

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 Thornton -- City of Westminster -- Town of Superior
League of Women Voters -- Rocky Flats Cold War Museum -- Rocky Flats Homesteaders
Nancy Newell

Board of Directors Meeting – Agenda

Monday, September 14, 2015, 8:30 AM – 12:00 PM

**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 August 3, 2015, Executive Committee meeting
- 8:40 AM Business Items
1. Consent Agenda
 - o Approval of meeting minutes and checks
 2. Executive Director’s Report
- 8:50 AM Public Comment
- 9:00 AM Host DOE Quarterly Meeting (briefing memo attached)
- o DOE will brief the Stewardship Council on site activities for the first quarter of 2015 (January – March).
 - o DOE has posted the report on its website and will provide a summary of its activities to the Stewardship Council.
 - o Activities include surface water monitoring, groundwater monitoring, ecological monitoring, and site operations (inspections, maintenance, etc.).
 - o The briefing will include an update on the original landfill.
- 9:45 AM Board Review of Stewardship Council Activities for 2015 and Initial Review of 2016 Work Plan (briefing memo attached)
- o The Stewardship Council work plan provides that the Board shall review its work for the current year. The review is a first step the Board will take in approving the 2016 work plan.
 - o The Board will also review and edit the draft 2016 work plan.
 - o Formal approval of the work plan will take place at the October 26th meeting.

- 10:05 AM 2016 Budget – Initial Review (briefing memo attached)
- The Board will review, and modify as necessary, the draft 2016 budget.
 - Formal budget hearings and adoption of the 2016 budget will take place at the October 26th meeting.
- 10:15 AM Briefing/Discussion on cleanup levels at Rocky Flats (briefing memo attached)
- This briefing was held over from the June 2015 meeting.
 - CDPHE will focus on three primary questions:
 - What are the primary contaminants of concern, and what are the contaminant levels at Rocky Flats?
 - How do we know what the contaminant levels are?
 - What risks do these contaminants pose?
- 11:00 AM Briefing by Anne Fenerty and Jon Lipsky (briefing memo attached)
- Anne and Jon have chosen to focus on concerns they have with Scott Surovchak’s (DOE) April 2015 briefing to the Stewardship Council.
 - Scott’s briefing provided an overview of the history of Rocky Flats.
- 11:45 AM Public comment
- 11:55 PM Big Picture Review/Updates
1. Big picture review
 2. Member updates

Adjourn

Next Meetings: October 26 (4th Monday of month)
 February 1, 2016

Acronym or Term	Means	Definition
Alpha Radiation		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.
Am	americium	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.
AME	Actinide Migration Evaluation	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
AMP	Adaptive Management Plan	Additional analyses that DOE is performing beyond the normal environmental assessment for breaching the remaining site dams.
AOC well	Area of Concern well	A particular type of groundwater well
B	boron	Boron has been found in some surface water and groundwater samples at the site
Be	beryllium	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
Beta Radiation		A type of radiation more penetrating than alpha and hence requires more shielding. Some forms of uranium emit beta radiation.
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).
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

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 Prepared by Rik Getty, Rocky Flat Stewardship Council
 October 2014

		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

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		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	A unit of radioactivity measure. The soil

	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.
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

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		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.
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,

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		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.

Business Items

- June 1, 2015, draft board meeting minutes
- List of Stewardship Council checks

DOE Quarterly Report Briefing

- Cover memo
- Table of contents from quarterly report

ROCKY FLATS STEWARDSHIP COUNCIL
Monday, June 1, 2015, 8:30 AM – 11:30 AM
Rocky Mountain Metropolitan Airport, Terminal Building, Mount Evans Room
11755 Airport Way, Broomfield, Colorado

Board members in attendance: Mark McGoff (Director, Arvada), Sandra McDonald (Alternate, Arvada), Lisa Morzel (Director, City of Boulder), Tim Plass (Alternate, City of Boulder), Megan Davis (Alternate, Boulder County), Mike Shelton (Director, Broomfield), David Allen (Alternate, Broomfield), Laura Weinberg (Director, Golden), Pat O’Connell (Alternate, Jefferson County), Joyce Downing (Director, Northglenn), Shelley Stanley (Alternate, Northglenn), Ray Reling (Alternate, Northglenn), Joe Cirelli (Director, Superior), Emily Hunt (Alternate, Thornton), Bob Briggs (Director, Westminster), Bruce Baker (Alternate, Westminster), Mary Fabisiak (Alternate, Westminster), Jeannette Hillery (Director, League of Women Voters), Sue Vaughan (Alternate, League of Women Voters), Roman Kohler (Rocky Flats Homesteaders), Arthur Widdowfield (Director, Rocky Flats Institute & Museum), Ann Lockhart (Alternate, Rocky Flats Institute & Museum), Ken Freiberg (Alternate, Rocky Flats Institute & Museum).

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

Attendees: Scott Surovchak (DOE-LM), Bob Darr (SN3), Jody Nelson (SN3), Kurt Franzen (SN3), Linda Kaiser (SN3), John Boylan (SN3), George Squibb (SN3), David Ward (SN3), Carl Spreng (CDPHE), Vera Moritz (EPA), Shirley Garcia (City & County Broomfield), Cathy Shugarts (City of Westminster), Judith Mohling (RMPJC), LeRoy Moore (RMPJC), Sam Dixon (citizen), Mickey Harlow (citizen), Donald Sabec (citizen), Judy Padilla (RFNW), Jay Hormel (citizen), Barbara Nabb (former Rocky Flats employee), Erik Sween (citizen), W Gale Biggs (citizen), Anne Fenerty (citizen), Jon Lipsky (citizen), Mike DiPardo (citizen), Ted Ziegler (citizen).

Convene/Agenda Review

Chair Joyce Downing convened the meeting at 8:38 a.m. The first order of business was introductions of Board members and the audience. David Abelson noted that the Executive Committee had reviewed and approved the agenda for this meeting.

Consent Agenda

Prior to approving the April 6 minutes, a one word change was noted pertaining to comments made by Jon Lipsky at that meeting. Chair Downing moved to approve the April 6, 2015 Board minutes (as amended) and the checks. The motion was seconded by Joe Cirelli. The motion to accept the minutes and checks passed 12-0.

Executive Director's Report

David Abelson began his update to the Board by mentioning that he had received 13 emails from Jon Lipsky after the last meeting and that these had been forwarded to the Board. As part of his correspondence, Jon had brought up five legal/regulatory issues pertaining to the Board's activities. David noted that he remains confident that the Stewardship Council is operating correctly. He then reviewed each of the five issues.

Jon suggested that the RFSC adopt procedures related to Colorado Open Records Act requests. David noted that the Board had only received two of these requests throughout its existence. One was from LeRoy Moore and now one from Jon. Under State law, the Stewardship Council is not required to adopt CORA policies unless the Board would like to charge for photocopies of the documents being shared.

Jon said that more should be done to publicize upcoming meetings. David noted that the Board goes beyond what is legally required when posting meeting notices. Notices are filed with each member government (plus Adams County), which meets the requirements for notices. Beyond legal compliance, the Board posts the agendas to the website, includes future meeting dates in monthly updates and all agendas, and emails out meeting packets to everyone who has requested information.

Jon also questioned whether RFSC meeting minutes were in compliance with state laws and regulations. He said that the Open Meeting Law requires minutes to be taken, promptly recorded and publicly available, and that Executive Sessions must be recorded. David noted that the Board must approve the minutes at a public meeting, which is what dictates the schedule for getting the minutes posted. They are posted promptly upon Board approval. David also responded that Executive Sessions are recorded and maintained in accordance with state law.

Finally, Jon suggested that the Board use a microphone and speaker system at meetings for the public and tend to American Disability Act (ADA) needs. David said that while a microphone was used in the past, the Board believes that meeting dialogue is accessible to anyone attending. David said that Board would need to decide if it would like to go beyond required procedures and incur additional expenses to add a sound system.

David opened the discussion up for Board questions. Joe Cirelli asked what suggestions were made to enhance meeting notice distribution. David said it was related to enhancing metatags on the website so the information could be found easier.

Barb Vander Wall noted that at the first meeting of each year, the Board passes a meeting resolution which includes how and where notices will be filed. Bruce Baker asked if the Board was meeting requirements. She said it was. He then asked how much it would cost to go above and beyond the requirements. He added that, if these costs were minimal, the Board would be wise to spend a couple thousand dollars to go over and above the minimum, given the history of Rocky Flats. He said this would provide transparency and would be prudent.

David Abelson said that the Board could enact a CORA policy if it would like. Barb said that up until last year, there was no specific policy mentioned in statutes. Policy guidelines were developed for organizations to be eligible to charge for records. The state allows for a \$30 per hour cap with the first hour free. Barb said she could write up a policy to be approved at the next meeting.

David said that in terms of meeting notices, he was not really sure what else they could do. He noted that running ads in newspapers was extremely expensive. Also, in terms of ADA compliance, he said that a small sound system could be purchased in the \$250-700 range. Sue Vaughan said that the League of Women Voters publish their meeting notices on Your Hub, which is free. Joe Cirelli said that Superior has dealt with the meeting notice issue in their town. He said paper does not really work, and that an e-blast is the best option. David noted that people who have opted in to the Board's email list already receive meeting notices.

Tim Plass said that a sound system could get very cumbersome, given how many people speak during Board discussions. He suggested looking into reconfiguring the room setup as an option. David noted that the current room configuration was designed so that none of the Board Members had their backs to the public. He added that they could try a different setup at the next meeting and see how it works. Mark McGoff said he did not think it would work well to have people sitting behind the Board, and that it would be better to give presenters a microphone and that others do a better job of projecting their voices. Regarding the CORA issue, Megan Davis said that even though the Board would not want to charge for records, it could not hurt to have a policy in place simply in the name of transparency. Chair Downing summarized the Board's discussion on these issues. She said they would look into developing a CORA policy, try reconfiguring the room, and will look at purchasing a sound system. Barb will develop a draft policy for approval. Bruce clarified that it was not his intent to suggest the Board collect fees, since that would be barrier to sharing information. Barb clarified that fees could be assessed based on the discretion of the Board. Most requests would not be very time intensive.

Joyce announced that the Board audit agenda item was being moved up to take place prior to the Public Comment period.

Receive Stewardship Council 2014 Financial Audit

Eric Barnes from Wagner, Barnes and Griggs was on hand to brief the Board on the results of the 2014 financial audit. The Stewardship Council is not required by either state law or the DOE grant to seek an audit. However, it has always believed that an independent audit is an important check that confirms both the board and staff are managing the finances in accordance with applicable laws and regulations.

Eric noted that the auditor's job is to review the financial statements and provide an opinion on whether there are any material problems. He went through a quick review of the report. On Page 1, he noted that the 'Opinion' of the auditors of the RFSC financial statements was about as good

as it can get for an independent audit. Eric noted that the most important item for them to review based on the Stewardship Council's finances was to look at the cash it holds, about one year of operating expenses. This setup is needed because the Stewardship Council's grant works on a reimbursable basis. He said page 2 was for compliance only, and does not apply to RFSC.

Eric noted that the Stewardship Council's main revenue source was the grant from DOE, which accounts for about 90% of the budget. The primary expense for the Board is the management contract. Eric said that he had heard some discussion earlier in the meeting regarding transparency, and that he wanted to note that this organization was not subject to a mandatory audit since their revenue is far less than the \$500,000 threshold for required audits. Page 5 shows budget to actual expenses, and reflects that the Stewardship Council was below budget on expenditures. Mark McGoff asked about the 'investments' section on page 10, specifically whether the Board should have policy statement on this. Eric said that this was not legally required. Barb said she agreed. Eric pointed out on Page 12, risk management, that the Board does not have true 'personnel'. Barb clarified that, technically speaking, the Board Members are personnel. Mark asked what 'management' meant on Page 12, note 7. Eric said it was the governing body/executive director. Emily Hunt asked what the carryover from RFCLOG was on Page 5, Statement of Revenue. David Abelson explained that when the Stewardship Council was created, it assumed RFCLOG's assets and liabilities. He said that the way the budget works, this dollar amount needs to be shown as a source of revenue, but that the Board generally does not spend from this category.

Eric concluded by saying that no material problems were found, and that the Stewardship Council was found to be in compliance with all applicable laws and regulations. He added that the Board's accountant, Jennifer Bohn, and David Abelson had always done a great job with record keeping and answering his questions. He found them to be very open and accessible.

Lisa Morzel moved to accept the 2014 financial audit. The motion was seconded by Roman Kohler. The motion passed 12-0.

Public Comment

Joyce Downing noted that there would be a three minute limit per comment.

Anne Fenerty said that, regarding the discussion about using audio equipment at meetings, it was difficult to hear all of the discussion at these meetings. Her primary comment had to do with the RFLMA Contact Record 2015 Immediate Response to Recent Precipitation of the OLF cracking and slumping. She was concerned that there would be digging in this area, and said that the present problems could have been avoided had the landfill closure been done as required by RCRA, which was recommended by an independent scientist. She said that had the RCRA rules been followed the public would not now be exposed to the present situation.

(Anne's comment can be found

at: http://rockyflatssc.org/public_comment/Comment%20by%20Anne%20Fenerty%20June%201%202015.pdf)

Mickey Harlow noted that she was the former Rocky Flats coordinator for the City of Westminster. She had prepared a seven page document outlining her concerns related to how plans were being made by DOE (link below). She said the typical DOE decision process was to decide, disseminate and defend. She said she would like to know how public comment came into play with these decisions. She added that she would like to see details from CDPHE and EPA about what they are looking at and how they are making decisions. Regarding the Wright Water Engineers study, she said it was the first report from a consultant she had read that did not contain any recommendations. Mickey said that the Solar Ponds were not remediated during cleanup, and that this should be done. She said stream sediments have not been sampled, and they should be. She said all treatment systems have required modification since closure. She said this was a failure of the remedy and that DOE has moved from passive gravity driven engineered treatment to active, solar powered air stripping. Additional concerns from Ms. Harlow can be found in her submitted document. Mickey submitted the following comment to be posted on the Stewardship Council website (see http://rockyflatscc.org/public_comment/Harlow%20060115.pdf)

Ted Ziegler noted that his handout explained what he wanted to comment on. He said there was quite a difference between cleanup and burial, and that the intent was to clean up Rocky Flats. Instead, he said it was capped and will decay. He said he was concerned about lead paint in imploded buildings, as there were a million pounds of lead in inventory at Rocky Flats. He said this contamination will not change until it is removed. Ted submitted the following comment to be posted on the Stewardship Council website (see http://rockyflatscc.org/public_comment/20150601%20Public%20Comment%20-%20Ted%20Ziegler.pdf)

Jon Lipsky spoke about his emails to David Abelson. He said he would like his comments to be added to minutes of meetings. He clarified that he was not a member of the Rocky Mountain Peace and Justice Center or the Alliance for Nuclear Accountability, although he was recognized by ANA for his actions. He also said that these groups were not ‘anti-Stewardship Council’. He said that the subject of re-funding the Stewardship Council on a competitive basis was a topic of discussion for after the current contract expires. He said he also wanted to point out that he never said there was a violation of the ADA at these meetings. He suggested putting a note on the website asking attendees to contact the Board if they have a particular need that could be accommodated. Jon submitted the following comment to be posted on the Stewardship Council website (see http://rockyflatscc.org/public_comment/20150601%20RFSC%20-%20Jon%20Lipsky%20Public%20Comment%20060115-%20with%20attachments.pdf)

Host DOE Annual Meeting

DOE was on hand to brief the Board regarding site activities for calendar year 2014. DOE has posted the full report on its website. Activities included surface water monitoring, groundwater monitoring, ecological monitoring, and site operations (inspections, maintenance, etc.). DOE was also asked to include an overview of the recent independent report on uranium transport. Therefore, a summary of the recent report by Wright Water Engineers regarding uranium in surface water at Rocky Flats was presented first.

Uranium Transport – Wright Water Engineers

Ian Paton and Dr. Bob Weiner addressed the distribution, transport mechanisms, sources and composition of uranium, in terms of its natural versus anthropogenic fractions, with a focus on the North and South Walnut Creek drainages. Dr. Weiner is a retired Professor Emeritus of Chemistry at the University of Denver. Ian Paton worked with the actinide migration panel during cleanup. Wright Water was tasked with three main questions:

1. How do concentrations of natural uranium observed globally and throughout Colorado compare with the uranium concentrations observed in the Rocky Flats Walnut Creek drainages?
2. What are the primary mechanisms by which concentrations of uranium in surface water may significantly increase and decrease?
3. Are previously unrecognized anthropogenic uranium sources suggested by the data?

Dr. Weiner explained that the average uranium (U) concentration in the earth's crust is 2-3 parts per million (ppm). This number is quite variable, as well as very site-specific. He added that the same applies for U concentrations in water. He also noted that, in the Ralston Creek drainage basin, approximately 5 miles southwest of Rocky Flats, the Schwartzwalder mine is identified as the largest vein-type uranium deposit in the United States. He noted that the Rocky Flats standard is at the lower end of the statewide stream standard.

Dr. Weiner noted that a key factor concerning uranium is the oxidation state and that there are two main oxidation states – U(IV) & U(VI). He said that oxidizing elements can help mobilize uranium and change it from U(IV), which does not dissolve in water, to U(VI). With oxidizing conditions, uranium can move more and is soluble. Natural or anthropogenic (man-made) uranium will move the same way based on the existing conditions. Dr. Weiner said that a few things changed at Rocky Flats since closure that have affected uranium concentrations. He said that there have been very different patterns of uranium transport since this time. He added that the September 2013 storm provided very useful data for their analysis. He said that the excessive rain meant more oxygen in the soil/groundwater, which mobilized uranium temporarily. He said that the Solar Ponds area comprises only 5-10% of the uranium load in Walnut Creek, so most of it is coming from other places. Part of the Wright Water analysis included looking at uranium isotope ratios (natural vs. anthropogenic). Dr. Weiner said that even at the solar ponds, more than half of the U is natural. He said that data shows that the natural uranium component is dominant despite the concentration, and no new anthropogenic sources of uranium were identified.

Mary Fabisiak asked if other metals move the same way as uranium under oxidizing conditions. Dr. Weiner said that most act in the reverse way. He said that a few others act like uranium, but not common metals such as lead or chromium. With plutonium and americium, their solubility changes somewhat with oxidation potential. However, they are insoluble in almost all conditions. Shelley Stanley asked if the Solar Ponds Treatment System was improved for nitrogen and uranium, could this have measurable effect on load in Walnut Creek. Ian said that even if they did not treat at the Solar Ponds at all, it would account for only 10% of the uranium load in the creek, so it is not a dominant factor. He said nitrate may be more of a factor. George Squibb said

that in the presence of oxygen, this will be the oxidizing factor for uranium, not nitrogen. He said this would make some difference, but not a big difference. Shelley noted that the SPPTS was not collecting all of the water coming off the hillside, and asked if it was expanded to capture more of the water, if it would have a big impact on the stream. George said this was a hard question to answer. Ted Ziegler asked about any findings related to lead. Ian said that they did not look at lead. David Allen observed that the area that had the greatest variability in uranium isotope ratio was near GS10. He emphasized that it was important that the Board not lose sight of this other area in terms of uranium issues. Bruce Baker asked if the site could just add water to solve the exceedance problem. Ian said that this would involve huge quantities of water but would work. David Allen pointed out that this would just mask the performance of the remedy, which was not the goal of downstream communities. Ian clarified that while the concentrations of uranium would be lower, the total load would not. Emily Hunt asked why the uranium load was reduced more at Pond A4 than other areas. Ian said that the residence time was longer, and the form of uranium was a little different. Megan Davis asked if there was a way to measure the quantity of uranium regardless of concentration. Ian said that this was what is meant by the term 'load'. Lisa Morzel commented that she felt the presentation was excellent and thanked the presenters.

Mickey Harlow said that because of possible extreme storm events like the September 2013 rains, DOE to do climate studies so they can plan for worst case scenarios and improve treatment systems to make them more robust. Ian responded that anytime you are managing water, you have to look at balancing how big to scale your systems. Bruce Baker asked which entity was the first domestic user of water from Walnut Creek. There was no clear answer, possibly Fort Morgan or Aurora. Mickey Harlow said there are 15 private wells that people are drinking from. A member of the audience asked if beryllium was becoming airborne at Rocky Flats. Ian said that they did not study beryllium. George Squibb said that the site does monitoring for beryllium, and that it was not found in water. LeRoy Moore asked if uranium from the Schwartzwalder mine was getting to Rocky Flats, and whether this would be regarded as natural or anthropogenic. Dr. Weiner said that this uranium does not affect Rocky Flats, and that he only mentioned it to illustrate that there are high uranium deposits in the foothills. He said this was natural uranium (not depleted or enriched, not modified in reactor). Gale Biggs confirmed that uranium from Schwartzwalder mine does not come to Rocky Flats, as there is no hydrological connection.

Surface Water – George Squibb

George began with a quick review of the map of locations and monitoring sites. George reviewed performance monitoring at the Original Landfill (OLF) and Present Landfill (PLF). At the OLF on Woman Creek, all sampling results met water quality standards during the calendar year. At the PLF, routine quarterly sampling showed that vinyl chloride and arsenic concentrations were above the applicable RFLMA standards, triggering increased sampling frequency (monthly) per RFLMA evaluation protocols. Monthly arsenic samples were below the standard and sampling frequency reverted to quarterly. Vinyl chloride measured above the standard for three consecutive monthly samples, triggering sampling of surface water from the former PLF pond area outfall to No Name Gulch, per RFLMA evaluation protocols. Vinyl chloride was not detected in surface water at the PLF pond area and sampling frequency at the system effluent reverted to quarterly. Megan Davis asked if OLF runoff would trigger increased monitoring in

other areas. George said no because the monitoring requirements were specific to each site or source.

Point of Evaluation (POE) monitoring throughout the year showed that reportable 12-month rolling average activities of Americium (Am) and Plutonium (Pu) at GS10 became no longer reportable as of June 30, 2014. All other RFLMA POE analyte concentrations remained below reporting levels throughout 2014. George said that at GS10, uranium had not been reportable since August 2013.

Rocky Flats Point of Compliance (POC) monitoring included reportable 30-day average uranium concentrations through May 17, 2014, at the Walnut Creek Point of Compliance (WALPOC). The 12-month rolling average subsequently became reportable on October 31. Uranium was no longer reportable at WALPOC as of January 31, 2015. All other RFLMA POC analyte concentrations remained below reporting levels throughout 2014.

Groundwater – John Boylan

John noted that the primary objective of groundwater monitoring was the protection of surface water. During 2014, 89 wells and one surface location were sampled one –to-four times each. Treatment system locations were sampled two-to-several times each. This sampling included non-routine and non-RFLMA sampling and locations.

All RFLMA-required monitoring and evaluation was performed:

- All AOC well data were below RFLMA levels (same applies to data from Surface-Water Support location)
- Results are consistent with previous data

OLF and PLF RCRA wells:

- Statistical evaluations per RFLMA
- Results for 2014 are similar to previous years
 - A few analytes were higher in downgradient groundwater than in upgradient groundwater
 - A few analytes in downgradient groundwater are on an increasing trend but below RFLMA levels
 - Several statistical results may not be valid due to abundance of nondetects, estimated concentrations, and/or changes to detection limits
- Monitoring and evaluation continues per RFLMA

All Sentinel and Evaluation wells sampled:

- Results largely consistent with previous data

Large amount of work conducted at groundwater treatment systems:

- East Trenches Plume Treatment System (ETPTS)
 - Reconfigured to eliminate ZVI, replace with commercial air stripper (completed January 2015)

- Solar Ponds Plume Treatment System (SPPTS)
 - Ongoing lagoon and microcell tests

Some data suggest continuing influences from September 2013 precipitation event:

- Some areas continued to show higher water levels
- Treatment system flows remained elevated
- Contaminant concentrations were within historic ranges in most cases

Removed one broken well from the monitoring network:

- Sentinel well south of former Building 881
- Area adequately monitored by remaining Evaluation well, Sentinel well, and downgradient AOC well
- Contact Record 2014-07

At the Mound Site Plume Treatment System (MSPTS), the total flow volume in 2014 was the highest ever measured (689,000 gallons). This averaged approximately 1.3 gallons per minute, nearly double the average post-closure flow rate. VOC concentrations in influent remain higher than pre-closure. Flow from a second source area was routed to MSPTS as part of site closure. MSPTS treats flows from two source areas, which means it treats higher flows and higher concentrations (greater load).

At the East Trenches Plume Treatment System (ETPTS), the total flow volume in 2014 was more than 2012 and 2013 combined (approximately 1.3 million gallons). 2014 experienced the second highest flow since site closure. VOC concentrations in influent were generally higher in 2014 than previous years. The air stripper installed in 2013 continued to operate and reduced contaminant concentrations by about one order of magnitude. Water from the air stripper was routed through ZVI for further treatment until the ZVI was removed.

The ETPTS Reconfiguration Project evolved from air-stripper testing at MSPTS. Design was completed in December 2013 and construction took place through 2014 (completed in January 2015). Results for this project included:

- All ZVI removed and dispositioned; ZVI eliminated from the system
- Treatment is now based on commercial air stripper
- Exhaust from air stripper is below air-permitting requirements; constituents degrade in sunlight
- Powered by pre-existing solar conex, boosted with four additional photovoltaic (PV) panels
 - Reconfigured to deliver AC power to air stripper
- Air stripper housed in enclosure designed and built for this purpose
- Uses former Treatment Cell 1 as influent tank; Treatment Cell 2 as effluent tank
- Automated, with safeguards
- Operates daily to treat approximately 3,000 to 5,000 gallons per day

John also showed photos of the project as it was being completed.

At the Solar Ponds Plume Treatment System (SPPTS), lagoon testing continued, and they are moving to design a larger-scale lagoon. Bacteria were found to be very effective for treating nitrate. Cold weather conditions also impacted treatment. Microcell testing also continued, using ZVI to treat uranium. This is an effective treatment for a short lifetime. The first “settling” batch test was conducted using lagoon effluent and it was found that abundant bacteria could clog downstream components. Also, allowing water to stagnate lets biomass settle to bottom, clarifying the water. More tests are being conducted in 2015.

John said that planning was also underway to pump water from the MSPTS down to the ETPTS. Shelley Stanley asked how far the distance would be. John said it will have to go up 18 feet, and then rest is downhill (approximately 1,800 feet total). Mike Shelton asked if there were any plans for a second air stripper. John said that was considered, but they determined that the ETPTS one is sufficient, and the flows could be combined. Mike asked if there would be a need for an air stripper anywhere else onsite. John said there was not. Shelley Stanley asked if the second vault of the ETPTS was physically removed. John said it was. Shirley Garcia asked how the water will be transferred to ETPTS. John said it would be via pipe. She asked if they will need any changes to the sampling protocol. He said they would because the MSPTS would not be used anymore. They have started talking to the regulators about this. Shirley asked if there would be public comment. John said it was being discussed. Mickey Harlow asked if this was going from passive to active treatment because everything was failing over and over. She said all of these changes should be out for public comment. John said that the remedy was the same and that part of the CERCLA process was to evaluate better treatment options every five years. Scott Surovchak said that the remedy was treatment, and that it did not matter if the specific system was passive or active. They ran into maintenance issues with the ZVI, so it made sense to improve the system. He added that the cost of solar has dropped substantially in the past 20 years. He said these are improvements in terms of cost as well as in the risk to workers. These things were not envisioned at the time RFLMA was developed.

Site Operations – Linda Kaiser

During quarterly sign inspections, all were found to be in good condition, At the OLF, three monthly inspections performed. Eight settlement monuments and seven inclinometers were monitored. During the fourth quarter, areas within the landfill boundaries did not show significant cracking or slumping. Outside of the waste footprint, 10 small burrowing-animal holes were noted between berms 6 and 7. None showed signs of recent activity. Berms were re-graded where necessary in July 2014. The East Perimeter Channel Reconfiguration construction project was initiated in mid-October and completed mid-January (Linda showed some photos). This was needed to make the grade of the sides of the channel not as steep. Shelley Stanley asked if they maintained the depth of the cap when they regraded. Linda said that they only added some soil and erosion controls, and did not really regrade.

At the PLF, one quarterly inspection was performed. The PLF Monitoring and Maintenance Plan was revised and issued in December 2014. Changes included:

- Updates to reflect the PLF dam breach and removal of the East Landfill Pond
- Updates to discontinue quantitative vegetation monitoring
- Updated sample location East Landfill Pond to its new location, NNG01

Linda next updated the group on the current status at the OLF. She said that last week, some cracking/differential settling was noticed on the west side. These are areas that have cracked previously. On the east side, about mid-March, they started seeing some cracking and slumping around berms 4 and 7 outside the waste footprint, and outside of the buttress-affected area. This area had also been repaired previously. Mike Shelton asked if they have to revegetate in these repaired areas, or if that happened naturally. Linda said it depended on how big of an area they were talking about. He asked if they had to do it with the recent event. She said it had been too wet to really get in there. She said that their biggest concern was keeping water off the landfill. On May 16-17, there was a huge amount of rain, which developed a big crack (12-14 feet) at the top of Berm 4. The first priority was to drain the water off. Lisa Morzel asked if Linda would acknowledge that this area was located on a landslide. Linda explained that they had geotechnical engineering reports that helped them understand the area.

Shelley Stanley asked Linda to point out where the SID used to cut through the OLF. Scott Surovchak explained how the area was well characterized and that the SID had monitoring points. Shelley asked whether the former SID area was a weak point. Scott said he did not think so. He said that the underlying Laramie formation could not accommodate much weight on top (not very 'capable'), and was a geological weak point. He said it was also a very wet hillside historically. Mary Fabisiak asked what the closest POE was downstream from this area. George said it was GS59, a performance monitoring site. Mike Shelton asked what the possible long term solutions were for the east area. Linda said they might divert groundwater seepage, change grading, or extend the buttress. David Allen asked if they had looked at inclinometer data since these occurrences. Linda said they had collected data, but had not reviewed yet. Shelley asked John if wells on or downgradient of the OLF had been tested for VOCs. He said they were tested quarterly. She asked if they had considered sampling this more frequently. John said that they had not seen anything to indicate they should, and pointed out that the surface water was continuously tested. Shelley asked if any buried materials had been exposed with the cracking. Linda said there was a small piece of corrugated metal strapping. Scott said that this was the first sign of waste they had ever seen in this landfill. Megan asked where the water was diverted to and if it was captured by other monitored areas. Linda said it was running down to a flat grassy area and the East Perimeter Channel. From there, it goes into the creek and is monitored. Lisa Morzel asked where the soil was moving to. Scott said they were rotational slumps that produce a kind of a wave pattern. Ray Reling asked if they were seeing flows at SW027. George said they were. Mickey told Scott she believed a classified shape was found previously in that landfill. Scott said that piece was not classified, and that it was stainless steel or aluminum and used for training purposes. Mickey asked if he thought it was time to put a RCRA cap on the landfill. Scott said that would not help these problems.

Ecology – Jody Nelson

As part of the Vegetation Management Program, several actions were taken:

- Herbicide applications
 - Approximately 118 acres treated
 - Spring – 58
 - Fall – 60
- Habitat enhancement project
 - 50 four-wing saltbush
 - 50 skunkbush
 - 30 Rocky Mountain juniper
- Interseeding/revegetation
 - Approximately 2.4 acres
- Forb nurseries Updated vegetation map from 1996. Needed to fill in industrial area.

Ecological Monitoring included:

- Revegetation monitoring
- Preble’s meadow jumping mouse (PMJM) mitigation monitoring
- Wetland mitigation monitoring

Wildlife Monitoring included:

- Prairie dog monitoring
- Nest boxes
 - 13 of 20 boxes used in 2014
 - Mountain bluebirds
 - House wrens
 - Tree swallows

Jody reported that they also updated the site vegetation map from 1996 during the year. They needed to fill in the industrial area with current vegetation conditions.

Briefing/Discussion on cleanup levels at Rocky Flats

This agenda item was moved to September due to time constraints.

Public Comment

LeRoy Moore referred to the April 2015 Board packet and a 2-page memo dated March 25 to the Stewardship Council from David. In this memo, LeRoy noted that David wrote that the Board could begin discussing goals/priorities for the Wildlife Refuge Visitors Center, as well as criteria the agencies should use in putting together their plans. LeRoy said that this memo was the basis for his April 1, 2015, letter to DOE General Counsel. He went on to say that in the minutes from last meeting, David said that LeRoy had accused the Stewardship Council of undertaking illegal activities under the DOE grant and called his letter inaccurate. LeRoy said he did not state that the Stewardship Council was doing anything illegal, but that he simply raised some questions. He said that to be publicly accused of falsehoods was troubling and that if he had made a mistake, he would ask for the Board’s pardon. He said he was asking the Board to realize who

was speaking falsely and who was not. LeRoy's comment to the Stewardship Council can be found

at: http://rockyflatssc.org/public_comment/L%20Moore%20Comment%20to%20RFSC%206-1-15.pdf

(Note: In a letter dated June 1, 2015, DOE responded to LeRoy Moore's April 1, 2015, letter to DOE-General Counsel. DOE rejected all of LeRoy's claims. DOE's response can be found at: http://www.rockyflatssc.org/public_comment/Response%20to%20Steven%20Croley%20Letter%20Dated%20April%201,%202015.pdf)

Updates/Big Picture Review

September 14, 2015

Potential Business Items

- Initial review of 2016 budget
- Initial review of 2016 work plan
- Review community member application and appointment process

Potential Briefing Items

- DOE quarterly update
- *Carl's postponed presentation on cleanup levels
- Anne Fenerty/Jon Lipsky presentation (Note: Executive Committee made this invitation. Megan Davis asked what the topic of this discussion would be. David Abelson said he would find out. Lisa Morzel said that they wanted an opportunity to rebut some of DOE's comments)

October 26, 2015

Potential Business Items

- Approve 2016 budget
- Approve 2016 work plan
- Conduct community member interviews

Potential Briefing Items

- DOE quarterly update
- TBD

Jeannette Hillery suggested inviting the geotechnical engineers to speak to the Board. Lisa said that she would bring a copy of the USGS map. David Abelson said that the only problem may be time allotment, and said he would work with the Executive Committee on the agenda. Chair Downing noted that USFWS had been reluctant to come back to the Board meetings. She said that the Executive Committee was sending a letter to USFWS Regional Director Noreen Walsh requesting to address this issue.

*TBD

- Overview of post-closure management (what DOE does and why)
- Continue discussing Rocky Flats visitor's center

Issues to watch:

- Original landfill
- Uranium exceedances
- AMP sampling

The meeting was adjourned at 11:47 a.m.

Respectfully submitted by Erin Rogers.

9:24 AM
08/26/15

Rocky Flats Stewardship Council
Check Detail-2015
May 8 through August 26, 2015

Type	Num	Date	Name	Account	Paid Amount	Original Amount
Check		5/27/2015		CASH-Wells Fargo-Operating		-3.50
				Admin Services-Misc Services	-3.50	3.50
TOTAL					-3.50	3.50
Check		6/25/2015		CASH-Wells Fargo-Operating		-3.50
				Admin Services-Misc Services	-3.50	3.50
TOTAL					-3.50	3.50
Check		7/27/2015		CASH-Wells Fargo-Operating		-3.50
				Admin Services-Misc Services	-3.50	3.50
TOTAL					-3.50	3.50
Check	1739	6/5/2015	VOID	CASH-Wells Fargo-Operating		0.00
TOTAL					0.00	0.00
Check	1740	6/5/2015	Century Link	CASH-Wells Fargo-Operating		-29.21
				Telecommunications	-29.21	29.21
TOTAL					-29.21	29.21
Bill P...	1741	6/5/2015	Crescent Strategies, LLC	CASH-Wells Fargo-Operating		-9,060.18
Bill	5/31/...	5/31/2015		Personnel - Contract	-6,850.00	6,850.00
				Telecommunications	-131.59	131.59
				TRAVEL-Local	-102.93	102.93
				Postage	-15.99	15.99
				TRAVEL-Out of State	-1,387.23	1,387.23
				Supplies	-277.88	277.88
				Printing	-294.56	294.56
TOTAL					-9,060.18	9,060.18
Bill P...	1742	6/5/2015	Jennifer A. Bohn	CASH-Wells Fargo-Operating		-171.00
Bill	15-39	5/31/2015		Accounting Fees	-171.00	171.00
TOTAL					-171.00	171.00
Bill P...	1743	6/5/2015	Wagner Barnes & Griggs, P.C.	CASH-Wells Fargo-Operating		-4,000.48
Bill	18919	5/1/2015		Annual Audit	-4,000.48	4,000.48
TOTAL					-4,000.48	4,000.48
Check	1744	7/10/2015	Century Link	CASH-Wells Fargo-Operating		-26.11
				Telecommunications	-26.11	26.11
TOTAL					-26.11	26.11
Bill P...	1745	7/10/2015	Blue Sky Bistro	CASH-Wells Fargo-Operating		-290.00
Bill	2044	6/1/2015		Misc Expense-Local Government	-290.00	290.00
TOTAL					-290.00	290.00
Bill P...	1746	7/10/2015	Energy Communities Alliance	CASH-Wells Fargo-Operating		-950.00
Bill	52-2...	6/30/2015		Subscriptions/Memberships	-950.00	950.00
TOTAL					-950.00	950.00
Bill P...	1747	7/10/2015	Crescent Strategies, LLC	CASH-Wells Fargo-Operating		-7,373.48
Bill	6/30/...	6/30/2015		Personnel - Contract	-7,150.00	7,150.00
				Telecommunications	-131.59	131.59
				TRAVEL-Local	-75.90	75.90

9:24 AM
08/26/15

Rocky Flats Stewardship Council
Check Detail-2015
May 8 through August 26, 2015

Type	Num	Date	Name	Account	Paid Amount	Original Amount
				Postage	-15.99	15.99
TOTAL					-7,373.48	7,373.48
Bill P...	1748	7/10/2015	Jennifer A. Bohn	CASH-Wells Fargo-Operating		-437.00
Bill	15-47	6/30/2015		Accounting Fees	-437.00	437.00
TOTAL					-437.00	437.00
Bill P...	1749	7/10/2015	Seter & Vander Wall, P.C.	CASH-Wells Fargo-Operating		-6,911.98
Bill	71603	5/31/2015		Attorney Fees	-5,701.50	5,701.50
Bill	71728	6/30/2015		Attorney Fees	-1,210.48	1,210.48
TOTAL					-6,911.98	6,911.98
Check	1750	8/5/2015	Century Link	CASH-Wells Fargo-Operating		-26.16
				Telecommunications	-26.16	26.16
TOTAL					-26.16	26.16
Bill P...	1751	8/5/2015	Crescent Strategies, LLC	CASH-Wells Fargo-Operating		-7,354.51
Bill	7/31/...	7/31/2015		Personnel - Contract	-7,150.00	7,150.00
				Telecommunications	-131.59	131.59
				TRAVEL-Local	-56.93	56.93
				Postage	-15.99	15.99
TOTAL					-7,354.51	7,354.51
Bill P...	1752	8/5/2015	Jennifer A. Bohn	CASH-Wells Fargo-Operating		-399.00
Bill	15-57	7/31/2015		Accounting Fees	-399.00	399.00
TOTAL					-399.00	399.00

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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
Nancy Newell

MEMORANDUM

TO: Stewardship Council Board
FROM: Rik Getty
SUBJECT: Quarterly Report Briefing
DATE: August 27, 2015

We have scheduled 45 minutes for DOE to present its quarterly update for the first quarter of 2015 (January - March). The report (130 pages), can be found at: http://www.lm.doe.gov/Rocky_Flats/Documents.aspx

The report cover, table of contents, introduction, and Figure 1 (“OLF Movement – First Quarter”) are attached to this memo.

Executive Summary

The following are highlights from the quarter:

- Surface water leaving the DOE-retained lands at Point of Compliance (POC) monitoring locations WALPOC (Walnut Creek) and WOMPOC (Woman Creek) met all regulatory standards (primary contaminants of concern are plutonium, americium, uranium and nitrates).
- All Point of Evaluation locations (upstream from the POCs) analyte concentrations also remained below reporting levels throughout the first quarter of CY 2015.
- The three major groundwater plume treatment systems (Solar Ponds Plume, East Trenches Plume and Mound Site Plume) continue to effectively treat (reduce) volatile organic compounds (East Trenches and Mound) and uranium and nitrates (Solar Ponds) in contaminated groundwater. DOE is making ongoing process improvements to all three systems to make the treatments even more effective.
- Routine Original Landfill (OLF) inspections during the first quarter were performed on January 27, February 25, and March 12. An additional inspection was required in March due to the melting of more than 10 inches of snow. This inspection coincided with the monthly inspection performed March 12. The site received almost 4.5 inches of water-equivalent precipitation in the first quarter of 2015. This was an unusual amount of precipitation for this time of year. As a result, the February and March inspections revealed cracking and slumping primarily in the northeast portion of the OLF with most of the area being outside

the waste “footprint”. CDPHE and EPA inspected the landfill on March 17, 2015. The geotechnical engineer who has studied the OLF over the last several years inspected the landfill on March 19. Based on the inspection results some repairs were made by hand but in some areas it was too wet for heavy equipment. The OLF repair project continued after the end of the quarter.

- The routine Present Landfill inspection for the first quarter was performed on March 30. An additional inspection was also required in March due to the melting of more than 10 inches of snow. This inspection was performed March 13. No significant problems were observed during either inspection.

More detailed information on the first quarter report follows (quoting from the report).

Water Monitoring Highlights

During the first quarter of CY 2015, water monitoring successfully met the targeted monitoring objectives as required by the RFLMA and was in conformance with RFSOG implementation guidance. The routine RFLMA network consists of 8 automated gaging stations, 11 surface water grab-sampling locations, 8 treatment-system locations, and 88 wells (DOE 2015). Additional locations are occasionally sampled in support of investigations in response to reportable conditions. During the quarter, 37 flow-paced composite samples, 17 surface water grab samples, 20 treatment-system samples, and 10 groundwater samples were collected (in accordance with RFLMA protocols) and submitted for analysis.

Groundwater monitoring results will be evaluated as part of the annual report for CY 2015.

All RFLMA POC analyte concentrations remained below reporting levels throughout the first quarter of CY 2015.

All RFLMA POE analyte concentrations also remained below reporting levels throughout the first quarter of CY 2015.

Groundwater Treatment System Monitoring

Four groundwater treatment systems are operated and maintained in accordance with requirements defined in the RFLMA and the RFSOG. Three of these systems (the Mound Site Plume Treatment System [MSPTS], the East Trenches Plume Treatment System [ETPTS], and the Solar Ponds Plume Treatment System [SPPTS]) include a groundwater intercept trench (collection trench), which is similar to a French drain with an impermeable membrane on the down-gradient side. Groundwater collecting in the bottom of the trench is routed through a drainpipe into one or more treatment cells, where it is treated and then discharged. Solar-powered air strippers were added in early 2013 to the MSPTS (to polish effluent from the treatment cells) and the ETPTS (to pretreat water before it enters the treatment cells). The fourth system, the Present Landfill Treatment System (PLFTS), treats water from the northern and southern components of the Groundwater Intercept System and water that flows from the PLF seep.

Mound Site Plume Treatment System

Routine maintenance activities continued at the MSPTS through the first quarter of CY 2015. These activities included checking flows, piping, and water levels and servicing the air stripper. The air stripper operated throughout the quarter, with the exception of short intervals when the photovoltaic (PV) panels were covered with snow and when air-stripper maintenance was being performed. Air-stripper maintenance mainly consisted of monitoring the water pressures and nozzle spray patterns, maintaining the fan assembly that provides powered ventilation, monitoring and adjusting flows into the two treatment cells, and cleaning the pump, lines, and nozzles as warranted. Also, accumulations of snow on the PV panels were brushed off as warranted, and an electrician with solar-power expertise was brought in to inspect the batteries.

The annual report for 2015 will provide a more detailed discussion of the MSPTS, including the air stripper.

East Trenches Plume Treatment System

The ETPTS reconfiguration project was designed beginning in 2013; most of the construction was performed in 2014, and the project was completed in January 2015. The focus of this project was to revise the ETPTS from a zero-valent iron [ZVI]-based treatment approach, with the air stripper added in 2013, to an approach that relies solely on air stripping for treatment.

A commercially available air stripper was selected for this application and operates on the preexisting solar/battery power facility, which received minor additions and modifications as part of the project. An enclosure was designed and built to house the air stripper. The unit treats groundwater in batches. Former Treatment Cell 1 is now used to collect raw influent and is now referred to as the Influent Tank, and former Cell 2 receives treated effluent and is referred to as the Effluent Tank. For an extensive description and illustrations of this project, refer to the Annual Report for 2014 (DOE 2015). The Annual Report for 2015 will provide additional information and discussion.

After the spent ZVI was removed from the former treatment cells and prior to completion of the reconfiguration project, treatment was accomplished using only the air stripper installed within the influent manhole. Maintenance on this unit continued until it was no longer needed once the new air stripper was operational.

Following completion of the reconfiguration project and activation of the new air stripper on January 16, routine maintenance activities at this system decreased sharply. Activities that continued included checking flows, piping, and water levels. New activities included checking power levels to ensure that the solar/battery array was functioning properly and power levels remained adequate, checking water and air pressures at the air stripper, adjusting the air-stripper timer as warranted to accommodate the volume of water to be treated, and evaluating the air stripper for hard-water scale buildup. Unlike the original air stripper installed within the ETPTS influent manhole, the unit installed as part of this reconfiguration has not suffered from problems of excessive scale.

Solar Ponds Plume Treatment System

Routine maintenance activities continued at the SPPTS through the first quarter of CY 2015. These activities included weekly inspections of the solar/battery systems that power the pumps, the operation of the pumps, and influent and effluent flow conditions. The risers in the original

treatment cell structure are also flushed as needed, by surging the water within them, to improve flow through the original media. Also, the open-bottomed vaults occasionally needed to be pumped out because of the elevated groundwater levels, and as necessary, accumulations of snow on the solar panels were brushed off. The frequency of pumping the vaults increased in March as spring conditions increased groundwater volumes.

The pump in the ITSS (the collection sump installed in late 2008 as part of the Phase I upgrades) required maintenance in the first quarter of CY 2015. Electrical connections degraded and developed a fault, and the pump itself failed. The electrical connections were repaired or replaced, and the pump itself was replaced with one previously used at the ETPTS influent manhole air stripper.

Tests continued through the quarter on (1) treating uranium with smaller-scale “microcell” treatment components incorporating ZVI as a treatment media and (2) treating nitrogen constituents using pilot-scale lagoons. In February, new, heavily insulated covers were installed over the pilot-scale Phase III lagoons to help reduce heat loss, which can diminish the denitrifying effectiveness of the bacteria in these lagoons. Both the microcell and lagoon tests are expected to continue for some time. The associated results will be discussed in greater detail in the annual report for 2015.

PLF Treatment System

Routine maintenance activities continued at the PLFTS through the first quarter of CY 2015. These activities generally consisted of inspecting the system for potential problems. During the quarter no problems were noted.

Original Landfill

East Perimeter Channel Modifications

A project to address slope stability in the East Perimeter Channel and surrounding area was originally scheduled for completion in December 2013 but was rescheduled to the summer of 2014 because the soil was either frozen or too wet to complete the project. The proposed modifications are described and approved in Contact Record 2013-03, “Soil Disturbance Review Plan (SDRP) for Regrading the East Perimeter Channel (EPC) and Associated Diversion Berms at the Original Landfill (OLF).” CDPHE approved Contact Record 2013-03 on December 4, 2013. Because of the additional movement in the East Perimeter Channel and continued minor cracking within the east side of the landfill area, DOE reevaluated the approved design before implementation. Changes to the approved design are documented in Contact Record 2014-09, “Soil Disturbance Review Plan (SDRP) Update for Regrading the East Perimeter Channel (EPC) at the Original Landfill (OLF).” Construction began in October 2014 and was completed in January 2015. The project reduced the slope of the sides of the EPC and included the installation of water management features and structures in the EPC to help with drainage.

Erosion Control and Revegetation

Maintenance of the site erosion-control features required continued effort throughout the first quarter of CY 2015, especially following high-wind or precipitation events. Erosion wattles and matting loosened and displaced by high winds or rain were repaired. Erosion controls were

installed and maintained for the various projects that were ongoing during the first quarter of CY 2015.

Adverse Biological Conditions

No evidence of adverse biological conditions (e.g., unexpected mortality or morbidity) was observed during monitoring and maintenance activities in the first quarter of CY 2015.

Ecological Monitoring

During the first quarter of CY 2015, very few ecological field activities were conducted because it was winter. Most of the time was spent analyzing data and writing various reports. Seeding with native species was conducted at the EPTPS area and some of the locations where excess soil from the OLF had been placed, prior to the end of the first quarter of CY 2015. Observations of apparently inactive prairie dog towns within the Rocky Flats National Wildlife Refuge and in the COU give continued confirmation that no active prairie dog towns are present within the COU.

Sign Inspection

“U.S. Department of Energy - No Trespassing” signs are required to be posted at intervals around the perimeter of the COU to notify persons that they are at the boundary of the COU. Signs listing the use restrictions (ICs) and providing contact information are also required to be posted at access points to the COU. The signs are required as physical controls of the remedy, are inspected quarterly, and are maintained by repairing or replacing them as needed. Physical controls protect the engineered components of the remedy, including landfill covers, groundwater treatment systems, and monitoring equipment, which are also inspected routinely during monitoring and maintenance activities.

The signs were inspected on February 10, 2015, and they met the requirements.

Please let me know if you have any questions.

**Rocky Flats, Colorado, Site
Quarterly Report of
Site Surveillance and
Maintenance Activities
First Quarter Calendar Year 2015**

July 2015



U.S. DEPARTMENT OF
ENERGY

Legacy
Management

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Appendixes

Appendix A Landfill Inspection Forms and Survey Data

Appendix B Analytical Results for Water Samples—First Quarter CY 2015

Abbreviations

Am	americium
AOC	Area of Concern
CAD/ROD	Corrective Action Decision/Record of Decision
CDPHE	Colorado Department of Public Health and Environment
COU	Central Operable Unit
CY	calendar year
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
EPC	East Perimeter Channel
ETPTS	East Trenches Plume Treatment System
IC	institutional control
LM	Office of Legacy Management
M&M	monitoring and maintenance
MSPTS	Mound Site Plume Treatment System
µg/L	micrograms per liter (sometimes expressed as ug/L)
OLF	Original Landfill
PLF	Present Landfill
PLFTS	Present Landfill Treatment System
POC	Point of Compliance
POE	Point of Evaluation
Pu	plutonium
PV	photovoltaic
RCRA	Resource Conservation and Recovery Act
RFLMA	<i>Rocky Flats Legacy Management Agreement</i>
RFSOG	<i>Rocky Flats, Colorado, Site Site Operations Guide</i>
Site	Rocky Flats Site
SPPTS	Solar Ponds Plume Treatment System
USFWS	U.S. Fish and Wildlife Service
ZVI	zero-valent iron

1.0 Introduction

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) is responsible for implementing the final response action selected in the *Corrective Action Decision/Record of Decision for Rocky Flats Plant (USDOE) Peripheral Operable Unit and Central Operable Unit (CAD/ROD)* (DOE, EPA, and CDPHE 2006), issued on September 29, 2006, and amended on September 21, 2011 (DOE, EPA, and CDPHE 2011), for the Rocky Flats Site (the Site). DOE, the U.S. Environmental Protection Agency (EPA), and the Colorado Department of Public Health and Environment (CDPHE) are implementing the monitoring and maintenance requirements of the CAD/ROD as described in the *Rocky Flats Legacy Management Agreement (RFLMA)*. Attachment 2 of the RFLMA (DOE 2012a) defines the Central Operable Unit (COU) remedy surveillance and maintenance requirements, the frequency for each required activity, and the monitoring and maintenance locations. The requirements include environmental monitoring; maintenance of the erosion controls, access controls (signs), landfill covers, and groundwater treatment systems; and operation of the groundwater treatment systems. The RFLMA also requires that the institutional controls (ICs), in the form of use restrictions as established in the CAD/ROD, be maintained.

This report is required in accordance with Section 7.0 of RFLMA Attachment 2. The purpose of this report is to inform the regulatory agencies and stakeholders of the remedy-related surveillance, monitoring, and maintenance activities being conducted at the Site during this quarter. LM provides periodic communications through several means, such as this report, web-based tools, and public meetings.

LM prepared the *Rocky Flats, Colorado, Site Site Operations Guide (RFSOG)* (DOE 2013a) to serve as the primary internal document to guide work to satisfy the requirements of the RFLMA and to implement best management practices at the Site.

Several other site-specific documents provide additional detail regarding the requirements described in RFLMA Attachment 2, including all aspects of surveillance, monitoring, and maintenance activities, as well as data evaluation protocols.

Monitoring data and summaries of surveillance and maintenance activities for past quarters are available in the quarterly reports. Extensive discussion and evaluation of surveillance, monitoring, and maintenance activities are presented each calendar year in the annual report of Site surveillance and maintenance activities.

This report addresses remedy-related surveillance, monitoring, and operations and maintenance activities conducted at the Site during the first quarter of calendar year (CY) 2015 (January 1 through March 31). This report describes the following activities:

- Maintenance and inspection of the Original Landfill (OLF) and Present Landfill (PLF)
- Maintenance and inspection of the four groundwater treatment systems
- Inspection of signs posted at the perimeter of the COU as physical controls
- Erosion control and revegetation activities
- Routine (in accordance with the RFLMA and the RFSOG) water monitoring

2.0 Site Operations and Maintenance

2.1 Landfills

2.1.1 Present Landfill

The PLF is inspected quarterly in accordance with the requirements of the PLF Monitoring and Maintenance (M&M) Plan (DOE 2014) and Attachment 2 of the RFLMA (DOE 2012a). Evaluations of the landfill cover vegetation have been discontinued, as the success criteria, according to the requirements outlined in the RFLMA, have been met.

2.1.1.1 *Inspection Results*

The routine PLF inspection for the first quarter of CY 2015 was performed on March 30. An additional inspection was also required in March due to the melting of more than 10 inches of snow. This inspection was performed March 13. No significant problems were observed during either inspection. Copies of the landfill inspection forms are presented in Appendix A.

2.1.1.2 *Settlement Monuments*

The annual survey of the PLF settlement monuments was performed on December 9, 2014. The next annual survey is scheduled to be completed in the fourth quarter of 2015.

2.1.2 Original Landfill

The OLF is inspected monthly in accordance with the requirements in the OLF M&M Plan (DOE 2009a) and the RFLMA. It was anticipated that after the first year, the inspection frequency might be reduced to quarterly for an additional 4 years. However, because of observed localized slumping and seep areas, and because of the investigation and repairs to the OLF cover completed in 2009, no change to the monthly inspection frequency was recommended in the third Comprehensive Environmental Response, Compensation, and Liability Act Five-Year Review of the Site (DOE 2012b).

2.1.2.1 *Inspection Results*

Routine OLF inspections during the first quarter of CY 2015 were performed on January 27, February 25, and March 12, 2015. An additional inspection was required in March due to the melting of more than 10 inches of snow. This inspection coincided with the monthly inspection performed March 12. Evaluations of the landfill cover vegetation have been discontinued, as the success criteria, according to the requirements outlined in the RFLMA, have been met. The completed inspection forms are presented in Appendix A.

Localized surface cracking and differential settlement in the northeastern portion of the cover were noted following the high precipitation event in September 2013. (As described below, the affected area is near an area where small cracks were observed in 2010 and 2011.) In accordance with RFLMA Attachment 2, Section 6.0, "Action Determinations," DOE determined this was a reportable condition affecting the effectiveness of the OLF cover. DOE informed CDPHE and EPA of the cracking on the northeast side of the OLF on September 17, 2013. DOE, CDPHE,

and EPA personnel toured the area on September 18, 2013, to start the consultative process to develop a course of action.

Contact Record 2013-02 documents the initial mitigation steps taken by DOE to minimize the potential for infiltration of precipitation. Initial steps included (1) minor regrading of the differential displacement cracks to seal the openings using Rocky Flats Alluvium from the adjacent area, (2) filling minor cracks by smoothing and tamping the surrounding surface, and (3) installing a temporary drainage pipe to help channel water along Berm 4 and into the East Perimeter Channel (EPC). Erosion mats were placed over the regraded area. The minor regrading and filling of cracks was completed on September 20, 2013. The temporary drain was installed on October 3, 2013.

The site received almost 4.5 inches of precipitation in the first quarter of CY 2015. In January, some small rills were noted along the West Perimeter Channel. It was determined that they posed no problem, but should be monitored. A few small mammal holes (most likely voles) were noted on and near Berms 6 and 7. Trails in the grass common to voles were noted around the holes. These animals are common on grasslands. Again, these should be monitored, but they are not causing a problem at this time. Many of the small mammal holes previously observed adjacent to the EPC between Berms 6 and 7 show no signs of recent activity.

In February 2015, slumping was observed in two locations on the east cover of the OLF. The slumping between Berms 5 and 6 was previously documented but had possibly shifted in February. Snow was present on the ground in various depths during the time of the inspection. There appeared to be some slumping starting between Berms 4 and 5, as indicated by snowfall patterns on the ground.

In March, cracking and slumping was observed over several locations on the east side of the OLF. A map of the movement is shown in Figure 1. Slumping at Berm 4 (south of berm face on the east end), which was previously documented, appeared to be showing signs of new subsidence and movement towards the south. From this area, both narrow and significant cracking begins and runs southwest to Berm 5. Cracks that had been observed and repaired in the past (between Berms 4 and 5) had reappeared and grown in both length and width. These cracks were approximately 1–3 inches wide, had a noticeable depth between 3 and 15 inches, and were between 10 and 300 feet long. Additional narrow cracks were observed between Berms 4 and 5 and Berms 5 and 6. These cracks were less than 1 inch wide, with no noticeable depth, and less than 10 feet long. The cracks were filled in accordance with the requirements of the M&M plan. Cracks were also observed below Berm 7; however, the aerial extent of the movement is small. These cracks were not filled because they were too large to be filled by hand and the area was too wet for heavy-equipment use. Most of the observed movement occurred in areas outside of the waste footprint.

Evidence of burrowing animals was present at the time of the March inspection. These were assumed to be vole burrows due to the significant number of trails in the area. While the trails looked to be new, it was not clear that the burrows were being used. The burrows looked small and superficial. Monitoring will continue to determine active use and whether action is required.

CDPHE and EPA inspected the landfill on March 17, 2015. The geotechnical engineer inspected the landfill on March 19. Cracks were filled as feasible based on soil conditions.

2.1.2.2 Settlement Monuments

The OLF settlement monuments were surveyed on March 11, 2015. Survey data indicate that settling at each monument does not exceed the limits specified in the OLF M&M Plan (DOE 2009a). The survey results are presented in Appendix A.

2.1.2.3 Inclinometers

As discussed in the quarterly report for the second quarter of CY 2009 (DOE 2009b), seven inclinometers were installed in boreholes at the OLF in 2008 as part of the geotechnical investigation of localized areas of instability.

Movement of the inclinometers has been monitored approximately monthly since installation. Inclinometers are deflected by lateral movement of the ground in which they are located, and the deflection can be enough to break the inclinometer tubes. Once an inclinometer tube breaks, the portion of the inclinometer below the break can no longer be monitored. Inclinometer monitoring data provide information on localized soil movement and serve to focus the periodic inspections of the soil cover surface on signs of potential instability, such as cracking, vertical displacement, and slumping. A monthly deflection of more than 1 inch triggers a nonroutine evaluation of the data by a qualified geotechnical engineer. The engineer determines the significance of the deflection in relation to recommendations for maintenance or repairs to address potential instability in accordance with the OLF M&M Plan (DOE 2009a). The geotechnical engineer routinely reviews all inclinometer data annually, and the geotechnical engineer's report is included in RFLMA annual reports.

Inclinometer measurements were taken in January, mid-March, and late March. The February readings were postponed until mid-March due to the slippery snow-covered conditions on the landfill face. The inclinometers showed minor or no new movement during the quarter.

2.1.2.4 Slumps

As noted in Section 2.1.2.1 above, new slumping was noted in March on the east side of the landfill.

2.1.2.5 Seeps

Seeps at the OLF were evaluated during the monthly inspections. Individual seep location flow rates can be found in the monthly inspection reports.



Figure 1. Original Landfill Movement—First Quarter

Draft 2016 Work Plan

- Cover memo
- Draft work plan

Draft 2016 Budget

- Cover memo
- Draft budget

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League of Women Voters -- Rocky Flats Cold War Museum -- Rocky Flats Homesteaders
Nancy Newell

MEMORANDUM

TO: Board
FROM: David Abelson & Rik Getty
SUBJECT: Initial review of 2016 work plan
DATE: August 28, 2015

At this meeting the Board will evaluate its efforts for 2015 and start reviewing its 2016 work plan (draft plan attached). Any changes to the draft plan will be incorporated into a revised draft that will be reviewed, modified as necessary, and approved at the October 26th meeting.

Review of 2015 Activities

The 2015 work plan contains the following provision:

“How the Stewardship Council will measure its success is important. Many organizations use sophisticated techniques to measure success, but these are not necessary for the Stewardship Council. Rather each year the Stewardship Council will pause and reflect on its Work Plan elements to help determine its ability to accomplish the stated mission and objectives. The review shall include an assessment of how the organization can improve in the coming year, focusing on areas of weakness and opportunities for improvement.”

The first part of the conversation will be the Board’s assessment.

Overview of Draft Plan

There are few substantive changes to the 2016 work plan. The three most important additions are (1) details about the contaminated groundwater plume systems, (2) ongoing investigations into elevated actinide levels, and (3) work at the Original Landfill. The Board has been regularly briefed on these issues, and these issues will continue to be a focus in the coming year.

I also identified which activities are LSO activities and which are beyond our scope as the LSO for Rocky Flats. You’ll recall this question arose at our February and April meetings, and I recommended that due to the confusion about our dual roles that we add these headers to the 2016 plan. Distinguishing our roles as the LSO and non-LSO activities did not result in any substantive changes to the plan.

DOE-USFWS Visitor Center

The most likely area for overlap between LSO and non-LSO functions is in the development of the joint DOE-USFWS visitor center. 2016 activities at the visitor center will focus on planning; construction is slated for 2017. The agencies anticipate the building will be approximately 3500 sq. ft., with 1000 feet for display. The display space will be shared by the two agencies.

The MOA that the agencies are currently developing anticipates hiring a firm to design the exhibit space and messages. The process the agencies will use to engage the community throughout the process is not yet defined, including development of the exhibit space and messages.

Please let us know what questions you have, particularly if there are any items we did not include in the draft work plan.

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League of Women Voters -- Rocky Flats Cold War Museum -- Rocky Flats Homesteaders
Nancy Newell

2016 Work Plan

Draft #1, September 2015

Mission:

The mission of the Rocky Flats Stewardship Council is to provide continuing local oversight of activities at the Rocky Flats site and to ensure local government and community interests are met with regards to long-term stewardship of residual contamination and refuge management. The mission also includes providing a forum to track issues related to former site employees and to provide an ongoing mechanism to maintain public knowledge of Rocky Flats, including educating successive generations of ongoing needs and responsibilities regarding contaminant management and refuge management.

Background:

The Stewardship Council occupies two roles: (1) serving as the Local Stakeholder Organization (LSO) for Rocky Flats, and (2) engaging USFWS on the management of the Rocky Flats National Wildlife Refuge. To help ensure the Board and public understand when the Stewardship Council acts in its capacity as the Rocky Flats LSO and when it engages on issues beyond its scope as the LSO, the plan now includes headers indicating "LSO" and "Non-LSO" activities.

Local Stakeholder Organization (LSO)

Legacy Management approved the LSO Plan for Rocky Flats on December 21, 2005. That Plan identifies how the main responsibilities Congress identified in the legislation authorizing the creation of LSO (Section 3120 of the Fiscal Year 2005 Defense Authorization bill) are to be carried out at Rocky Flats. These responsibilities are summarized as follows:

- Solicit and encourage public participation in appropriate activities relating to the closure and post-closure operations of the site.
- Disseminate information on the closure and post-closure operations of the site to the State and local and Tribal governments in the vicinity of the site, and persons and entities having a stake in the closure or post-closure operations of the site.
- Transmit to appropriate officers and employees of DOE questions and concerns of governments, persons, and entities referred to in the preceding bullet.

In fulfilling these responsibilities, the Stewardship Council has been tasked with helping DOE meet its public involvement obligations identified in the Legacy Management Public Involvement Plan (LMPPI) for Rocky Flats.

Rocky Flats National Wildlife Refuge (non-LSO activity)

“The Rocky Flats National Wildlife Refuge Act of 2001” established that Rocky Flats shall become a national wildlife refuge following EPA certification that the site has been cleaned to the agreed-upon regulatory standards. In July 2007 DOE conveyed jurisdictional responsibility over nearly 4000 acres to the Department of the Interior for the Rocky Flats National Wildlife Refuge. Additional lands were conveyed in 2014.

In April 2005, USFWS published the Rocky Flats Comprehensive Conservation Plan (CCP), the conservation plan for the Rocky Flats National Wildlife Refuge. The CCP describes the desired future conditions of the Refuge and provides long-range guidance and management direction. Per the CCP, in the coming years USFWS anticipates developing the following “step-down” management plans, which provide specific guidance for achieving the objectives established in the CCP:

1. Vegetation and Wildlife Management Plan
2. Integrated Pest Management Plan
3. Fire Management Plan (completed)
4. Visitors Services Plan
5. Health and Safety Plan
6. Historic Preservation Plan

In 2015, the USFWS began opening the Rocky Flats National Wildlife Refuge for guided tours. The agency will not conduct a prescribed fire in 2016.

Deleted: Due to funding restrictions, USFWS has delayed implementation of the CCP, including delaying the timeline for opening the Refuge for public access. Should USFWS take steps to open the Refuge, the Stewardship Council would work with USFWS and DOE to ensure the current access restrictions to DOE-retained lands remain effective and to address issues as needed

Work Plan Elements

The Work Plan is divided into the following five sections:

1. DOE Management Responsibilities (LSO activity)
2. Former Rocky Flats Workforce (LSO activity)
3. Outreach (LSO activity with two exceptions noted)
4. Rocky Flats National Wildlife Refuge (non-LSO activity)
5. Business Operations (LSO activity)

DOE Management Responsibilities

LSO Activity

Overview:

One of the key roles of the Stewardship Council continues to be to understand and engage the various issues regarding the cleanup and post-closure management of Rocky Flats, and to provide a forum to foster discussions among DOE, the regulatory agencies, and community members.

2016 Activities:

1. Review information regarding the long-term stewardship and management of the Rocky Flats site, including but not limited to the results of the operational and performance monitoring data of site operations and DOE status reports.
2. Continue to identify key questions about the cleanup and ongoing management, and evaluate for remedy effectiveness and impacts to human and ecological receptors.
3. Track the progress made in treating contaminated groundwater at the groundwater treatment systems. Attention to the significant changes to the East Trenches, Mound Site, and Solar Ponds groundwater plume treatment systems will be a focus during 2016 to ensure that the systems are effectively removing contaminants from groundwater.
4. Track the ongoing investigation into the source(s) of elevated actinide levels found in surface water. Of particular note are the cyclic uranium levels in North Walnut Creek at point of compliance WALPOC, elevated levels of actinides at point of evaluation GS10 on South Walnut Creek, and elevated plutonium levels at point of evaluation SW027 in the Woman Creek drainage.
5. Track the geotechnical progress made in addressing surface slumping at the Original Landfill (OLF).
6. Work with DOE on implementing its Legacy Management Closure Public Involvement Plan (LMPIP), including the meetings DOE identified in the LMPIP.
7. Review DOE budgets for implementation of DOE responsibilities.
8. Participate in DOE, CDPHE and/or EPA assessment(s) of remedy operations and effectiveness, including the CERCLA five-year review.
9. As needed, evaluate legal and regulatory issues regarding implementation of RFLMA and related site documents, and provide information to the Stewardship Council and to the community.
10. Work with DOE and the regulators to understand technical data regarding implementation and effectiveness of cleanup remedies and long-term controls, and provide information to the Stewardship Council and to the community.
11. Transmit to appropriate officers and employees of the DOE questions and concerns of governments, persons and entities regarding Rocky Flats.
12. Continue to participate in Adaptive Management Plan meetings, including technical evaluations of data.
13. Continue to work with DOE on the development of the visitor center.
14. Support the Rocky Flats Cold War Museum to educate successive generations about the history of Rocky Flats, particularly about residual contamination and continued need for long-term stewardship.
15. Track the development of Jefferson County Parkway as it relates to Rocky Flats.

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Deleted: Discussions will take place at Board meetings throughout the year and into 2016 as needed.

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Deleted: <#>In preparation for USFWS' plans to conduct a prescribed burn at the Rocky Flats National Wildlife Refuge, ¶
 <#>Work with DOE, CDPHE and EPA to understand the impacts of and risk from fire at Rocky Flats, ¶
 <#>Work with USFWS to understand its permit requirements and plans, including communications and outreach strategies, and¶
 <#>Develop and implement a communications strategy.¶

Deleted: Develop parameters DOE and USFWS

Deleted: should consider is establishing a visitor's center for Rocky Flats, and forward to the agencies

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Former Rocky Flats Workforce

LSO Activity

Overview:

One of DOE's primary post-closure responsibilities is to manage the health and pension benefits of former site workers. Many of these workers are the constituents of the Stewardship Council governments. Further, the Rocky Flats Homesteaders, which represents more than 1800 former

site workers, sits on the Board of the Stewardship Council. For these and other reasons, as noted in the Stewardship Council's IGA, worker issues will continue to be an important focus of the Stewardship Council.

2016 Activities:

1. Track issues related to the implementation of the Energy Employee Occupational Illness Compensation Program Act (EEOICPA). Respond as needed.
2. Forward worker concerns to the Administration and to members of the Colorado Congressional delegation.

Outreach

LSO Activity with two exceptions noted

Overview:

As the LSO for Rocky Flats, a core responsibility for the Stewardship Council is reaching out to the community and providing a mechanism to educate people about Rocky Flats and the ongoing management needs. As part of this mission it remains essential that the Stewardship Council maintain close communications with DOE, EPA, CDPHE, and Congress.

The local communities have developed over the period of many years a very good working relationship with the two primary regulatory agencies that oversee the site, EPA and CDPHE. It is imperative that the Stewardship Council continue this tradition of partnership with these agencies.

The Colorado congressional delegation likewise played a critical role in addressing Rocky Flats issues. The Stewardship Council shall remain an important vehicle for addressing issues of concern to the delegation and for providing community interface with the delegation on the numerous site-specific issues and concerns.

2016 Activities:

1. Hold quarterly Board meetings and provide opportunity for public comment and public dialogue.
2. Communicate with other local officials, DOE, state and federal regulators, the Colorado congressional delegation, and other stakeholders about the Stewardship Council's mission and activities, as appropriate.
3. Seek public input and involvement on issues related to DOE and USFWS responsibilities at Rocky Flats. (Note: Any work on this item involving DOE is an LSO activity; all other work on this item is a non-LSO activity.)
4. Evaluate Congressional action affecting DOE and USFWS and administrative action that could affect Rocky Flats. (Note: Any work on this item involving DOE is an LSO activity; all other work on this item is a non-LSO activity.)
5. Maintain communication with federal and state legislators, as appropriate, and track federal and state legislation as needed.
6. Provide opportunities at meetings and in between meetings for education and feedback.
7. Work with DOE to disseminate information on the cleanup and post-closure operations of Rocky Flats.

8. Participate in local, regional and national forums.
9. Implement mechanisms for the Stewardship Council and the general public to be informed of the results of the monitoring data and other relevant information, recognizing that not all communication between DOE and Rocky Flats constituencies will flow through the Stewardship Council. Options include:
 - o Periodic reports
 - o Email updates
 - o White papers
 - o Letters

Rocky Flats National Wildlife Refuge

Non-LSO Activity

Overview:

One of the Stewardship Council's roles is to engage on issues related to the development and management of the future Rocky Flats National Wildlife Refuge. In 2015, USFWS began taking steps to open the Rocky Flats National Wildlife Refuge. Activities were limited to 2-3 guided tours during spring/summer 2015 (birds of Rocky Flats, wildflower walk, photography, etc.). In 2015, USFWS also proposed and then withdrew a plan to manage the prairie ecosystem using prescribed fire. The agency will not pursue a prescribed fire in 2016, but may use spot spraying and mowing.

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In addition, USFWS and DOE are working in partnership to develop a visitor's center. That center will be sited on refuge lands, with USFWS taking lead on the public engagement process. As the LSO for Rocky Flats, the Stewardship Council will work with DOE on that agency's role in developing the visitor center. (That work with DOE is an LSO activity.) USFWS is in the process of developing its outreach plan, so it is too soon to know how the agency will engage governments and community members, or any role the Stewardship Council occupy on this issue.

The items identified in this part of the work plan only concern USFWS.

Deleted: This work includes tracking and addressing issues related to the interface of the Refuge to lands that DOE will retain as part of its management responsibilities. Without funding for the Refuge, there will be little management activities for the foreseeable future.¶

2016 Activities:

1. Track agency and Congressional action affecting funding for USFWS and Rocky Flats National Wildlife Refuge. Engage as needed.
2. Track issues related to the development of the Rocky Flats visitor center.¹ Engage as needed.
3. Track issues related to the development of a trail network connecting Rocky Flats National Wildlife Refuge, Rocky Mountain Arsenal National Wildlife Refuge, Two Ponds National Wildlife Refuge, and Rocky Mountain National Park.

Deleted: ,

Deleted: efforts to begin opening the

Deleted: <#>Track issues related to the inclusion of Section 16 in the southwest corner of Rocky Flats into the Refuge.¶

Business Operations

¹ As noted above, as the LSO for Rocky Flats, the Stewardship Council will work with DOE on that agency's role in developing the visitor center. The item identified in this part of the work plan only concerns USFWS' role.

|

LSO Activity

Overview:

Business Operations refers to organizational management responsibilities – conducting the annual audit, submitting financial reports to DOE, adopting annual Work Plan and annual budget, etc.

2016 Activities:

1. Work with DOE to ensure the Stewardship Council continues to meet the needs as the LSO for Rocky Flats.
 2. Operate Stewardship Council in compliance with state and federal regulations.
 3. Conduct financial audit.
 4. Prepare and adopt the annual work plan and the annual budget.
 5. Submit financial reports to DOE.
 6. Review and renew as necessary consulting agreements.
 7. Provide annual report on activities.
-
-

Success Measurement Criteria

How the Stewardship Council will measure its success is important. Each year the Stewardship Council will pause and reflect on its Work Plan elements to help determine its ability to accomplish the stated mission and objectives. The review shall include an assessment of how the organization can improve in the coming year, focusing on areas of weakness and opportunities for improvement.

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League of Women Voters -- Rocky Flats Cold War Museum -- Rocky Flats Homesteaders
Nancy Newell

MEMORANDUM

TO: Board
FROM: David Abelson
SUBJECT: Initial review of 2016 budget
DATE: September 3, 2015

Attached for your review is the first draft of the Stewardship Council's fiscal year 2016 budget. As a unit of local government under the Colorado Constitution, the Stewardship Council must review the budget at this meeting and hold budget hearings at a second meeting prior to adopting a final budget. The budget hearings will be held at the October 26th meeting, at which time the Board will adopt the budget.

Budget Overview

Following the Board's direction, since the Stewardship Council's inception, the budget is for more than the anticipated costs (approximately 20% above projected costs). Over-budgeting gives the Board latitude in how it manages expenditures without requiring supplemental budgeting should expenditures increase. Over the past few years, organizational costs have remained level, though there are two notable changes for 2015.

1. Effective June 1st, the Board increased the management fee by \$300/month. Those changes are reflected in the "2015 Actual/Projected Expenses" and in the "2106 Anticipated Expenditures" columns.
2. Attorney fees increased significantly in 2015. That's a result of (1) the Board requesting the memo from Barb Vander Wall explaining the legal line between LSO and non-LSO activities, and (2) the time spent advising the Chair and me on the many issues raised in 13 emails the Stewardship Council received from a constituent. It is our hope and expectation that 2016 costs will return to pre-2015 levels.

Finally, as the Board addressed the proposed prescribed fire in 2015, to ensure that expenditures aligned with LSO and non-LSO activities, we took a conservative approach and directed that 10% of the management fee for January and February be covered with non-DOE grant funds. While we spent approximately 2% of our time on the burn, I chose 10% (\$685/per month) to provide a safe cushion. These costs were paid for by non-grant funds that the Stewardship

Council received from its predecessor organization, the Rocky Flats Coalition of Local Governments. That allocation between LSO and non-LSO activities does not affect total the expenditures for 2015.

Please let me know what questions you have.

ROCKY FLATS STEWARDSHIP COUNCIL

2016 Budget -- Draft #1 September 14, 2015

	2016 Budget Amounts	2016 Anticipated Expenditures	2015 Budget	2015 Actual/ Projected Expenses*	2015 Budget vs. 2015 Projected Expenses	2014 Expenses
A. Personnel	\$ 93,000.00	\$ 85,800.00	\$ 93,000.00	\$ 84,300.00	\$ (8,700.00)	\$ 82,200.00
Executive Director and Technical Advisor (\$7750/month)						
B. Fringe Benefits	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Staff are contract employees						
C. Travel	\$ 6,700.00					
Out of State	\$ 5,500.00	\$ 5,000.00	\$ 4,500.00	\$ 4,996.50	\$ 496.50	\$ 4,172.87
National DOE-related trips						
Local Travel	\$ 1,200.00	\$ 1,000.00	\$ 1,200.00	\$ 877.00	\$ (323.00)	\$ 973.28
\$100/month for 12 months						
D. Computer Equipment	\$ 500.00	\$ -	\$ 500.00	\$ -	\$ (500.00)	\$ -
Purchase misc. hardware, software						
E. Supplies	\$ 1,200.00	\$ 700.00	\$ 1,200.00	\$ 692.31	\$ (507.69)	\$ 330.26
Supplies (\$100/month)						
F. Contractual	\$ 40,100.00					
Attorney & Accounting Services						
Legal Services (\$1400/ month)	\$ 16,800.00	\$ 11,000.00	\$ 16,800.00	\$ 20,680.00	\$ 3,880.00	\$ 10,873.45
Accounting (\$850/month)	\$ 10,200.00	\$ 5,800.00	\$ 10,200.00	\$ 5,632.00	\$ (4,568.00)	\$ 4,503.00
Audit Report	\$ 6,500.00	\$ 4,200.00	\$ 6,500.00	\$ 4,000.08	\$ (2,499.92)	\$ 4,020.34

Admin. Services						
Misc. Services: bank fees, etc.	\$ 1,000.00	\$ 100.00	\$ 1,000.00	\$ 292.00	\$ (708.00)	\$ 47.00
Minutes Preparation (6 meetings) (also includes web site management)	\$ 3,600.00	\$ 3,000.00	\$ 3,600.00	\$ 2,950.00	\$ (650.00)	\$ 2,925.00
Local Government Expenses						
Miscellaneous expenses not covered by DOE funds (includes meeting expenses and non-LSO activities)	\$ 2,000.00	\$ 1,500.00	\$ 2,000.00	\$ 1,450.00	\$ (550.00)	\$ 1,461.50
G. Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
None						
H. Other	\$ 14,600.00					
Printing & Copy	\$ 2,000.00	\$ 1,700.00	\$ 2,000.00	\$ 1,630.80	\$ (369.20)	\$ 1,073.14
Postage \$125/month for 12 months	\$ 1,500.00	\$ 950.00	\$ 1,500.00	\$ 1,299.98	\$ (200.02)	\$ 591.88
Liability Insurance						
Property Contents/General Liability	\$ 500.00	\$ 500.00	\$ 500.00	\$ 500.00	\$ -	\$ 500.00
Board Members	\$ 3,500.00	\$ 3,500.00	\$ 3,500.00	\$ 3,204.33	\$ (295.67)	\$ 3,012.75
Telephone, email, etc.	\$ 2,700.00	\$ 2,100.00	\$ 2,700.00	\$ 1,931.82	\$ (768.18)	\$ 1,986.26
Website						
Hosting	\$ 500.00	\$ -	\$ 500.00	\$ -	\$ (500.00)	\$ 350.22
Web master	\$ 1,500.00	\$ -	\$ 1,500.00	\$ -	\$ (1,500.00)	\$ -
Subscriptions/Memberships						
ECA membership	\$ 950.00	\$ 950.00	\$ 950.00	\$ 950.00	\$ -	\$ 950.00
Conference registration fees	\$ 800.00	\$ 800.00	\$ 500.00	\$ 800.00	\$ 300.00	\$ 245.00
Newspapers	\$ 650.00	\$ 450.00	\$ 650.00	\$ 462.80	\$ (187.20)	\$ 439.40
J. Indirect Costs	\$ -		\$ -	\$ -	\$ -	\$ -
N/A						
TOTAL PROPOSED BUDGET	\$ 156,100.00	\$ 129,050.00	\$ 154,800.00	\$ 136,649.62	\$ (18,150.38)	\$ 120,655.35

REVENUE FOR 2016

Local government contributions	\$ 10,000.00
Department of Energy grant	\$ 130,000.00
RFCLOG carry-over	\$ 16,100.00
TOTAL	\$ 156,100.00

*2015 Actual/Projected Expenses = actual January through July; projected August through December

CDPHE Contaminant Briefing

- Cover memo
- Map indicating site exposure units

Anne Fenerty-Jon Lipsky Briefing

- Cover memo
- Fenerty-Lipsky briefing memo
- RFSC timeline

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Nancy Newell

MEMORANDUM

TO: Stewardship Council Board
FROM: Rik Getty
SUBJECT: Remaining Environmental Contaminant Levels Briefing
DATE: August 27, 2015

This briefing was scheduled for the June 2015 meeting but was delayed to September. The following is the same information we provided to the Board in the June meeting packet. The only change has been to reduce the time allotted from 50 minutes to 45 minutes.

We have scheduled 45 minutes for Carl Spreng with CDPHE to brief on cleanup levels and remaining contaminants of concern. CDPHE will discuss the contaminants that were released to the three principle environmental media—soil/sediments, water, and air—and the remaining contamination levels throughout Rocky Flats.

The briefing will focus on three primary questions:

1. What are the primary contaminants of concern (COC) and their remaining contaminant levels at Rocky Flats?
2. How do we know what the contaminant levels are?
3. What risks do these contaminants pose?

In reviewing this material and preparing for the briefing, bear in mind that late in the cleanup Rocky Flats was divided into two major management units—the Central Operable Unit (COU), which are the primary DOE-retained lands, and the Peripheral Operable Unit (POU), which largely comprise the Rocky Flats National Wildlife Refuge. This memo and briefing will include both the COU and POU as, together, they comprise the historic weapons facility.

Executive Summary

1. What are the primary contaminants of concern (COC) and their remaining contaminant levels at Rocky Flats?

The primary COC are plutonium (Pu), americium (Am), uranium (U), volatile organic compounds (VOC), and semi-volatile organic compounds (SVOC). Cleanup levels vary between the different contaminants, but the contaminant of greatest concern during cleanup was plutonium. Pu remediation focused on soil remediation.

The final surface soil (defined as the top 3' of soil) cleanup level for Pu (and Am) was 50 picocuries per gram of soil (pCi/g). This standard was based on the most likely future use scenario (a wildlife refuge worker) and drove many aspects of the cleanup. Throughout the COU and POU, soil sampling was performed to confirm that the remaining surface soils contained less than 50 pCi/g. For the COU, the remaining contaminant levels for Pu in the surface soils average 4 pCi/g. For the POU, the sampling data indicates the remaining soils contain on average less than 1 pCi/g of Pu, and in most places are background or close to background. Some of the subsurface soils in the COU contain far higher levels of Pu.

As discussed below, the other COCs exist throughout the COU. DOE manages and treats these contaminants (e.g., the Solar Ponds Plume Treatment System). Issues have emerged that require ongoing investigations and management actions (e.g., U levels in Walnut Creek)

2. How do we know what the contaminant levels are?

The short answer is extensive sampling. DOE collected and analyzed thousands of soil samples across the entire site prior to closure. Surface soils, subsurface soils, and drainage sediments were analyzed. These results were used in an intensive health risk assessment that was overseen by the EPA and CDPHE. In addition, the EPA performed further soil testing to verify DOE's results. The results were confirmed by the Agency for Toxic Substances and Disease Registry (ASTDR).

3. What risks do these contaminants pose?

DOE calculated the greatest risk from residual Pu contamination is to a refuge worker with an individual increased cancer risk estimated to be 2×10^{-6} , or two in one million. These levels are also protective of wildlife and refuge visitors. Accordingly, in 2007 the EPA certified the cleanup was complete and removed (de-listed) the POU lands from the CERCLA National Priorities List (NPL). The POU lands were deemed available for any and all uses. The COU lands remain on the NPL due to ongoing groundwater remediation.

Details on Primary COC and their levels at Rocky Flats

Pu, Am, U, VOC, and SVOC can be found in both soil and water. The radionuclides were released to the environment at many locations across the COU, as well as the POU, with some contamination moving offsite by wind-borne dispersion and via the surface waters of Walnut and Woman Creeks. VOC are found in groundwater plumes emanating from the East Trenches waste disposal area and the Mound Site waste disposal area. Both of these areas have groundwater treatment systems designed to remove the VOC from the contaminated groundwater plumes.

Examples of some of these COC releases to the environment were:

- Pu, Am, and U contamination from over 5,000 leaking drums (late 1950's and early 1960's) of machining fluids at the outside drum storage area (903 Pad) on the southeast side of the Industrial Area. Early attempts to remediate the area resulted in air-borne dispersal (primarily east and southeast) of radioactive particulates by high winds.
- leaking drums of VOC in the East Trenches and Mound Site which contaminated groundwater

- fires in Building 771 in 1957 and Building 776 in 1969 which released some radionuclides to the air but not near as much as the 903 pad releases
- releases of radionuclides within and surrounding production buildings which eventually led to contaminated surface and subsurface soils
- U releases in the Solar Ponds evaporation area which contaminated groundwater that eventually goes into North Walnut Creek (a groundwater plume treatment system is located near North Walnut which treats U-contaminated groundwater)
- releases from leaks in underground liquid process waste lines

Independent community assessment of Pu cleanup levels

The initial soil cleanup levels (called soil action levels) for Pu were 651 pCi/g. Due to widespread community concerns, DOE agreed to fund a community-designed and directed independent assessment. The community oversight panel hired the Risk Assessment Corporation (RAC), headed by Dr. John Till. Till and the community panel evaluated, among many factors, Pu movement, the impact of drought and fire, contaminant ingestion, and inhalation rates. RAC proposed a future use scenario where a resident ranching family with children would live on Rocky Flats and get all their food and water from the site. Based on the future use scenario (the most use intensive scenario possible) and model inputs, RAC and the oversight panel adopted a Pu soil cleanup level of 35 pCi/g. They concluded that 35pCi/g would protect the ranching family and comply with the EPA's risk range of excess cancer rates.

In 2003, the RFCA parties modified their soil action level for Pu to 50 pCi/g, though most of the surface soils in the COU and all of the soils in the POU are far cleaner than 50pCi/g. According to DOE, EPA and CDPHE data, soils in the POU contain on average less than 1 pCi/g of Pu, and in most cases are at background. The remaining soil in the COU contains on average about 4 pCi/g of Pu.

In other words, with few exceptions, the Pu soil cleanup levels at Rocky Flats are largely cleaner than the RAC's resident ranching scenario of 35pCi/g. The notable exception is the subsurface soils in the COU as there are areas along building foundations and old process waste that are substantially higher than the 50pCi/g level. Cleanup levels were predicated on those subsurface contaminants remaining in the subsurface or, alternatively, being brought to the surface through natural process in quantities that do not exceed the surface soil standards.

Contaminants and water quality

The Pu and Am water standards for surface water at the site are both 0.15 pCi/liter of water. This site-specific standard is 100 times lower (more protective) than the EPA's nationwide standard for gross alpha. The site standard for U in surface water is 16.8 microgram/liter, which is not based on radioactive risk but rather on heavy metal toxicity risk.

Throughout the past few years there have been radionuclide exceedances at Point of Compliance water monitoring location WALPOC (on Walnut Creek at COU boundary) and Point of Evaluation water monitoring location GS-10 on South Walnut Creek upstream from former Pond B-1. Over the last few years U at WALPOC has exceeded the water standard of 16.8 ug/l. Although these instances were reportable conditions, they were not finable because the U dropped below the standard. There have also been reportable conditions for U, Pu, and Am at

GS-10 but these elevated levels also dropped below the corresponding standard. An independent study by Wright Water Engineers on U transport in the Walnut Creek drainage was recently completed which helps shed light on the cyclical nature of U levels in Walnut Creek.

The East Trenches and Mound Site VOC- contaminated groundwater plumes exceed the EPA water quality standards, but after treatment and discharge into surface water the VOC levels are below regulatory standards. As noted above, the COU remains on the CERCLA NPL due to ongoing groundwater treatment.

Details on how we know the remaining COC levels in soils

Before and during cleanup there were thousands of soil and sediment samples collected both onsite and offsite (primarily east of Indiana Street). During cleanup, Rocky Flats was divided into 12 exposure units (EUs; CERCLA nomenclature). (See attached map). These EUs were based on topography, past uses, and other factors.

Beginning in 2004, within each EU, DOE and its prime contractor performed a complex risk-based analysis using results from environmental sampling. This CERCLA analysis is termed a comprehensive risk assessment (CRA). CRAs examine environmental sampling results for soil, air, and water, and try to determine what impact, if any, contamination may have on human health and the environment. There were two CRAs performed in each EU, one for human health and the other for environmental (risk to flora and fauna). Although there was extensive historical soil testing, a few data sets could not be used due to suspect data quality, so additional testing was required. Accordingly, DOE, with oversight from EPA and CDPHE, implemented a new sampling effort. That work generated additional characterization data for these EUs.

In addition, the EPA also performed additional soil testing in each of the EUs. Based on DOE's Buffer Zone testing, the EPA picked the grid cell location within each EU which had the highest level of Pu contamination. The EPA then collected five soil samples from that grid location and analyzed them separately (they did not composite the five samples into one sample). The EPA results aligned with those obtained by DOE.

For a more detailed discussion on EU sampling results see the board packet from the April 2011 Stewardship Council meeting:

http://www.rockyflatssc.org/RFSC_agendas/RFSC_Bd_mtg_packet_4_11.pdf

Remaining risks

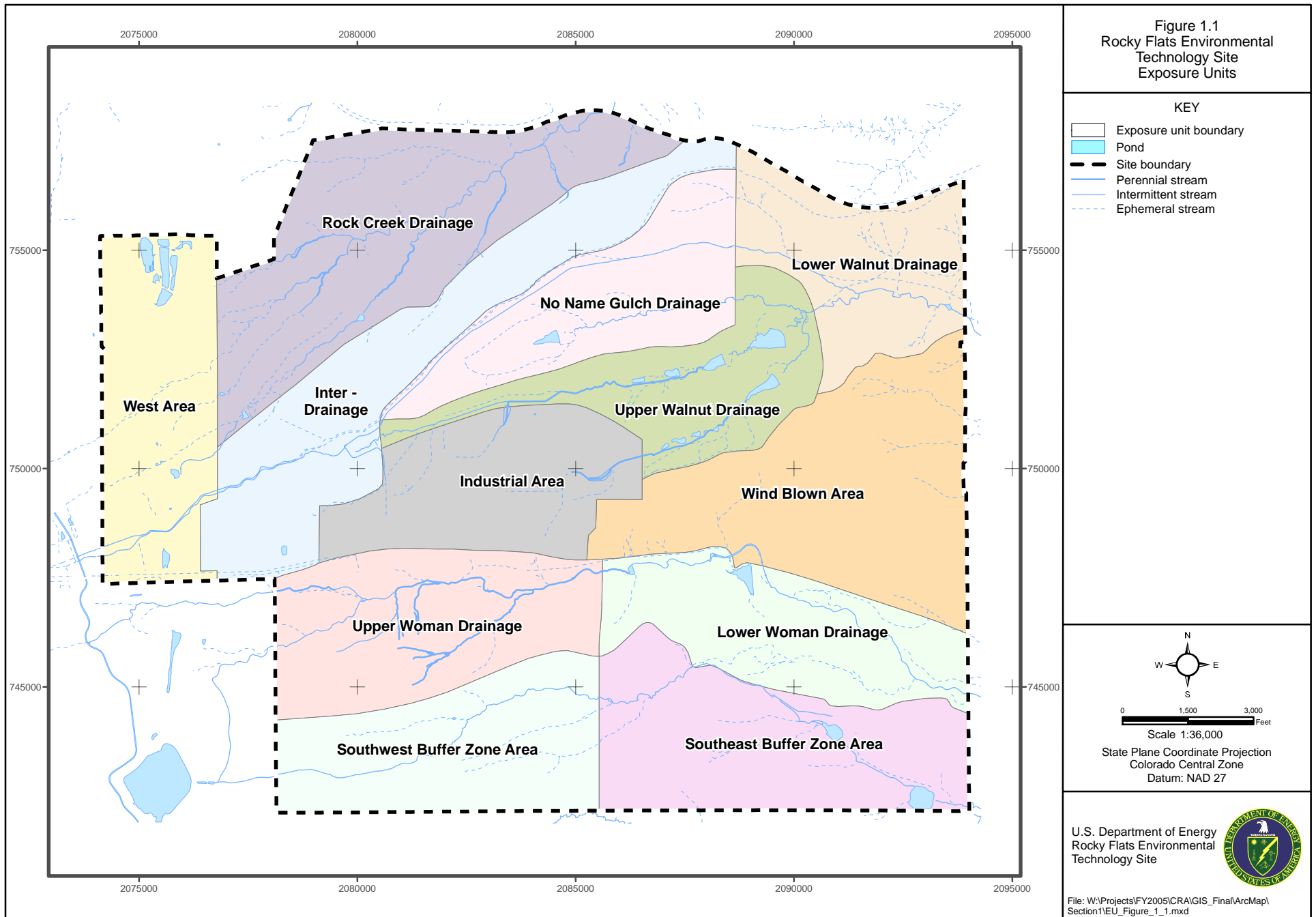
In 2007, the EPA certified the cleanup was complete and removed (de-listed) the POU lands from the CERCLA National Priorities List (NPL). The POU lands were deemed available for any and all uses. DOE calculates the greatest risk from residual contamination is to a refuge worker; the calculated increased cancer risk is 2×10^{-6} , or 2 in one million. These levels are also protective of wildlife and visitors.

A refuge worker's annual dose is calculated to be less than 1 mrem/year. The dose visitors to the Rocky Flats National Wildlife Refuge would receive would be significantly less. 1 mrem/year compares to other doses as follows:







Average dose to US public from all sources: 360 mrem/year
Average dose to US public from natural sources: 300 mrem/year
Average dose to US public from medical sources: 53 mrem/year
Average dose to US public from nuclear power: < 0.1 mrem/year
Average US terrestrial radiation: 28 mrem/year
Terrestrial background (Atlantic coast): 16 mrem/year
Terrestrial background (Rocky Mountains): 40 mrem/year
Cosmic radiation (Sea level): 26 mrem/year
Cosmic radiation (Denver): 50 mrem/year
Radionuclides in the body (e.g., potassium): 39 mrem/year
Building materials (concrete): 3 mrem/year
Drinking water: 5 mrem/year
Pocket watch (radium dial): 6 mrem/year
Eyeglasses (containing thorium): 6 - 11 mrem/year
Coast-to-coast airplane (roundtrip): 5 mrem
Chest x-ray: 8 mrem
Dental x-ray: 10 mrem
(source: Idaho State University, Radiation Information Network)

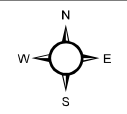
Please let me know if you have any questions.

Figure 1.1
Rocky Flats Environmental
Technology Site
Exposure Units



KEY

-  Exposure unit boundary
-  Pond
-  Site boundary
-  Perennial stream
-  Intermittent stream
-  Ephemeral stream



0 1,500 3,000
Feet

Scale 1:36,000

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

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



File: W:\Projects\FY2005\CRA\GIS_Final\ArcMap\Section1\EU_Figure_1_1.mxd

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Nancy Newell

MEMORANDUM

TO: Board
FROM: David Abelson
SUBJECT: Anne Fenerty & Jon Lipsky briefing
DATE: September 2, 2015

We have scheduled 45 minutes for Anne Fenerty and Jon Lipsky to brief the Stewardship Council. You will recall the Board agreed at the June meeting to Anne and Jon's request to brief the Board on concerns they have with Scott Surovchak's (DOE) April 2015 overview presentation to the Stewardship Council.

Anne and Jon's briefing memo, which came at the request of the executive committee, follows this memo. In reviewing this material, please note three things:

1. Scott Surovchak's April 2015 presentation can be found at: http://www.lm.doe.gov/Rocky_Flats/Sites.aspx?view=5 (click on "Rocky Flats Overview" link). As you will recall, Scott's briefing was mostly photographs with some text.
2. The timeline Rik and I developed that Anne and Jon mention on the first page of their memo is attached.
3. Do not presume that all of the facts Anne and Jon present in their memo are accurate.

Finally, as background, the objective of our timeline and Scott's briefing was to provide an overview of key Rocky Flats facts and events. Neither was intended to be comprehensive, so naturally gaps exist. For a more detailed history of Rocky Flats, I recommend two sources:

1. Len Ackland, "Making of a Real Killing"
2. DOE history -- http://www.lm.doe.gov/Rocky_Flats/Sites.aspx?view=5 (click on "Rocky Flats History")

Please let me know what questions you have.

Rebutting the Re-writing of Rocky Flats history: Removing the vestige of “residual risk”

**By: Anne Fenerty, M.S.
Jon Lipsky, M.A.S.**

Reference the Rocky Flats Stewardship Council meeting packet of April 6, 2015; Jon Lipsky’s public comment dated April 6, 2015; and, various emails between David Abelson, Anne Fenerty and Jon Lipsky dated June 1, 2015, June 2, 2015, June 15, 2015, August 3, 2015, August 7, 2015, and August 11, 2015.

The Rocky Flats Stewardship Council meeting packet in regards to “Rocky Flats History: Timeline of Key Events”ⁱ (Version 3.0 – December 2014) and Department of Energy’s “Rocky Flats Overview”ⁱⁱ presentation on April 6, 2015 is the subject of this rebuttal.

Slide 1 – Timeline

Why would Mr. David Abelson, Mr. Rik Getty of the Rocky Flats Stewardship Council with their “Rocky Flats History: Timeline of Key Events” and Mr. Scott Surovchak, U.S. Department of Energy, Legacy Management (DOE/LM), with his “Rocky Flats Overview” obscure the many salient facts and dilute Rocky Flats truths pertaining to systemic contamination of dangerous and lethal radioactive elements, denying the public’s right to know and the present ongoing dangers of the Rocky Flats Superfund Site, nuclear dump and National Wildlife Refuge? For example some key events that were omitted:

- Perry S. McKay, et al., Plaintiffs, William C. Ackard, et al., Intervenors, v. United States of America, et al., Defendants, U.S. District Court for the District of Colorado, case number 75-M-1162. A federal civil case with a finding that plutonium and americium concentrations in excess of the Colorado standard for soil were a result of air releases from the Rocky Flats Plant including the 1957 fire, leaky oil storage drums and their removal from 1958 to 1969, and a fire in 1969;
- Marilyn Cook, et al., Plaintiffs, v. Dow Chemical, Rockwell International, et al., Defendants, U.S. District Court for the District of Colorado, case number 1:90-cv-00181-JLK. A federal civil case involving nuisance and trespass of plutonium contamination to adjacent property owners’ land;
- USA v. Rockwell International Corporation, U.S. District Court for the District of Colorado, case number 92-CR-107. A federal joint criminal investigation from 1987 that concluded with the 1992 Plea Agreement involving four (4) felonies, six (6) misdemeanor convictions and fine;
- U.S. Environmental Protection Agency: Rocky Flats Plant (USDOE), Federal Facility Final National Priority List (NPL also known as Superfund Site)ⁱⁱⁱ. A summary of the EPA listing Rocky Flats as a Superfund Site as of September 1989.

Slide 2 – Production Era (1953-1994)

Why would Mr. Scott Surovchak, DOE/LM, use '1953' as the start date?

The U.S. Department of Energy (DOE), Legacy Management (LM) data base indicates – July 1, 1952 – “Operations began on regular production materials.”

Slide 11 – 1989 – End of the Cold War (changed the Mission at Rocky Flats)

Why would Mr. Scott Surovchak, DOE/LM, declare that “1989 – End of the Cold War” and that the Rocky Flats mission changed - as the W88 program was cancelled? Evidence to the contrary:

The U.S. Department of Defense (DOD), by U.S. Congressional authority, recognizes the Cold War era from September 2, 1945 to December 26, 1991.^{iv}

On September 23, 1989 the New York Times reported – “Rockwell Is Giving Up Rocky Flats Plant”^v – “The company generates poisonous liquid wastes laced with radiation, for which there is no legal disposal method.” Obviously the former Rocky Flats Nuclear Weapons Plant was not capable of operating legally in 1989.

The W88 Program – Plutonium Pits are a critical core component of a nuclear weapon - was not cancelled in 1989. The National Nuclear Security Administration (NNSA) web page – Plutonium Pits^{vi} – states that “NNSA lost the capability to manufacture replacement pits since Rocky Flats Plant closed in fiscal year 1992. For the W88 warhead, this was a concern because there were not enough W88 pits to replace ones that were destroyed during the surveillance process. By 2007, NNSA reconstituted its ability to manufacture pits, which is now done at Los Alamos National Laboratory.”

Slide 13 – The Cleanup (1994-2005)

Why would Mr. Scott Surovchak, DOE/LM, state that “The Cleanup” at Rocky Flats was from 1994-2005?

The DOE/LM data base notes that Kaiser-Hill Company was hired effective July 1, 1995. In 1994 the DOE/LM data base notes that 200,000 gallons of sludge from the Solar Evaporation Ponds were emptied, among other things, however the Solar Evaporation Ponds were closed under the Resource Conservation and Recovery Act (RCRA) in 1985. Despite RCRA Closure in 1985 Solar Evaporation Pond 207C was utilized for production activities in 1987 and 1988. Arguably, DOE began the cleanup of Rocky Flats in 1985 with the regulatory enforced closure of the Solar Evaporation Ponds, albeit short-lived, in 1985.

Slide 14 – Rocky Flats Closure Project

Why would Mr. Scott Surovchak mention only the 1996 Rocky Flats Cleanup Agreement (RFCA)?

In 1995 Kaiser-Hill was awarded the “Rocky Flats Performance-Based Integrating Management” contract effective July 1. The Rocky Flats Cleanup Agreement evolved as a result of several other notions.

The 1996 Rocky Flats Legacy Management Agreement (RFLMA)^{vii} was a result of a Federal Facility Agreement and **Consent Order** (emphasis added) that complies with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA). In other words DOE has agreed to and is expected to comply with U.S. and Colorado law.

Slide 15 – Rocky Flats Closure Project

Why would Mr. Surovchak, DOE/LM highlight the closure project without noting the Independent Verification surveys?

In July 2008 E.N. Bailey authored “Lessons Learned from Independent Verification Activities, DCN 0476-TR-02-0.”^{viii} The report cited the need for more extensive field investigations by the contractor, the contractor overlooked contamination, the 903 Lip Area demonstrated Pu239/240 concentrations exceeding the 50 pCi/g action level and nine samples exceeded the maximum hot spot criteria of 150 pCi/g. Oak Ridge Institute for Science and Education (ORISE) identified a discrepancy in the calibration methods wherein the contractor did not account for surface efficiency in their calibrations resulting in half the reported activities for the same locations as Oak Ridge Institute for Science and Education (ORISE) surveyed.

Independent scientists hired by adjacent municipalities brought up many concerns about the validity of the planned remediation. Many of those concerns were not addressed.

Slide 16 – Rocky Flats Closure Project

Why would Mr. Surovchak omit the following in his “overview?”

Again, the July 2008 Bailey document (please see endnote viii), ORISE identified a discrepancy in calibration methods early in the Decontamination & Decommissioning (D&D) process. ORISE, utilizing MARSSIM, identified numerous locations of elevated activity within Buildings 371, 374, 707, 771/774, 776/777, and 865. “Several localized “hot spots” as well as several larger areas of contamination were identified and subsequently addressed by the contractor. In most instances the identified contamination was undocumented by the contractor.”

Areas of concern that remain at Rocky Flats: Two (2) landfills (OLF and PLF); Original process waste lines for which no schematics are available where the lines are located; Valve vaults; 903 Pad and Lip Area; Ash pits; East Trenches; Mound Site; Contaminated Groundwater plumes; Contaminated foundations in the Building 371 and 771 areas; Sediments in the "B" (South Walnut Creek) series ponds; and, Solar Evaporation Pond contaminated plume.

Slide 23 – Rocky Flats Closure Project

Why would Mr. Scott Surovchak, DOE/LM omit the MARSSIM Independent Verification results and detail how DOE/LM rectified the discrepancies?

- Were the extensive sampling procedures corrected as reported by the Independent Verification process?
- "Rubble Shipped". According to workers on the site much of it is underground. There is no limit of radioactive material left below 6'.
- Building 881 was exploded, large amounts of dust were created, there were no hoses and many workers were exposed to include beryllium.

Slide 38 – Material Disposition

Can Mr. Scott Surovchak, DOE/LM, account for the disposition of all Rocky Flats material?

On November 22, 1996 Thomas B. Cochran, Ph.D. published his report, "Plutonium Inventory Differences at the Rocky Flats Plant and Their Relationship to Environmental Releases."^{ix} The following encapsulates the issue, "Unexplained inventory differences continue to be a major deficiency in the operation of plutonium production processes at Rocky Flats."

Slide 39 – SNM and Waste Shipping

- 2008 Secretary report to Congress, need for 2nd Nuclear Waste Repository though the 1st Nuclear Waste Repository has not opened;
- February 2014 WIPP explosion and subsequent closure;
- Mixed Oxide (MOX) is an experimental nuclear waste for public nuclear power plants that industry has indicated no interest in utilizing;
- Not all Rocky Flats nuclear waste was removed.

Slide 44 – Rocky Flats Closure Project (Environmental Remediation)

Why would Mr. Scott Surovchak, DOE/LM, state that "Building Foundations removed?"

Many buildings were imploded in place. For example Buildings 371, 771 and 881 and their appurtenance.

- RCRA Closure of Old Landfill (OLF) not utilized or realized.

Slide 48 – Characterization of the 903 Pad

Why does Mr. Surovchak state that Rocky Flats soil was cleaned up?

- The Colorado Plutonium-239 cleanup standard at Rocky Flats was changed to accommodate DOE at Rocky Flats. Surface soil to a depth of three (3) feet is now 50 pCi/g of soil; below three (3) feet to six (6) feet up to 1000 pCi/g of soil; and, below six (6) feet no standard exists;
- The Multi Agency Radiation Survey and Site Investigation Manual (MARSSIM)^x, is the manual for the accepted procedure for cleanup of radioactive soils. The DOD, Nuclear Regulatory Commission (NRC), EPA and DOE endorse the guidance; however MARSSIM did not prevail at Rocky Flats. The MARSSIM Independent Verification noted that the contractor had calibration issues early on in the project with noted exceedances of the 50 pCi/g and “hot spot” criteria of 150 pCi/g in soil.

Slide 49 – Rocky Flats Closure Project

Why would Mr. Scott Surovchak, DOE/LM, state that “Majority of the site is below 7 pCi/g plutonium” that implies a regulatory standard?

During a Rocky Flats Coalition of Local Governments Board Meeting on June 6, 2005: Shaun McGrath^{xi}, then Boulder, Colorado Mayor and currently the EPA Region VIII Administrator at Denver, asked about the use of 7 picocuries per gram (pCi/g) in the buffer zone as a standard. John [Rampe, DOE] responded that 7 pCi/g has no regulatory basis and that it is used in the context of institutional controls.

The Independent Verification, MARSSIM (see endnote viii), observed that the contractor overlooked contamination, the 903 Lip Area demonstrated Pu239/240 concentrations exceeding the 50 pCi/g action level and nine samples exceeded the maximum hot spot criteria of 150 pCi/g. The Independent Verification was not applied to much of the Rocky Flats site.

In July 2006 DOE announces the Proposed Plan for the Rocky Flats Environmental Technology Site^{xii} noted that “a few sampling locations within the Peripheral OU that exceed a level of 9.8 picocuries per gram (pCi/g).” The highest result “at these locations” is approximately 20 pCi/g.

Also, Plutonium in the soil is not static as the radionuclide is capable of migrating.

Slide 50 – Extensive Stakeholder Involvement

- Limited by DOE decisions;
- The DOE Environmental Impact Statement tallied greater than 80% of public comments opposed opening the Refuge for extensive public access;
- The RFLMA provides for DOE to disturb the soil at Rocky Flats and only after CDPHE approves the DOE request is the information made public. The public is left without recourse.

Slide 52 – Physical Completion

- The present sampling protocol of 12 month rolling averages for water, plus the composite soil samples don't show exceedances. Dilution is not the Solution for Pollution.

Slide 53 – Regulatory Completion

- The Peripheral Operating Unit, the designated Refuge was delisted as a Superfund Site however the Refuge completely surrounds the Rocky Flats Superfund Site (Central Operable Unit 1). The Refuge consists of approximately 4,000 acres of this former nuclear weapons plant was declared clean, not in need of remediation.
- The Church-McKay lawsuit versus DOE and the 1992 Plea Agreement between U.S.A. versus Rockwell International demonstrates that “[E]ssentially uncontaminated former buffer area” is not factually correct.

Slide 56 – Legacy Management

- Community and public interaction? Periodic reporting? To whom? The Rocky Flats Stewardship Council (RFSC), largely DOE funded, does not publicize its meetings except on its web site. Except the time when FWS planned a burn north of a development there usually are only one or two members of the general public present. The public is restricted to a brief Public Comment period and are not recognized to ask questions during DOE/LM presentations. The RFSC minimizes its efforts to encourage public attendance.

Slide 59 – Central Operable Unit

- DOE/LM “residual contamination” discounts and disregards harmful respirable dust of Pu239.
- DOE/LM has reported extensive contamination of surface water creeks which effect the Rocky Flats National Wildlife Refuge.

Slide 61 – Central Operable Unit (Residual Risk)

Why would Mr. Surovchak, DOE/LM, accept on behalf of the public “residual risk?”

DOEs acceptable risk involves a Wildlife Refuge Worker scenario who spends 20 hours per week at Rocky Flats. The incidence of cancer scenario should reflect that people – especially children who are more vulnerable – and those who live in the area would involve many more hours per week.

DOE calculates that the Wildlife Refuge Worker scenario equates to less than 25 mrem/year. The EPA, Radiation Protection^{xiii} guidelines for Plutonium (alpha emitter) is 10 mrem for humans under the auspices of the Clean Air Act. The DOE should have to quantitatively prove that 50 pCi/g of surface soil Plutonium-239 contamination does not generate more than 10 mrem for humans.

Mr. Surovchak stated that “Surface water meets drinking water standards.” The EPA surface water standard for Plutonium is 0.15 pCi/L. The Colorado Water Quality Control Commission, The Basic Standards for Ground Water^{xiv} for Plutonium and Americium, both are contaminants of concern emanating from Rocky Flats, is 0.15 pCi/L, calculated using a 1×10^{-6} risk level based on residential use. Certain Rocky Flats systems have monitored Plutonium exceeding the water standard and Safe Drinking Water Act^{xv}. When Rocky Flats Plutonium exceeds 0.15 pCi/L in surface water it is not possible to meet the Safe Drinking Water standard.

The DOE/LM Rocky Flats Superfund Site is completely engulfed by the Rocky Flats National Wildlife Refuge (Refuge). Stronger Institutional Controls (IC) should be in-place to protect anyone wandering on the Refuge. For example, fences and signage that clearly indicate the potential increased hazards within the Rocky Flats Superfund Site.

Conclusions

The Rocky Flats Stewardship Council should refrain from considering abridged facts regarding the former Rocky Flats Nuclear Weapons Plant.

In 1999 nuclear workers were promised compensation for illness, injury and loss of life for their service while working in the U.S. nuclear weapons complex. In 2000 the promise was made into Public Law when the Energy Employees Occupational Illness Compensation Program Act (EEOICPA) was made into law. Fortunately the Rocky Flats, Special Exposure Cohort (SEC) Petition, number 192^{xvi}, includes the start date of April 1, 1952 and not “1953” as suggested by Scott Surovchak, DOE/LM.

DOE/LM at Rocky Flats should be pressed (as in contact your Congressperson and Senators) to publicly disclose the costs of the Plume Treatment Systems for the East Trenches, Mound Site and Solar Evaporation Ponds. In regards to the latter the DOE/LM

should also include the amount of funds expended since 1985. The East Trenches, Mound Site and Solar Evaporation Ponds are contamination sources with longevity therefore DOE/LM should also be pressed to disclose the realistic, projected costs to provide an appropriate remedy: RCRA Closure.

Due to ongoing reportable exceedances of contaminants DOE/LM at Rocky Flats monitoring and treatment should be independently verified.

DOE/LM for the Rocky Flats Superfund Site and the U.S. Fish and Wildlife Service for the Rocky Flats National Wildlife Refuge should be required to ensure that alpha emissions do not exceed 10 millirems for humans as a result of Land Management should be based on quantified science and not qualified science (Health Physics).

ⁱ http://www.rockyflatssc.org/RFSC_agendas/RFSC_Bd_mtg_packet_4_15.pdf

ⁱⁱ www.lm.doe.gov/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=9247

ⁱⁱⁱ <http://www2.epa.gov/region8/rocky-flats-plant-usdoe>

^{iv} <http://www.defense.gov/releases/release.aspx?releaseid=2031>

^v <http://www.nytimes.com/1989/09/23/us/rockwell-is-giving-up-rocky-flats-plant.html>

^{vi} <http://nnsa.energy.gov/ourmission/managingthestockpile/plutoniumpits>

^{vii}

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CB4QFjAAahUKEwjGpPTI5r7HAhUQNIgKHZl_Ak4&url=http%3A%2F%2Fwww.lm.doe.gov%2FRocky_Flats%2FRFLMA.pdf&ei=RobZVcbpDZDooASZ_4nwBA&usg=AFQjCN Gpy82PwCsWh9Xya3EWBV7W8ZPMTw&cad=rja

^{viii} <https://www.orau.org/documents/ivhp/survey-projects/lessons-learned-from-independent-verification-activities.pdf>

^{ix} http://docs.nrdc.org/nuclear/files/nuc_11229601a_178.pdf

^x <http://www.epa.gov/radiation/marssim/faqs.html>

^{xi} http://www.lm.doe.gov/cercla/documents/rockyflats_docs/SW/SW-A-005523.pdf

^{xii}

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CCYQFjABahUKEwjTnYK5o73HAhXVV4gKH XlwAYY&url=http%3A%2F%2Fwww.lm.doe.gov%2FRocky_Flats%2FProposed_Plan_FINAL_DOCUMENT.pdf&ei=q7nYVZOcP NWvoQT54IWwCA&usg=AFQjCNFdkzOTruLRNwRcxqGcy4-D3htnQ&cad=rja

^{xiii} <http://www.epa.gov/radiation/radionuclides/plutonium.html>

^{xiv} <https://www.colorado.gov/pacific/sites/default/files/Regulation-41.pdf>

^{xv} <http://www.epa.gov/radiation/radionuclides/plutonium.html>

^{xvi} <http://www.cdc.gov/niosh/ocas/rocky.html>

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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
Nancy Newell

Rocky Flats History: Timeline of Key Events

Version 3.0 – December 2014

- 1951 On March 23, *The Denver Post* reports “There Is Good News Today: U.S. To Build \$45 Million A-Plant Near Denver.” Dow Chemical becomes the initial operating contractor.
- 1957 A major fire occurs in Building 771, later deemed the most dangerous building in the complex. The community is not told about fire until 1970, despite the spread of contamination to off-site lands.
- 1969 A major fire in a glove box in Building 776, later declared the second-most dangerous building in the complex, results in the costliest industrial accident in the nation at the time; cleanup took two years.
- 1970 After independent scientists find plutonium on off-site lands, the Atomic Energy Commission (AEC) announces that the contamination is the result of the 1957 fire and leaking waste drums containing radioactive and hazardous materials.
- 1972 AEC determines it needs to expand the buffer zone around the production buildings; Congress agrees to spend \$6 million to buy an additional 4,600 acres, bringing the total site acreage to approximately 6,400 acres.
- 1973 In April, the Colorado Health Department finds tritium in downstream drinking water supplies but does not alert local officials for five months; the AEC initially denies the presence of tritium at Rocky Flats but later admits to its presence.
- 1974 Gov. Richard Lamm and Rep. Timothy Wirth establish the Lamm-Wirth Task Force on Rocky Flats. The group, which includes site workers and anti-nuclear activists, is charged with making recommendations regarding the future of the site.
- 1975 Rockwell International replaces Dow Chemical as managing contractor.
- 1978 In April, large-scale protests begin at Rocky Flats when 5,000 people turn out for a rally at the west gate; protestors begin camping on railroad tracks leading into the plant site and occupy the tracks until January 1979 when plans are made for a large-scale protest.
- 1979 In April, 9,000 protestors rally outside of Rocky Flats; 300 are arrested, including Pentagon Papers whistle-blower Daniel Ellsberg; in August the United Steelworkers of America, the main site union, holds a counter demonstration that draws 16,000.
- 1981 The Lamm-Wirth taskforce issues its report, concluding that relocating Rocky Flats would cost \$2 billion and take 10-15 years.

- 1983 On October 15, 15,000 protestors nearly encircle the 17-mile perimeter of the Rocky Flats site.
- 1986 DOE, the Colorado Department of Health, and the Environmental Protection Agency sign an agreement to allow regulation of radioactive and hazardous waste at Rocky Flats.
- 1987 Rocky Flats Environmental Monitoring Council forms, a community oversight organization. It is replaced in 1993 by the Rocky Flats Citizens Advisory Board.
- 1989 On June 6, as part of Operation Desert Glow, 80 armed federal agents raid the site to investigate allegations of environmental violations; the contractor Rockwell International later agrees to pay an \$18.5 million fine, the largest in the nation as of that date.
- 1990 EG&G takes over operation of Rocky Flats from Rockwell International.
- 1991 An interagency agreement among DOE, the Colorado Department of Health and EPA is signed, outlining multiyear schedules for environmental restoration studies and remediation activities fully integrated with anticipated National Environmental Policy Act documentation requirements. The approach stymies progress leading the parties five years later to sign the Rocky Flats Cleanup Agreement (RFCA). The RFCA provides the regulatory basis to accelerate cleanup.
- 1992 In the State of the Union address, President George H.W. Bush announces the end of the W-88 warhead program, effectively ending the mission at Rocky Flats.
- 1993 Gov. Roy Romer and Rep. David Skaggs form a 29-member Citizens Advisory Board to provide advice on the technical and policy decisions related to cleanup and waste management activities at Rocky Flats.
- 1995 In July, Kaiser-Hill LLC signs a contract to remediate Rocky Flats; the target completion date is 2010 for an estimated cost of \$7.3 billion.
- 1995 In July, the Future Site Use Working Group issues a comprehensive report of the future use of the site, which includes protecting the 6,000-acre buffer zone as open space, but leaving open questions regarding the future use of the 384-acre core production area (the Industrial Area).
- 1996 DOE, EPA and Colorado Department of Public Health and the Environment (CDPHE) sign the Rocky Flats Cleanup Agreement, the regulatory agreement governing the cleanup and closure of Rocky Flats.
- 1997 DOE and the regulatory agencies agree to no on-site burial of Rocky Flats waste.
- 1998 The Industrial Area Transition Task Force issues a report listing six alternatives for use of the Industrial Area. Final determinations about use of the Industrial Area are made in 2001 with the passage of “The Rocky Flats National Wildlife Refuge Act of 2001.”
- 1999 In February, the local governments surrounding the site sign a Memorandum of Understanding (MOU). The MOU establishes the Rocky Flats Coalition of Local Governments (RFCLOG). Its goal is to give affected governments greater leverage over cleanup and future use decisions.

- 2001 Rocky Flats National Wildlife Refuge Act is signed into law; it was a section in the 2002 National Defense Authorization Act (P.L. 107-107). The Act directs protection of Rocky Flats as national wildlife refuge following completion of cleanup activities; the Act expressly prohibits reindustrialization of the site or local government annexation of the property.
- 2003 DOE, EPA and CDPHE agree to site-wide cleanup levels for soils contaminated with radioactive materials.
- 2005 On October 13, Kaiser-Hill announces physical completion of Rocky Flats cleanup.
- 2006 In September, EPA and CDPHE grant regulatory approval of the cleanup.
- 2007 Rocky Flats buffer zone and off-site lands are deleted from the CERCLA Superfund list.
- 2007 On July 12, jurisdiction over 4,000 acres of the former buffer zone is transferred to the Department of the Interior to be managed as the Rocky Flats National Wildlife Refuge. DOE retains jurisdiction of the vast majority of the former core production area and settling ponds (1,309 acres), as well as jurisdiction over active mining claims (929 acres).
- 2012 DOE transfer additional parcels to the USFWS for inclusion into the Rocky Flats National Wildlife Refuge. DOE retains approximately 150 acres that will be transferred to the USFWS around 2025.

*May 2008
Updated December 2014*