ROCKY FLATS STEWARDSHIP COUNCIL
Monday, February 3, 2014, 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), Jim McCarthy (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), Joe Cirelli (Director, Superior), Emily Hunt (Alternate, Thornton), Bob Briggs (Director, Westminster), Mary Fabisiak (Alternate, Westminster), Jeannette Hillery (Director, League of Women Voters), Sue Vaughan (Alternate, League of Women Voters), Arthur Widdowfield (Director, Rocky Flats Cold War Museum), Ann Lockhart (Alternate, Rocky Flats Cold War Museum), Ken Freiberg (Alternate, Rocky Flats Cold War Museum), Nancy Newell (citizen).

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

Attendees: John Dalton (EPA), Vera Moritz (EPA), Charles Adams (CDPHE), Scott Surovchak (DOE-LM), Linda Kaiser (Stoller), Bob Darr (Stoller), John Boylan (Stoller), George Squibb (Stoller), Jeremiah McLaughlin (Stoller), David Ward (Stoller), Jeremy Rodriguez (Rep. Perlmutter), Art Burmeister (citizen).

Convene/Agenda Review

Chairman Bob Briggs convened the meeting at 8:38 a.m.

Chairman's Review of December 16 Executive Committee meeting

Chairman Briggs noted that an Executive Committee meeting was held on Dec. 16, 2013. Meeting attendees included the Executive Committee along with David Abelson. The purpose was to develop an agenda for this meeting. These meetings are open to public.

Election of Stewardship Council Officers for 2014

Each year, the Board must elect a Chair, Vice Chair, and Secretary/Treasurer. As provided in the bylaws, the terms shall commence at the first meeting of the Board held on or after February 1 of each year.

Prior to the meeting, four people had expressed an interest in serving as officers for 2014. These were Joyce Downing as Chair, Deb Gardner as Secretary, and Bob Briggs and Lisa Morzel were open to any position. Bob Briggs asked if anyone else was interested in being considered for one of the positions. No one replied. He then withdrew his name from consideration, supporting Lisa as Vice-Chairman. Joe Cirelli moved to close the discussion and approve Joyce Downing as

Chairman, Lisa Morzel as Vice Chairman, and Deb Gardner as Secretary/Treasurer. The motion was seconded by Murph Widdowfield. The motion passed 13-0.

Joyce Downing took over as Chair of the meeting, and thanked Bob for his year of service.

Consent Agenda

Joe Cirelli moved to approve the October 2013 Board meeting minutes and the checks. The motion was seconded by Mike Shelton. The motion to accept the minutes and checks passed 13-0.

Approval 2014 Meeting Dates and Notice Provisions Resolution

Each year the board is required to adopt a resolution establishing the meeting dates for the given year. The Board was provided with a suggested schedule for 2014 in their meeting packets. The dates were February 3, April 7, June 2, September 8 and November 3. Lisa Morzel moved to approve the resolution and meeting notice provisions. The motion was seconded by Mark McGoff. The motion passed 13-0.

Executive Director's Report

David Abelson began by welcoming a number of new Board members to the Stewardship Council. He took a moment to reflect upon the ongoing interest in Rocky Flats issues, so many years after site closure and cleanup. He added that he and Rik Getty were planning to stay after the end of each meeting in order to be available to answer any questions from Board members. David said that staff was still in the process of updating the new Board contact list, and as soon as one remaining slot was finalized, they will distribute the list. He noted that statements for the annual contribution of $1,000 by each local government were to be mailed out soon. David also explained that, although not required, the Stewardship Council commissions an outside audit each year. Since all Stewardship Council staff are contractors, this independent review is done so that the Board can be assured everything is handled correctly. The audit for 2013 has begun and the findings will be presented at the June meeting. David mentioned as well that the quarterly financial reports were mailed to the 2014 Board members recently, and to let him know if there were any questions.

Next, David updated the group on the status of the new management contract for Rocky Flats. As previously discussed, the contract with SM Stoller has been nearing completion, and DOE was accepting bids from interested parties. Other companies competed with Stoller for this contract. Last spring, a bid from a company called Portage was selected. However, there was some controversy about the decision and DOE withdrew the contract. At that point, they began the bidding process again. After the second round, DOE again chose Portage to manage Rocky Flats.

David noted that the new draft federal budget was expected to be released on March 4. He said he did not anticipate that there will be any significant changes for Rocky Flats, as the budget is very small in the context of DOE as a whole.

David next reported on a recent trip to Washington, D.C. Although the government was shut due to a snow storm for part of the time he was there, he was still able to have several meetings. He was not able to meet with Dave Geiser (head of DOE-Legacy Management) this time; however he did have meetings with some of Geiser's top deputies. Additionally, David met with staff members from Rep. Perlmutter and Rep. Polis, as well as the Energy Communities Alliance. The Colorado delegation has been very focused on energy workers issues. Both Rep. Polis and Rep. Perlmutter have worked to secure legislation to establish a federal Advisory Board to review worker claims. While this legislation did not pass last year, they are already working to reduce the associated costs, so that it has a better chance this year. David noted that he would be back in D.C. for the annual ECA conference and Board meeting later in February.

Joe Cirelli asked if the protest period had passed for the awarding of the contract to Portage, and when the contract was set to start. Scott Surovchak said that there was a 60 day protest period, and he said the transfer would take place within six months. Mark McGoff asked where trips to Washington, D.C were mentioned in the Annual Report. David noted they are included, but he could highlight them in the 2014 report. Lisa Morzel asked if anyone had attended an event that Stoller hosted recently. David said that he and a few Board members were there. She also mentioned that Stoller was acquired by another company, and asked how that would affect the new contract. Scott said it did not matter, because when Portage takes over, Stoller will no longer be working at Rocky Flats. She asked if the site staff would be the same. David said that was not yet known, however keeping the experienced staff would be a good business decision, and was often done in these situations.

Barb Vander Wall, the Board's attorney, circulated the annual Oaths of Office for Board Members and said to let her know if there were any errors or questions. She said Members could either have the person sitting next to them witness their signatures and give them back to her at the meeting, or they could return it to the office later.

DOE Quarterly Update

DOE briefed the Stewardship Council on site activities for the third quarter of 2013 (July – September). Activities included surface water monitoring, groundwater monitoring, ecological monitoring, and site operations (inspections, maintenance, etc.). All reports available on the DOE-Rocky Flats website.

Bob Darr began by reviewing the requirements for quarterly monitoring and reporting at Rocky Flats, which are detailed in the Rocky Flats Legacy Management Agreement (RFLMA). As Bob explained, the purpose of these briefings is to document that the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedy continues to be protective. The primary goal is protection of surface water. Response actions were developed under the final remedy in order to meet this goal. The response actions include the following requirements:

- Maintain two landfill covers
- Maintain four groundwater treatment systems
- Monitor surface water and groundwater

- Maintain physical controls
    - Signage
    - Restricted access
- Maintain institutional controls
    - No building construction or occupation
    - Restrictions on excavation and soil disturbance
    - No consumption or agricultural use of surface water
    - No groundwater wells except for monitoring
- Protect the landfill covers and engineered remedy components

Surface Water Monitoring – George Squibb
George began his update by showing a map of the site monitoring locations. He then summarized quarterly performance monitoring at the Original Landfill (OLF) and Present Landfill (PLF). At the OLF, all sampling results met water quality standards during the quarter. At the PLF, a routine sample collected from the system effluent on August 15 measured arsenic at 11 µg/L (the standard is 10 µg/L). The result prompted arsenic sampling to be done on a more frequent, monthly basis. Arsenic continued to be detected above the standard in the first two monthly samples; results for the third monthly sample are pending.

George moved on to an update on Point of Compliance (POC) and Point of Evaluation (POE) monitoring. George reminded the group that GS01 and GS03 were no longer Points of Compliance (POC's). The new POC's are WAMPOC and WALPOC. There were no reportable conditions at POC's during the quarter. The POE's are located further upstream from POC's and include SW093, SW027 and GS10. Reportable 12-month rolling average values for americium, plutonium, and uranium at GS10 were observed during the quarter. Additional sampling is being conducted both upstream of and downstream of GS10. Since August, plutonium and americium have been below standards. And, as of September 30, uranium is no longer reportable.

Jeannette Hillery asked what the elevated arsenic levels were in the more recent sampling. George said that the results showed 11, 23, 12 and 8 µg/L. Lisa asked what the margin of error was for this testing. George said that he was not sure.

David Allen said that he had noticed some data gaps in the graphs for the 30-day rolling average that seemed to coincide with the flooding onsite, and asked for an explanation. George said this was partly because the automated equipment filled up with water and also because staff did not have access to the site for a period of time. He said that none of results at GS03 were higher than the standards. He added that some of the data they were able to collect helped show that dilution had a bigger effect than transport. David asked if the non-reportable uranium results could be attributed to the large flows coming through the site. George said it could. He added that when the AMP comes out, they will have more flexibility to include some of their estimates, which they are not able to do with these regulatory requirements. Pat O'Connell asked if the concentrations during floods were lower because of dilution. George said this was not necessarily true. He said that while uranium tends to be diluted, plutonium and americium stick to things and did move during the floods. Their levels went up quite a bit, but still were well below the standards. Correspondingly, uranium levels went down. Pat asked about the mass of

the material that could have moved. George answered that mass is not what they look at from a risk standpoint, it is the concentration.

Groundwater – John Boylan
John began by noting that the third quarter is a light quarter for sampling requirements. They only sampled RCRA wells at the PLF and OLF. Statistical evaluation of the results will be included in the annual report for 2013

Non-RFLMA monitoring was conducted at the treatment systems:

- Mound Site Plume Treatment System (MSPTS): air stripper evaluations and optimization
- (East Trenches Plume Treatment System) ETPTS: air stripper evaluations and optimization
- (Solar Ponds Plume Treatment System) SPPTS: microcells and lagoons.

At the MSPTS air stripper, the pump had become clogged ('bio-fouled'), so it was cleaned out.

At the ETPTS air stripper, 10 small nozzles were replaced with a single larger nozzle. The pump on this air stripper malfunctioned in September because it was clogged with scale. It was reconfigured and replaced with two pumps of a different design.

At the SPPTS, the site completed several microcell tests involving zero valent iron (ZVI), steel wool, and mixtures. They also continued to increase flow through pilot-scale lagoons. At end of the quarter, they were testing residence times of 3-4 days in Cell B. Previous processes involved 50-day residence times. The heavy September rains affected the system when vaults became flooded, which impacted the electronics and dosing. Several phases of repairs and modifications were completed, and the system was back online on October 1.

Shelley Stanley asked if the MSPTS or ETPTS suffered any damage from the flood, and John said they did not.

Site Operations - Jeremiah McLaughlin
Jeremiah began by reporting on one of the physical controls required by RFLMA, which is a quarterly inspection of signs around the site. All signs were found to be in good condition.

At the OLF, three monthly inspections were performed, as well as weekly inspections of slumping areas. Eight settlement monuments and seven inclinometers were monitored. Movement was within expected ranges.

Jeremiah also reported on a Reportable Condition Evaluation at the OLF. Contact Record 2013-02 was posted to the public website on October 24. The site's geotechnical engineer observed conditions on September 24, which led to a technical memorandum of evaluation and the recommendations provided in the Contact Record. Similar localized cracking and movement was noted in 2007 on the west side of the OLF, and a corresponding geotechnical investigation was completed in 2008. He said that the distress generally included small-scale, localized slump features originating in the comparatively weak clay layer underlying OLF. Heavy precipitation can result in moisture penetrating this layer and reduce stability; however, he said that a large-

scale slope failure was unlikely. To address this issue, the site is filling the East Perimeter Channel steep headwall, as well as doing additional grading. These actions will improve runoff, which will in turn help stabilize the area. Design drawings for the filling and grading have been approved by CDPHE. Contact Record 2013-03, with an approved Soil Disturbance Review Plan, was posted to the website on November 27. Soil disturbance cannot occur earlier than 10 days after posting the Contact Record. Severe cold spells and snow in December and early January impeded plans to do the work, so they are planning for an early spring start.

In the interim, cracks were sealed and erosion control matting was added. They will continue weekly monitoring of the area and also after significant storm events. Routine maintenance will continue to fill/tamp cracks if any occur. Snow removal will also be done if major snow drifting occurs above the distress area. Jeremiah noted that detailed photographs were available of the areas being discussed.

Shelley Stanley asked Jeremiah if some of this slumping on the east side had been noticed previously. He said that there were some seeps in that area; however, this is a new slump. She also asked if there were any inclinometers in that general vicinity. Jeremiah said there were, but that they were far enough away that they did not detect any problems. David Allen asked why the site could not get reads on one of the inclinometers below nine feet. Jeremiah said the device had broken off at that depth. Lisa Morzel asked if they were doing anything extra in anticipation of extra spring runoff. Jeremiah said that the roads had been significantly upgraded, so they will stay in good shape. He added that the OLF repairs they are planning should also address runoff issues.

Jeremiah next reported that one quarterly inspection was performed at the PLF and annual surveys of nine settlement monuments were completed in December.

In response to flood damage, the site operations team needed to repair damaged roads sitewide. This took place November 4-14th.

Site Ecology – Jeremiah McLaughlin
Jody Nelson was not available, so Jeremiah gave a quick overview on third quarter ecological monitoring at Rocky Flats. These activities included:

- Weed mapping
- Nest box surveys
- Prairie dog surveys
- Revegetation monitoring
- PMJM mitigation monitoring
- Wetland mitigation monitoring
- Photopoint monitoring
- Herbicide applications (approximately 62 acres treated)
- Erosion control surveys

Briefing/Discussion on Groundwater at Rocky Flats

Throughout 2014, the Stewardship Council plans to study groundwater issues at Rocky Flats. This briefing was set up as the first in a series of briefings and discussions, and was designed to focus primarily on groundwater hydrology at Rocky Flats.

As an introduction, John Boylan noted that he would be speaking about the characteristics and hydrogeology of Rocky Flats, including geology, the water cycle, data sources, and specific Rocky Flats examples.

He began by displaying a sketch of the basic geology of the Rocky Flats site. The diagram showed the various geologic units (or layers) beneath the land surface. The upper layer, known as Rocky Flats alluvium, is approximately 400,000-2,000,000 years old. Beneath this, the Laramie formation is predominantly clay, and has roughly the same hydraulic conductivity as a compacted clay layer in an engineered landfill. John noted that, in most areas of the site, it would not even be possible to sink a well for household use because of the depth of the groundwater. Another slide showed a cross-section of the vertical location and depth of the various layers. In terms of activities at Rocky Flats, John pointed out the most important layers to understand were the Rocky Flats Alluvium (and other surficial materials, such as artificial fill and colluvium), and the Arapahoe and Laramie Formations.

Next, John described the typical, generalized water cycle. This diagram included the processes of precipitation, infiltration, gravity drainage, recharge and flow of groundwater, surface runoff, evaporation and evapotranspiration. The next slide covered a more Rocky Flats-specific water cycle, which also demonstrated the concept of how seep areas develop along hillsides where groundwater meets the surface layer. John also showed aerial photos of the site to highlight some of the visible geological features in various areas.

John next delved into water and hydrogeology issues. He noted that Rocky Flats is located in a semi-arid climate, with only 12-15 inches of annual precipitation. All but 1-2 inches of this precipitation is lost each year due to evapotranspiration. The primary sources of groundwater are recharge from precipitation and baseflow from the west of the site. Therefore, very limited amounts of groundwater are available onsite.

There are two fundamental hydrogeologic units at Rocky Flats. The Upper Hydrostratigraphic Unit (UHSU) is comprised of surficial materials and weathered bedrock. The Lower Hydrostratigraphic Unit (LHSU) is deeper with unweathered bedrock. Only groundwater in some areas of the UHSU was affected by past operations, since data show that the LHSU is hydraulically isolated from UHSU. John noted that the bedrock surface largely resembles the ground surface. Groundwater flows downhill along bedrock contact, generally west to east. The UHSU groundwater discharges to surface water within the Central Operable Unit. John explained that this is precisely the reason that DOE monitors the groundwater—to watch for threats to surface water**.** Shelley Stanley asked if both the UHSU and LHSU express to surface water. John said that only the UHSU does.

John moved on to a discussion of Rocky Flats groundwater monitoring wells. Over 1,400 wells and hundreds of boreholes have been installed since the 1950s. Most of these wells are located

onsite. Any unnecessary wells were abandoned according to Colorado State Engineer requirements. Various types of data have been collected over the years. Geologic data included characteristics of the subsurface materials and the depths of important features, like bedrock contact. Hydrogeologic data included water levels and aquifer characteristics. And, chemical data included field parameters (pH, temperature, etc.), as well as contaminants and other chemistry. All of this data was used to determine the cleanup remedies and how to monitor them. John's presentation included a map of all of the historical monitoring wells, and another showing the current RFLMA monitoring network.

Lisa Morzel asked about the range of depths of the wells. John said the average well is about 22-24 feet; while some are less than 10 feet and others exceed 400 feet. He said they collected miles of core samples over the years, which were carefully maintained and stored in cargo containers. These were offered to many organizations, but no one wanted them, so they were was disposed of. John said that groundwater does not move very fast. For example, after drilling some boreholes, they would not even see mud in the bottom for weeks.

John next showed examples of hydrographs for a number of wells onsite. Hydrographs are a method of depicting well data at various depths, including the top and bottom of the well casing, contact with bedrock, and water levels over time. Data from the hydrographs can be used to exhibit the effects of various activities and conditions on groundwater. John showed examples demonstrating the effects of closure activities, seasonal trends, and dam-breaching on groundwater at Rocky Flats.

John explained the different types of wells next. Area of concern (AOC) wells are those that are the furthest downstream from a plume. These have the strictest reporting and monitoring requirements, as well as requirements related to reportable conditions. These are monitored every six months. Sentinel wells are the next closest to the source areas and plume edges. These are also monitored every six months. Evaluation wells are located inside the plumes. Since these concentrations do not change or vary much, these are monitored only every other year. RCRA wells at the landfills are the only ones that are sampled quarterly. Some wells are monitored only for water levels. There are also wells near the treatment system locations. Mary Fabisiak asked if the site water balance model was still being used. John said that this model supported the development of fate and transport models, as well as the development of the monitoring network. Every five years, as part of the required CERCLA review, the model is recalibrated in order to look for data gaps. David Allen asked why some wells were replaced rather than placing a new well. John said that they were only replaced if they were damaged or not adequate for the purpose (i.e. not deep enough).

After the presentation, Bob Darr introduced David Ward, who is taking Rick DiSalvo's place as head of environmental compliance.

Public Comment

There was none.

Updates/Big Picture Review

April 7, 2014

Potential Business Items

- TBD

Potential Briefing Items

- DOE briefing on groundwater sampling
- DOE-LM contractor update
- Updates on NRD projects (also local government involvement/updates on projects they were involved in)

June 2, 2014

Potential Business Items

- Initial discussion of IGA triennial review (needs approval by early 2015)
- Receive 2013 audit

Potential Briefing Items

- DOE quarterly update
- DOE briefing on groundwater treatment

As the Board was discussing upcoming topics, Joe Cirelli asked if anyone had an update regarding a planned Environmental Assessment for the DOE wind farm adjacent to the site. David Abelson said he had not heard anything about that, but will look into it and get back to the Board. David Allen asked if DOE would post the groundwater presentation on the Rocky Flats website. Bob Darr said that they would.

David Allen noted that issues related to the Original Landfill seem to keep coming up, and wondered if this should be added to the list of 'Issues to Watch'. David Abelson agreed that it should and added that the OLF will be a focus on the annual Stewardship Council site tour.

Megan Davis shared with the group that discussions related to the 'America's Great Outdoors' project were ongoing. This planning process includes the Rocky Mountain Greenway trail concept, which would link the Rocky Mountain Arsenal to Rocky Flats. She said that this might be something for the Stewardship Council to look at in the future.

Pat O'Connell asked for more information about an email the Board received from a woman in Tennessee who used to live near Rocky Flats and now has some health issues. David Abelson said that this was the third email they have received from this person, and that the Board receives emails like these periodically through the website. He said that he always responds and provides as much relevant information as he can. He often forwards the messages to Carl Spreng at CDPHE, as he (David) is especially cautious about answering questions regarding long-term health and safety issues. David added that he also gets quite a few calls about where to get more information about worker benefits.

Member Updates

Joe Cirelli noted that the Superior Town Center construction had begun, and that work would begin on a new interchange beginning at the end February.

Murph Widdowfield updated the group on a new display for the Rocky Flats Institute and Museum at the Arvada Center. It will encompass 6,000 square feet and is set to open in June to mark the 25th anniversary of the FBI raid on the site. The exhibit will cover the range of issues and history of the site. Murph added that the Museum is still struggling financially, and asked Board Members to let them know if they have any fundraising ideas. He said that the group would really like to keep this collection in Jefferson County. They had hoped to get some involvement from former site contractors, however most of them do not exist any more, and they have not received a response from Dow Chemical. Lisa Morzel suggested that the Museum approach the National Park Service, and Colorado Director of State Preservation/Landmarks. Ken Freiberg said that the Museum Board would like to review the exhibit with the Stewardship prior to the opening. David Abelson added that there will be forums and panel discussions throughout the weekend of the exhibit. He also mentioned that the Museum Board should let the Stewardship Council know if they need help paying for storage of their inventory of artifacts, as the community around Rocky Flats would not want to lose possession of any of these pieces of Rocky Flats history. Ann Lockhart also noted that there was another exhibit in the lobby of the Jehn Building in Old Town Arvada, focusing on 1950's workers with many photos.

Issues to watch:

Americium and uranium levels upstream of pond B-3
AMP sampling

The meeting was adjourned at 10:45 a.m.

Respectfully submitted by Erin Rogers.