

ROCKY FLATS STEWARDSHIP COUNCIL

P.O. Box 17670

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www.rockyflatssc.org

Jefferson County ~ Boulder County ~ City and County of Broomfield ~ City of Arvada ~ City of Boulder
City of Golden ~ City of Northglenn ~ City of Thornton ~ City of Westminster ~ Town of Superior
League of Women Voters ~ Rocky Flats Cold War Museum ~ Rocky Flats Homesteaders
Kim Griffiths

Board of Directors Meeting – Agenda

Monday, April 1, 2019, 8:30 – 11:00 AM

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

- 8:30 AM Convene/Introductions/Agenda Review
- 8:35 AM Chairman’s Review of February 25th Executive Committee meeting
- 8:40 AM Public Comment: Comments are limited to the Consent Agenda and non-agenda items
- 8:50 AM Business Items (briefing memo attached)
1. Consent Agenda: Approval of meeting minutes and checks
 2. Executive Director’s Report
- 9:00 AM Local Governments – Briefing on Soil Sampling Methodology (briefing memo attached)
- Local governments have developed a soil sampling methodology for the access points to the Rocky Flats National Wildlife Refuge.
 - The briefing will provide a high-level overview of the methodology and will describe public comment the parties received on the methodology.
- 9:45 AM Board Discussion of Questions for DOE, CDPHE, EPA and USFWS Re: Potential Oil and Gas Development Under Rocky Flats (briefing memo attached)
- In follow-up to the Board’s discussion at the February 2019 meeting, the Board will review and approve a set of questions for DOE, CDPHE, EPA and USFWS. Draft questions are included in the meeting packet.
 - The Board will also discuss a proposed motion from the Town of Superior.
- Action Item: Approve questions for agencies and other actions agreed to by the Board of Directors**

10:30 AM Board Roundtable – Big Picture/Additional Questions/Issue Identification
Adjourn

Upcoming Meetings:

June 3
September 9
October 28

Business Items

- February 4, 2019, draft board meeting minutes
- List of Stewardship Council checks

Local Government Sampling

- Cover memo
- Selection of Sampling and Analysis Plan

ROCKY FLATS STEWARDSHIP COUNCIL
Monday, February 4, 2019, 8:30 – 11:10 a.m.
Rocky Mountain Metropolitan Airport, Terminal Building, Mount Evans Room
11755 Airport Way, Broomfield, Colorado

Board members: Mark McGoff (Director, Arvada), Sandra McDonald (Alternate, Arvada), Matt Jones (Director, Boulder County), Summer Laws (Alternate, Boulder County), Lisa Morzel (Director, Boulder), Mike Shelton (Director, Broomfield), David Allen (Alternate, Broomfield), Libby Szabo (Director, Jefferson County), Pat O’Connell (Alternate, Jefferson County), Joyce Downing (Director, Northglenn), Shelley Stanley (Alternate, Northglenn), Sophie Porcelli (Alternate, Northglenn), Mark Lacin (Director, Superior), Ken Lish (Alternate, Superior), Jan Kulmann (Director, Thornton), Emily Hunt (Alternate, Thornton), Cathy Shugarts (Alternate, Westminster), Jeannette Hillery (Director, League of Women Voters), Linda Porter (Alternate, League of Women Voters), Murph Widdowfield (Director, Rocky Flats Cold War Museum), Roman Kohler (Director, Rocky Flats Homesteaders), Kim Griffiths

Stewardship Council staff and consultants: David Abelson (Executive Director), Barb Vander Wall (Seter & Vander Wall, P.C.), Rik Getty (Technical Program Manager), Melissa Weakley (Technical Program Manager), Sandy Thomas

Attendees: Ryan Hanson (Sen. Gardner), Gwen Hooten (DOE-LM), Scott Surovchak (DOE-LM), Andy Keim (DOE-LM), Vera Moritz (EPA), Lindsay Masters (CDPHE), George Squibb (Navarro), John Boylan (Navarro), Bob Darr (Navarro), Jeremy Wehner (Navarro), Patty Gallo (Navarro), Laura Hubbard (Broomfield), Lindie Aragon (Westminster), James Boswell (Thornton), Christine Hawley (WCRA), Trae Nance (WCRA), Bonnie Graham-Reed, Ted Ziegler, Linda Hledik, Heather Sparr-Hoornaert.

Convene/Agenda Review: Chair Joyce Downing opened the meeting at 8:30 a.m.

Public comment on Consent Agenda and Non-Agenda Items: None

Business Items:

Stewardship Council Officers for 2019: David Abelson explained that the following people expressed interest in serving on the executive committee:

- Joyce Downing (Northglenn) – Chair
- Jan Kulmann (Thornton) – Vice Chair
- Jeannette Hillery (League of Women Voters) – Secretary/Treasurer

Libby Szabo made a motion to appoint these individuals as the executive committee until the February 2020 meeting. Kim Griffiths seconded it. The motion was approved 14-0.

2019 Meeting Dates and Notice Resolution: The 2019 meeting dates proposed by the executive committee are February 4, April 1, June 3, September 9, and October 28. Jim Dale moved to adopt these meeting dates and meeting resolution; Jan Kulmann seconded the motion. The motion was approved 14-0.

Policy Regarding Disposal of Personal Information: Barb Vander Wall began by explaining that under a new state law, the Stewardship Council is required to adopt a policy regarding the disposal of personal information. She said there was one typo in the resolution as presented – “District” should instead read

“Stewardship Council.” Mark McGoff motion to adopt the resolution; Roman Kohler seconded the motion. The motion was approved 14-0.

Letter to DOE re: Original Landfill: The Stewardship Council agreed to forward to DOE concerns governments, organizations and an individual have about the management of the Original Landfill. Lisa Morzel clarified that the comments should refer to chemical analyses, not a single chemical analysis. David Abelson said he would make the necessary change. Lisa moved to approve the cover letter forwarding the concerns to DOE; Jeannette seconded the motion. The motion was approved 14-0.

Consent Agenda: Approval of Minutes and Checks: Lisa Morzel asked that in the section concerning the discussion of the surface water monitoring that the minutes be changed to reflect that George Squibb entered the meeting during the conversation. Jeannette motioned to accept the minutes with that change noted; Lisa seconded the motion. The motion was approved 14-0.

Executive Director’s Report: David Abelson started by welcoming the new Board members: Mark Lacis (Superior), Ken Lish (Superior), Matt Jones (Boulder County), and Sophie Porcelli (Northglenn). David next discussed the upcoming change from Rik Getty to Melissa Weakley as the technical advisor to the Stewardship Council. David said Rik had done a tremendous job for the Stewardship Council, noting his commitment to the organization and highest level of integrity he brings to the position. David said Rik will be missed. In the early 2000s, Melissa served as the technical advisor for the predecessor organization, the Rocky Flats Coalition of Local Governments. He’s excited to have her back.

David next discussed the Stewardship Council’s 2018 financial audit, explaining one is not required by law or the grant with DOE, but the Stewardship Council secures one annually. He next said staff would send the annual dues notices to the governments. Annually, each government contributes \$1000 to the Stewardship Council. He continued by explaining that DOE was funded and thus not subject to the partial federal government shutdown. EPA was closed, although it did not appreciably affect communication with DOE and CDPHE.

David turned to the October-November 2018 proposal to develop oil and gas resources under Rocky Flats. He said that though that particular proposal had (at least for now) been withdrawn, there remained a need for the Stewardship Council members to discuss the issue. He addressed a few items and said there would be ample time at the meeting to discuss the suite of issues.

Finally, David turned to the petition to make the Rocky Flats Grand Jury documents publicly available. He explained that it is his understanding based on the petition that in order to have the documents released, the petitioners must show that the information is needed for pending or anticipated litigation. He explained that based on his reading of the petition that a general public interest, while important for public discourse, would not meet the necessary legal standard. Mark Lacis, an attorney, said he does not practice criminal law but that it is his understanding that simply because there is a public interest does not mean that the grand jury information can become public. He cited the ongoing investigation by Robert Mueller as an example.

DOE Quarterly Report (3rd quarter 2018)

Quarterly reports are required under the Rocky Flats Legacy Management Agreement (RFLMA) to document that the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedy continues to provide effective protection. Components of the remedy for Rocky Flats include:

maintain two landfill covers; maintain three groundwater treatment systems; monitor surface water and groundwater; maintain physical controls; and enforce institutional controls.

Surface Water, George Squibb

George reported that at GS59, routine surface water grab sampling in Woman Creek, downstream of the Original Landfill (OLF), showed mean concentrations for all VOCs and mercury below applicable RFLMA water-quality standards. The most recent composite sample started on July 31, 2018, and is still in progress. At the Present Landfill (PLF), routine water quality sampling showed concentrations for all analytes below applicable RFLMA water-quality standards. George reported that no RFLMA Point of Evaluation (POE) analyte concentrations were reportable during the quarter. He reported that there were no RFLMA Point of Compliance (POC) analyte concentrations reportable during the quarter.

Jeannette Hillery asked about a comparison of nitrate levels around North Walnut Creek as the nitrate has to come from somewhere. George responded that North Walnut Creek is closest to the old Solar Ponds and that the nitrate level is around 1 mg/l at the point of compliance on Walnut Creek (called WALPOC). The water quality standard is 10 mg/l.

Public Comment: None

Groundwater Monitoring and Operations, John Boylan

John reported that the RFLMA monitoring network consists of ten Resource Conservation and Recovery Act (RCRA) wells that are monitored quarterly to evaluate the potential impacts from OLF and PLF. Nine Area of Concern (AOC) wells and one Surface Water support location are monitored semiannually. These areas are located in drainages downstream of contaminant plumes. The plumes are evaluated for discharging to the surface water. Twenty-seven Sentinel wells are monitored semiannually to examine contaminant levels downgradient of the treatment systems, on edges of plumes, and in drainages. They also look for plumes migrating to surface water and treatment system problems. Forty-two Evaluation wells are monitored biennially within the plumes, near source areas, and the interior of the Central Operable Unit (COU) to evaluate whether monitoring an area or plume can cease. Nine treatment system locations are monitored, seven semiannually and two quarterly. He reported that only RCRA wells were monitored this quarter. The results were generally consistent with previous data and will be evaluated as part of the 2018 annual report.

Routine maintenance was performed at Mound Site Plume Collection System and the East Trenches Plume Treatment System. Routine maintenance was also performed at the Solar Ponds Plume Treatment System (SPPTS). At the SPPTS, DOE began a project to convert "Big Box" lagoon from a full-scale interim test to a long-term nitrate treatment component. To do this, Navarro staff removed the original solar array that was installed in 2002 and no longer useful. They next prepared a procurement package for tasks to be done in the Big Box. The project is to be performed in the fourth quarter, and the scope is minor upgrades within the Big Box.

Matt Jones asked what happens to the nitrate. John responded that bacteria in the lagoon convert the nitrate to nitrogen gas. Jim Dale requested that John present a separate septic tank briefing in the future.

Public Comment: None

Site Operations, Jeremy Wehner

Jeremy reported that signs were inspected on August 1, 2018, and all were in good condition. Three site inspections were performed at OLF and one weather-related inspection was done. There was some minor erosion, and maintenance was completed. The settlement monuments were surveyed on September 5th, and vertical settling was within limits. The geotechnical slope stability evaluation was completed in September. Slope stabilization design will begin in the fourth quarter. The East Subsurface Drain continues to function as designed. The Seep 10 siphon operated during the quarter. Since the initial startup in April, approximately 720,000 gallons were diverted by the end of September. This water would historically come to the surface and run across the slump area to the EPC. The temporary groundwater intercept system was restarted August 10 after mechanical repairs. Since the seasonal startup in April, approximately 180,000 gallons were diverted by the end of September.

At the PLF, a quarterly inspection and a weather-related inspection was conducted. The landfill was in good condition, and no maintenance was required.

At the former building areas of 371, 771, 881, and 991, a weather-related inspection was conducted following a rain event. This was also considered the quarterly best management practice inspection for these areas. Routine inspection for erosion and subsidence was performed, and no new issues were identified.

At North Walnut Creek Slump, continued geotechnical evaluation was performed, and continued data collection from piezometers was performed where possible. Slump monitoring points were surveyed each month of the quarter. The slump continues to move; along the scarp line, maximum movement had reached approximately 8 inches vertically with up to a 5-inch crack width. The crack was bladed, filled, and tamped in July to limit direct water infiltration. No maintenance was conducted on the site roads, but maintenance is being planned for November.

David Allen asked if the 180,000 gallons of water diverted in September was included in the 720,000 gallons diverted. Jeremy stated it was not as they are separate quantities.

Public Comment: In follow up to prior concerns about monitoring of water at the subsurface drains around the Original Landfill, Bonnie Graham-Reed asked DOE whether it was conducting water monitoring there. Jeremy stated that there are a number of groundwater monitoring wells in the vicinity that have been tested, and that data indicates the contaminants of concern are below the standards. Although the water was not tested after being collected in the pipe, surface water monitoring is conducted at multiple locations downstream. He also reminded the group that the water that is collected was already coming to the ground surface at Seep 10, and the reason it is collected and put into a pipe is to prevent it from re-infiltrating into the slump area. David Abelson told Bonnie that the issue she was raising was the focus on the parties' comments to DOE that was discussed at the start of the meeting. He noted that she shared their concerns.

Ecology, Jeremy Wehner (substituting for Jody Nelson)

Jeremy reported that the following activities took place during the quarter: Preble's mouse mitigation monitoring; wetland mitigation monitoring; revegetation monitoring; forb nursery monitoring and planting of wildflower seeds in August; photopoint monitoring; weed mapping; vegetation mapping; tree and shrub survival counts; and prairie dog surveys. He reported that 210 elk were counted.

Public Comment: None.

Board Roundtable:

The Board opened a discussion regarding the permit submitted (and now withdrawn) by an oil and gas company to drill approximately 30 wells, which could have potentially included horizontal drilling under Rocky Flats. David Abelson provided a high-level overview of the permit and some of the questions he has about the process. Of note, David stated that a permit is required to dig below three feet in the Central Operable Unit. He also noted that an open question is whether a private party could force pool the federal government.

Lisa Morzel outlined the Boulder City Council's legislative priorities, a few of which pertain to mineral rights at Rocky Flats. The points critical to the discussion include that the Office of Legacy Management continue to be fully funded so that monitoring not only continue, but that funding be provided for monitoring above and beyond the present level. The National Wildlife Refuge program must continue to be fully funded. The Central Operating Unit boundaries must be maintained and separate from the Refuge. Although the federal government has acquired various minerals under Rocky Flats, this does not mean that these minerals cannot be developed; therefore, the agency should retire the minerals to ensure that they can never be developed, and Congress should authorize funding to acquire additional minerals that are currently under private ownership.

David Allen commented on the necessity of the retirement of mineral claims and the importance of the acquisition of the essential minerals. He stated that it is important that there be additional funds to acquire minerals and retire them. Access to those minerals will then be extinguished. He stated that fair market value should be used for the acquisition.

Matt Lacis said that the application submitted was for well sites within the Superior Town limits. The land is owned by Century Link. The plan is to drill south then under Rocky Flats. The Town Council adopted a six-month moratorium on oil and gas drilling to get something on the books. He stated that Superior supports a veto on drilling under Rocky Flats and requested that the Stewardship Council speak to the state COGCC in support for no exploration and drilling under Rocky Flats. Matt Jones discussed that force pooling forces people to be a partner in the fracking process, that it is corporate eminent domain, and no state law exists to support it. Matt said COGCC has never said no to a permit request. He thinks the federal government should be involved and that state laws should be fixed.

Lindsay Masters stated that if the mineral rights are obtained, they will be federal mineral rights. The CDHPE restrictive notice of no drilling below three feet only applies to the COU. Libby Szabo commented that maybe the company really did not want to drill under Rocky Flats, but that the statewide ballot issue regarding local governments' rights to curtail drilling may have forced companies to file the permits before the 2016 November election. Mark Lacis stated that he heard there are twenty mineral rights owners under Rocky Flats. He discussed that that the Stewardship Council should be proactive rather than reactive.

Lisa Morzel stated that buying out the mineral rights is the best way to go to stop the fracking into Rocky Flats. Mark Lacis stated that Weld County has most of the oil and gas fracking, but that they are running out of resources causing the companies to move into Boulder County and south. Summer Laws asked if the mineral rights are bought by the federal government, can forced pooling be done with the federal government. Mike Shelton asked if the federal government can be held to state law. He stated that Broomfield is designating Designated Outdoor Activity Areas (DOAA). He suggested that Stewardship Council staff ask USFWS about DOAA.

David Abelson offered that as a starting point the Stewardship Council needs to develop a list of questions about the regulatory framework and risks of drilling, and direct those questions to DOE, CDPHE, EPA and USFWS.

Mark stated that his worry is that small startups do not know procedures. He believes that the alarm needs to be sounded, that all players (DOE, CDPHE, EPA and USFWS) need to know the issues and that an environmental impact study is vital. Mark stated that COGCC has its process and ignores the rest, and that there should be standard requirements for all applicants. Lindsay Masters stated that COGCC needs to work with CDPHE. Mike Shelton stated that USFWS needs to be informed of Stewardship Council's concerns. David Abelson stated that USFWS is aware of the concerns of local governments, but has no prohibition on drilling on their lands.

Mark raised the idea of a motion that in short provides the Stewardship Council opposes fracking under Rock Flats. Lisa Morzel said she would second the motion if one were formally offered. David Allen wants to understand the federal process for development of mineral rights. Jeannette Hillery stated that although she is supportive of the intent of such a motion, she suggested that the member governments discuss the issue with their individual boards and commissions. She stated that there needs to be more background information such as what should be put in an application, then what is the process with each individual government. David Abelson reminded the Stewardship Council that Westminster has not appointed any elected officials to the Board and said it would be unfair to their staffer present, Cathy Shugarts, to vote on such motion at this meeting without letting her first get direction from City management. The Board agreed.

Murph Widdowfield reminded everyone that BLM must approve a permit, and that the CDPHE has the most influence in the state. Matt Jones stated that they need a better understanding of tools and more information about the federal law. Jim Dale asked why anyone would want to drill under Rocky Flats, and that it does not pass the smell test. Pat O'Connell asked what is the process between now and the April meeting. David stated that the Executive Committee will work on the process and get back to Stewardship Council with questions.

David Abelson offered that the executive committee develop an initial set of questions for DOE, CDPHE, EPA and USFWS and circulate that to the Board for eventual approval (as modified) at the April meeting. Mike Shelton said that there is much to figure out, and the Stewardship Council should focus on getting questions answered. Mark Lacis stated that a statement should be issued to sound an alarm. Regional governments should come together and send a letter to appropriate government agencies should be sent.

David Abelson reminded everyone if there is no unanimity amongst the local governments, it may not turn out the way people want. David Allen agreed that unanimous support needs to be maintained, and that the only issue is Rocky Flats, not a broader statement about fracking. Kim Griffiths asked if this is the venue to discuss drilling under Rocky Flats. Lisa Morzel recounted the unanimous opinion to oppose prescribed burns was critical to USFWS withdrawing that action. She stated that there are competing interests with the Stewardship Council, and it must figure out the differences and how to go forward.

Mark McGoff asked if the motion was still open, how to go forward, and who writes it. Joyce Downing stated that the executive committee will meet and bring back questions to the Board. David said the motion needs to be concrete. Mark Lacis said he would draft the motion. David Allen stated that the

motion should take a position but it should not be a policy statement. Mike Shelton said the motion should have no broad anti-fracking statement but should be specific to Rocky Flats cleanup. Mark Lacin stated that he will keep a motion narrow.

Big Picture: David Abelson reviewed the proposed topics for the next two meetings. The Board agreed to continue discussing oil and gas development at the April meeting, and possibly the June meeting. The Board also agreed to examine the proposed soil sampling to be conducted by local governments by examining the proposed methodology at the April meeting and the results at the June meeting. The April meeting will also include a discussion of the Original Landfill.

The meeting was adjourned at 11:10 a.m.

Prepared by Sandy Thomas

Rocky Flats Stewardship Council
Check Detail 2019
January 18 through March 12, 2019

Type	Num	Date	Name	Account	Paid Amount	Original Amount
Check		01/29/2019		CASH-Wells Fargo-Operating		-3.50
				Admin Services-Misc Services	-3.50	3.50
TOTAL					-3.50	3.50
Bill Pmt -Check	1962	02/09/2019	Seter & Vander Wall, P.C.	CASH-Wells Fargo-Operating		-1,296.45
Bill	77688	12/31/2018		Attorney Fees	-772.50	772.50
Bill	77841	01/31/2019		Attorney Fees	-523.95	523.95
TOTAL					-1,296.45	1,296.45
Bill Pmt -Check	1963	02/09/2019	Jennifer A. Bohn	CASH-Wells Fargo-Operating		-513.00
Bill	19-09	01/31/2019		Accounting Fees	-513.00	513.00
TOTAL					-513.00	513.00
Bill Pmt -Check	1964	02/09/2019	Crescent Strategies, LLC	CASH-Wells Fargo-Operating		-8,616.30
Bill	1/31/19 Billing	01/31/2019		Personnel - Contract	-7,750.00	7,750.00
				TRAVEL-Local	-89.90	89.90
				Postage	-15.99	15.99
				Telecommunications	-127.71	127.71
				Supplies	-60.00	60.00
				Meeting Expense	-100.10	100.10
				TRAVEL-Out of State	-472.60	472.60
TOTAL					-8,616.30	8,616.30
Bill Pmt -Check	1965	02/09/2019	Blue Sky Bistro	CASH-Wells Fargo-Operating		-300.00
Bill	3352	02/04/2019		Misc Expense-Local Government	-300.00	300.00
TOTAL					-300.00	300.00
Check	1966	02/09/2019	Century Link	CASH-Wells Fargo-Operating		-26.98
				Telecommunications	-26.98	26.98
TOTAL					-26.98	26.98
Check	1967	03/09/2019	Century Link	CASH-Wells Fargo-Operating		-26.23
				Telecommunications	-26.23	26.23
TOTAL					-26.23	26.23
Bill Pmt -Check	1968	03/09/2019	Cassandra Thomas	CASH-Wells Fargo-Operating		-500.00
Bill	2/26/19	02/26/2019		Personnel - Contract	-500.00	500.00
TOTAL					-500.00	500.00
Bill Pmt -Check	1969	03/09/2019	Crescent Strategies, LLC	CASH-Wells Fargo-Operating		-10,347.26
Bill	2/28/19 Billing	02/28/2019		Personnel - Contract	-8,900.00	8,900.00
				TRAVEL-Local	-203.00	203.00
				Postage	-15.99	15.99
				Telecommunications	-127.71	127.71
				Supplies	-76.18	76.18
				TRAVEL-Out of State	-1,024.38	1,024.38
TOTAL					-10,347.26	10,347.26
Bill Pmt -Check	1970	03/09/2019	Jennifer A. Bohn	CASH-Wells Fargo-Operating		-665.00
Bill	19-15	02/28/2019		Accounting Fees	-665.00	665.00
TOTAL					-665.00	665.00
Bill Pmt -Check	1971	03/09/2019	Seter & Vander Wall, P.C.	CASH-Wells Fargo-Operating		-1,841.49
Bill	78004	02/28/2019		Attorney Fees	-1,841.49	1,841.49
TOTAL					-1,841.49	1,841.49

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Kim Griffiths

MEMORANDUM

TO: Board of Directors
FROM: David Abelson
SUBJECT: FLAP Grant Sampling and Analysis Plan
DATE: March 20, 2019

As part of the plan to allow access to the Rocky Flats National Wildlife Refuge under Highway 128 and over Indiana Street, six local governments have been working in partnership to adopt a soil sampling and analysis plan. The sampling, which will be conducted with the financial assistance of a federal Department of Transportation Federal Land Access Program (FLAP) grant, will occur on lands north and east of the Rocky Flats Refuge. At this meeting, Jefferson County will present a high-level overview of the partnership and sampling plan.

The six local governments (called the “Partner Group” in the plan) are Jefferson County, City of Boulder, Boulder County, City & County of Broomfield, City of Westminster and City of Arvada. All are Stewardship Council members.

Sampling and Analysis Plan (SAP) Overview

As provided in the SAP,

The purpose of this SAP is to define the procedures for the collection and analysis of soil samples obtained at the two proposed crossings that will connect existing trail systems of the Partner Group to a trail system operated by the U.S. Fish and Wildlife Service (USFWS) on the Refuge (Figure 1-1)...The goal of this SAP is to promote the generation of soil radionuclide data that meet standard environmental data quality requirements and are comparable to the risk assessment values used at the site. By accomplishing this goal, the soil data from this Project can be compared to the data, findings, and conclusions of historic Rocky Flats soil sampling risks assessments such as the Comprehensive Risk Assessments of Appendix A of the Kaiser-Hill Company 2006 Resource Conservation and Recovery Act (RCRA) Facility Investigation-Remedial Investigation/Corrective Measures Study-Feasibility Study Report (RI/FS). Linking the current data to the 2006 studies, the potential risks to visitors near the two proposed crossings can be established.

Additionally, the sampling “is a planned one-time sampling event, with soil sample locations limited to the footprints of the crossing structures, the footprints of the new trails connecting the crossings to existing Partner Group trail systems east of Indiana Street (Bridge Crossing) and north of CO-128

(Underpass Crossing), and the footprints of the new trails connecting both crossings to planned USFWS trails (stopping at the Refuge boundary).”

Figure 1-1 is attached to this memo. Also attached are the Table of Contents, List of Tables and List of Figures.

Tentative Planning Timeline (note: Engineering Analytics and ALS are hyperlinked)

- March 1, 2019: Property transaction of a parcel from Woman Creek Reservoir Authority to Jefferson County Open Space
- April 23, 2019: Jefferson County Open Space staff and the contractor ([Engineering Analytics](#)) will brief the Bromfield City Council on the SAP
- April – May, 2019: Engineering Analytics will conduct the field work in conformance with the SAP. Actual field work is estimated to be completed within two days
- June – July, 2019: Laboratory analysis of the soil samples for multiple radionuclides will be completed by [ALS](#) with an estimated turn-around time of six-to-eight weeks
- July – August, 2019: The draft report from Engineering Analytics is estimated be provided within four weeks of Engineering Analytics receiving laboratory data from ALS
- August – September, 2019: Jefferson County Open Space staff and Engineering Analytics staff will present the draft report to the six government partners

The SAP is available at:

https://www.jeffco.us/DocumentCenter/View/14934/RMG_SAP_Final_5Dec2018_Rev_30_WO-SOP?bidId=

For more information about the FLAP grant program, go to: <https://flh.fhwa.dot.gov/programs/flap/>

Sampling and Analysis Plan

Rocky Mountain Greenway Trail Crossings

Prepared for:

Jefferson County
100 Jefferson County Parkway, Suite 4500
Golden Colorado, 80419

And

City of Boulder
Boulder County
City and County of Broomfield
City of Arvada
City of Westminster

Prepared by:



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Project No. 110836

December 2018
Rev 3.0

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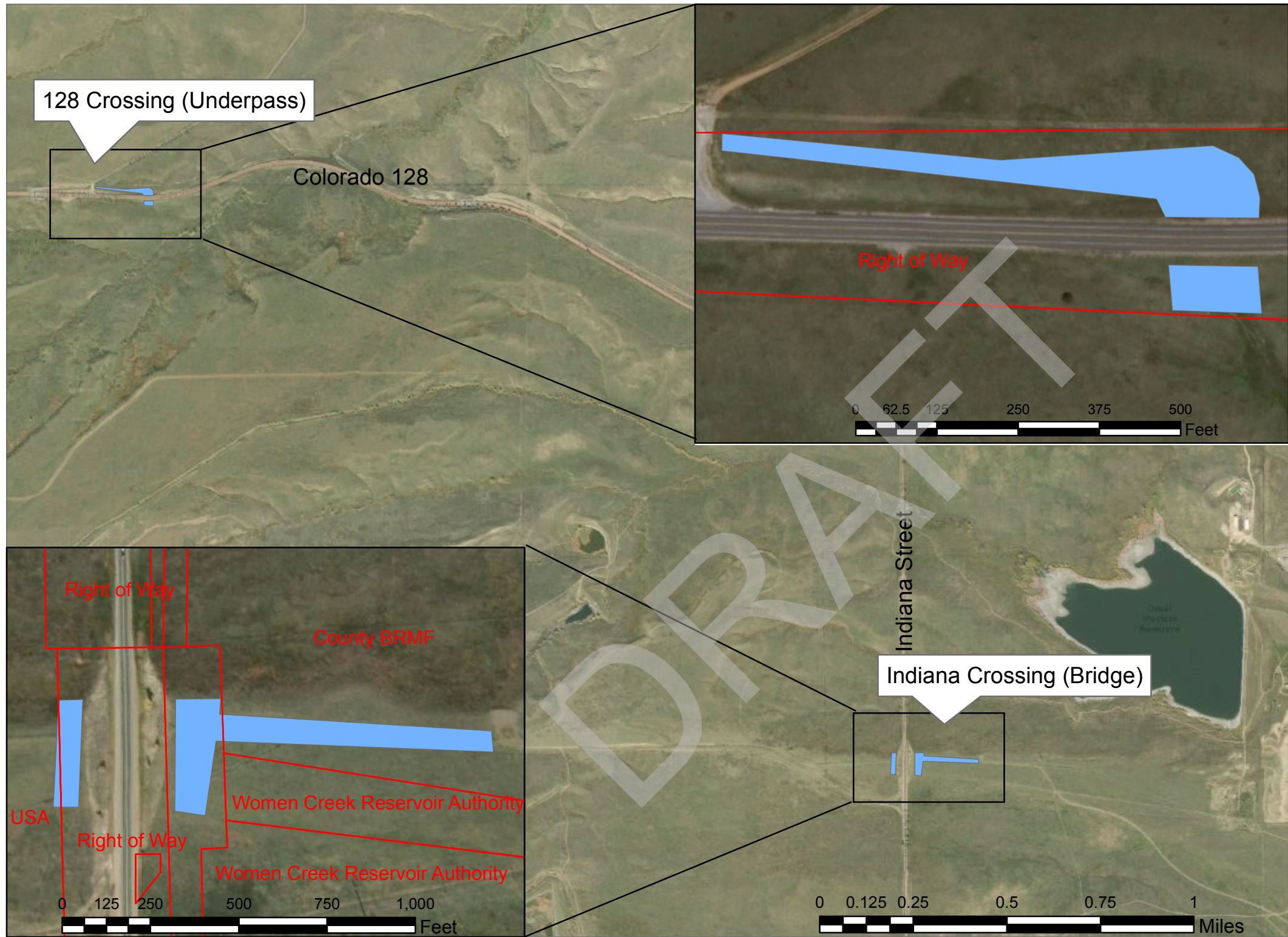
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P:\110836 Rocky Mtn Greenway Trail Sampling\2.0 EA Technical Info\2.4 GIS\Figures\Fig 1-1 Areas of Disturbance.mxd Date Saved: September 27, 2018



LEGEND

- Parcel Ownership
- Potential Disturbance Area



FIGURE 1-1
MAP OF POTENTIAL DISTURBANCE AREAS
ROCKY MOUNTAIN GREENWAY

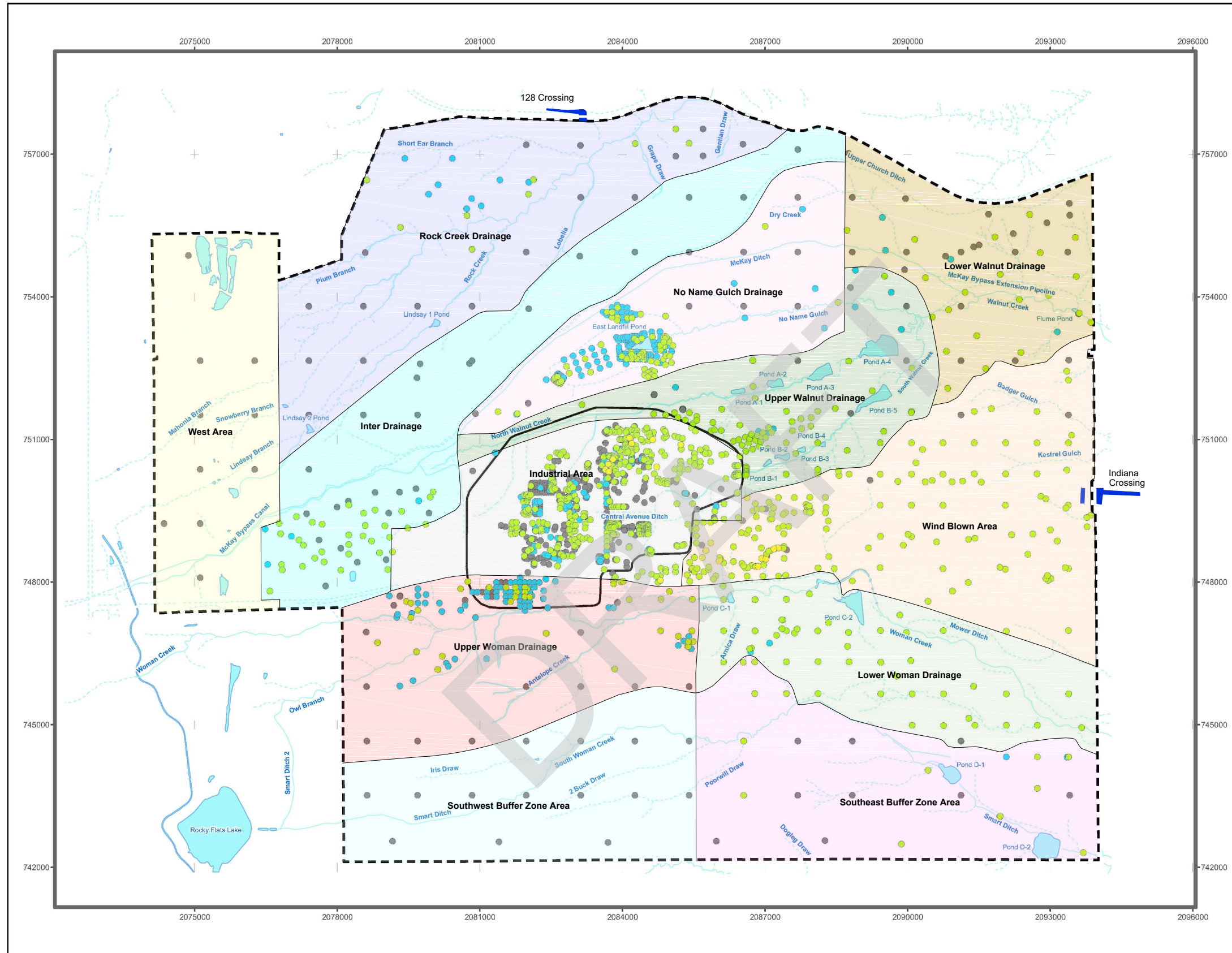


Figure 3.15
Americium-241
Activity in
Surface Soil

KEY

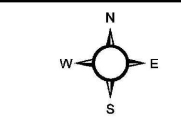
- \geq WRW PRG
- $>$ Background M2SD and $<$ WRW PRG
- Detected and \leq Background M2SD
- Not detected

Minimum nondetect reported value = -0.082 pCi/g
 Maximum nondetect reported value = 0.327 pCi/g
 Background M2SD = 0.022 pCi/g
 WRW PRG = 7.69 pCi/g

Notes:
 - Data presented are the results from soil samples collected between 6/28/1991 and 8/22/2005.
 - See Tables 3.1 and 3.13 for additional information.

Standard Map Features

- IA OU boundary
- ▭ Pond
- ▬ Perennial stream
- ▬ Intermittent stream
- ▬ Ephemeral stream
- ▬ Site boundary
- ▬ Potential Areas of Disturbance
- ▭ Exposure Unit boundary



0 1,000 2,000
Feet

Scale 1:24,000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

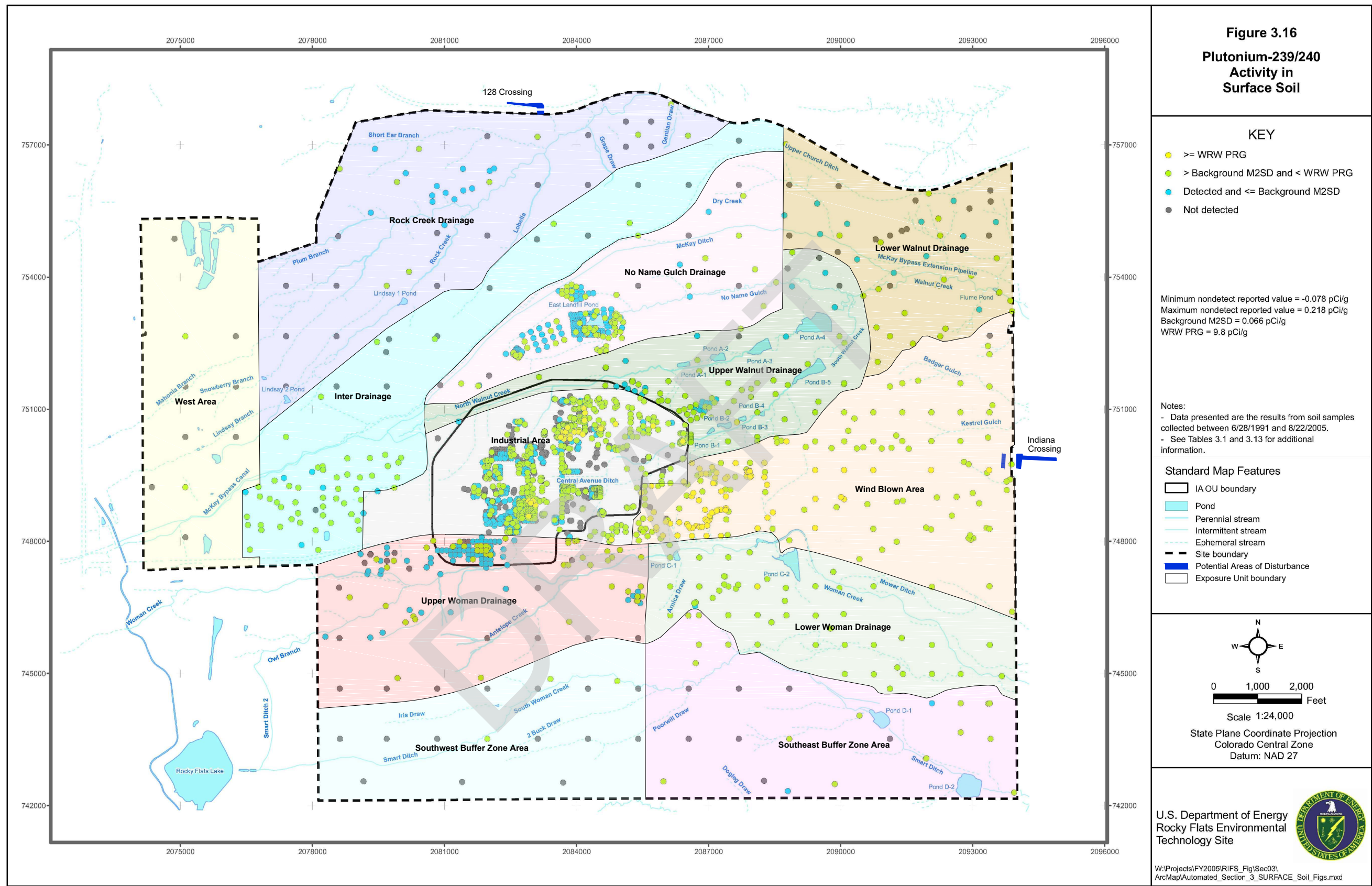
U.S. Department of Energy
 Rocky Flats Environmental
 Technology Site



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 ArcMap\Automated_Section_3_SURFACE_Soil_Figs.mxd

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NOTE:
 FIGURE 3.16 FROM RCRA FACILITY INVESTIGATION -
 REMEDIAL INVESTIGATION/ CORRECTIVE MEASURES
 STUDY - FEASIBILITY STUDY REPORT FOR THE ROCKY
 FLATS ENVIRONMENTAL TECHNOLOGY SITE (JUNE 2006).

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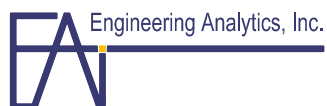
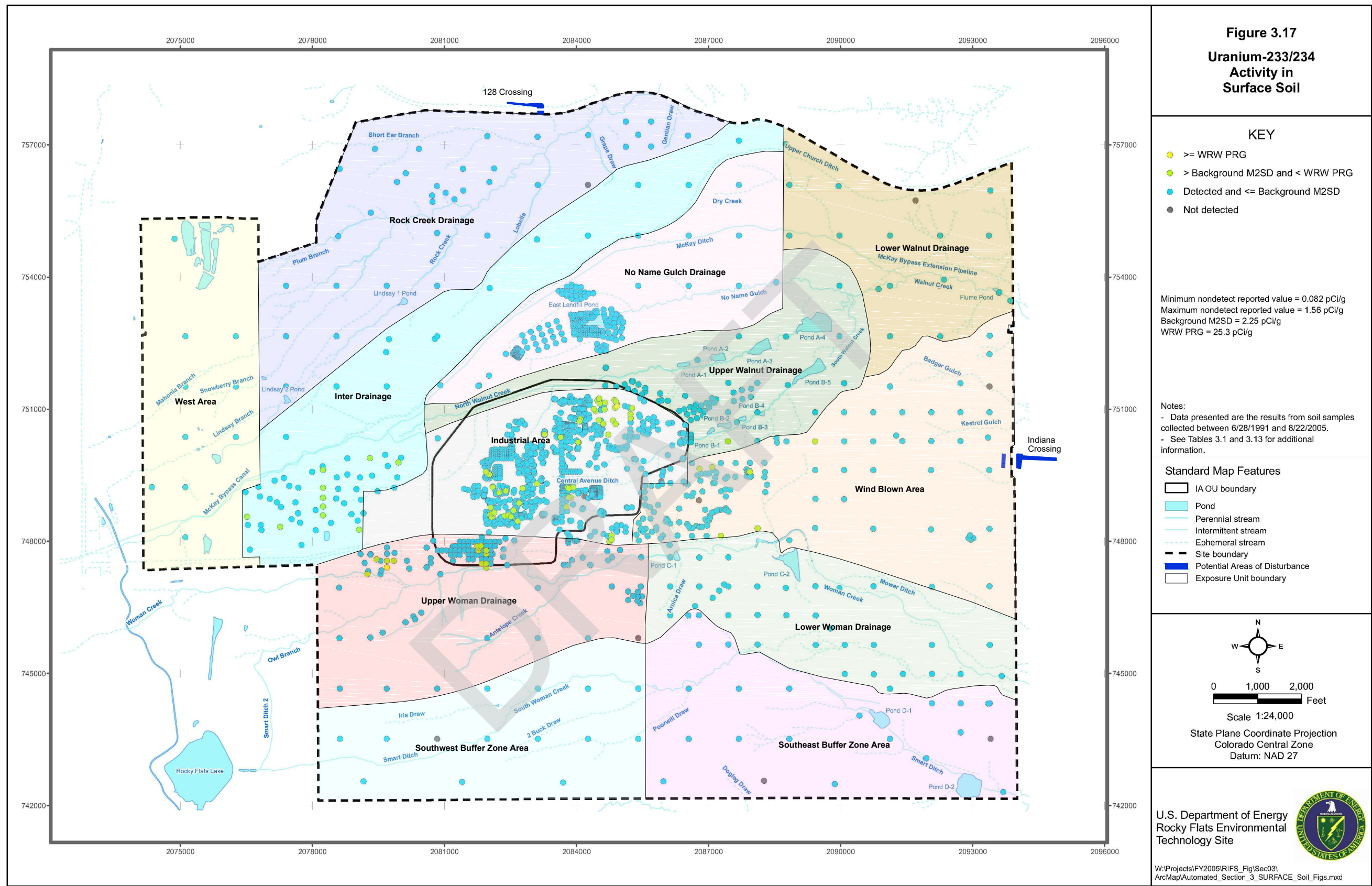


FIGURE 2-2
PLUTONIUM-239/240 ACTIVITY IN SURFACE SOIL
ROCKY MOUNTAIN GREENWAY

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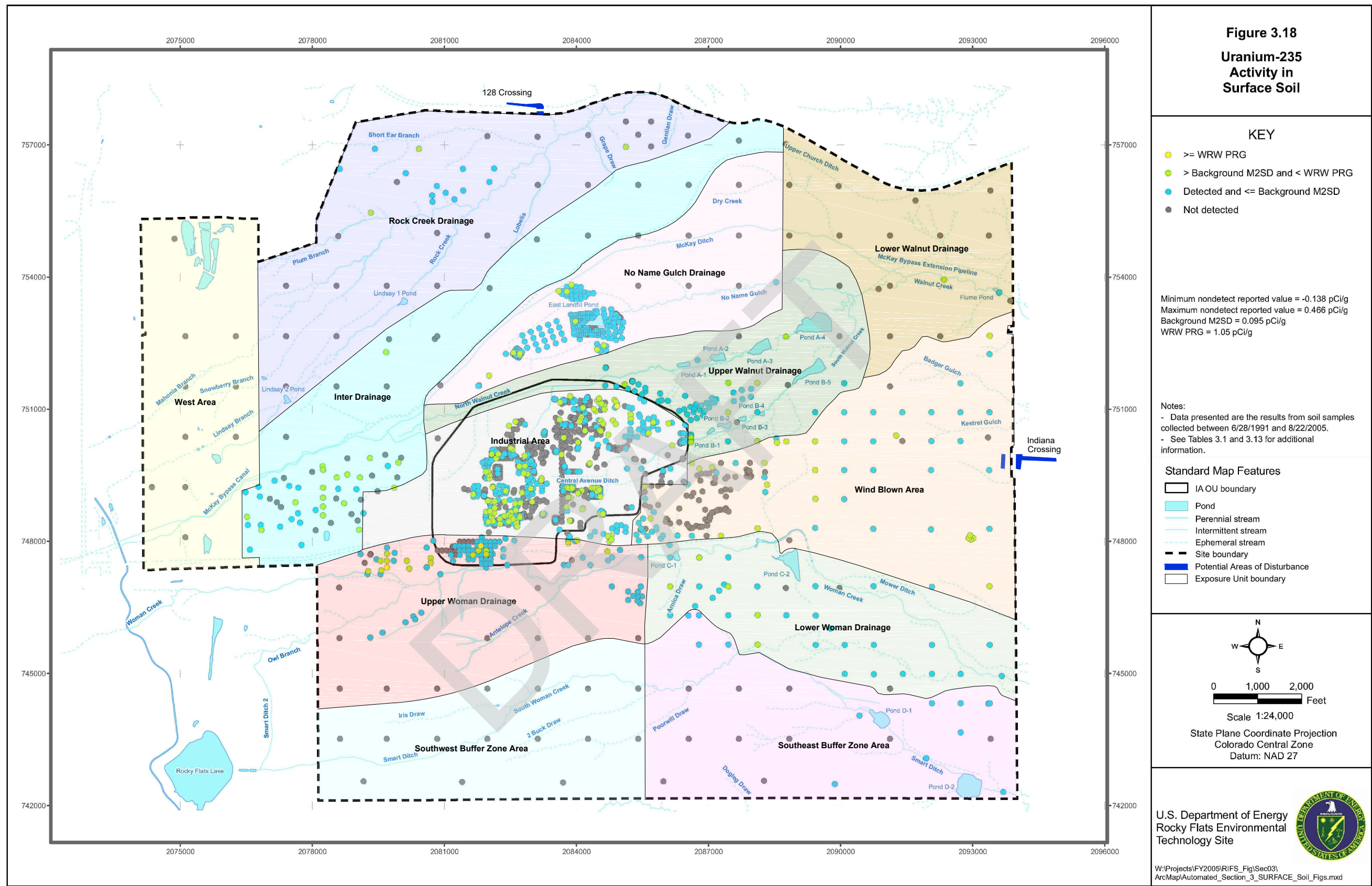
NOTE:
 FIGURE 3.17 FROM RCRA FACILITY INVESTIGATION -
 REMEDIAL INVESTIGATION/ CORRECTIVE MEASURES
 STUDY - FEASIBILITY STUDY REPORT FOR THE ROCKY
 FLATS ENVIRONMENTAL TECHNOLOGY SITE (JUNE 2006).

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**FIGURE 2-3
 URANIUM-233/234 ACTIVITY IN SURFACE SOIL
 ROCKY MOUNTAIN GREENWAY**

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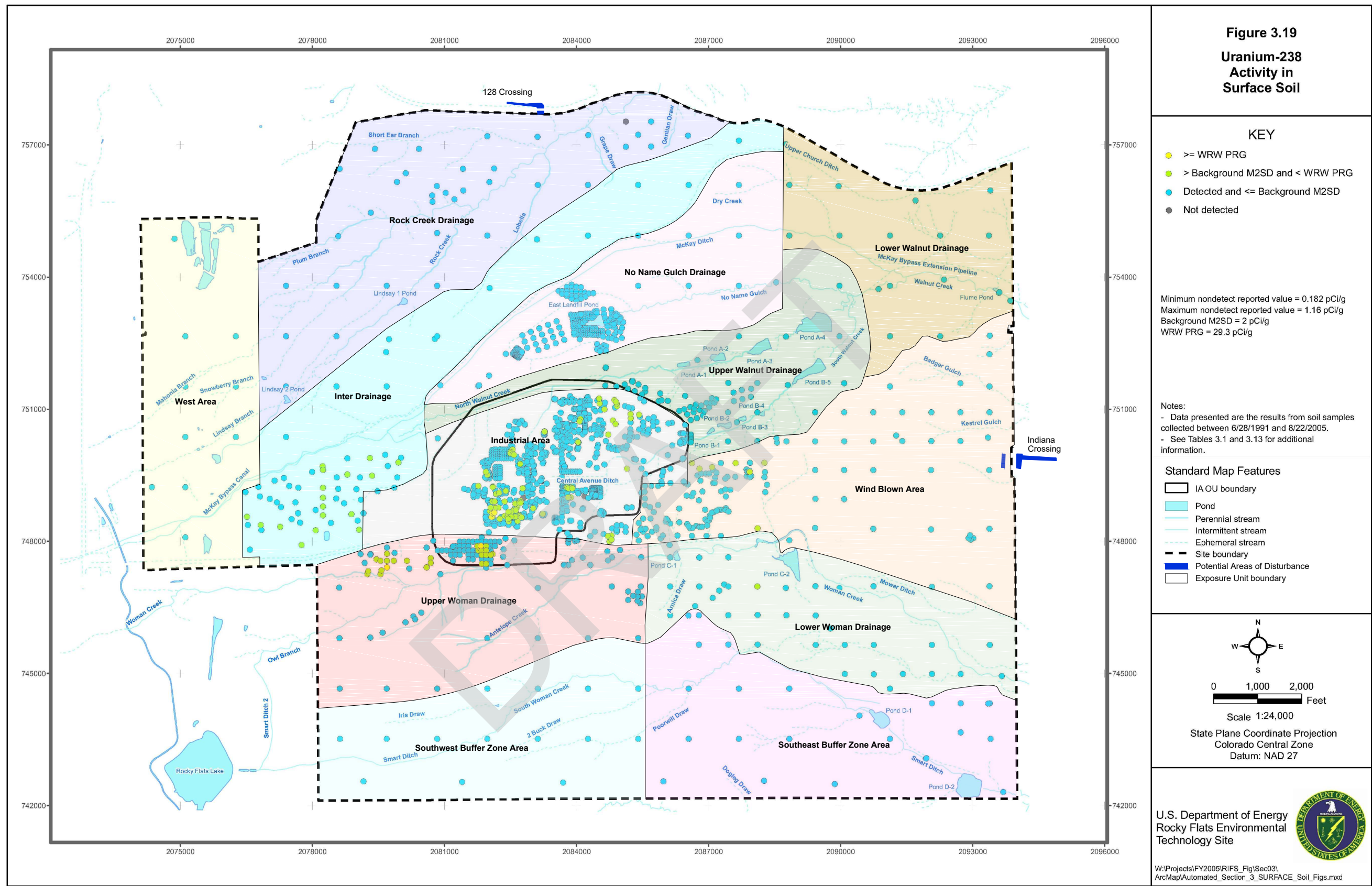
NOTE:
 FIGURE 3.18 FROM RCRA FACILITY INVESTIGATION -
 REMEDIAL INVESTIGATION/ CORRECTIVE MEASURES
 STUDY - FEASIBILITY STUDY REPORT FOR THE ROCKY
 FLATS ENVIRONMENTAL TECHNOLOGY SITE (JUNE 2006).

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**FIGURE 2-4
 URANIUM-235 ACTIVITY IN SURFACE SOIL
 ROCKY MOUNTAIN GREENWAY**

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NOTE:
FIGURE 3.19 FROM RCRA FACILITY INVESTIGATION -
REMEDIAL INVESTIGATION/ CORRECTIVE MEASURES
STUDY - FEASIBILITY STUDY REPORT FOR THE ROCKY
FLATS ENVIRONMENTAL TECHNOLOGY SITE (JUNE 2006).

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Rev 3.0

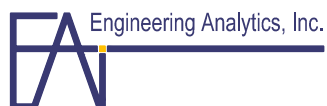


FIGURE 2-5
URANIUM-238 ACTIVITY IN SURFACE SOIL
ROCKY MOUNTAIN GREENWAY

Oil and Gas Development at Rocky Flats

- Cover memo
- Draft questions for DOE, CDPHE, EPA and USFWS
- Town of Superior draft motion

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Kim Griffiths

MEMORANDUM

TO: Board
FROM: David Abelson
SUBJECT: Potential Oil and Gas Development at Rocky Flats
DATE: March 20, 2019

The February 4, 2019, meeting provided the first opportunity for the Board to discuss Highlands Natural Resources' October/November 2018 proposal to drill for oil and gas under Rocky Flats. Although that proposal was subsequently withdrawn, the application raised widespread concern and drew broad opposition. The Board agreed to continue the conversation at this meeting and focus on two primary items: (1) developing and forwarding to DOE, CDPHE, EPA and USFWS a set of questions designed to better understand the agencies' legal authorities and potential impacts of oil and gas development on the remedy and remaining contamination, and (2) considering a motion to oppose oil and gas development at Rocky Flats.

Board members did not specify how they wanted to approach this conversation, deferring to the executive committee to develop a strategy. The executive committee agreed to structure the discussion in the following order:

1. Discuss the Board's interests and identify areas of agreement
2. Review, edit as necessary, and approve the questions to DOE, CDPHE, EPA and USFWS
3. Review the proposed motion submitted by the Town of Superior, and the depth of support of this motion
4. If there is support for the motion, then take up the motion (as is or as modified) and vote

Likely Areas of Agreement: Framework for Analyzing Oil and Gas Development

In talking with the executive committee and other Board members, it is clear that there are a number of areas of agreement with respect to oil and gas development at Rocky Flats. They likely are:

1. The Stewardship Council's primary shared interest is ensuring the cleanup remains protective of human health and the environment, both on-site and on lands adjacent to Rocky Flats. This interest is broad and is not limited to oil and gas development.
2. Activities at Rocky Flats or on lands adjacent to Rocky Flats must continue to protect the remedy. That interest includes protecting the groundwater treatment systems, landfills, and water quality monitoring systems. It likewise includes not negatively altering or changing the

surface and subsurface geology and hydrology, or otherwise creating pathways that do not currently exist.

3. The governments must continue to speak with one voice.
4. Should a Stewardship Council member not signal its support for the draft motion offered by Town of Superior, that position should not be misinterpreted as support for oil and gas development at Rocky Flats.
5. Legislation moving through the Colorado legislature, along with the subsequent rulemaking, will change the regulatory framework governing oil and gas development within the state of Colorado. Those changes would likely affect future proposals to develop at or under Rocky Flats, though how is unclear.

Questions to DOE, CDPHE, EPA and USFWS

The attached questions have been vetted with the Board and reflect input I received as of my drafting this memo. (Those additions are captured using track changes.) The Board will review and modify them as necessary, and with a vote of the Board, forward them along with the attached letter of conveyance to the agencies. At this time, because there is no pending action in front of the Colorado Oil and Gas Conservation Commission, coupled with the likelihood that the Commission's authorities will change, the Board is not directing questions to that agency.

Town of Superior Motion re: Oil and Gas Development at Rocky Flats

At the February meeting, the Board agreed that Mark Lacis (Town of Superior) would develop the attached motion. I forwarded it to the Board on February 28th asking for feedback, though no changes were offered prior to the drafting of this memo.

As a reminder, under the IGA and Bylaws, 11 votes are needed to approve this motion or any other. More importantly, as noted above, the executive committee counsels that, to be effective, the unanimous support of the governments is needed. That's why the executive committee has proposed discussing this item first before offering a motion.

No Public Comment at the April 1st Meeting

Through various means the governments have sought their constituents' views on Highlands' proposal to drill under Rocky Flats. The executive committee agreed that individual governments should continue to use their forums to gauge the views and opinions of their constituents and to bring those perspectives to the Stewardship Council. Accordingly, the Stewardship Council is not the forum for the public to express opposition to or support for drilling at Rocky Flats, and for these reasons, the discussion at the April 1st meeting will not include public comment.

Please let me know what questions you have.

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Kim Griffiths

April ____, 2019

Mr. Scott Surovchak
Department of Energy
11035 Dover Street, Suite 600
Westminster, CO 80021

Ms. Lindsay Masters
Colorado Department of Public Health and
Environment
4300 Cherry Creek Drive South
Denver, CO 80246

Ms. Vera Moritz
Environmental Protection Agency
1595 Wynkoop Street
Denver, CO 80202

Mr. David Lucas
U.S. Fish and Wildlife Service
6550 Gateway Road
Commerce City, CO 80022

Dear Mr. Surovchak, Ms. Masters, Ms. Moritz, and Mr. Lucas,

The Fall 2018 proposal by Highlands Natural Resources to develop oil and gas resources at Rocky Flats raised a number of questions and concerns. To better understand your agencies' authorities and the potential impacts of oil and gas development on the remedy and remaining contamination, the Rocky Flats Stewardship Council Board of Directors developed the attached questions. The Board understands, however, that the answer to each question may not be known at this time.

The Board respectfully requests that your agencies answer these questions to the best of your ability and address any additional issues that you believe warrant our collective attention and understanding. At a future date, should Highlands or another company apply to develop these oil and gas resources, it is our hope that through your answers, governments, their agencies, and the larger Rocky Flats community will share a common understanding of the legal parameters and potential impacts.

Thank you in advance for any assistance. Please let me or David Abelson know what questions you have.

Regards,

Joyce Downing
Chairman

**Questions for DOE, CDPHE, EPA and USFWS
Regarding Potential Oil and Gas Development at Rocky Flats**

Draft #2, March 22, 2019

Context: Highlands Natural Resources' Fall 2018 proposal to seek permits to develop oil and/or gas resources under Rocky Flats raised a number of questions. The following set of questions are designed to better understand your agencies' authorities and the potential impacts on remaining contamination, the remedy, and related systems. At this time, because there is no pending action in front of the Colorado Oil and Gas Conservation Commission, the Rocky Flats Stewardship Council is not directing questions to that agency. To the extent these questions address matters under that commission's authorities, please indicate those authorities in your responses.

Language: As used below,

1. "Rocky Flats" refers to the historic Department of Energy Rocky Flats Environmental Technology Site (RFETS). Following closure in 2005, jurisdiction over RFETS was divided into the DOE-managed lands (called the Central Operable Unit) and the Rocky Flats National Wildlife Refuge (managed by USFWS).
2. "At Rocky Flats" refers to both the surface and subsurface.
3. "Drilling" includes all aspects of oil and gas operations that could occur at Rocky Flats and/or on lands in close proximity to Rocky Flats, including but not limited to drilling, hydraulic fracturing, reinjection, and efforts to identify oil and gas deposits.

Overarching Questions

1. What information do your agencies need, beyond what's contained in the standard application, to evaluate the potential impacts of oil and gas development at Rocky Flats?
2. What technical analyses would your agencies need to quantify the potential impacts, if any, of oil and gas development at Rocky Flats?
3. What federal or state regulatory approvals would be needed for a company to proceed with oil and gas development at Rocky Flats?
4. Can the federal government be forced pooled?
5. What actions, if any (including any analyses), did your agencies take following the October 2018 filing by Highlands Natural Resources?
- 4.6. What role might your agencies occupy should a proposal to develop oil and gas at Rocky Flats be submitted to the appropriate regulating agencies?

Corrective Active Decision (CAD)/Record of Decision (ROD)

1. Regarding oil and gas development at Rocky Flats, does the CAD/ROD or any other federal or state law or regulation limit or otherwise restrict surface access to the Central Operable Unit (COU)?
2. Regarding oil and gas development at Rocky Flats, does the CAD/ROD or any other federal or state law or regulation limit or otherwise restrict surface access to the Rocky Flats National Wildlife Refuge (Refuge)?
3. Under the CAD/ROD, and consistent with the restrictive notice filed with Jefferson County, there are drilling and digging restrictions in the COU. As provided in the CAD/ROD,

"Institutional Control 2—Excavation, drilling, and other intrusive activities below a depth of three feet are prohibited, without prior regulatory review and approval pursuant to the Soil Disturbance Review Plan in RFLMA Attachment 2."

- a. Does this institutional control or any other allow for or limit oil and gas development on or under the COU? If yes, what are those requirements?
- b. Does this institutional control or any other allow for or limit directional drilling under the COU?
4. Are surface access to the COU and surface access to the Refuge treated differently? If so, how? What impact would access allowances and/or restrictions have on oil and gas development?
5. Are sub-surface access to the COU and sub-surface access to the Refuge treated differently? If so, how? What impact would access allowances and/or restrictions have on oil and gas development?
6. Is there a regulatory difference between drilling under the COU and drilling under the Refuge?
7. When developing the CAD/ROD and Comprehensive Risk Assessment (CRA), was oil and gas development considered?
 - a. Could oil and gas development change the CRA assumptions and conclusions, including the Unlimited Use, Unlimited Exposure (UUUE) determination? If so, please describe?
 - b. Must DOE, CDPHE, EPA and/or USFWS conduct a risk analysis for oil and gas development prior to allowing access for oil and gas development at Rocky Flats? Would conducting such an analysis require a reopening of the CAD/ROD?
 - c. Would NEPA be required? If yes, would a Categorical Exclusion be allowed?
 - d. What other federal and/or state laws and regulations would apply?

Remedy Protection at Rocky Flats

In answering these questions, it is important to evaluate activities that might take place on lands adjacent to Rocky Flats (e.g., reinjection of fluids) that could affect COU and/or the Refuge.

1. To what extent-depth has the subsurface geology been characterized?
2. Do DOE, CDPHE and/or EPA have data that shows whether oil and gas development would change or otherwise alter the existing geology?
3. To what extent-depth has the subsurface hydrology been characterized?
4. Do DOE, CDPHE and/or EPA have data that shows whether oil and gas development would change or otherwise alter the existing subsurface hydrology?
5. Could drilling create pathways between the lower hydrostratigraphic unit and the upper hydrostratigraphic unit? If the answer is unknown, what steps must the agencies take to answer this question?
6. Could new contaminant pathways be created? How great is that risk? If the answer is not known, what steps must the agencies take to answer this question?
7. Could the remedies be impacted by oil and gas development? How do DOE, CDPHE, EPA and/or USFWS know? Must these agencies require such an analysis prior to allowing access to either the COU or Refuge?
8. Regarding remedy protection, is there a difference between drilling under the COU and drilling under the Refuge?
 - a. What analyses support the answer to this question?
 - b. What analyses would be needed to answer this question?
9. Could oil and gas development at Rocky Flats affect the groundwater treatment systems?
 - a. What analyses support the answer to this question?
 - b. What analyses would be needed to answer this question?
10. Could oil and gas development at Rocky Flats affect the groundwater sampling systems?
 - a. What analyses support the answer to this question?

- b. What analyses would be needed to answer this question?
- 11. Could oil and gas development at Rocky Flats affect surface hydrology at the COU and the Refuge?
 - a. What analyses support the answer to this question?
 - b. What analyses would be needed to answer this question?
- 12. Could oil and gas development at Rocky Flats affect the surface water monitoring systems?
 - a. What analyses support the answer to this question?
 - b. What analyses would be needed to answer this question?
- 13. Regarding buried infrastructure in the COU, could oil and gas development at Rocky Flats affect those structures and, in turn, the contaminant pathways analysis?
 - a. What analyses support the answer to this question?
 - b. What analyses would be needed to answer this question?
- 14. Regarding the Original Landfill and the Present Landfill, could oil and gas development at Rocky Flats affect those structures and, in turn, the contaminant pathways analysis?
 - a. What analyses support the answer to this question?
 - b. What analyses would be needed to answer this question?

Burden of Proof

- 1. In answering the aforementioned questions about the potential impacts, including but not limited to the remaining contamination, remedy, and related systems, who bears the burden of proof? DOE, CDPHE, EPA, and USFWS, or the applicant?

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Kim Griffiths

**SUBMITTED BY MARK LACIS, TOWN OF SUPERIOR MAYOR PRO TEM
FEBRUARY 24, 2019**

Motion to Oppose Oil and Gas Exploration, Production, and Hydraulic Fracturing On and Under Rocky Flats

WHEREAS, Rocky Flats operated from 1951 until 1989, serving as the nation's primary nuclear weapons trigger production facility. Production of such triggers resulted in widespread contamination within the buildings and throughout portions of the 6,200-acre site. Site operations and fires in the production buildings also spread contamination to off-site lands and into off-site water supplies.

WHEREAS, production ceased in 1989 after an FBI and Environmental Protection Agency (EPA) raid on the site.

WHEREAS, cleanup, which began in earnest in 1995 and was closely regulated by both the EPA and the Colorado Department of Public Health and Environment (CDPHE), took 10 years and cost \$7 billion. Cleanup activities ended in October 2005, and in late 2006 and early 2007, the Department of Energy (DOE), EPA and CDPHE declared the cleanup complete. The former buffer zone and off-site lands were removed from the Superfund list and 4,000 acres of the former buffer zone were transferred to the Department of the Interior to be protected as the Rocky Flats National Wildlife Refuge. Additional lands were transferred in 2014.

WHEREAS, cleanup did not eliminate all risk. The core production areas, settling ponds and two landfills hold the greatest hazards and remain under DOE's jurisdiction. Contamination is found along old building foundations, in pond sediments, in old underground process waste lines, in two landfills, and in other areas. This contamination, which is at or, in nearly all cases, below all federal and state regulatory standards, includes radioactive materials, chemical solvent wastes and heavy metal wastes.

WHEREAS, cleanup did not anticipate risks related to oil and gas production or hydraulic fracturing on and under the 6,200-acre Rocky Flats site. The impacts of such risks are unknown

and unstudied, posing an unreasonable threat to public health, safety, and welfare.

WHEREAS, in November 2018, applications were filed with the Colorado Oil and Gas Conservation Commission (COGCC), to develop oil and gas minerals located underneath the Rocky Flats site.

BE IT RESOLVED, that the Rocky Flats Stewardship Council opposes any and all oil and gas exploration and production, including but not limited to that which utilizes hydraulic fracturing (fracking), on and under any portion of the 6,200-acre Rocky Flats site until the associated risks are identified, assessed, and mitigated to the satisfaction of all Council members. Until such time, such activities pose an unreasonable threat to public health, safety, and welfare.

DRAFT

Appendix

- Meeting Protocols
- Acronym List

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Rocky Flats Stewardship Council – Meeting Overview and Protocols

The central purpose of the meeting of the Rocky Flats Stewardship Council Board of Directors is for the Board and public to learn about current site activities and monitoring results, to be briefed on any issues or challenges DOE and the regulatory agencies are facing, and other issues that come before the Board. The Board reserves time at each meeting to address governance-related issues. Those issues are identified in the meeting agenda, and could include the budget, work plan, minutes, and related items.

All meetings of the Board of Directors are open to the public. From time to time, and in accordance with § 24-6-402(4), Colorado Revised Statutes, the Board may go into executive session. Public notice of the executive session is provided in the meeting agenda.

Public Engagement Protocols: Time is allotted at each meeting for the public to address the Board of Directors and presenters. The following procedures apply to all meetings of the Board of Directors. The Chair reserves the right to modify these procedures.

1. **Public comment periods:** The public comment periods are identified on the meeting agenda. The goal is to have two public comment periods—one near the start of the meeting and another near the end. The public comment periods are not a Q&A with the Board.
2. **Time limit:** The Board requests that comments be to the point. If individual comments are too long and/or if there are a number of people who wish to speak, the Chair reserves the right to enact a time limit.
3. **Additional public comment:** As time allows, and as called on by the Chair, the public is allowed to ask questions or express an opinion during presentations. The Board will have the first opportunity to ask questions or make comments.

No personal attacks: All people speaking at the meeting must refrain from personal attacks and address the issues at hand.

Public Comment on Stewardship Council Website: The Stewardship Council website includes a section for public comment. To have your comment posted, you must email a copy of your comments to David Abelson (dabelson@rockyflatssc.org).

Noise: In order to help reduce background noise, sidebar and backroom conversations should be taken into the hall.

To be added to the Stewardship Council's email distribution list, please email David Abelson (dabelson@rockyflatssc.org).

Acronym or Term	Means	Definition
Alpha Radiation		<p>A type of radiation that is not very penetrating and can be blocked by materials such as human skin or paper. Alpha radiation presents its greatest risk when it gets inside the human body, such as when a particle of alpha emitting material is inhaled into the lungs. Plutonium, the radioactive material of greatest concern at Rocky Flats, produces this type of radiation.</p>
Am	americium	<p>A man-made radioactive element which is often associated with plutonium. In a mass of Pu, Am increases in concentration over time which can pose personnel handling issues since Am is a gamma radiation-emitter which penetrates many types of protective shielding. During the production era at Rocky Flats, Am was chemically separated from Pu to reduce personnel exposures.</p>
AME	Actinide Migration Evaluation	<p>An exhaustive years-long study by independent researchers who studied how actinides such as Pu, Am, and U move through the soil and water at Rocky Flats</p>
AMP	Adaptive Management Plan	<p>Additional analyses that DOE is performing beyond the normal environmental assessment for breaching the remaining site dams.</p>
AOC well	Area of Concern well	<p>A particular type of groundwater well</p>
B	boron	<p>Boron has been found in some surface water and groundwater samples at the site</p>
Be	beryllium	<p>A very strong and lightweight metal that was used at Rocky Flats in the manufacture of nuclear weapons. Exposure to beryllium is now known to cause respiratory disease in those persons sensitive to it</p>
Beta Radiation		<p>A type of radiation more penetrating than alpha and hence requires more shielding. Some forms of uranium emit beta radiation.</p>

Rocky Flats Acronym List
 Prepared by Rik Getty, Rocky Flat Stewardship Council
 October 2014

BMP	best management practice	A term used to describe actions taken by DOE that are not required by regulation but warrant action.
BZ	Buffer Zone	The majority of the Rocky Flats site was open land that was added to provide a "buffer" between the neighboring communities and the industrial portion of the site. The buffer zone was approximately 6,000 acres. Most of the buffer zone lands now make up the Rocky Flats National Wildlife Refuge.
CAD/ROD	corrective action decision/record of decision	The complete final plan for cleanup and closure for Rocky Flats. The Federal/State laws that governed the cleanup at Rocky Flats required a document of this sort.
CCP	Comprehensive Conservation Plan	The refuge plan adopted by the U.S. Fish and Wildlife Service in 2007.
CDPHE	Colorado Department of Public Health and Environment	State agency that regulates the site.
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act	Federal legislation that governs site cleanup. Also known as the Superfund Act
cfs	cubic feet per second	A volumetric measure of water flow.
COC	Contaminant of Concern	A hazardous or radioactive substance that is present at the site.
COU	Central Operable Unit	A CERCLA term used to describe the DOE-retained lands, about 1,500 acres comprised mainly of the former Industrial Area where remediation occurred
CR	Contact Record	A regulatory procedure where CDPHE reviews a proposed action by DOE and either approves the proposal as is or requires changes to the proposal before approval. CRs apply to a wide range of activities performed by DOE. After approval the CR is posted on the DOE-LM website and the public is notified via email.
Cr	chromium	Potentially toxic metal used at the site.
CRA	comprehensive risk assessment	A complicated series of analyses detailing human health risks and risks to the environment (flora and fauna).

Rocky Flats Acronym List
 Prepared by Rik Getty, Rocky Flat Stewardship Council
 October 2014

D&D	decontamination and decommissioning	The process of cleaning up and tearing down buildings and other structures.
DG	discharge gallery	This is where the treated effluent of the SPPTS empties into North Walnut Creek.
DOE	U.S. Department of Energy	The federal agency that manages portions of Rocky Flats. The site office is the Office of Legacy Management (LM).
EA	environmental assessment	Required by NEPA (see below) when a federal agency proposes an action that could impact the environment. The agency is responsible for conducting the analysis to determine what, if any, impacts to the environment might occur due to a proposed action.
EIS	environmental impact statement	A complex evaluation that is undertaken by a government agency when it is determined that a proposed action by the agency may have significant impacts to the environment.
EPA	U.S. Environmental Protection Agency	The federal regulatory agency for the site.
EEOICPA	energy employees occupational illness compensation program act	This act was passed by Congress in 2000 to compensate sick nuclear weapons workers and certain survivors. Unfortunately the program has been fraught with difficulties in getting benefits to these workers over the years.
ETPTS	east trenches plume treatment system	The treatment system near the location of the east waste disposal trenches which treats groundwater contaminated with organic solvents emanating from the trenches. Treated effluent flows into South Walnut Creek.
FC	functional channel	Man-made stream channels constructed during cleanup to help direct water flow.
FACA	Federal Advisory Committee Act	This federal law regulated federal advisory boards. The law requires balanced membership and open meetings with published Federal Register meeting dates.
Gamma Radiation		This type of radiation is very penetrating and requires heavy shielding to keep it from exposing people. Am is a strong gamma emitter.
GAO	Government Accountability Office	Congressional office which reports to Congress. The GAO did 2 investigations of

		Rocky Flats relating to the ability to close the site for a certain dollar amount and on a certain time schedule. The first study was not optimistic while the second was very positive.
g	gram	metric unit of weight
gpm	gallons per minute	A volumetric measure of water flow in the site's groundwater treatment systems and other locations.
GWIS	groundwater intercept system	Refers to a below ground system that directs contaminated groundwater toward the Solar Ponds and East Trenches treatment systems.
IA	Industrial Area	Refers to the central core of Rocky Flats where all production activities took place. The IA was roughly 350 of the total 6,500 acres at the site.
IC	Institutional Control	ICs are physical and legal controls geared towards ensuring the cleanup remedies remain in place and remain effective.
IGA	intergovernmental agreement	A cooperative agreement between local governments which sets up the framework of the Stewardship Council.
IHSS	Individual Hazardous Substance Site	A name given during cleanup to a discrete area of known or suspected contamination. There were over two hundred such sites at Rocky Flats.
ITPH	interceptor trench pump house	The location where contaminated groundwater collected by the interceptor trench is pumped to either the Solar Ponds and East Trenches treatment systems
L	liter	Metric measure of volume, a liter is slightly larger than a quart.
LANL	Los Alamos National Laboratory	One of the US government's premier research institutions located near Santa Fe, NM. LANL is continuing to conduct highly specialized water analysis for Rocky Flats. Using sophisticated techniques LANL is able to determine the percentages of both naturally-occurring and man-made uranium which helps to inform water quality decisions.
LHSU	lower hydrostratigraphic unit	Hydrogeology term for deep unweathered bedrock which is hydraulically isolated from the upper hydrostratigraphic unit (see

		UHSU). Data shows that site contaminants have not contaminated the LHSU.
LM	Legacy Management	DOE office responsible for overseeing activities at closed sites.
LMPIP	Legacy Management Public Involvement Plan	This plan follows DOE and EPA guidance on public participation and outlines the methods of public involvement and communication used to inform the public of site conditions and activities. It was previously known as the Post-Closure Public Involvement Plan (PCPIP).
M&M	monitoring and maintenance	Refers to ongoing activities at Rocky Flats.
MOU	Memorandum of Understanding	MOU refers to the formal agreement between EPA and CDPHE which provides that CDPHE is the lead post-closure regulator with EPA providing assistance when needed.
MSPTS	Mound site plume treatment system	The treatment system for treating groundwater contaminated with organic solvents which emanates from the Mound site where waste barrels were buried. Treated effluent flows into South Walnut Creek.
NEPA	National Environmental Policy Act	Federal legislation that requires the federal government to perform analyses of environmental consequences of major projects or activities.
nitrates		Contaminant of concern found in the North Walnut Creek drainage derived from Solar Ponds wastes. Nitrates are very soluble in water and move readily through the aquatic environment
Np	neptunium	A man-made radioactive isotope that is found as a by-product of nuclear reactors and plutonium production.
NPL	National Priorities List	A listing of Superfund sites. The refuge lands were de-listed from the NPL while the DOE-retained lands are still on the NPL due to ongoing groundwater contamination and associated remediation activities.
OLF	Original Landfill	Hillside dumping area of about 20 acres which was used from 1951 to 1968. It underwent extensive remediation with the

		addition of a soil cap and groundwater monitoring locations.
OU	Operable Unit	A term given to large areas of the site where remediation was focused.
PCE	perchloroethylene	A volatile organic solvent used in past operations at the site. PCE is also found in environmental media as a breakdown product of other solvents.
pCi/g	picocuries per gram of soil	A unit of radioactivity measure. The soil cleanup standard at the site was 50 pCi/g of soil.
pCi/L	picocuries per liter of water	A water concentration measurement. The State of Colorado has a regulatory limit for Pu and Am which is 0.15 pCi/L of water. This standard is 100 times stricter than the EPA's national standard.
PLF	Present Landfill	Landfill constructed in 1968 to replace the OLF. During cleanup the PLF was closed under RCRA regulations with an extensive cap and monitoring system.
PMJM	Preble's Meadow Jumping Mouse	A species of mouse found along the Front Range that is on the endangered species list. There are several areas in the Refuge and COU that provide an adequate habitat for the mouse, usually found in drainages. Any operations that are planned in potential mouse habitat are strictly controlled.
POC	Point of Compliance (surface water)	A surface water site that is monitored and must be found to be in compliance with federal and state standards for hazardous constituents. Violations of water quality standards at the points of compliance could result in DOE receiving financial penalties.
POE	Point of Evaluation (surface water)	These are locations at Rocky Flats at which surface water is monitored for water quality. There are no financial penalties associated with water quality exceedances at these locations, but the site may be required to develop a plan of action to improve the water quality.
POU	Peripheral Operable Unit	A CERCLA term used to describe the Wildlife Refuge lands of about 4,000 acres.

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Pu	plutonium	Plutonium is a metallic substance that was fabricated to form the core or "trigger" of a nuclear weapon. Formation of these triggers was the primary production mission of the Rocky Flats site. Pu-239 is the primary radioactive element of concern at the site. There are different forms of plutonium, called isotopes. Each isotope is known by a different number. Hence, there are plutonium 239, 238, 241 and others.
RCRA	Resource Conservation and Recovery Act	Federal law regulating hazardous waste. In Colorado, the EPA delegates CDPHE the authority to regulate hazardous wastes.
RFCA	Rocky Flats Cleanup Agreement	The regulatory agreement which governed cleanup activities. DOE, EPA, and CDPHE were signors.
RFCAB	Rocky Flats Citizen Advisory Board	This group was formed as part of DOE's site-specific advisory board network. They provided community feedback to DOE on a wide variety of Rocky Flats issues from 1993-2006.
RFCLOG	Rocky Flats Coalition of Local Governments	The predecessor organization of the Rocky Flats Stewardship Council
RFETS	Rocky Flats Environmental Technology Site	The moniker for the site during cleanup years.
RFLMA	Rocky Flats Legacy Management Agreement	The post-cleanup regulatory agreement between DOE, CDPHE, and EPA which governs site activities. The CDPHE takes lead regulator role, with support from EPA as required.
RFNWR	Rocky Flats National Wildlife Refuge	The approximate 4,000 acres which compose the wildlife refuge.
RFSOG	Rocky Flats Site Operations Guide	The nuts-and-bolt guide for post-closure site activities performed by DOE and its contractors.
SEP	Solar Evaporation Ponds	In the 1950's when the site's liquid waste treatment capability was surpassed by the liquid waste generation rate, the site resulted to transferring liquid wastes to open-air holding ponds where solar energy was utilized to evaporate and concentrate the waste. The original SEPs were not impermeable and substantial quantities of uranium and nitrates made their way into

		groundwater. As a result the solar ponds plume treatment system was necessary to treat the contaminated groundwater before it emerged as surface water in North Walnut Creek.
SPPTS	solar ponds plume treatment system	System used to treat groundwater contaminated with uranium and nitrates. The nitrates originate from the former solar evaporation ponds which had high levels of nitric acid. The uranium is primarily naturally-occurring with only a slight portion man-made. Effluent flows into North Walnut Creek
SVOCs	semi-volatile organic compounds	These compounds are not as volatile as the solvent VOCs. They tend to be similar to oils and tars. They are found in many environmental media at the site. One of the most common items to contain SVOCs is asphalt.
TCE	trichloroethylene	A volatile organic solvent used in past operations at the site. TCE is also found in environmental media as a breakdown product of other solvents.
U	uranium	Naturally occurring radioactive element. There were two primary isotopes of U used during production activities. The first was enriched U which contained a very high percentage (>90%) of U-235 which was used in nuclear weapons. The second isotope was U-238, also known as depleted uranium. This had various uses at the site and only had low levels of radioactivity.
UHSU	upper hydrostratigraphic unit	A hydrogeology term describing the surficial materials and weathered bedrock found at Rocky Flats. The UHSU is hydraulically isolated from the lower hydrostratigraphic unit (see LHSU). Groundwater in some UHSU areas of the site is contaminated with various contaminants of concern while groundwater in other UHSU areas is not impacted. All groundwater in the UHSU emerges to surface water before it leaves the site.

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USFWS	United States Fish & Wildlife Service	An agency within the US Department of the Interior that is responsible for maintaining the nation-wide system of wildlife refuges, among other duties. The regional office is responsible for the RFNWR.
VOC	volatile organic compound	These compounds include cleaning solvents that were used in the manufacturing operations at Rocky Flats. The VOCs used at Rocky Flats include carbon tetrachloride (often called carbon tet), trichloroethene (also called TCE), perchloroethylene (also called PCE), and methylene chloride.
WCRA	Woman Creek Reservoir Authority	This group is composed of the three local communities, the Cities of Westminster, Northglenn, and Thornton, who use Stanley Lake as part of their drinking water supply network. Water from the site used to flow through Woman Creek to Stanley Lake but the reservoir severed that connection. The Authority has an operations agreement with DOE to manage the Woman Creek Reservoir.
WQCC	Water Quality Control Commission	State board within CDPHE tasked with overseeing water quality issues throughout the state. DOE has petitioned the WQCC several times in the last few years regarding water quality issues.
ZVI	zero valent iron	A type of fine iron particles used to treat VOC's in the ETPTS and MSPTS.