.40E-03	W+F		1.00E-02
Trichlorophenol 2,4,5	95-95-4	7.00E-01	WS, W+F		
Trichlorophenoxypropionic acid	93-72-1	5.00E-02	WS		
Vinyl chloride	75-01-4	2.30E-05	W+F		2.00E-04
Xylene (total)	1330-20-7	1.00E+01	WS		
Zinc, dissolved	7440-66-6	1.41E-01	TVS [g]		

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Table 1 (continued). Surface Water Standards

Analyte	CAS Reference Number	Standards [a] (mg/L)	Basis [b]	Temporary Modifications [c] (mg/L)	PQLs [d] (mg/L)
PHYSICAL PARAMETERS:					
Dissolved oxygen (minimum)		5.0 mg/L	SS		
pH		6.5-9.0	SS		
RADIONUCLIDES [i]					
Americium 241	14596-10-2	0.15 (pCi/L)	BS		
Plutonium 239/240	10-12-8	0.15 (pCi/L)	BS		
Radium 226/228		5 (pCi/L) [k]	BS		
Strontium 89/90	11-10-9	8 (pCi/L)	BS		
Tritium	10028-17-8	500 (pCi/L)	SS		
Uranium, total	7440-61-1	16.8 (µg/L)]	SS		

NOTES:

[a] The values in this table reflect the promulgated Colorado WQCC classifications and standards. If relevant, effective date information is included in subsequent footnotes. Standards for chloride, dissolved iron, dissolved manganese, and sulfate are Secondary Drinking Water Standards, which are based on aesthetic considerations. They have been removed as site-specific standards since Segments 4a, 4b, and 5 waters will not be used for drinking water supply.

[b] Acronyms: AG = Agriculture; AL = Aquatic Life; BS = Basic Standard; SS = Site Specific Standard; TVS = Table Value Standard; WS = Water Supply; W+F = Water plus Fish

[c] Temporary modifications affect Segment 5 only and apply until December 31, 2009.

[d] Whenever the practical quantitation level (PQL) for a pollutant is higher (less stringent) than a standard or temporary modification, "less than" the PQL will be used as the compliance threshold.

[e] There is no un-ionized ammonia standard for Segment 5 or Segment 4b. A standard of 0.1 mg/L applies to Segment 4a, which begins in Walnut Creek downstream of Indiana Street.

[f] Per the Basic Standards, the Total Trihalomethane (TTHM) standard applies to the sum of the four TTHM compounds. For dibromochloromethane the TTHM value for water supply, 80 parts per billion, was applied.

[g] Table value standards for metals are based on a toxicity equation which uses a hardness value of 143 mg/L.

[h] The temporary modifications for nitrate and nitrite apply to the Walnut Creek portions of Segment 5 only.

[i] The listed nitrite value is the chronic aquatic life standard based on chloride levels in excess of 22 mg/L in Segment 4.

[j] The total PCB standard in the Basic Standards is based on the sum of the Aroclor analytes.

[k] Per the basic standard, this value applies to the sum of the two radium isotopes.

[l] Radionuclides are measured in activity per volume units except for uranium, which is measured as a metal parameter in mass per volume units.

[m] Effective through 3/21/2012; starting 3/22/2012 the standard is 3.20E-03 mg/L

[n] Standard is 50 ug/L until December 31, 2009. Beginning January 1, 2010, the second number in the range is applied as the applicable or corresponding Table 1 standard the flowcharts in Figures 5 through 13.

The scientific notation used in this table indicates the power of ten by which the two-decimal-place number is multiplied (e.g., 2.52E-02 = 2.52 X 10⁻² = .0252).

Table 2. Water Monitoring Locations and Sampling Criteria

General Objective	Classification	Media	Location ID (1)	Location Description	Frequency	Analytes (4)
Points of Compliance (POCs)						
PROPOSED NEW	POC (5)	SW	WALNUT POC	Walnut Creek near COU Boundary	Flow-paced (varies)	Pu, Am, U, nitrate, flow rate
PROPOSED NEW	POC (5)	SW	WOMAN POC	Woman Creek near COU Boundary	Flow-paced (varies)	Pu, Am, U, flow rate
PROPOSED DELETE GS01	POC (5)	SW	GS01	Woman Creek at Indiana Street	Flow-paced (varies)	Pu, Am, U, flow rate
PROPOSED DELETE GS03	POC (5)	SW	GS03	Walnut Creek at Indiana Street	Flow-paced (varies)	Pu, Am, U, nitrate (pond discharges only), flow rate
PROPOSED DELETE GS08	POC (5)	SW	GS08	Pond B-5 outlet	Flow-paced (varies)	Pu, Am, U, nitrate, flow rate
PROPOSED DELETE GS11	POC (5)	SW	GS11	Pond A-4 outlet	Flow-paced (varies)	Pu, Am, U, nitrate, flow rate
PROPOSED DELETE GS31	POC (5)	SW	GS31	Pond C-2 outlet	Flow-paced (varies)	Pu, Am, U, flow rate
Points of Evaluation (POEs)						
	POE (6)	SW	GS10	S. Walnut Creek at B-Series Bypass	Flow-paced (varies)	Pu, Am, U, dissolved Ag and Cd, total Be and Cr, flow rate
	POE (6)	SW	SW027	SID at Pond C-2	Flow-paced (varies)	Pu, Am, U, dissolved Ag and Cd, total Be and Cr, flow rate
	POE (6)	SW	SW093	N. Walnut Creek at end of FC-3	Flow-paced (varies)	Pu, Am, U, dissolved Ag and Cd, total Be and Cr, flow rate
Boundary Wells						
PROPOSED DELETE	Boundary (7)	GW	10394	Woman Creek at Indiana Street	Annual	VOCs, U, nitrate
PROPOSED DELETE	Boundary (7)	GW	41691	Walnut Creek at Indiana Street	Annual	VOCs, U, nitrate
Present Landfill (PLF) Area (2)						
	RCRA (10)	GW	70193	Upgradient	Quarterly	VOCs, metals
	RCRA (10)	GW	70393	Upgradient	Quarterly	VOCs, metals
	RCRA (10)	GW	70693	Upgradient	Quarterly	VOCs, metals
	RCRA (10)	GW	73005	Downgradient	Quarterly	VOCs, metals
	RCRA (10)	GW	73105	Downgradient	Quarterly	VOCs, metals
	RCRA (10)	GW	73205	Downgradient	Quarterly	VOCs, metals
	AOC (7)	GW	4087	Below East Landfill Pond	Semiannual	VOCs, U, nitrate
	AOC (7)	GW	B206989	Below East Landfill Pond	Semiannual	VOCs, U, nitrate
	Treatment System (11)	GW	PLFSEEPINF	Seep influent to treatment system	Quarterly	VOCs, U, metals, instantaneous flow rate
	Treatment System (11)	GW	GWISINFNORTH	North GWIS influent to treatment system	Discontinued	VOCs, U, metals, nitrate
	Treatment System (11)	GW	GWISINF SOUTH	South GWIS influent to treatment system	Discontinued	VOCs, U, metals, nitrate
	Treatment System (11)	SW	PLFSYSEFF	Treatment system effluent	Quarterly; Monthly (if required by decision)	VOCs, SVOCs, U, metals
PROPOSED DELETE	Treatment System (11)	SW	PLFPONDEFF	East Landfill Pond at outlet (13)	As required by decision rule	As required by decision rule
PROPOSED NEW	Treatment System (11)	SW	NNG01	No Name Gulch near notch in East Landfill Pond Dam	As required by decision rule	As required by decision rule
Original Landfill (OLF) Area (3)						
	RCRA (10)	GW	P416589	Upgradient	Quarterly	VOCs, metals, SVOCs
	RCRA (10)	GW	80005	Downgradient	Quarterly	VOCs, metals, SVOCs
	RCRA (10)	GW	80105	Downgradient	Quarterly	VOCs, metals, SVOCs
	RCRA (10)	GW	80205	Downgradient	Quarterly	VOCs, metals, SVOCs
	AOC (7)	GW	11104	Downgradient, downstream	Semiannual	VOCs, U
	OLF SW (12)	SW	GS05	Woman Creek at west property line (upstream)	Quarterly; Monthly (if required by decision)	VOCs, U, metals
	OLF SW (12)	SW	GS59	Woman Creek 700 feet east of OLF (downstream)	Quarterly; Monthly (if required by decision)	VOCs, U, metals

Table 2 (continued). Water Monitoring Locations and Sampling Criteria

Mound Site Plume and Treatment System (MSPTS)					
Evaluation (9)	GW	00897	Source area	Biennial	VOCs
Sentinel (8)	GW	15699	Downgradient of intercept trench	Semiannual	VOCs
Treatment System (11)	GW	MOUND R1-0	Treatment system influent	Semiannual	VOCs
Treatment System (11)	GW	MOUND R2-E	Treatment system effluent	Semiannual	VOCs
Treatment System (11)	SW	GS10	S. Walnut Creek at B-Series Bypass	Semiannual	VOCs
East Trenches Plume and Treatment System (ETPTS)					
Evaluation (9)	GW	3687	Source area	Biennial	VOCs
Evaluation (9)	GW	05691	Source area	Biennial	VOCs
Evaluation (9)	GW	03991	East of source area	Biennial	VOCs
Sentinel (8)	GW	04091	East of source area	Semiannual	VOCs
Sentinel (8)	GW	95299	Downgradient of intercept trench	Semiannual	VOCs
Sentinel (8)	GW	95199	Downgradient of intercept trench	Semiannual	VOCs
Sentinel (8)	GW	95099	Downgradient of intercept trench	Semiannual	VOCs
Sentinel (8)	GW	23296	Downgradient of intercept trench	Semiannual	VOCs, U
Treatment System (11)	GW	ET INFLUENT	Treatment system influent	Semiannual	VOCs
Treatment System (11)	GW	ET EFFLUENT	Treatment system effluent	Semiannual	VOCs
Treatment System (11)	SW	POM2	S. Walnut Creek at Pond B-4 outlet	Semiannual	VOCs
Solar Ponds Plume and Treatment System (SPPTS)					
Evaluation (9)	GW	P210189	VOC plume source area	Biennial	VOCs, U, nitrate
Evaluation (9)	GW	79102	SPP source area - north	Biennial	VOCs, U, nitrate
Evaluation (9)	GW	79202	SPP source area - north	Biennial	VOCs, U, nitrate
Evaluation (9)	GW	P208989	SPP source area - north	Biennial	VOCs, U, nitrate
Evaluation (9)	GW	79302	SPP source area - northeast	Biennial	U, nitrate
Evaluation (9)	GW	79402	SPP source area - northeast	Biennial	U, nitrate
Evaluation (9)	GW	79502	SPP source area - east	Biennial	U, nitrate
Evaluation (9)	GW	79605	SPP source area - east	Biennial	U, nitrate
Evaluation (9)	GW	00203	SPP source area - south	Biennial	VOCs, U, nitrate
Evaluation (9)	GW	22205	SPP downgradient plume - north	Biennial	VOCs, U, nitrate
Sentinel (8)	GW	P210089	SPP downgradient plume - north	Semiannual	VOCs, U, nitrate
Sentinel (8)	GW	70099	Northwest of system	Semiannual	U, nitrate
Treatment System (11)	GW	SPIN	Treatment system influent	Semiannual	U, nitrate
Treatment System (11)	GW	SPOUT	Treatment system effluent	Semiannual	U, nitrate
Treatment System (11)	SW	GS13	N. Walnut Creek at A-Series Bypass	Semiannual	U, nitrate
Evaluation (9)	GW	B210489	Downgradient of treatment system	Biennial	U, nitrate
Evaluation (9)	GW	51605	Downgradient, adjacent to GS13	Biennial	U, nitrate

Table 2 (continued). Water Monitoring Locations and Sampling Criteria

Other Areas of Interest						
Drainages Below Impacted Areas	AOC (7)	GW	10594	N. Walnut Creek downstream of Pond A-1	Semiannual	VOCs, U, nitrate
	AOC (7)	GW	00997	S. Walnut Creek upstream of Pond B-5	Semiannual	VOCs, U, nitrate
	AOC (7)	GW	00193	Woman Creek upstream of Pond C-2	Semiannual	VOCs, U
Former Building 371/374	Sentinel (8)	GW	37505	North part of former B371 area	Semiannual	VOCs, U, nitrate
	Sentinel (8)	GW	37405	North/northeast part of former B371/374 area	Semiannual	VOCs, U, nitrate, Pu*, Am*
	Sentinel (8)	GW	37705	East/southeast of former B371/374 area at foundation drain confluence	Semiannual	VOCs, U, nitrate, Pu*, Am*
Former Building 771/774	Sentinel (8)	GW	20705	North/northwest of former B771 area	Semiannual	VOCs, U, nitrate, Pu*, Am*
	Sentinel (8)	GW	20505	North of former B771/774 area	Semiannual	VOCs, U, Pu*, Am*
	Sentinel (8)	GW	20205	North/northeast of former B771/774 area	Semiannual	VOCs, U, Pu*, Am*
Former North-Central IA	Evaluation (9)	GW	P114689	Southwest of former B559 area	Biennial	VOCs
	Evaluation (9)	GW	P115589	West part of former B551 Warehouse area	Biennial	VOCs
	Evaluation (9)	GW	70705	East part of former B707 area	Biennial	VOCs, U
	Evaluation (9)	GW	33905	North of former 231 Tanks area	Biennial	VOCs
	Evaluation (9)	GW	21505	West of former B776/777 area	Biennial	VOCs
	Sentinel (8)	GW	52505	West of former IHSS 118.1 area	Semiannual	VOCs
	Evaluation (9)	GW	20902	Northwest of former IHSS 118.1	Biennial	VOCs
	AOC (7)	GW	42505	Terminus of FC-2	Semiannual	VOCs
Former Building 559	Evaluation (9)	GW	55905	North part of former B559 area	Biennial	VOCs, U, nitrate
	Evaluation (9)	GW	56305	West part of former B559 area	Biennial	VOCs, U, nitrate
Former IHSS 118.1	Evaluation (9)	GW	18199	North of former IHSS 118.1 area	Biennial	VOCs
	SW Performance [SW018]	SW	SW018	Upstream of FC-2 wetland	Semiannual	VOCs
Former Building 444 Complex	Evaluation (9)	GW	40005	West part of former B444 area	Biennial	VOCs, U
	Evaluation (9)	GW	40205	South part of former B444 end	Biennial	VOCs, U
	Evaluation (9)	GW	P419689	Southeast of former B444 area	Biennial	VOCs, U
	Sentinel (8)	GW	40305	East part of former B444 area	Semiannual	VOCs, U
	Evaluation (9)	GW	P416889	Southeast of former B444 area	Biennial	VOCs, U
	Sentinel (8)	GW	11502	Southeast of former B444 area	Semiannual	VOCs, U
Former Building 881	Evaluation (9)	GW	88205	South part of former B881 area	Biennial	VOCs, U
	Sentinel (8)	GW	88104	South part of former B881 area	Semiannual	VOCs, U
	Sentinel (8)	GW	00797	South of former B881 area	Semiannual	VOCs, U
Former Building 886	Evaluation (9)	GW	22996	East/northeast part of former B886 area	Biennial	VOCs, U
Former Building 991	Sentinel (8)	GW	99305	East part of former B991 area	Semiannual	VOCs, U, nitrate
	Sentinel (8)	GW	99405	Southeast part of former B991 area	Semiannual	VOCs, U, nitrate
	Sentinel (8)	GW	91305	South of confluence of FC-4 and FC-5	Semiannual	VOCs, U, nitrate
Former Oil Burn Pit No. 1	Evaluation (9)	GW	33502	Source area	Biennial	VOCs
	Evaluation (9)	GW	33604	Source area	Biennial	VOCs
	Sentinel (8)	GW	33703	Downgradient of source area	Semiannual	VOCs
Former Oil Burn Pit No. 2	Evaluation (9)	GW	91105	Source area	Biennial	VOCs
	Sentinel (8)	GW	91203	Downgradient of source area	Semiannual	VOCs
Former SW056	Sentinel (8)	GW	45608	Adjacent to French drain remnants and drain interruption	Semiannual	VOCs
OU1 Plume	Evaluation (9)	GW	891WEL	Source area	Biennial	VOCs
	AOC (7)	GW	89104	Downgradient at Woman Creek	Semiannual	VOCs
903 Pad/Ryan's Pit Plume	Evaluation (9)	GW	00191	East of former 903 Pad area	Biennial	VOCs
	Evaluation (9)	GW	50299	East of former 903 Pad area	Biennial	VOCs
	Evaluation (9)	GW	90402	Southeast of former 903 Pad area	Biennial	VOCs
	Evaluation (9)	GW	00491	Southeast of former 903 Pad area	Biennial	VOCs
	Evaluation (9)	GW	07391	Ryan's Pit source area	Biennial	VOCs, U
	Evaluation (9)	GW	90804	Southeast part of 903 Pad/Ryan's Pit Plume	Biennial	VOCs
	Sentinel (8)	GW	90399	Southeast part of 903 Pad/Ryan's Pit Plume at SID	Semiannual	VOCs
	Sentinel (8)	GW	90299	Southeast part of 903 Pad/Ryan's Pit Plume at SID	Semiannual	VOCs
	AOC (7)	GW	10304	Southeast of 903 Pad/Ryan's Pit Plume at Woman Creek	Semiannual	VOCs, U, nitrate
PU&D Yard Plume	Evaluation (9)	GW	30900	Source area	Biennial	VOCs
	Sentinel (8)	GW	30002	Downgradient at N. Walnut Creek	Semiannual	VOCs

Table 2 (continued). Water Monitoring Locations and Sampling Criteria

Pre-discharge						
PROPOSED DELETE	Pre-discharge (13)	SW	Pond A-4	A-Series terminal pond on N. Walnut Creek	Prior to routine discharge	Pu, Am, U, nitrate
PROPOSED DELETE	Pre-discharge (13)	SW	Pond B-5	B-Series terminal pond on S. Walnut Creek	Prior to routine discharge	Pu, Am, U, nitrate
PROPOSED DELETE	Pre-discharge (13)	SW	Pond C-2	C-Series terminal pond in Woman Creek	Prior to routine discharge	Pu, Am, U
					Acronyms and Abbreviations	
Notes						
(1) See Figure 1 for monitoring locations					Ag: silver	
(2) Laboratory analytes are limited to those listed in Appendix C of the Present Landfill Monitoring and Maintenance Plan and Post-Closure Plan					Am: americium-241	
(3) Laboratory analytes are limited to those listed in Appendix C of the Landfill Monitoring and Maintenance Plan, RFETS Original Landfill					AOC: Area of Concern	
(4) Analysis and evaluation for metals and VOCs will be performed for some or all of the analytes listed in Table 1					B (followed by numerals): Building (e.g., B371)	
(5) Results for POCs are evaluated using Figure 5.					Be: beryllium	
(6) Results from POEs are evaluated using Figure 6.					Cd: cadmium	
PROPOSED DELETE "Boundary wells" (7) Results from AOC and Boundary wells and SW018 are evaluated using Figure 7.					Cr: chromium	
PROPOSED NEW (7) Results from AOC and SW018 are evaluated using Figure 7.					FC: Functional Channel (e.g., FC-2)	
(8) Results from Sentinel wells are evaluated using Figure 8.					GW: ground water	
(9) Results from Evaluation wells are evaluated using Figure 9.					IA: Industrial Area	
(10) Results from RCRA wells are evaluated using Figure 10.					N/A: not applicable	
(11) Results from Treatment System locations are evaluated using Figure 11. GWISINFNORTH and GWISINFOUTH may be used for investigative purposes.					OLF: Original Landfill	
(12) Results from OLF SW locations are evaluated using Figure 12.					OU1: Operable Unit 1	
PROPOSED DELETE (13) Results from Predischarge locations are evaluated using Figure 13.					PLF: Present Landfill	
					POC: Point of Compliance	
* Samples of ground water collected for Pu and Am analysis will be filtered in the field using a 0.45 um in-line filter.					POE: Point of Evaluation	
					PU&D: Property Utilization and Disposal	
					Pu: plutonium-239,240	
					RCRA: Resource Conservation and Recovery Act	
					SID: South Interceptor Ditch	
					SPP: Solar Ponds Plume	
					SVOCs: semi-volatile organic compounds	
					SW: surface water	
					U: uranium	
					VOCs: volatile organic compounds	

Table 3. Present and Original Landfill Inspection and Maintenance Requirements

Present Landfill

Requirement	Description of activity	Frequency	Documentation/Reporting	Exit strategy
Final cover inspection and monitoring	<ul style="list-style-type: none"> - inspect/monitor slope stability, soil cover - visually inspect surface of landfill cover for cracks, depressions, heaving, and sinkholes - monitor settlement monuments and side slope stability monuments - vegetation surveys and monitoring 	<ul style="list-style-type: none"> - quarterly (settlement and stability monuments annually); evaluate frequency during CERCLA periodic review - additional weather-related inspections within 2 days after storm event of one inch or more of rain in a 24-hour period or significant melt of 10-inch or more snowstorm - Quarterly vegetation surveys. - Annually for vegetation monitoring 	<ul style="list-style-type: none"> - conditions affecting effectiveness of landfill cover to be reported per note 1 below - document on inspection checklist; submit to parties within one month of inspection; include in quarterly and annual reports 	<ul style="list-style-type: none"> - Consultative process or periodic CERCLA review - Vegetation monitoring performed until PLF M&M Plan grassland success criteria are met
Inspection and monitoring of stormwater management system and erosion control features	<ul style="list-style-type: none"> - Visually inspect stormwater management structures (channels/lining, culverts, and outfalls); erosion control features (perimeter channels and natural drainages); and seep treatment system 	<ul style="list-style-type: none"> - monthly for first year; evaluate frequency during CERCLA periodic review - additional weather-related inspections within 2 days after a storm event of one inch or more of rain in a 24-hour period or significant melt of a 10-inch or more snowstorm 	<ul style="list-style-type: none"> - conditions affecting effectiveness of landfill cover to be reported per note 1 below - document on inspection checklist; submit to parties within one month of inspection; include in quarterly and annual reports 	<ul style="list-style-type: none"> - Consultative process or periodic CERCLA review
GW monitoring	Included in Table 2, Figure 1, and Figure 10	Included in Table 2, Figure 1, and Figure 10	Included in Table 2, Figure 1, and Figure 10	Included in Table 2, Figure 1, and Figure 10
Landfill seep and pond monitoring	Included in Table 2, Figure 1, and Figure 11	Included in Table 2, Figure 1, and Figure 11	Included in Table 2, Figure 1, and Figure 11	Included in Table 2, Figure 1, and Figure 11
Maintenance and repairs	Perform minor or major repairs as needed; for major damage or repairs, consult with parties and develop appropriate actions for approval by CDPHE	- as needed	<ul style="list-style-type: none"> - minor/routine repairs and maintenance report on inspection form - conditions affecting effectiveness of landfill cover to be reported per note 1 below 	Consultative process or periodic CERCLA review
Institutional and physical controls	Fence around perimeter of Central OU, signs at entry points to Central OU, warning signs in accordance with 6 CCR 1007-3 Part 265.14		<ul style="list-style-type: none"> - failure of physical controls to be reported per note 1 below - failure of institutional controls to be per note 2 below 	Consultative process or periodic CERCLA review

Table 3 (continued). Present and Original Landfill Inspection and Maintenance Requirements

Original Landfill

Requirement	Description of activity	Frequency	Documentation/Reporting	Exit strategy
Final cover inspection and monitoring	<ul style="list-style-type: none"> - inspect/monitor slope stability and soil cover - visually inspect surface of landfill cover for cracks, depressions, heaving, sinkholes; visually inspect diversion berms; measure height and gradient if indicated (employ inclinometer monitoring results and topographic surveys as described in OLF M&M Plan.) - monitor settlement monuments - .Vegetation surveys and monitoring 	<ul style="list-style-type: none"> - Monthly, until CDPHE approves Quarterly frequency; topographic survey every other year; evaluate frequency during CERCLA periodic review. - Additional weather-related monitoring within 2 days after a storm event of one inch or more or rain in a 24-hour period or significant melt of a 10-inch or more snowstorm - Quarterly until CDPHE approves annual frequency. - Quarterly vegetation surveys. - Annually for vegetation monitoring. 	<ul style="list-style-type: none"> - conditions affecting effectiveness of landfill cover to be reported per note 1 below - document on inspection checklist; submit to parties within one month of inspection; include in quarterly and annual reports 	<ul style="list-style-type: none"> - Consultative process or periodic CERCLA review - Vegetation monitoring performed until OLF M&M Plan grassland success criteria are met.
Inspection and monitoring of stormwater management system, seeps, and erosion controls	<ul style="list-style-type: none"> - Visually inspect/monitor stormwater management structures, seeps, and erosion controls 	<ul style="list-style-type: none"> - Monthly, until CDPHE approves Quarterly, Semi-annual or Annual frequency; evaluate frequency during CERCLA periodic review - Additional weather-related inspections within 2 days after a storm event of one inch or more of rain in a 24-hour period or significant melt of a 10-inch or more snowstorm 	<ul style="list-style-type: none"> - conditions affecting effectiveness of landfill cover to be reported per note 1 below - document on inspection checklist; submit to parties within one month of inspection; include in quarterly and annual reports 	<ul style="list-style-type: none"> - Consultative process or periodic CERCLA review
GW monitoring	Included in Table 2, Figure 1, and Figure 10	Included in Table 2, Figure 1, and Figure 10	Included in Table 2, Figure 1, and Figure 10	Included in Table 2, Figure 1, and Figure 10
SW monitoring	Included in Table 2, Figure 1, and Figure 12	Included in Table 2, Figure 1, and Figure 12	Included in Table 2, Figure 1, and Figure 12	Included in Table 2, Figure 1, and Figure 12
Maintenance and repairs	<ul style="list-style-type: none"> - Perform minor or major repairs and maintenance - For major damage or repairs, consult with parties and develop appropriate actions for approval by CDPHE 	<ul style="list-style-type: none"> - as needed 	<ul style="list-style-type: none"> - minor/routine repairs and maintenance, report on inspection form - conditions affecting effectiveness of landfill cover to be reported per note 1 below 	<ul style="list-style-type: none"> - Consultative process or periodic CERCLA review
Institutional and physical controls	<ul style="list-style-type: none"> - inspection for evidence that institutional controls were violated or physical controls damaged 	<ul style="list-style-type: none"> - document on inspection forms 	<ul style="list-style-type: none"> - failure of physical controls to be reported per note 1 below - failure of institutional controls to be reported per note 2 below 	<ul style="list-style-type: none"> - Consultative process or periodic CERCLA review

Table 3 (continued). Present and Original Landfill Inspection and Maintenance Requirements

Note 1: For reportable conditions as defined in RFLMA Attachment 2, Section 6.0 (except in the case of failure of institutional controls), DOE will inform CDPHE and EPA within 15 days of receiving the inspection reports or validated data. Evaluation and planning for mitigating actions, if any, will be prepared and submitted as defined in RFLMA, Attachment 2, Section 6.0.

Note 2: In case of failure of institutional controls, DOE will notify EPA and CDPHE within 2 days of discovering evidence and will perform evaluation, consultation, and actions as defined in RFLMA, Attachment 2, Section 6.0.

Table 4. Institutional Controls for the Central Operable Unit

Controls	Use Restrictions
1	The construction and use of buildings that will be occupied on a permanent or temporary basis (such as for residences or offices) is prohibited. The construction and use of storage sheds or other, non-occupied structures is permitted, consistent with the restrictions contained in controls 2 and 3 below, and provided such use does not impair any aspect of the response action at Rocky Flats.
2	Excavation, drilling, and other intrusive activities below a depth of three feet are prohibited, except for remedy-related purposes and routine or emergency maintenance of existing utility easements, in accordance with pre-approved procedures.
3	No grading, excavation, digging, tilling, or other disturbance of any kind of surface soils is permitted, except in accordance with an erosion control plan (including Surface Water Protection Plans submitted to EPA under the Clean Water Act) approved by CDPHE or EPA. Any such soil disturbance will restore the soil surface to preexisting grade.
4	Surface water may not be used for drinking water or agricultural purposes.
5	The construction or operation of groundwater wells is prohibited, except for remedy-related purposes.
6	Digging, drilling, tilling, grading, excavation, construction of any sort (including construction of any structures, paths, trails or roads), and vehicular traffic are prohibited on the covers of the Present Landfill and the Original Landfill, except for authorized response actions.
7	Activities that may damage or impair the proper functioning of any engineered component of the response action, including but not limited to any treatment system, monitoring well, landfill cap, or surveyed benchmark, are prohibited.

Table 5. Ecological Sampling

Requirement	Description of Activity	Frequency	Documentation/Reporting	Exit Strategy
Sample surface water and sediment for: Ammonia Cyanide Radium-228	Collect surface water and sediment samples from Ponds A4, B5, and C2	<u>Surface water:</u> Quarterly (minimum of 3) <u>Sediment:</u> Once	Report data in quarterly and annual reports; evaluate in CERCLA Periodic Review for relevance of the data to the ecological risks and uncertainty identified in the CAD/ROD	Sampling completed and data reported. Approved by CDPHE on April 2, 2008.

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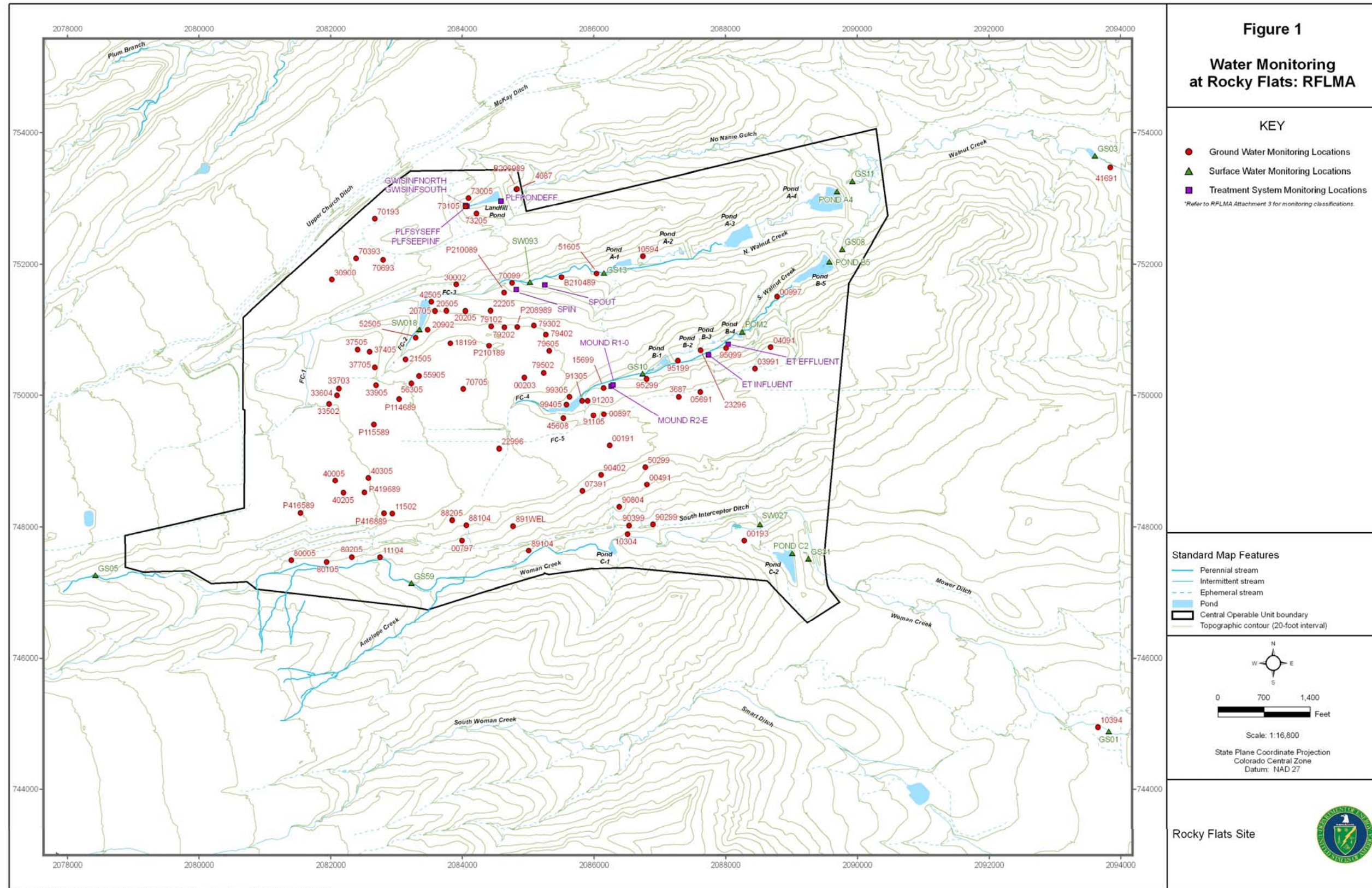
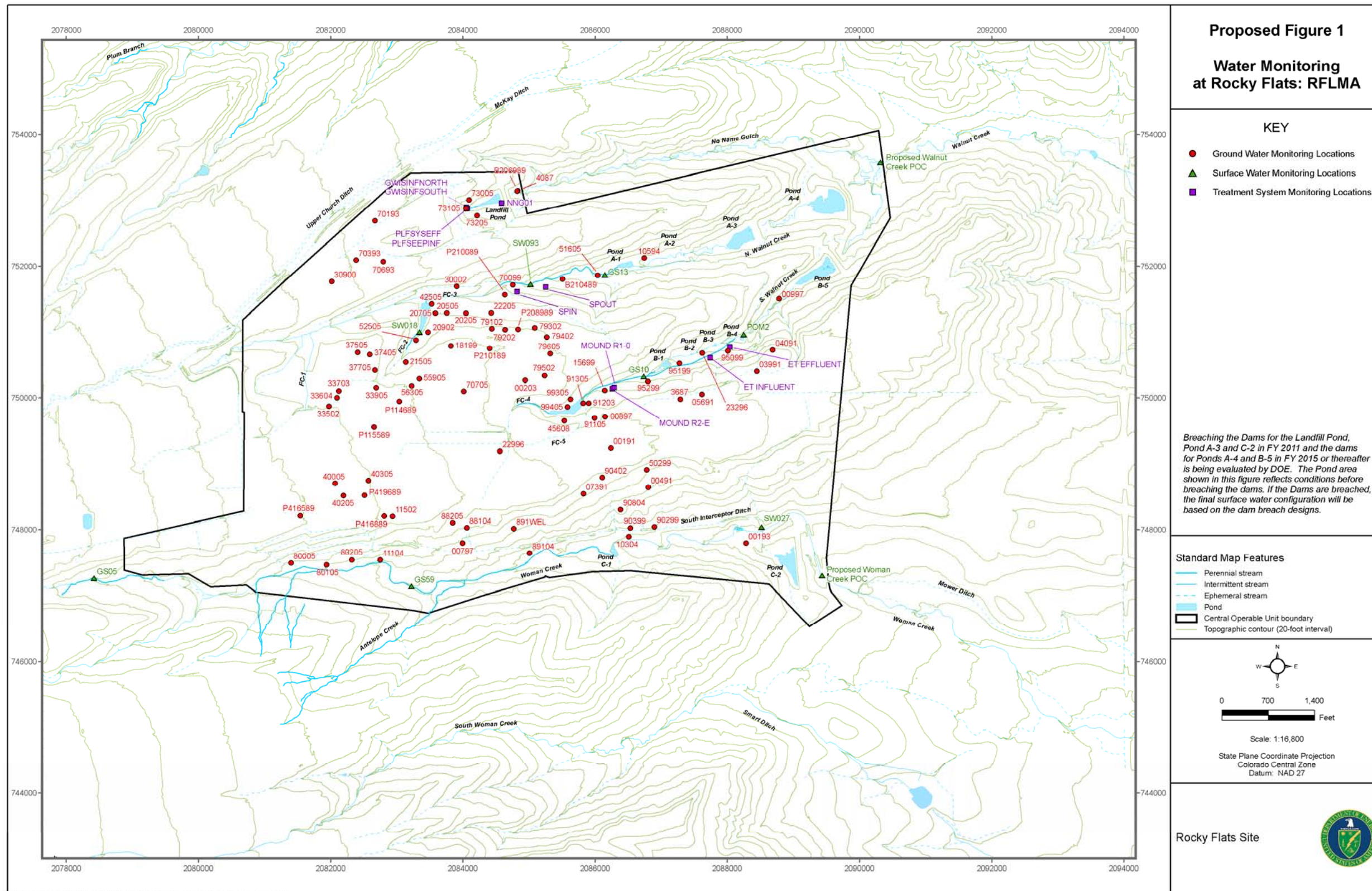


Figure 1. Water Monitoring Locations [SEE NEXT PAGE 25A FOR NEW PROPOSED FIGURE 1](#)

ROCKY FLATS LEGACY MANAGEMENT AGREEMENT



[Proposed New Figure 1. Water Monitoring at Rocky Flats](#)

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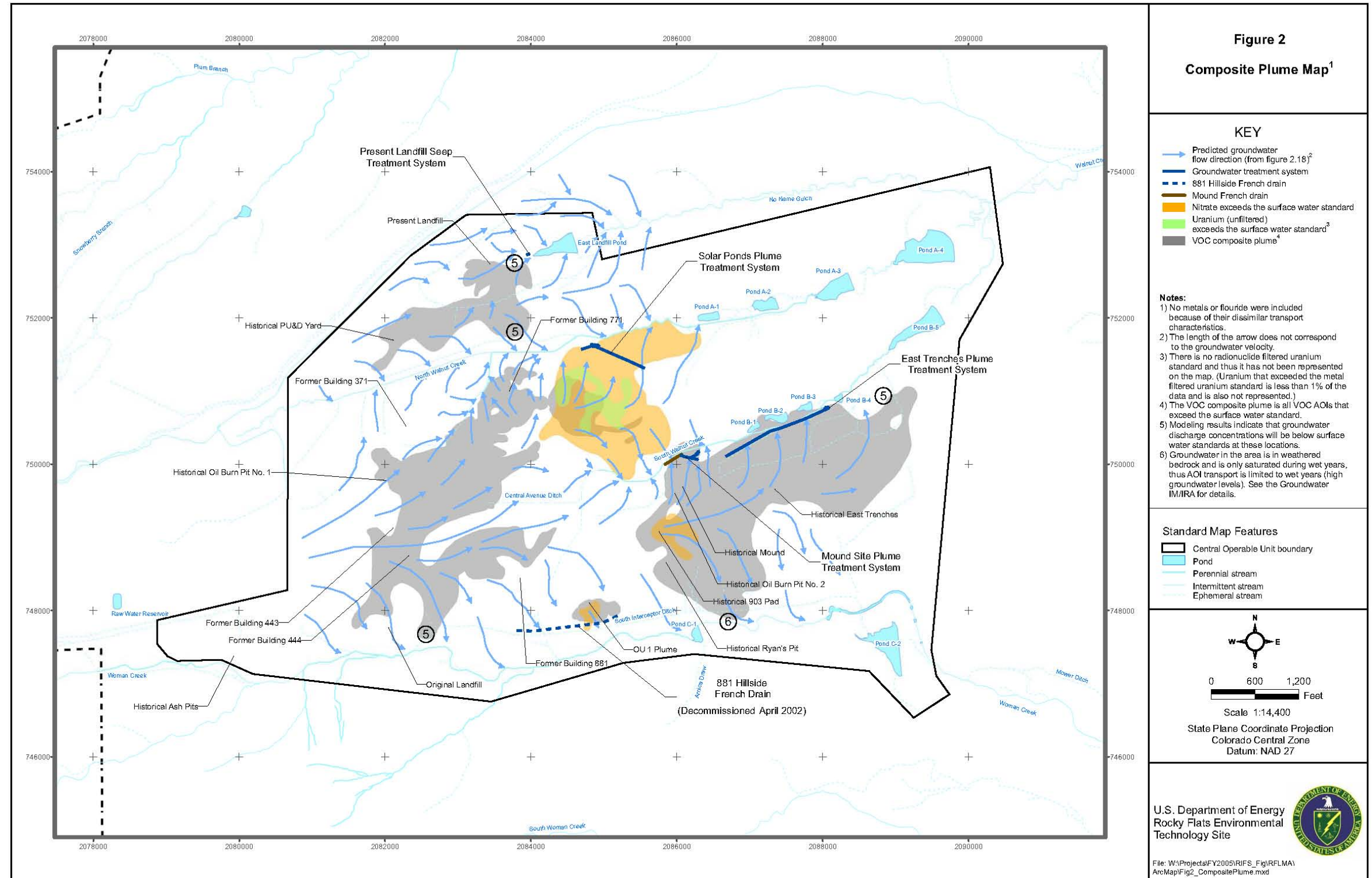


Figure 2. Composite Plume Map

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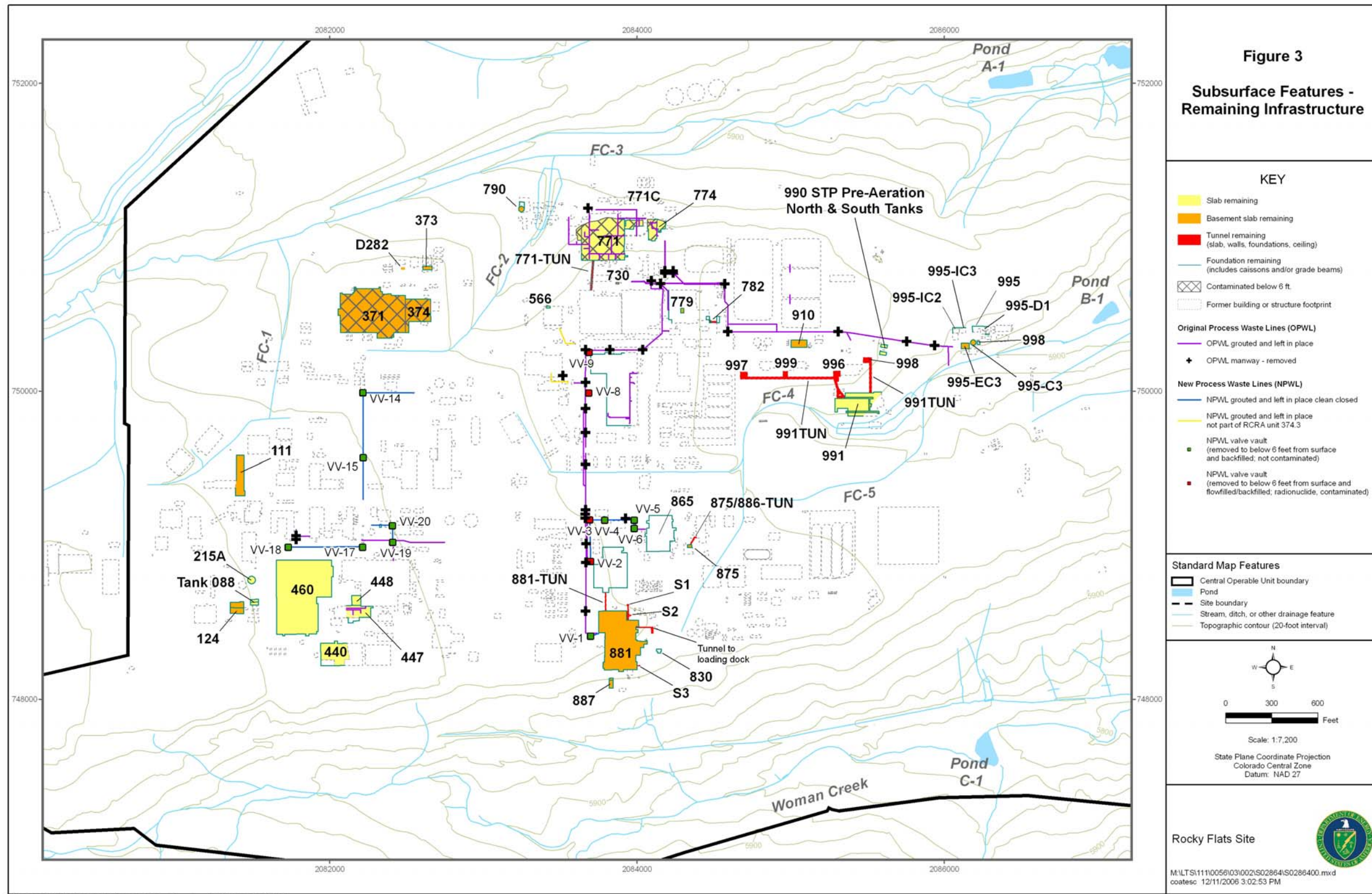


Figure 3. Subsurface Features – Remaining Infrastructure

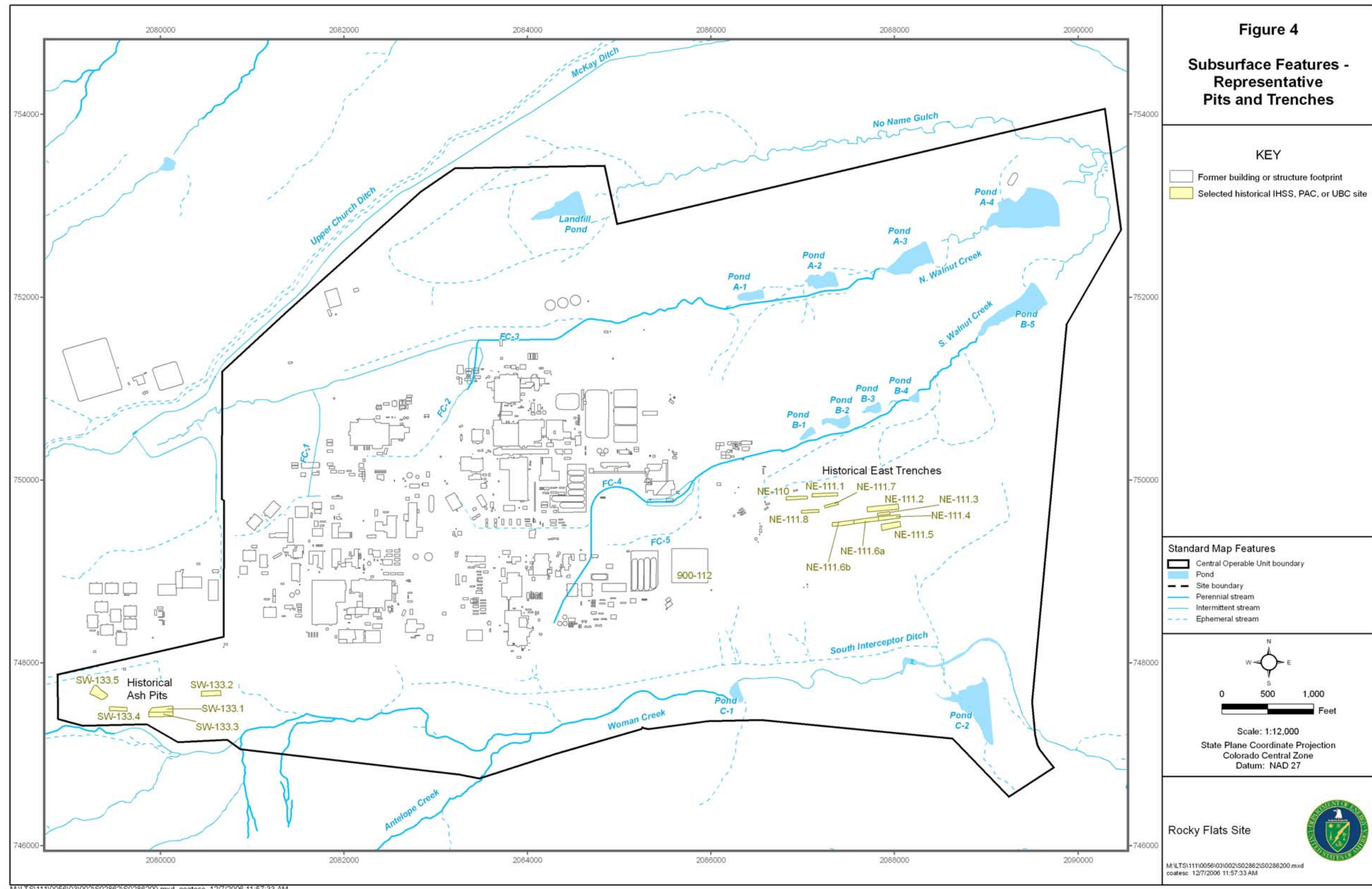
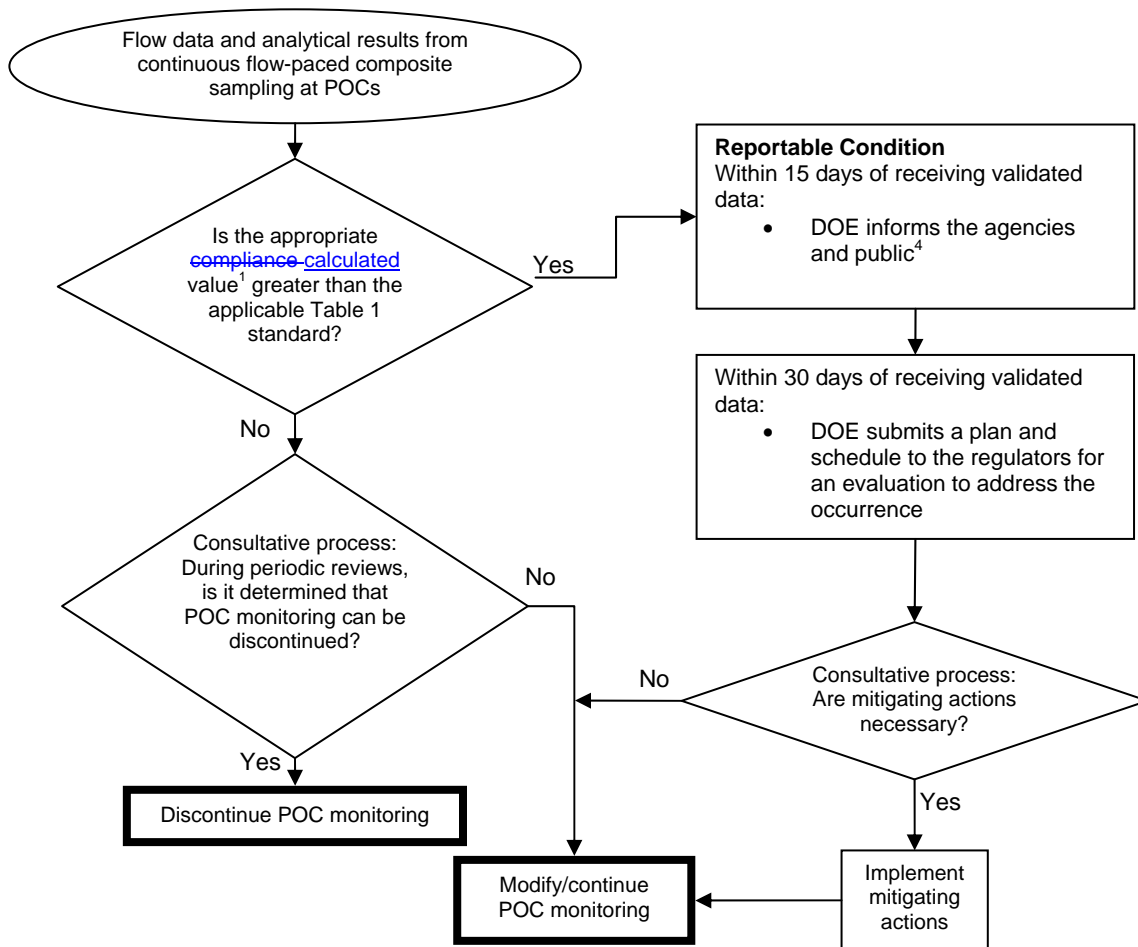


Figure 4. Subsurface Features – Representative Pits and Trenches

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Notes: see Fig. 1 and Tables 1 and 2 for locations, standards, and sampling criteria.

Calculated values for determining Reportable Condition and exceedances of remedy performance standards at POCs.

- Reportable conditions (according to Section 6.0):
 - plutonium, americium, uranium → 30-day rolling average²
 - nitrate → 85th percentile of 30-day averages³ for previous calendar year
- Reportable Conditions and evaluation of compliance with remedy performance standards in Table 1:
 - plutonium, americium, uranium → 12-month rolling average³
 - nitrate → 12-month rolling average³

¹ Appropriate Compliance Values by locations and analytes (see Table 2 for reference)

- All Indiana Street POCs:
 - plutonium, americium, uranium → 30-day average²
- All Terminal Pond POCs:
 - plutonium, americium, uranium → 12-month rolling average³
- Walnut Creek at Indiana Street POCs:
 - nitrate → 85th percentile of 30-day averages³ for previous calendar year
- Walnut Creek Terminal Pond POCs:
 - nitrate → 12-month rolling average³

² The 30-day average for a particular day is calculated as a volume-weighted average of a “window” of time containing the previous 30 days with measurable flow. Each day has its own discharge volume (measured with a flow meter) and activity/concentration (from the sample carboy in place at the end of that day). Therefore, there are 365 30-day moving averages for a location that flows all year. At locations that have intermittent flows, 30-day averages are reported as averages of the previous 30 days of greater than zero flow. For days where no analytical result is available, either due to failed laboratory analysis or non-sufficient quantity (NSQ) for analysis, no 30-day average is reported.

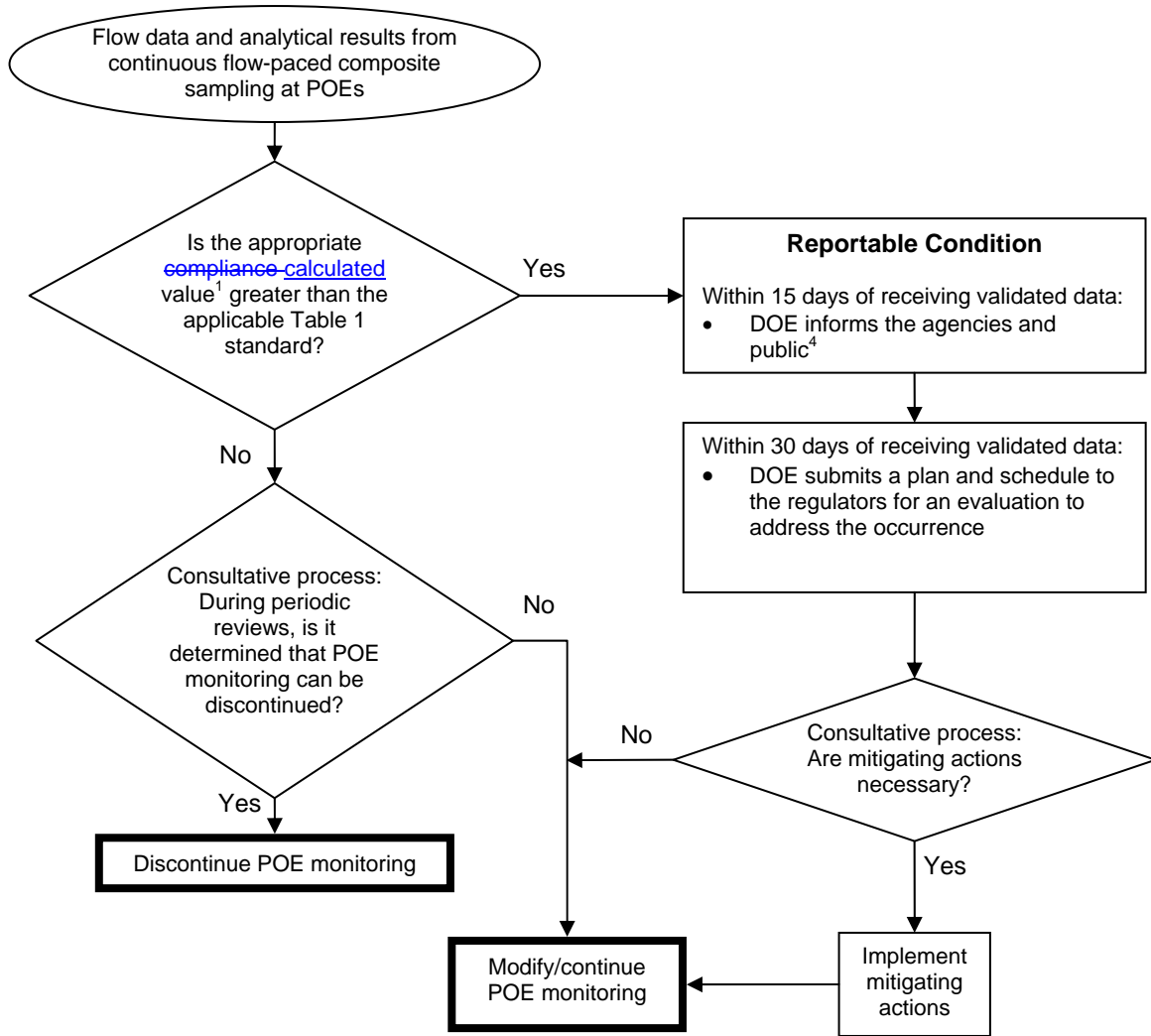
³ The 12-month rolling average for the last day of a particular month is calculated as a volume-weighted average of a “window” of time containing the previous 12 months. Each 12-month “window” includes daily discharge volumes (measured with a flow meter) and daily activities/concentrations (from the sample carboy in place at the end of that day). Therefore, there are twelve 12-month rolling averages for a given calendar year. Days with no flow or no analytical result, either due to failed laboratory analysis or NSQ for analysis, are not included in the average. When no flow has occurred in the previous 12 months, no 12-month rolling average is reported.

⁴ Agencies: EPA, CDPHE, and USFWS

Public: Cities of Broomfield, Northglenn, Thornton, and Westminster; Rocky Flats Stewardship Council (RFSC)

Figure 5. Points of Compliance

ROCKY FLATS LEGACY MANAGEMENT AGREEMENT



Notes: see Fig. 1 and Tables 1 and 2 for locations, standards, and sampling criteria.

¹ Appropriate Compliance Calculated Values by analytes (see Table 2 for reference)

- plutonium, americium, uranium → 12-month rolling average²
- dissolved Cd and Ag, total Be and Cr → 85th percentile of 30-day averages³ for previous calendar year

² The 12-month rolling average for the last day of a particular month is calculated as a volume-weighted average of a "window" of time containing the previous 12 months. Each 12-month "window" includes daily discharge volumes (measured with a flow meter) and daily activities/concentrations (from the sample carboy in place at the end of that day). Therefore, there are twelve 12-month rolling averages for a given calendar year. Days with no flow or no analytical result, either due to failed laboratory analysis or NSQ for analysis, are not included in the average. When no flow has occurred in the previous 12 months, no 12-month rolling average is reported.

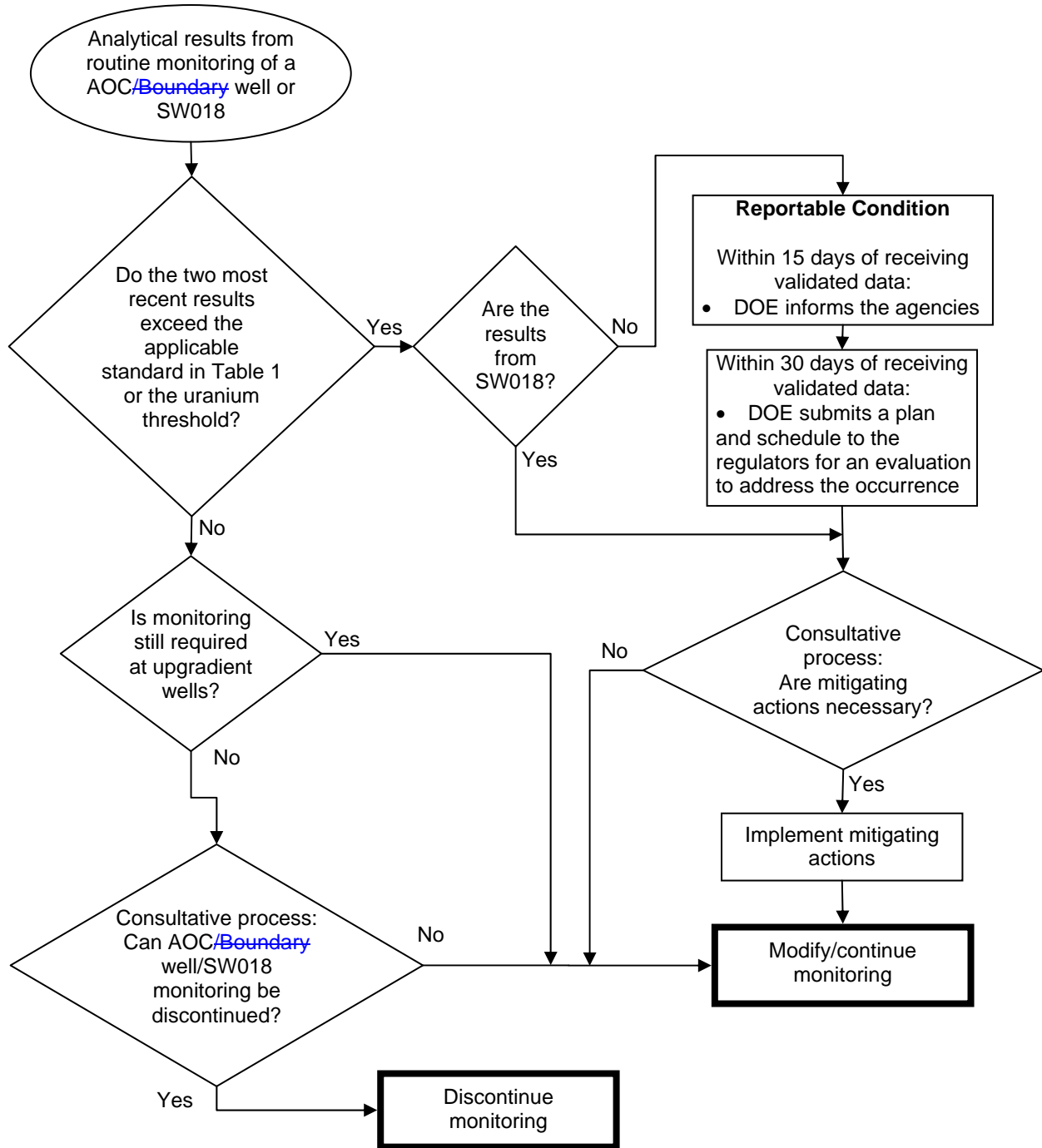
³ The 30-day average for a particular day is calculated as a volume-weighted average of a "window" of time containing the previous 30-days with measurable flow. Each day has its own discharge volume (measured with a flow meter) and activity/concentration (from the sample carboy in place at the end of that day). Therefore, there are 365 30 day moving averages for a location that flows all year. At locations that have intermittent flows, 30-day averages are reported as averages of the previous 30 days of greater than zero flow. For days where no analytical result is available, either due to failed laboratory analysis or NSQ for analysis, no 30-day average is reported.

⁴ Agencies: EPA, CDPHE, and USFWS

Public: Cities of Broomfield, Northglenn, Thornton, and Westminster; Rocky Flats Stewardship Council (RFSC)

Figure 6. Points of Evaluation

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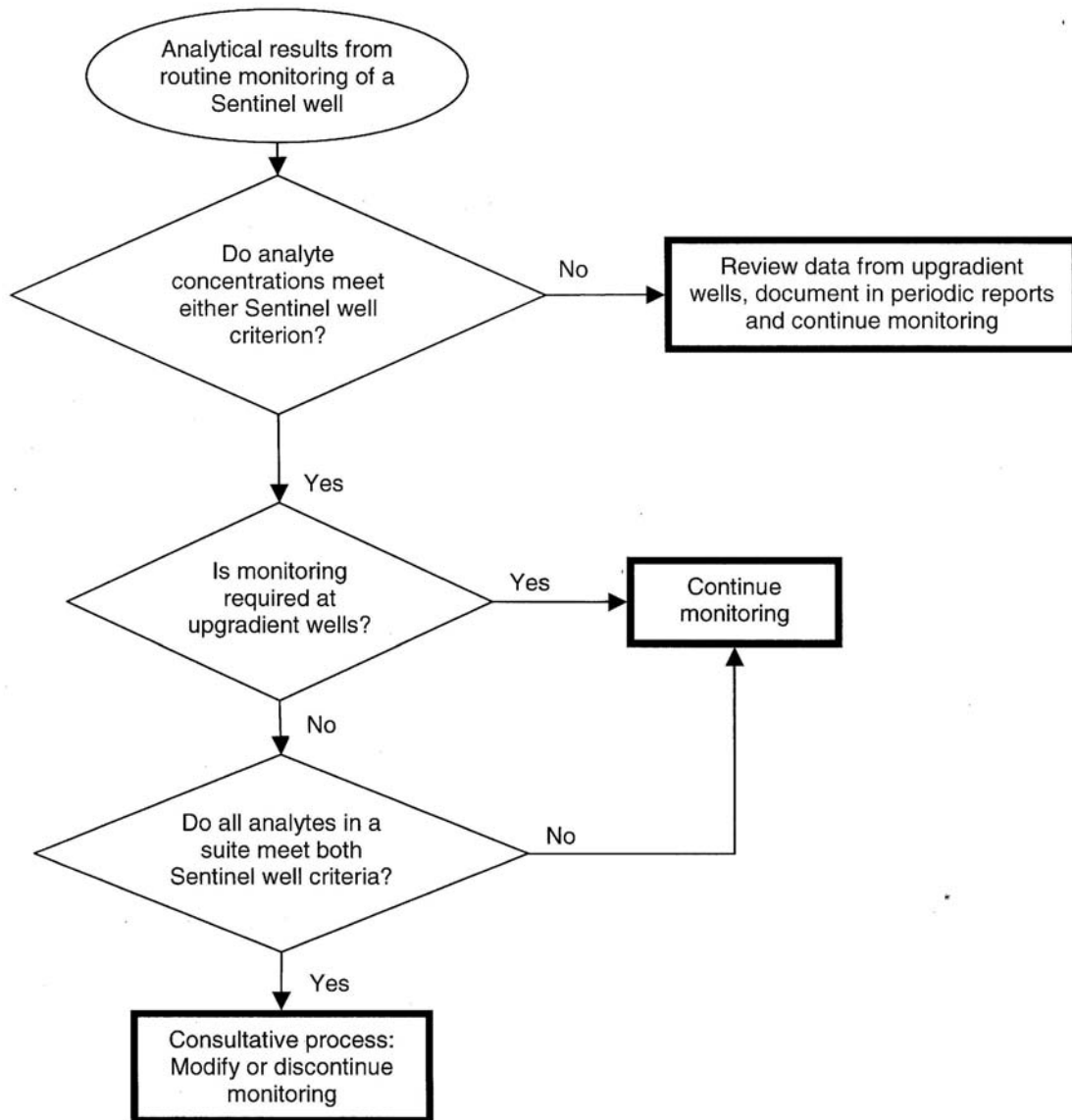


Notes: see Fig. 1 and Tables 1 and 2 for locations, standards, and sampling criteria.

- AOC wells and location SW018 are sampled twice each year; see Table 2.
- ~~Boundary wells are sampled once each year; see Table 2. These wells are not part of the remedy, but are a component of operational monitoring.~~
- Decisions related to uranium in ground water are based upon a ~~16 ug/L threshold for Boundary wells (basis: the 11 pCi/L standard) and a~~ 120 ug/L threshold for AOC wells (basis: a grand mean of results from Site-wide high-resolution uranium analyses performed in the late 1990s through mid-2000s), rather than the standard in Table 1.

Figure 7. Area of Concern Wells, ~~Boundary Wells~~, and SW018

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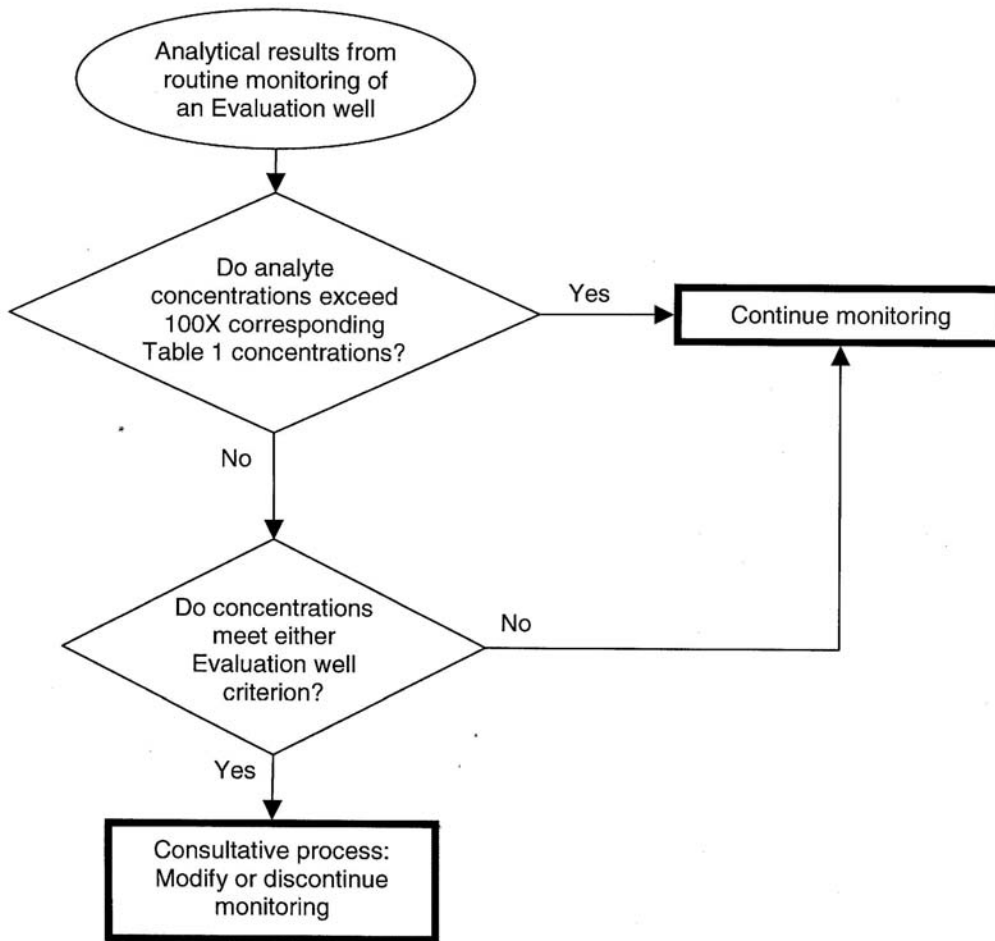
Notes: see Fig. 1 and Tables 1 and 2 for locations, standards, and sampling criteria.

- Sentinel wells are sampled twice each year; see Table 2.
- Decisions related to uranium are based upon a 120 ug/L threshold for AOC wells (basis: a grand mean of results from Site-wide high-resolution uranium analyses performed in the late 1990s through mid-2000s), rather than the standard in Table 1.

Sentinel Well Criteria

1. The 85th percentile concentration of an analyte is less than or equal to the corresponding concentration in Table 1 or, for uranium, the 85th percentile concentration does not exceed 2x120 ug/L or the highest calendar year 2005 concentration, whichever is higher.
2. Analyte concentrations exhibit an indeterminate or statistically-significant *decreasing* trend at the 95% confidence level.

Figure 8. Sentinel Wells



Notes: see Fig. 1 and Tables 1 and 2 for locations, standards, and sampling criteria.

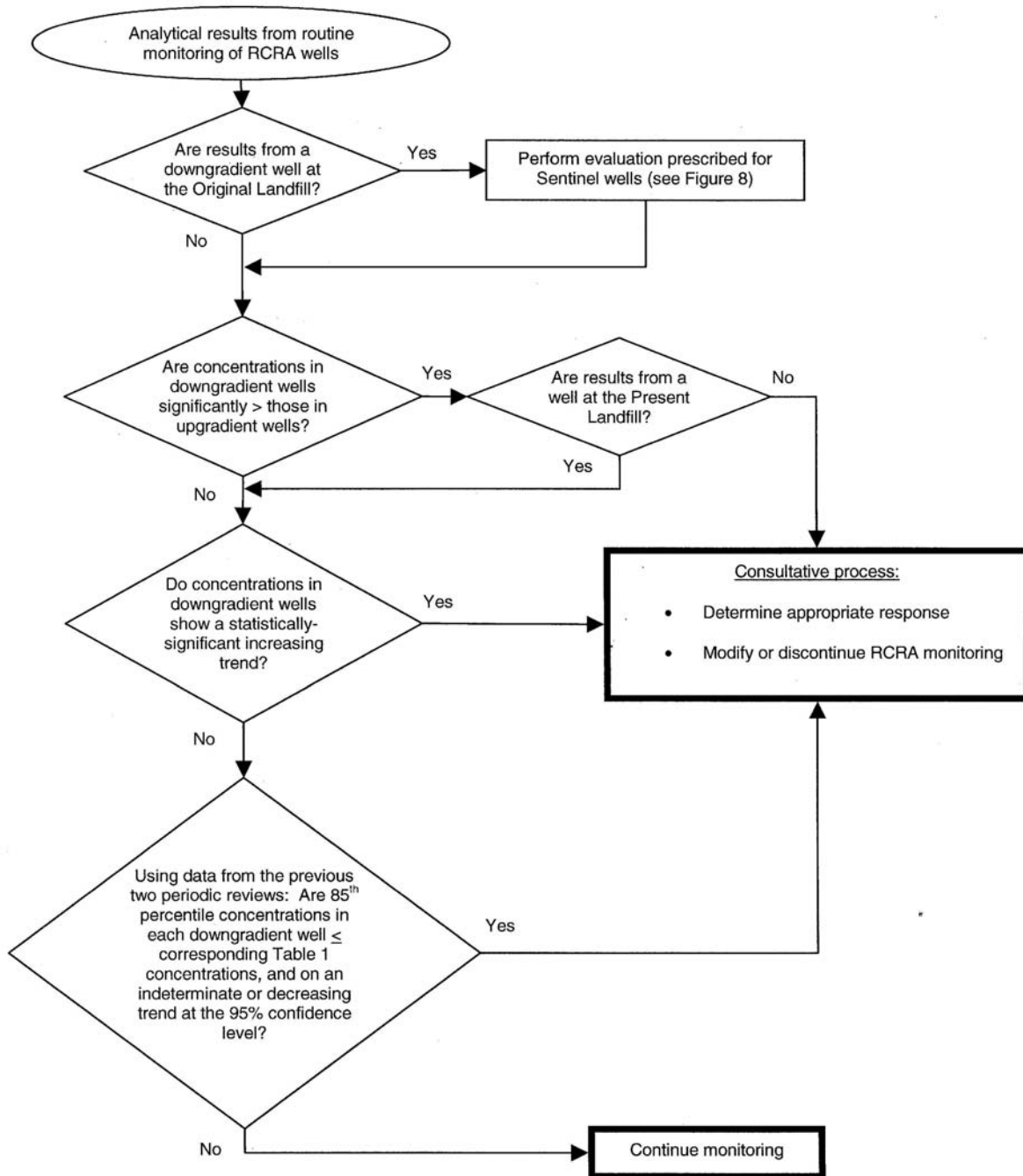
- Evaluation wells are listed in Table 2.

Evaluation Well Criteria:

1. The 85th percentile concentration of an analyte is less than or equal to the corresponding concentration in Table 1, or, for uranium, 240 ug/L or highest pre-CY05 concentration, whichever is higher.
2. Analyte concentrations exhibit an indeterminate or statistically-significant *decreasing* trend at the 95% confidence level.

Figure 9. Evaluation Wells

ROCKY FLATS LEGACY MANAGEMENT AGREEMENT



Notes: see Fig. 1 and Tables 1 and 2 for locations, standards, and sampling criteria. RCRA wells are sampled quarterly; see Table 2.

Figure 10. RCRA Wells

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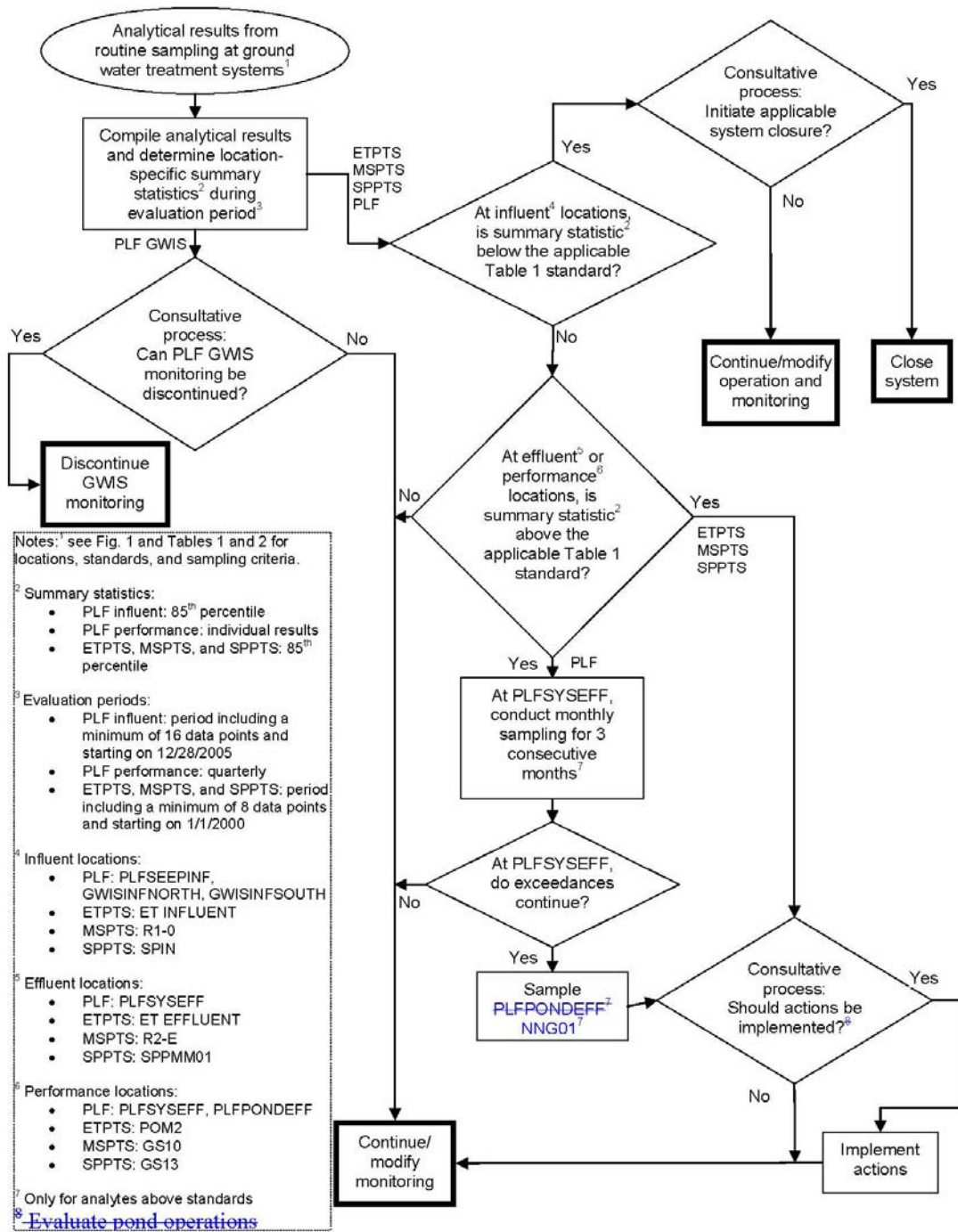


Figure 11. Groundwater Treatment Systems

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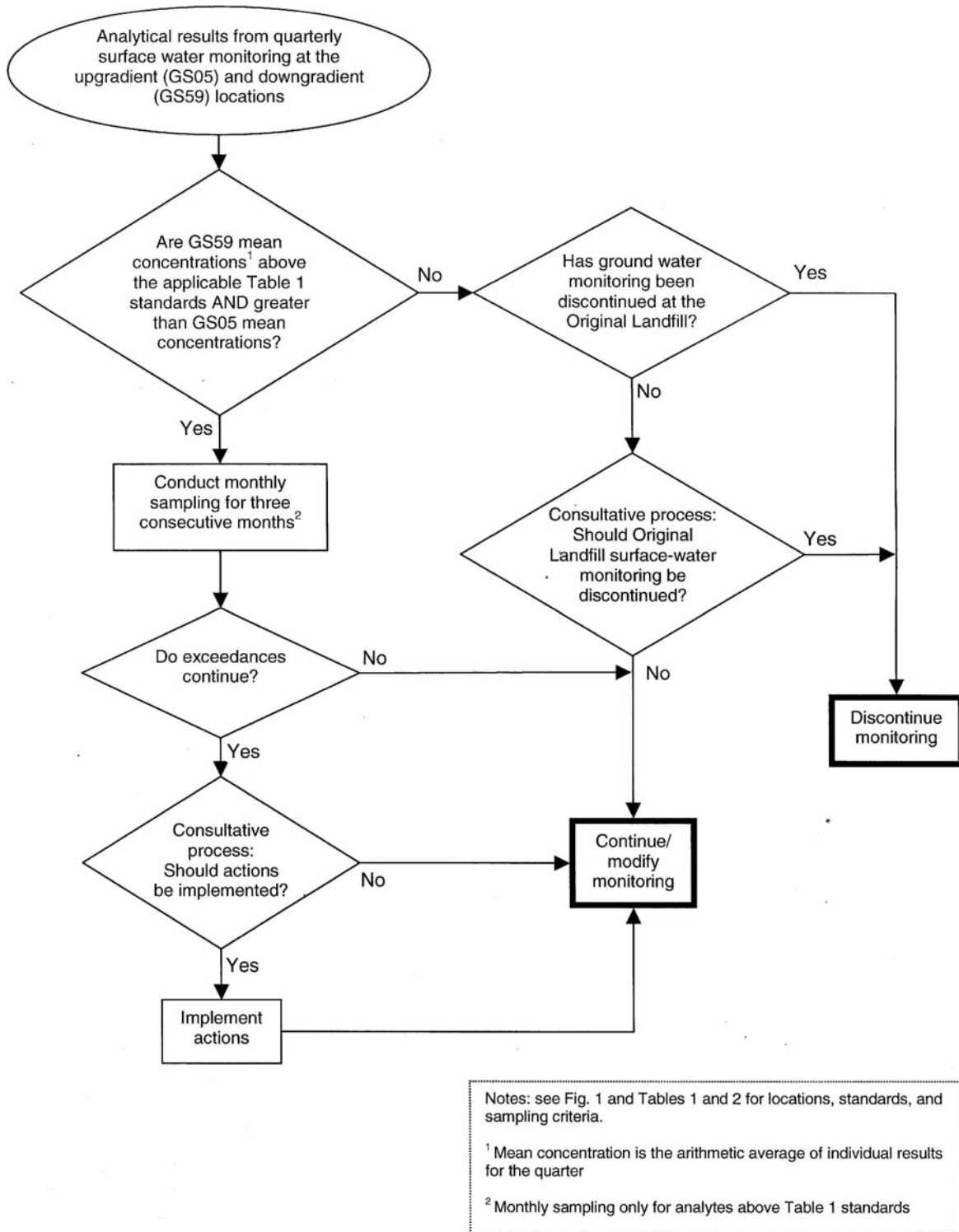
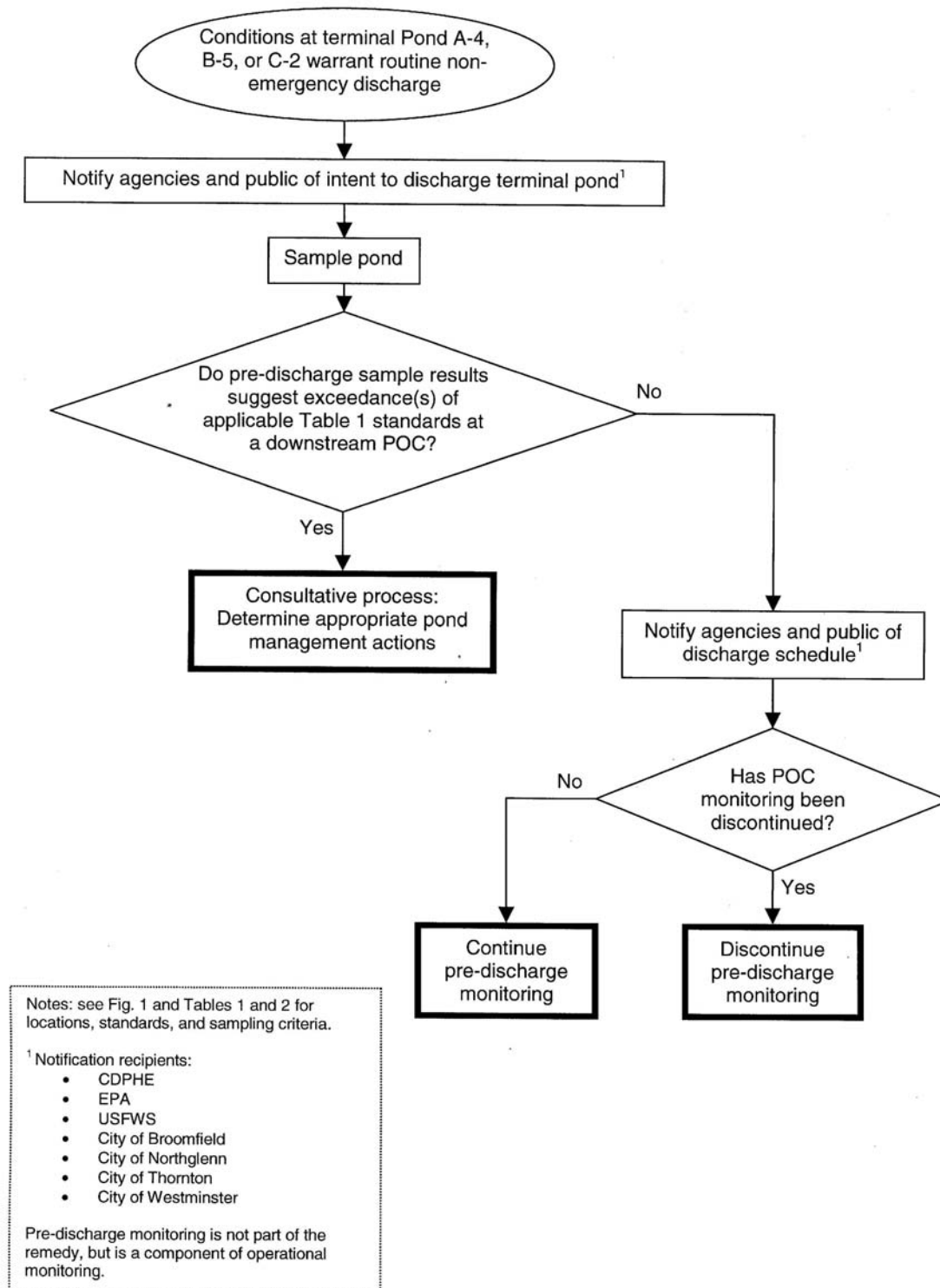


Figure 12. Original Landfill Surface Water

ROCKY FLATS LEGACY MANAGEMENT AGREEMENT



NOTE: THIS FIGURE DELETED

Figure 13. Pre-discharge Pond Sampling

ROCKY FLATS SITE REGULATORY CONTACT RECORD

Purpose: Rocky Flats Legacy Management Agreement Attachment 2: Modification to Revise Monitoring Points

Contact Record Approval Date: July 15, 2010

Site Contact(s)/Affiliation(s): Scott Surovchak, U.S. Department of Energy (DOE); Linda Kaiser, S.M. Stoller; John Boylan, S.M. Stoller; George Squibb, S.M. Stoller; Rick DiSalvo, S.M. Stoller

Regulatory Contact(s)/Affiliation(s): Carl Spreng, Colorado Department of Public Health and Environment (CDPHE)

Introduction: This Contact Record documents the Rocky Flats Legacy Management Agreement (RFLMA) parties' consultation regarding proposed changes to RFLMA required monitoring points. The RFLMA monitoring points are incorporated in RFLMA Attachment 2, *Legacy Management Requirements*, and DOE proposes to eliminate certain monitoring points and establish new monitoring points as discussed in the Contact Record.

This Contact Record does not constitute approval of the proposed changes to RFLMA monitoring points discussed herein. The proposed changes to RFLMA Attachment 2 are subject to regulatory approval under RFLMA paragraph 65. The parties agreed that in accordance with RFLMA paragraph 66, the proposed changes to monitoring points will be subject to public review and comment, as discussed below.

The proposed changes are prompted for two main reasons. First, the U.S. Environmental Protection Agency (EPA), with CDPHE concurrence, deleted the Peripheral Operable Unit (POU) from the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) National Priority List (NPL) on May 25, 2007, and no further response action is required for the POU. DOE subsequently transferred jurisdiction and control of most of the land in the POU to the U.S. Fish and Wildlife Service for the establishment of the Rocky Flats National Wildlife Refuge. Thus, monitoring and compliance points in the POU are no longer on the NPL site.

Second, RFLMA anticipates moving the surface water points of compliance (POCs) if the terminal ponds are breached or other changes to site configuration force their relocation. DOE is preparing the *Rocky Flats Surface Water Configuration Environmental Assessment (EA)* to evaluate environmental impacts related to breaching the remaining dams. DOE released a draft EA for public review and comment from April 26, 2010, through June 1, 2010. RFLMA Contact Record 2010-02 also provides information related to the proposed dam breach work.

The remaining dams are Dams A-3 and A-4 (located in North Walnut Creek), Dam B-5 (located in South Walnut Creek), Dam C-2 (located at the end of the South Interceptor Ditch north of Woman Creek), and the Present Landfill (PLF) Dam (located in No Name Gulch) that retain surface water in retention ponds that are not necessary to site operations and are not a requirement of the remedy. RFLMA Attachment 2 provides that if the terminal ponds (Ponds A-4, B-4, and C-2) dams are breached, new monitoring and compliance points will be established.

In addition, DOE has historically operated the terminal ponds in a batch and release mode. Though not required by the remedy, RFLMA Attachment 2, section 5.4, “Operational Monitoring,” requires DOE to sample and evaluate terminal pond water quality prior to batch release (unless an emergency release is warranted). In the EA, DOE evaluates operating the terminal ponds in flow-through mode for the next several years prior to actually breaching the dams.

Thus, as required by RFLMA, the proposed changes to monitoring points address where new monitoring and compliance points will be located considering DOE’s proposed action to breach the terminal ponds. Also, the proposed changes to monitoring locations include elimination of pre-discharge sampling in the terminal ponds.

Figures 1 and 2 in this Contact Record also show the current required monitoring locations, the monitoring locations that DOE proposes to eliminate, and DOE’s proposed new monitoring locations. The relevant monitoring locations are listed in Table 1 as well. Figures 1 and 2 also show the locations of the remaining ponds and dams and the approximate footprints of the construction areas for the proposed dam breach based on the preliminary design used in preparing the EA.

In addition to the main reasons for the proposed monitoring locations discussed above, the following items are also pertinent to the proposed changes:

- The proposed locations maintain the ability to evaluate the quality of surface water leaving the site in order to determine whether the remedy remains adequately protective of human health and the environment.
- The decision frameworks in the RFLMA Attachment 2 monitoring point evaluation flowcharts will be followed for reporting and consultation to implement response actions as appropriate when specified compliance values are exceeded.
- Compliance values are based on the surface water standards in RFLMA Attachment 2, Table 1.
- Boundary wells, which are located in the POU where no further response action is required, are remote from groundwater sources of contamination and are not used for POC monitoring.
- Having fewer routine sampling locations increases efficiency and reduces the need to enter the Refuge for monitoring and maintenance work.
- The monitoring locations within the Refuge are also in the possible route of the proposed Jefferson Parkway (see, www.jppha.org), so changes to locations need to be considered to accommodate the proposed Parkway routing.
- The Colorado Water Quality Control Commission moved the eastern end of Big Dry Creek Segment 5 (which includes Walnut Creek) to the eastern Central Operable Unit boundary as part of the 2009 triennial review of the Classifications and Numeric Standards for South Platte River Basin—Regulation 38 (5 CCR 1002-38), and the proposed Walnut Creek monitoring location will remain in Segment 5.

On January 18, March 29, and April 27, 2010, DOE and CDPHE staff consulted regarding DOE’s proposed changes to monitoring points. DOE and CDPHE have also continued to discuss the proposed changes during the public review and comment period for the draft EA.

The RFLMA parties agreed that the proposed RFLMA Attachment 2 modification will be released for a 30-day public review and comment period. The parties also agreed that a public information meeting regarding the proposed modification will also be scheduled to occur during the public comment period.

The RFLMA parties also agreed that the dates upon which the specific changes to monitoring locations become effective would be included in any approval decision by CDPHE and EPA regarding DOE's proposed modification.

Discussion: Some of the monitoring locations subject to the proposed modification are identified in the Corrective Action Decision/Record of Decision (CAD/ROD) and are incorporated into RFLMA Attachment 2. Other monitoring locations are only identified in RFLMA Attachment 2. The proposed monitoring point changes will therefore require EPA and CDPHE approval.

The following excerpts are relevant to the proposed monitoring point changes:

Pursuant to the CAD/ROD Section 17, "Selected Remedy/Corrective Action for the Central OU":

[Points of Compliance (POCs)] ... are currently established in Walnut and Woman Creeks at Indiana Street and at the outfalls of the terminal ponds (Ponds A-4, B-5, and C-2). POCs will remain at these points unless changes in site configuration (such as removal of the terminal ponds or the construction of a new highway along Indiana Street) force their relocation.

While the example of the removal of the terminal ponds is used to illustrate a change in site configuration, the deletion of the POU from the NPL site and determination that no further response action is required in the POU is also a site configuration change.

RFLMA Attachment 2, Section 5.1, "Monitoring Surface Water," provides the following direction:

Compliance with the surface-water standards in Table 1 will be measured at the Points of Compliance (POCs) downstream of the terminal ponds in Woman and Walnut Creeks. If the terminal ponds are removed, new monitoring and compliance points will be designated and will consider groundwater in alluvium.

In addition to the changes to monitoring locations, the installation of flumes at the proposed new monitoring locations will involve excavations deeper than 3 feet below the surface, which is prohibited by RFLMA institutional controls (ICs) unless approved by CDPHE. This Contact Record provides information requested by CDPHE for approval of excavations deeper than 3 feet below the surface.

Table 1. RFLMA Monitoring Locations Proposed for Changes

ID	Location	Identified in CAD/ROD	Required by RFLMA	Proposed Change
GS01	Surface water Point of Compliance (POC)—Woman Creek at Indiana St.	Yes	Yes	Remove—not part of NPL site. POC is upstream in Woman Creek at the Central Operable Unit (COU) boundary. GS01 is in the Northwest Parkway proposed route.
GS03	Surface water POC—Walnut Creek at Indiana St.	Yes	Yes	Remove—not part of NPL site. POC is upstream in Woman Creek at COU boundary. GS03 is in the Northwest Parkway proposed route.
GS08	Surface water POC—South Walnut Creek at outfall of Pond B-5	Yes	Yes	Replace with new POC near COU boundary at confluence of North and South Walnut Creeks. Compliance value remains based on 12-month rolling average, but DOE will use 30-day rolling average to trigger consultation with CDPHE on whether mitigating actions are required.
GS11	Surface water POC—North Walnut Creek at outfall of Pond A-4	Yes	Yes	Replace with new POC near COU boundary at confluence of North and South Walnut Creeks. Compliance value remains based on 12-month rolling average, but DOE will use 30-day rolling average to trigger consultation with CDPHE on whether mitigating actions are required.
GS31	Surface water POC—At outfall of Pond C-2 upstream of Woman Creek	Yes	Yes	Replace with new POC in Woman Creek near COU boundary. Compliance value remains based on 12-month rolling average, but DOE will use 30-day rolling average to trigger consultation with CDPHE on whether mitigating actions are required.
PLFPONDEF F	Surface water grab sample location to determine water quality downstream of Present Landfill Treatment System if treatment system effluent exceeds RFLMA standards	No	Yes	A new sampling point ID will be assigned. Grab sample location will be in No Name Gulch near the proposed PLF dam notch after notching. This is the approximate downstream location of the current PLFPONDEFF location.
Pond A-4	Operational monitoring surface water grab sample location for pre-discharge sampling	No	Yes	Remove—operational monitoring not needed; pre-discharge sampling no longer relevant once surface water flow-through condition is restored.
Pond B-5	Operational monitoring surface water grab sample location for pre-discharge sampling	No	Yes	Remove—operational monitoring not needed; pre-discharge sampling no longer relevant once surface water flow-through condition is restored.
Pond C-2	Operational monitoring surface water grab sample location for pre-discharge sampling	No	Yes	Remove—operational monitoring not needed; pre-discharge sampling no longer relevant once surface water flow-through condition is restored.

ID	Location	Identified in CAD/ROD	Required by RFLMA	Proposed Change
Well 10394	Operational monitoring Boundary well near POC GS01	No	Yes	Abandon—not part of NPL site. Area of Concern wells inside COU meet groundwater point of compliance regulatory standard. Well is in the Northwest Parkway proposed route.
Well 41691	Operational monitoring Boundary well near POC GS03	No	Yes	Abandon—not part of NPL site. Area of Concern wells inside COU meet groundwater POC regulatory standard. Well is in the Northwest Parkway proposed route.

DOE intends to install monitoring equipment at the proposed new POC locations to have these locations operational before work begins on the surface water configuration project. Current monitoring locations will be sampled as required by RFLMA until the time monitoring at current locations is to be discontinued in accordance with any approved RFLMA Attachment 2 modifications.

Proposed RFLMA Attachment 2 Modifications: The following information provides more detail for the proposed changes outlined in Table 1.

Surface Water POCs—As outlined above, adjusting the location of the POCs to the edge of the COU is a consequence of deleting the POU from the NPL, establishing the Wildlife Refuge, and moving the boundary of the DOE-managed property. State and federal guidance for POCs (for groundwater, but the concepts and principles are the same for surface water) require locating them at or as close as possible to the "waste management area" boundary. CERCLA requires that remedial actions at CERCLA sites at least attain legally applicable or relevant and appropriate federal and state requirements, standards, criteria, and limitations, which are collectively referred to as ARARs. ARARs are in the Rocky Flats CAD/ROD, Table 21, and include the Colorado Water Quality Control Commission (WQCC) statewide basic standards in Regulation No. 31 (5 CCR 1002-31), site-specific standards in WQCC Regulation No. 38 (5 CCR 1002-38), and groundwater standards in Regulation No. 41 (5 CCR 1002-41).

The Area of Concern (AOC) wells satisfy the ARAR in Regulation No. 41 for groundwater POCs. However, surface water POCs are not identified in Regulation No. 31 or No. 38, or in the Rocky Flats CAD/ROD ARARs, but are established in accordance with the remedial action, implemented under RFLMA. Under CERCLA guidance, compliance with surface water ARARs is measured at an appropriate point considering groundwater impacts to surface water within the NPL site boundary.

RFLMA Attachment 2 Section 5.1 states that new POCs will consider groundwater in alluvium. The draft EA describes that the proposed dam breach design is to notch, rather than completely remove the dams. The remaining structures will continue to effectively capture alluvial groundwater and direct it towards the surface water flowing through the notches so that it will be measured at the POCs. The proposed new POCs, like the current POCs, are downgradient of the AOC wells. They are also proposed to be located downstream of the notches proposed to breach the dams. Thus, the proposed new POCs are positioned to evaluate contaminated groundwater in the alluvium reaching the stream. No change to Section 5.1 is warranted and none is proposed.

Boundary Wells—Because the boundary wells are located outside the COU, DOE proposes to abandon them. RFLMA Attachment 2 Section 5.4.1 and the evaluation criteria for boundary well sampling

results presented in Figure 7 are proposed to be deleted; Figure 7 will be revised to only address AOC wells and SW018 sampling results evaluation criteria. RFLMA Attachment 2 Section 5.4.1 explains that the boundary wells are used to demonstrate that contaminants are not migrating off site in groundwater. However, contaminated groundwater migrates by discharging to surface water. The AOC wells, which are downgradient of contaminant plumes, adjacent to surface water features, together with the proposed surface water POCs downgradient of the AOC wells provide adequate monitoring information to determine if contamination in groundwater is migrating off site. The AOC wells inside the COU are much closer than the boundary wells to source areas, and the AOC wells therefore allow earlier detection of contaminant migration.

Pre-discharge Sampling for Terminal Ponds—The procedure and terminology in RFLMA Attachment 2 Section 5.4.2 refers to terminal pond pre-discharge sampling and providing notification to allow CDPHE and EPA to collect split or duplicate samples. While the pre-discharge sampling would be obviated by breaching the dams, the RFLMA Attachment 2 Section 5.4.2 text will be revised to provide for CDPHE and EPA to collect split or duplicate samples at the POCs. RFLMA Attachment 2 Figure 13, which contains the evaluation criteria for pre-discharge pond sampling results, is proposed to be deleted.

Determining Exceedances at POCs—In accordance with Note 1 of Figure 5 in RFLMA Attachment 2, plutonium, americium, and uranium concentrations in samples taken at GS01 and GS03 (and nitrate, when required at GS03) are measured by calculating the 30-day rolling average of the flow-paced sampling (and grab sampling for nitrate) results. For samples taken at GS08, GS11, and GS31 (and nitrate at GS08 and GS11) plutonium, americium, and uranium concentrations are measured by calculating the 12-month rolling average of the flow-paced sampling (and grab sampling for nitrate) results. For the proposed new POCs, the 30-day and 12-month averages will still be calculated and an exceedance of applicable remedy performance standards by either of these calculated values will constitute a reportable condition under RFLMA Attachment 2, Section 6.0. Exceedance of the 30-day rolling averages would trigger timely implementation of the RFLMA party consultation process in accordance with RFLMA paragraph 11 to determine the actions or direction to be taken. The 12-month rolling averages will be used to determine compliance with the remedy performance standards for surface water (RFLMA Attachment 2, Table 1). The criteria for determining exceedances in Figure 5 are proposed to be revised accordingly.

PLF Treatment System Evaluation—The protocols in RFLMA Attachment 2 Figure 11, which contains the evaluation criteria for treatment system sampling results, include collecting a grab sample from the PLF Pond (designated PLFPONDEFF) if three consecutive monthly samples of PLF Treatment System effluent indicate an exceedance for a monitored analyte. Once the PLF Dam is notched, the pond will be eliminated and a new sampling location established just upstream of the notch in the dam, at approximately the same place as the current location.

The proposed modification to RFLMA Attachment 2 released for public review and comment will contain other changes made for internal consistency. For example, the map (RFLMA Attachment 2, Figure 1) and table of water monitoring locations (RFLMA Attachment 2, Table 2) will be revised to reflect the monitoring location changes.

Excavation Work: Excavation to install the flumes in the stream channels for the proposed new POC locations is discussed below, and CDPHE agreed that the flume installation in these locations could proceed. However, the effective date for these locations to become POCs will be included in any approval decision by CDPHE and EPA regarding DOE's proposed modification. As a practical matter,

the planning and design work will take time to complete, but DOE intends to plan for this work during the upcoming construction season. However, these locations are not approved as the new POCs until RFLMA Attachment 2 modification designating them as POCs is approved.

The proposed excavation work will exceed the 3-foot depth limit established by ICs (RFLMA Attachment 2, Table 4, Control 2) and thus requires pre-approved procedures. The objective of IC 2 regarding excavations with a depth that exceeds 3 feet is to maintain the current depth to subsurface contamination or contaminated structures. This IC also results in achieving compliance with the CDPHE risk management policy of ensuring that residual risks to the site user are at or below 1×10^{-6} excess lifetime cancer risk. As discussed below, the proposed work achieves the risk management policy goal.

The flume construction will include excavation to install concrete footers for the flume. The soils removed for footer construction will be used for backfill, and any excess soil will be used in the construction area for recontouring and revegetation. Any excess soil could also be used for revegetation and minor recontouring in the COU to maintain and improve erosion controls.

The fill placement will be in conformance with the ICs, and the final elevations of areas receiving fill, after fill placement and reseeding, are expected to be above the existing elevations. Erosion controls for the excavation, construction, and fill activities will be employed in accordance with the *Erosion Control Plan for Rocky Flats Property Central Operable Unit*, DOE-LM/1497-2007, July 2007.

CDPHE has requested that the following information be included in Contact Records for soil excavation related to IC 2 that will not return soil to the preexisting grade:

1. Provide information about any remaining subsurface structures in the vicinity so that the minimum cover assumption will not be violated (or state that there are none if that is the case).

There are no subsurface building or tunnel structures near the flume locations. The soil surface will be returned to approximately pre-existing grades.

2. Provide information about any former Individual Hazardous Substance Sites or Potential Areas of Concern (IHSSs/PACs) or other known soil or groundwater contamination in the vicinity (or state that there is no known contamination).

The locations are not in any former IHSSs/PACs. The proposed new Walnut Creek POC is located in the Upper Walnut Drainage Exposure Unit (EU). The proposed new Woman Creek POC is located in the Lower Woman Drainage EU. The EUs were evaluated as part of the Remedial Investigation/Feasibility Study (RI/FS) and documented in the RI/FS Appendix A, "Comprehensive Risk Assessment" (CRA).

The results of the CRA for the Upper Walnut Drainage EU are in Volume 7 of Appendix A. Benzo(a)pyrene was identified as the only contaminant of concern (COC) for surface soil/surface sediment in this EU. No COCs were identified for subsurface soil. Benzo(a)pyrene was not directly associated with any Rocky Flats Site historical source areas but could be associated with traffic, paving, or pavement degradation prior to closure. The calculated risk to the wildlife refuge worker for the surface and subsurface exposure scenario for benzo(a)pyrene in the CRA is 1×10^{-6} .

The results of the CRA for the Lower Woman Drainage EU are in Volume 11 of Appendix A. No COCs were identified for this EU. Thus, risks are expected to be similar to those associated with background conditions.

3. *Resurvey any new surface established in subsurface soil, unless sufficient existing data is available to characterize the surface (or state that the excavated soil will be replaced and the original contours restored).*

When completed, the new surface elevations are not expected to be significantly different from current elevations. The flume elevations will be consistent with the final design drawings for the new flumes. Final elevations will be surveyed, and the resulting data will be used to update the COU topographic maps.

Closeout of the Contact Record: This Contact Record will be closed out when the RFLMA modification is completed and the as-built drawings are completed for the flume construction work.

Resolution: Carl Spreng, CDPHE, approved the summary of the consultation provided by this Contact Record documenting the approach for the proposed modification of monitoring locations. The soil excavation for the new flumes may also be conducted as described in the Contact Record.

Contact Record Prepared by: Rick DiSalvo

Distribution:

Carl Spreng, CDPHE
Scott Surovchak, DOE
Linda Kaiser, Stoller
Rocky Flats Contact Record File

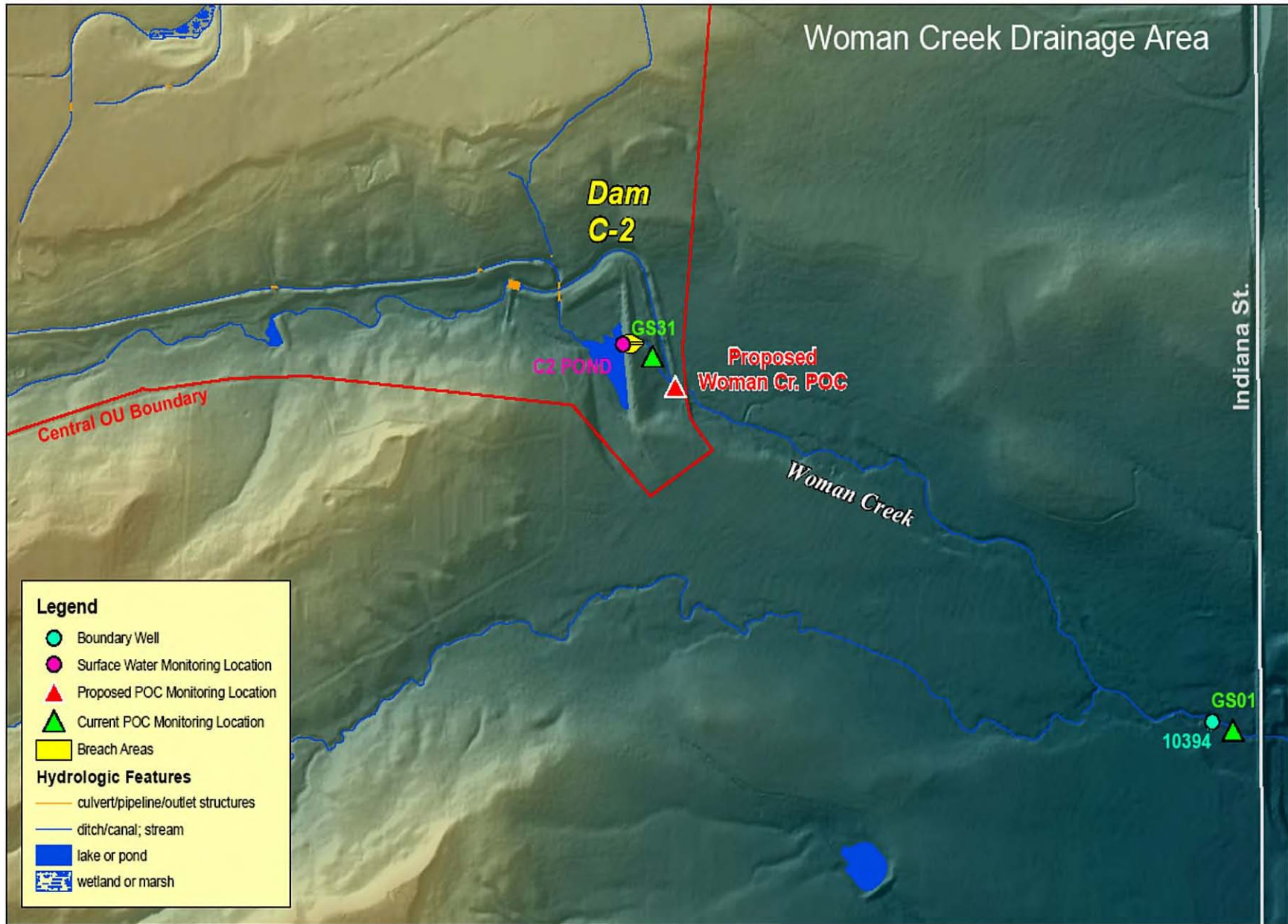


Figure 1. Monitoring and Dam Breach Locations—Woman Creek Drainage Area

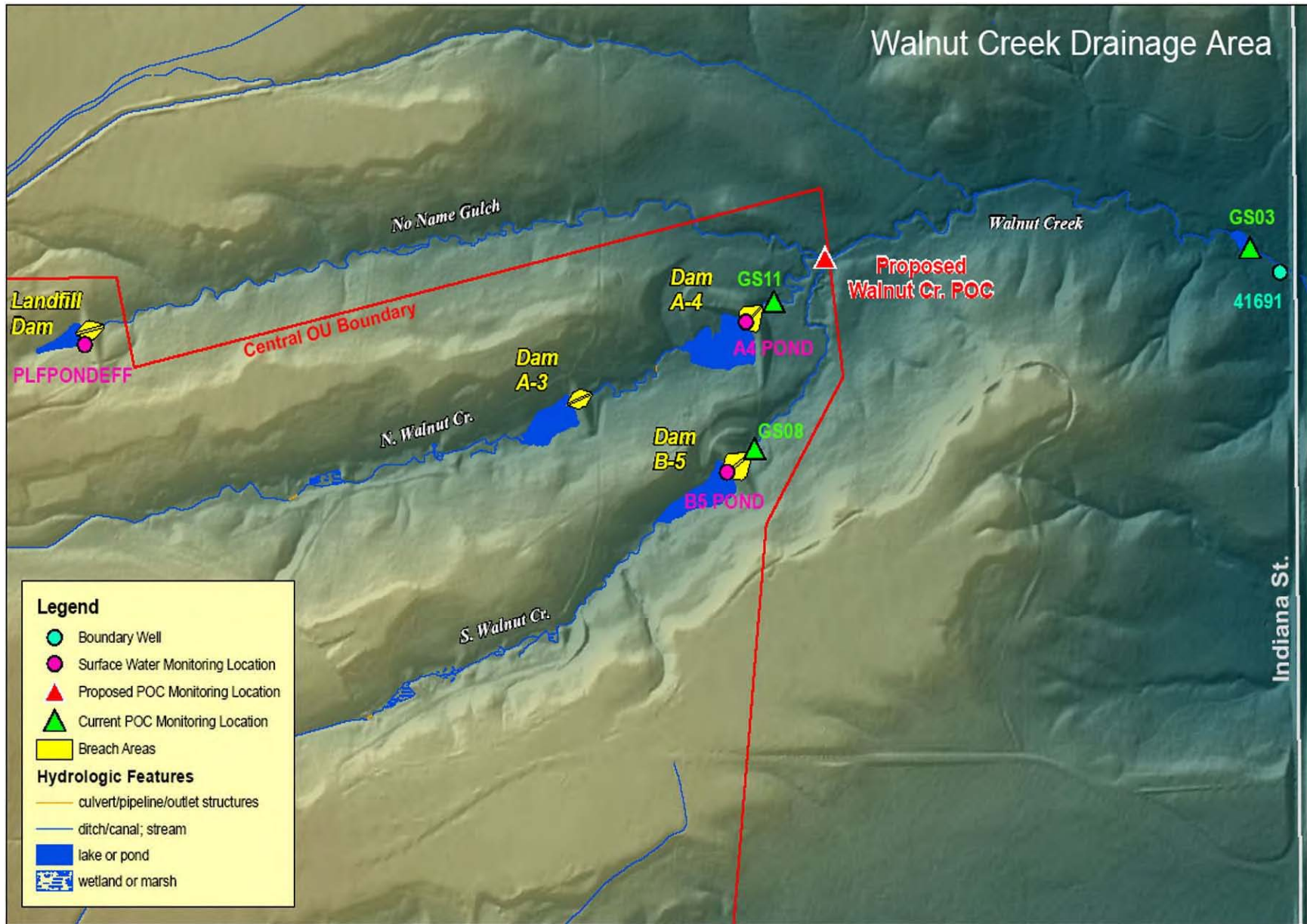


Figure 2. Monitoring and Dam Breach Location—Walnut Creek Drainage Area

ROCKY FLATS STEWARDSHIP COUNCIL

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City of Golden -- City of Northglenn -- City of Westminster -- Town of Superior
League of Women Voters -- Rocky Flats Cold War Museum -- Rocky Flats Homesteaders
Arthur Widdowfield

April 8, 2010

Mr. Dave Geiser
Director, Office of Legacy Management
U.S. Department of Energy
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Ms. Carol Rushin
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Mr. Gary Baughman
Division Director, Hazardous Materials and Waste Management
Colorado Department of Public Health and the Environment
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RE: Rocky Flats Legacy Management Agreement – Proposed Removal of Terminal Ponds and New Surface Water Monitoring and Compliance Points

Dear Messrs. Geiser, Baughman, and Ms. Rushin,

As the Department of Energy (DOE)-designated Local Stakeholder Organization for Rocky Flats, the Rocky Flats Stewardship Council is expressing its support of the downstream communities to advocate for retaining the terminal ponds A-4, B-5 and C-2. In addition, if any proposed changes include the removal of the terminal ponds and/or the establishment of new surface water monitoring and compliance points with consideration of groundwater in alluvium, the parties should consider such action as a *significant change* from existing requirements of the Rocky Flats Legacy Management Agreement (RFLMA). The downstream communities, which are asset holders that collectively represent more than 300,000 residents, have expressed their support of retaining the terminal ponds, which serve as their last measure of protection to protect surface water quality.

The communities favor maintaining the terminal ponds primarily based on two concerns: 1) uncertainties resulting from an insufficient post-closure period of record for assessing hydrologic conditions at the site, and 2) the inability to fully evaluate the effectiveness of the remedy due to the ongoing construction activities, recent operational changes, and future plans for phased modifications at landfills and groundwater treatment systems.

In addition, the downstream communities cannot support the establishment of new surface water monitoring and compliance points due to:

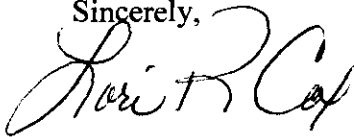
1. The lack of information related to the monitoring frequency, standards, and requirements associated with the new sites;
2. The uncertainty on how collected data will be used to measure remedy performance, maintain public and environmental safety, comply with regulatory standards, and demonstrate the effectiveness of the existing physical and institutional controls; and
3. The absence of a Contingency Plan to ensure downstream surface water quality is protected at all times.

However, in the event that a 300-foot wide right-of-way located adjacent to Indiana Street is transferred for a future roadway, the existing regulatory Points of Compliance must be relocated to the federal property boundary.

Finally, we request that DOE host a formal public meeting on the proposed changes to the Rocky Flats Legacy Management Agreement within the first two weeks after the document is published and that DOE establishes a minimum 60-day public comment period.

We appreciate the opportunity to comment on this important issue and provide support for the downstream users who could be impacted by the proposed federal actions.

Sincerely,



Lori Cox
Chair

cc: Ray Plienness, DOE
Scott Surovchak, DOE
Vera Moritz, EPA
Joe Schieffelin, CDPHE
Carl Spreng, CDPHE
Steve Berendzen, USFWS



Office of the City Manager
11701 Community Center Drive
PO Box 330061
Northglenn, Colorado 80233-8061
Phone (303) 450-8709
FAX (303) 450-8798

May 27, 2010

Sent via Email and U.S. Mail

May 27, 2010

Ms. Martha Rudolph
Colorado Department of
Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80246-1530

RE: Rocky Flats Legacy Management Agreement, Points of Compliance

Dear Ms. Rudolph:

The City of Northglenn is writing with respect to a possible revision to the Rocky Flats Legacy Management Agreement ("RFLMA") concerning changes to points of compliance. We recently learned that the Colorado Department of Public Health and Environment is reviewing the Department of Energy's ("DOE") request to move certain points of compliance a significant distance upstream on Woman and Walnut Creeks. The City of Northglenn would strongly oppose this move.

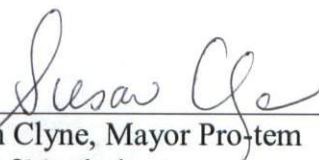
The points of compliance that are of concern are GS01 and GS03 ("the Indiana Street Points of Compliance"). Located on Woman and Walnut Creeks, respectively, immediately West of Indiana Street, these points are where water leaves federally controlled land. Historically, GS01 and GS03 have been used to confirm that DOE is in compliance with relevant water quality standards. The DOE's proposal, as we understand it, is to move these points of compliance approximately three quarters of a mile upstream to the Central Operable Unit boundary, abandoning the Indiana Street Points of Compliance. Moving these points upstream means that water flowing off a significant portion of federal lands, those retained by the US Fish and Wildlife Service, are no longer subject to compliance testing at Indiana Street. Maintaining the points of compliance at their current locations provides our citizens with assurances that water leaving the former Rocky Flats Site meets relevant water quality standards.

This proposal is premature, at best. Regulatory closure of the former Rocky Flats Site occurred in 2006. There are still a number of ongoing DOE remedial efforts at the Site that still

do not conform to the requirements of the RFLMA. Furthermore, the hydrology has not stabilized. With removal of impervious surfaces, the site is moving from surface water to a groundwater dominated site. Groundwater chemistry, on the site, is spatially and seasonally variable. There is significant groundwater contributions to Woman Creek from the US Fish and Wildlife Service lands which would not be captured if the Indiana Street Points of Compliance were moved to the Central Operable Unit boundary. In light of these activities, and in light of changing hydrology, Northglenn feels that there is not a sufficient data record to reach a meaningful conclusion on the long term flow regime of both the Woman and Walnut Creek watersheds to justify removal of the Indiana Street Points of Compliance. Northglenn joins in the comments submitted by the Woman Creek Reservoir Authority and the City of Westminster.

Northglenn has actively participated in efforts to protect Standley Lake, our drinking water supply, from potentially polluted runoff from Rocky Flats and will continue to be involved in activities that are protective of both our drinking water supply and the citizens of the downstream communities. We strongly urge you to reconsider supporting any future proposal to eliminate the Indiana Street points of compliance or at the very least, consider the proposed revisions to be a major modification. We would welcome the opportunity to discuss these matters with you in greater detail if necessary.

Sincerely,



Susan Clyne, Mayor Pro-tem
City of Northglenn

cc via email: Carl Spreng, CDPHE
Joe Schieffelin, CDPHE
Josh Nims, Woman Creek Reservoir Authority
David Abelson, Rocky Flats Stewardship Council



WESTMINSTER

May 21, 2010

Via Email and U.S. Mail

Ms. Martha Rudolph, Executive Director
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

City of Westminster
Office of the
Council

4800 West 92nd Avenue
Westminster, Colorado
80031

303-658-2400
FAX 303-706-3921

Nancy McNally
Mayor

Chris Dittman
Mayor Pro Tem

Bob Briggs
Councillor

Mark Kaiser
Councillor

Mary Lindsey
Councillor

Scott Major
Councillor

Faith Winter
Councillor

Re: Indiana Street Points of Compliance

Dear Ms. Rudolph:

I am writing with respect to a possible revision to the Rocky Flats Legacy Management Agreement ("RFLMA") concerning changes to points of compliance at the former Rocky Flats Plant Site. City staff recently learned that the Colorado Department of Public Health and Environment ("CDPHE") may be supporting the Department of Energy's (DOE) request to revise the RFLMA to move certain points of compliance a significant distance upstream on Woman and Walnut Creeks. I am hopeful that this is incorrect, but if not, the City of Westminster strongly urges you to reconsider this position.

At present, points of compliance GS-1 and GS-3 under RFLMA are located on Woman and Walnut Creeks, respectively, immediately before those Creeks reach Indiana Street (the "Indiana Street Points of Compliance"). These are the points where water flowing through the former Rocky Flats Plant Site, including the groundwater which daylights to these streams, leaves federally controlled land. Historically, the Indiana Street Points of Compliance have been used to confirm that DOE is in compliance with relevant water quality standards. The current proposal, as we understand it, is to revise the RFLMA to move these points of compliance approximately three quarters of a mile upstream onto the Central Operable Unit and no longer require DOE testing of waters leaving federally controlled lands at the Indiana Street Points of Compliance. The City of Westminster strongly opposes this move.

For many years, Westminster has actively participated in efforts to adopt protective standards on both Woman and Walnut Creeks. Moreover, the City played a significant role in protecting its drinking water supply by constructing the Standley Lake Protection Project. Because of those efforts, Woman Creek flows now bypass Standley Lake, a major public drinking water supply, and are released to Walnut Creek just east of Indiana Street. As



a result, Woman Creek flows no longer reach the City's main drinking water supply. The water in Walnut Creek, however, continues to flow through the communities of Broomfield and Westminister after leaving federal lands. This water then reaches Big Dry Creek, and continues to flow through portions of Thornton and Northglenn.

Both Walnut Creek and Big Dry Creek provide many important recreational opportunities to Westminister citizens as the water flows through the City's municipal boundary. Westminister citizens live and recreate next to these streams. As a result, it is extremely important to Westminister that the quality of water leaving the former Rocky Flats Plant Site meets relevant standards. The Indiana Street Points of Compliance provide Westminister, and other downstream cities, with important assurances in this regard. Moving these points of compliance upstream simply means that flows off a significant portion of federal lands are no longer subject to compliance testing at Indiana Street. This, in turn, eliminates the City's ability to fully assure the citizens that water leaving the federal lands meets relevant standards and can safely flow through the community. Based on these concerns, the City urges you to oppose any effort to revise RFLMA to relocate the Indiana Street Points of Compliance upstream.

Westminister very much values the long-standing working relationship we have enjoyed over the years with the Colorado Department of Public Health and Environment on Rocky Flats issues and would welcome the opportunity to discuss these matters with you in greater detail, if necessary. If you have any questions or concerns, please contact Westminister staff Josh Nims 303-658-2180 or Cathy Shugarts 303-658-2462 in the City's Public Works and Utilities Department. Thank you for your attention to this matter.

Sincerely,

Nancy McNally, Mayor

cc via email: Steve Gunderson, CDPHE
Carl Spreng, CDPHE
Joyce Downing, Northglenn Mayor
Erik Hansen, Thornton Mayor
Pat Quinn, Broomfield Mayor
David Abelson, Rocky Flats Stewardship Council
Senator Udall's Office
Senator Bennett's Office
Representative Polis' Office
Brent McFall, Westminister City Manager



Woman Creek Reservoir Authority

4800 W. 92nd Avenue

Westminster, Colorado 80031

Phone (303) 658-2180

FAX (303) 706-3927

May 26, 2010

Via Email and U.S. Mail

Ms. Martha Rudolph
Executive Director
Colorado Department of Public Health
& Environment
4300 South Cherry Creek Drive
Denver, Colorado 80246-1530

Re: Indiana Street Points of Compliance under the Rocky Flats Legacy Management Agreement

Dear Ms. Rudolph:

I am writing on behalf of the Woman Creek Reservoir Authority (the "Authority"), a political subdivision and public corporation of the State of Colorado created under C.R.S. § 29-1-204.2. The Authority is the owner and operator of Woman Creek Reservoir generally located at the intersection of Woman Creek and Indiana Street, immediately adjacent to the historical boundaries of what has been formerly known as the Rocky Flats Plant Buffer Zone.

By way of background, Woman Creek Reservoir was completed in 1996 as part of the Standley Lake Protection Project, a federally funded project designed to provide an extra layer of protection to the downstream municipal drinking water supplies in Standley Lake from activities at the Rocky Flats Plant site. Woman Creek Reservoir operations contemplate the diversion of all Woman Creek flows into the reservoir, and the subsequent release of water to the Walnut Creek basin, near Great Western Reservoir, thereby severing the hydrologic connection between Woman Creek and Standley Lake. Water released from Woman Creek Reservoir then combines with the native flows in Walnut Creek and flows through portions of the communities of Broomfield and Westminster before reaching Big Dry Creek, which, in turn, flows through portions of Thornton until it reaches the South Platte River. I have attached a general schematic of the relevant components of the Standley Lake Protection Project for your review.

I am writing to echo the recent concerns raised by the City of Westminster relative to a potential change in the Rocky Flats Legacy Management Agreement ("RFLMA"). It has recently come to our attention that the Department of Energy, ("DOE"), wishes to revise the RFLMA and thereby move the Indiana Street Points of Compliance from their historical locations, (where both Woman and Walnut Creeks cross Indiana Street), a significant distance upstream. DOE is seeking the support of the Environmental Protection Agency ("EPA") and CDPHE for this proposed RFLMA revision. The Authority is still reviewing the RFLMA requirements related to revisions, but, at the outset, wishes to go on record as opposing any such revisions. The Authority urges the CDPHE to oppose any such revisions as well.

I will not restate the concerns of the downstream municipal entities contained in Westminster's letter of May 21, 2010. Certainly, the members of the Authority are supportive of the positions set forth in that letter. Rather, I want to focus on the concerns of the Authority itself as an owner of land, and operator of a reservoir, immediately adjacent to the federal lands that comprise the former Rocky Flats site.

As required by the terms of RFLMA, DOE is responsible for testing the quality of the water in Woman Creek at the Indiana Street Point of Compliance and assuring that the flows leaving federal lands meet relevant standards. Any proposal to move the Indiana Street Points of Compliance upstream reduces the Authority's level of protection from water quality incidents related to both current and past activities on the former Rocky Flats site. Woman Creek is a gaining stream on the federal lands during times of the year. This is likely due, in part, to groundwater contributions from the former "buffer zone" lands that now comprise the National Wildlife Refuge. Removing compliance testing under RFLMA at the federal land boundary at the Indiana Street Point of Compliance would mean that the water gained would not be tested before leaving federal lands. More importantly, the Indiana Street Point of Compliance is critical to Woman Creek Reservoir operations. To the extent an exceedance of relevant water quality standards occurs at the Indiana Street Point of Compliance, DOE has agreed to take certain actions to address the issue. If no exceedance occurs, water is released from Woman Creek Reservoir to the Walnut Creek basin. Moving the compliance point upstream on Woman Creek undermines the assurances under RFLMA that all flows leaving the former Rocky Flats site comply with the relevant water quality standards, since all such flows would no longer be tested under the DOE proposal. It is critically important to maintain compliance testing and the related assurances that all flows leaving the federal lands comply with relevant standards. The Authority is particularly reliant on these assurances, as they form the basis for release of water to the Walnut Creek basin. For these reasons, I ask that you oppose any DOE request to revise the RFLMA to move the Indiana Street Points of Compliance upstream.

The Authority would welcome the opportunity to discuss its concerns with you in greater detail at your convenience and appreciates your attention to this matter.

Sincerely,



Josh Nims
President
Woman Creek Reservoir Authority

cc via email: Steve Gunderson, CDPHE
Carl Spreng, CDPHE
David Abelson, RFSC
Senator Udall's Office
Senator Bennet's Office
Representative Polis' Office
Mark Aguilar, Environmental Protection Agency

Ms. Martha Rudolph

May 26, 2010

Page 3

Ray Plienness, Legacy Management

Scott Surovchak, Legacy Management

David Willett, City of Northglenn

Bud Elliot, City of Thornton

Mike Smith, City of Westminster

David Allen, City and County of Broomfield

Shelley Stanley, Woman Creek Reservoir Authority Board

Ed Lanyon, Woman Creek Reservoir Authority Board

Ron Hellbusch, City of Westminster