

ROCKY FLATS SITE REGULATORY CONTACT RECORD

Purpose: GS10 Flume Replacement Project and Soil Disturbance Review Plan

Contact Record Approval Date: May 2, 2013

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Date of Consultation Meeting: March 13, 2013

Consultation Meeting Participants: Carl Spreng, CDPHE; Vera Moritz, EPA; Scott Surovchak, DOE; John Boylan, Rick DiSalvo, Linda Kaiser, George Squibb, Stoller

Introduction: The flume for Rocky Flats Legacy Management Agreement (RFLMA) Point of Evaluation (POE) monitoring location GS10 in South Walnut Creek was originally installed in 1993. DOE considered replacing the GS10 flume in 2000, when it replaced flumes for several other monitoring locations, but it was a low priority in relation to other cleanup and closure work at the time. The new surface water configuration resulting from breaching the dams for former retention ponds B-1, B-2, B-3, and B-4 in 2009 now allows DOE to propose replacing the GS10 flume and to move its location slightly downstream.

The GS10 flume is located just upstream of a massive, deeply anchored, approximately 50-foot-wide concrete diversion structure that blocks the stream channel. The diversion structure has three openings to allow creek water to flow through in corrugated metal pipes (CMPs). The CMP openings are fitted with gate valves, or “headgates.” Water monitored at GS10 flows through the diversion structure, as controlled by the position of the headgates. One headgate controls flow through a 24-inch-diameter CMP into the channel just upstream of the former retention pond B-1. The other two headgates control flow into a concrete distribution box connected to a single 48-inch-diameter CMP that serves as a bypass line around former retention ponds B-1, B-2, and B-3. The concrete distribution box and the CMPs, except the downstream open ends, are buried below the surface on the downstream side of the diversion structure.

The 48-inch-diameter discharge end of the CMP bypass line is downstream and south of former retention pond B-3, so that water flowing through the bypass line goes to former retention pond B-4. The 48-inch-diameter headgates of the CMP bypass line were closed in 2009, and the headgate for the 24-inch-diameter CMP to former retention pond B-1 was opened so that creek water monitored at GS10 now only flows into former retention pond B-1.

The GS10 flume is located at the bottom of fairly steep channel banks, and the bank on the south side has visible localized slumping and sliding toward the creek and GS10. The area just upstream and surrounding GS10 promotes the growth of thick stands of willow saplings, which must be cut periodically to allow access to maintain the flume.

Figure 1 is an aerial photograph of the GS10 flume area, showing the location of the various features described above.

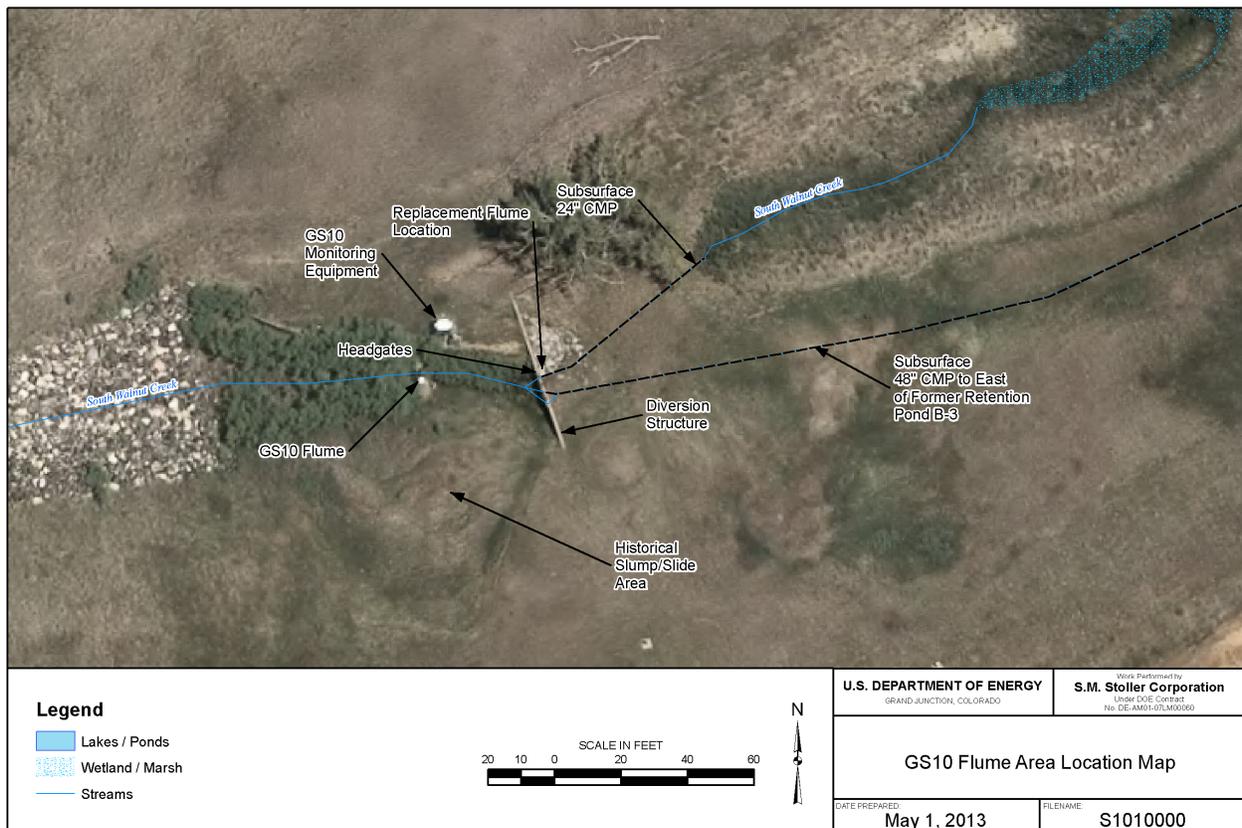


Figure 1. GS10 Flume Area

Discussion: DOE will replace the GS10 flume and move the flume location to the downstream side of the diversion structure, which will, among other things, make flume operation and maintenance easier. The creek channel upstream of the diversion structure will be filled and graded to raise the channel elevation, and the diversion structure will be notched at the top to an elevation slightly above the regraded channel elevation. Creek water will then flow through the diversion structure notch instead of through the diversion structure via the subsurface CMPs.

Although the GS10 metal flume currently is operational, additional structure aging and movement of the south hillside could compromise the quality of data collected in the future. Also, the new flume will be a fiberglass H-flume, better designed to measure the lower postclosure flow rate ranges in this portion of South Walnut Creek. The new fiberglass flume will be physically attached to the downstream side of the diversion structure.

The 48-inch-diameter CMP bypass line is no longer used or needed and the new flume location will eliminate the need for the 24-inch-diameter CMP. The headgates will be removed, and the CMP openings will be plugged and placed in a stable configuration as a good management practice.

As part of the construction work, the depression formed by the localized instability on the south side of the creek will be filled and graded to raise and contour the topography consistent with the regraded channel upstream of the diversion structure. This will serve to stabilize this area.

GS10 Reportable Condition: DOE is currently implementing the evaluation plans for the RFLMA reportable conditions for americium, plutonium, and uranium concentrations at GS10 in accordance with Contact Records 2011-04, 2011-05, and 2012-08. Information regarding the evaluation monitoring is reported in RFLMA quarterly and annual reports. The monitoring results show that water quality downstream of GS10 continuously meets RFLMA standards. This, along with the results of other evaluation monitoring upstream of GS10, does not suggest that actions besides continued evaluation monitoring to gather additional data are needed at this time. DOE will continue to conduct evaluation monitoring upstream and downstream of GS10 in accordance with the evaluation plans, in accordance with RFLMA Attachment 2, "Legacy Management Requirements," Section 6.0, "Action Determinations."

The RFLMA parties agree that conducting the GS10 flume replacement project as described in this Contact Record is not likely to impede the reportable condition evaluation. They also agree that replacement of the GS10 flume complies with RFLMA water monitoring requirements. The new flume will be approximately 40 feet east of its present location.

Because of the proximity of the new flume to the current flume location, this monitoring location will continue to be identified as GS10, and no changes to the tables or figures in RFLMA Attachment 2 that relate to GS10 are needed.

Flume Replacement Scope and Sequence: Figures 2 and 3 show the project area and the main features related to the work sequence.

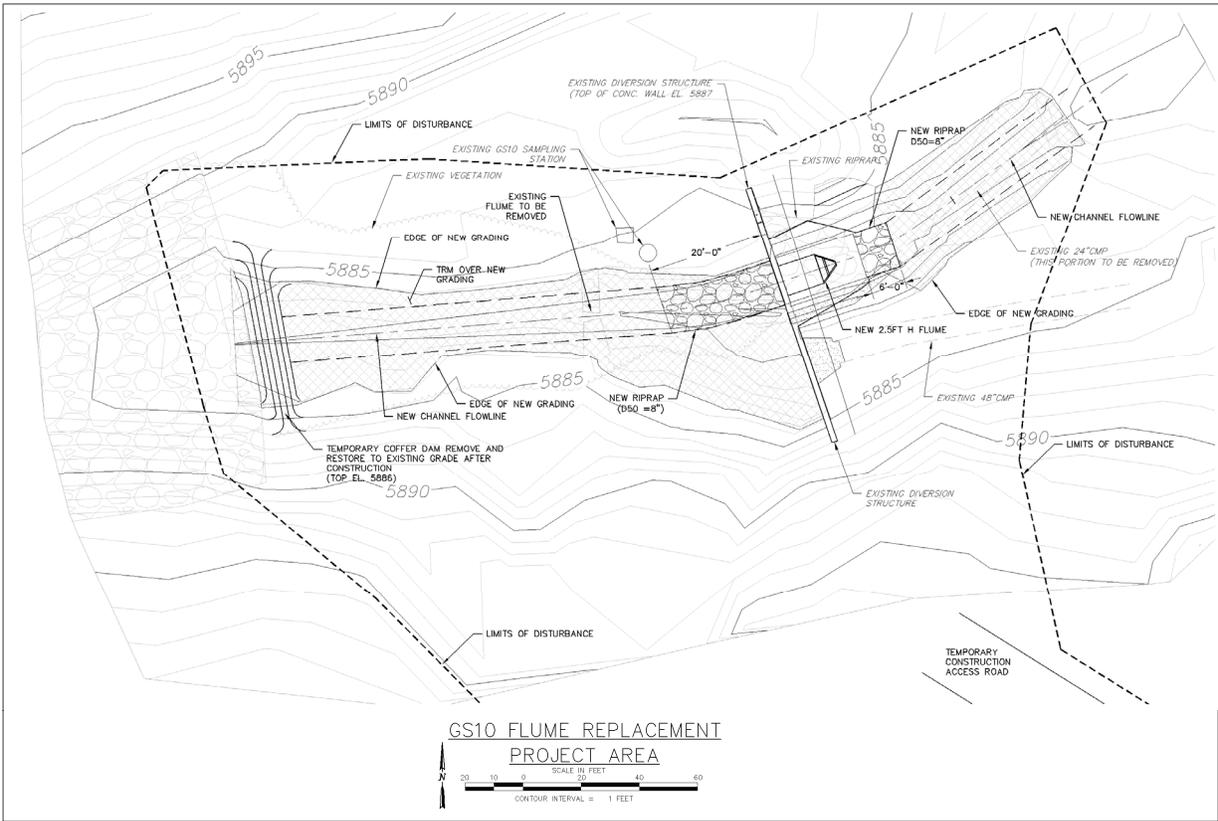


Figure 2. GS10 Flume Replacement Project Area

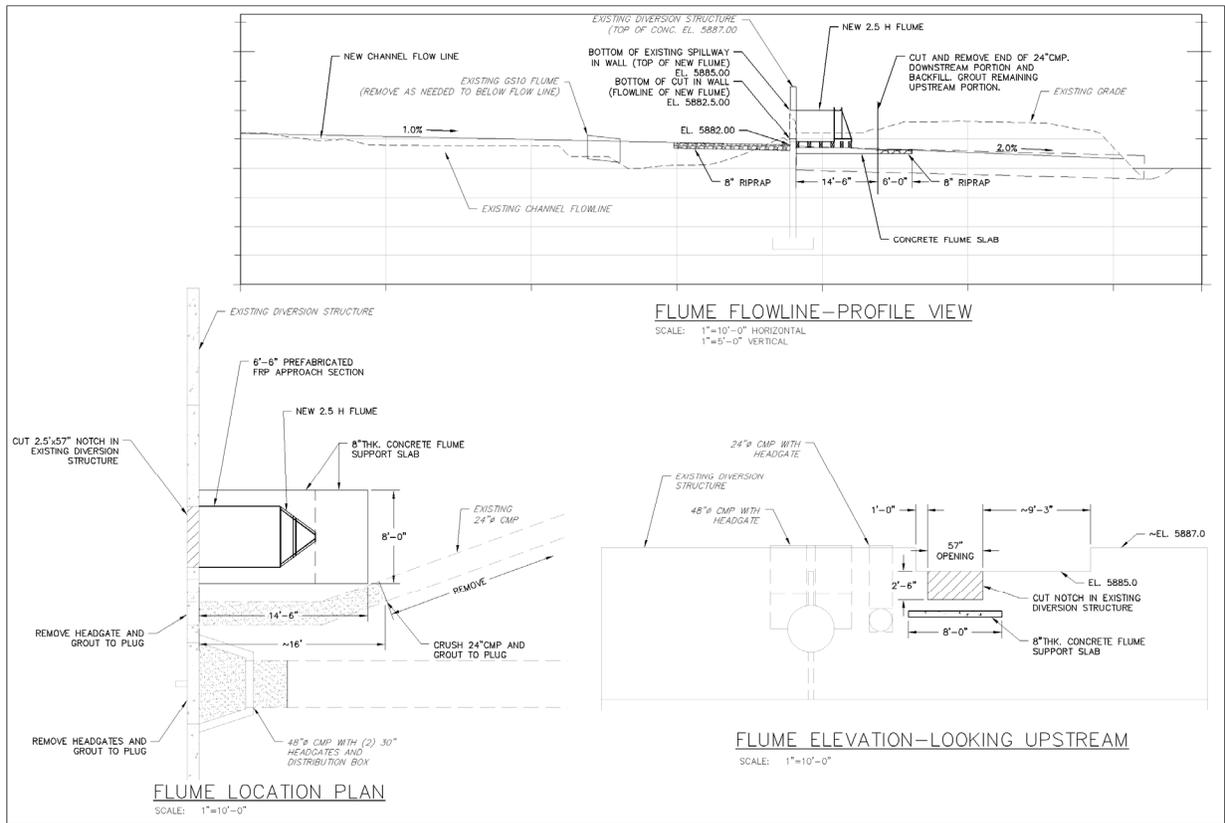


Figure 3. GS10 Flume Replacement Features

The work will be sequenced as follows to provide continual monitoring at GS10 to the extent practicable during the anticipated 2- to 3-week active construction period.

1. Construction perimeter and access points will be marked, and preconstruction erosion controls will be installed.
2. The notch will be cut at the top of the cutoff wall and concrete pads for the new fiberglass flume and the associated monitoring equipment will be installed.
3. At an appropriate time during the grading of the downstream channel, the 24-inch-diameter CMP headgate will be closed, and the downstream end of the CMP will be removed and the area filled to the extent needed to complete grading of the downstream channel.
4. The area downstream of the new flume will be graded and contoured to form a channel to convey the water flowing through the new flume to former retention pond B-1.
5. The new flume and associated monitoring equipment will be installed and made operational on the downstream side of the cutoff wall.
6. A cofferdam will be constructed using imported fill upstream of GS10 to block the flow of creek water.
7. Water that accumulates behind the cofferdam and at the closed headgates will be pumped through the new GS10 flume and sampled in accordance with RFLMA requirements during the rest of the construction.

8. The headgates will be removed and the CMP openings plugged with grout or other suitable material to seal the openings and provide long-term stability to eliminate this potential flow path.
9. The current GS10 flume will be removed to the extent needed for grading the channel, and the monitoring equipment for the current flume location will be removed. The concrete base for the flume and concrete equipment pad will be removed to a depth suitable for backfilling the remnants in place for the final grading.
10. Filling, grading, and contouring of the area upstream of the cutoff wall will be completed.
11. The cofferdam will be removed.
12. Post construction erosion controls and revegetation will be completed.

Excess soil generated by grading the area downstream of the diversion structure and clean imported fill will be used to raise the elevation of the area upstream of the diversion structure. No excavation below the current elevation will be done upstream of the diversion structure. The final fill elevation will be above the current headgate elevation.

Removed pieces of the current GS10 flume, 24-inch-diameter CMP, headgates, and associated hardware and concrete that is removed will be properly managed as waste, or recycled if eligible for recycling.

The 48-inch-diameter CMP bypass line will be left in place, sealed at the upstream end, at the completion of this project. After the upstream end is sealed, there is no present geotechnical reason to remove or fill the remaining bypass line.

Institutional Controls Evaluation: The construction will involve some excavation deeper than 3 feet below existing grade to remove portions of the 24-inch-diameter CMP, to construct the concrete pad and to place riprap, as needed. Subsequent filling and grading to complete construction will result in some portions of the area downstream of the cutoff wall being slightly below the preconstruction elevation. Filling and grading upstream of the cutoff wall will result in elevations higher than the preconstruction elevation.

The soil disturbance work is subject to the *Rocky Flats Legacy Management Agreement*, Attachment 2, Institutional Controls (ICs) 2 and 3. The work also involves an engineered component of the remedy, surface water monitoring location GS10, so it is also subject to IC 7. Table 1 recaps these ICs.

Table 1. Institutional Controls

IC 2	Excavation, drilling, and other intrusive activities below a depth of three feet are prohibited, without prior regulatory review and approval pursuant to the Soil Disturbance Review Plan in RFLMA Attachment 2.
	<p>Objective: Prevent unacceptable exposure to residual subsurface contamination.</p> <p>Rationale: Contaminated structures, such as building basements, exist in certain areas of the Central OU, and the Comprehensive Risk Assessment did not evaluate the risks posed by exposure to this residual contamination. Thus, this restriction eliminates the possibility of unacceptable exposures. Additionally, it prevents damage to subsurface engineered components of the remedy.</p>
IC 3	No grading, excavation, digging, tilling, or other disturbance of any kind of surface soils is permitted, except in accordance with an erosion control plan (including Surface Water Protection Plans submitted to EPA under the Clean Water Act) approved by CDPHE or EPA. Soil disturbance that will not restore the soil surface to preexisting grade or higher may not be performed without prior regulatory review and approval pursuant to the Soil Disturbance Review Plan in RFLMA Attachment 2.
	<p>Objective: Prevent migration of residual surface soil contamination to surface water.</p> <p>Rationale: Certain surface soil contaminants, notably plutonium-239/240, were identified in the fate and transport evaluation in the Remedial Investigation as having complete pathways to surface water if disturbed. This restriction minimizes the possibility of such disturbance and resultant impacts to surface water. Restoring the soil surface to preexisting grade maintains the current depth to subsurface contamination or contaminated structures.</p>
IC 7	Activities that may damage or impair the proper functioning of any engineered component of the response action, including but not limited to any treatment system, monitoring well, landfill cap, or surveyed benchmark, are prohibited. The preceding sentence shall not be construed to prohibit the modification, removal, replacement, or relocation of any engineered component of the response action in accordance with the action determinations in RFLMA Attachment 2.
	<p>Objective: Ensure the continued proper functioning of engineered portions of the remedy.</p> <p>Rationale: This restriction helps ensure the integrity of other engineered components of the remedy, including monitoring and survey points.</p>

The required Soil Disturbance Review Plan is in Attachment 1. The information in the Discussion section demonstrates that the Objective and Rationale of IC 7 will be met.

Resolution: CDPHE has reviewed information regarding the proposed soil disturbance and excavation and, after consultation with EPA, has approved the proposed activity. CDPHE has determined that the proposed activity will not compromise or impair the function of the remedy or result in an unacceptable release or exposure to residual subsurface contamination. CDPHE has also determined that the proposed project meets the rationale and objectives of ICs 2, 3, and 7.

DOE will not conduct the approved soil disturbance and excavation until 10 calendar days after this Contact Record is posted on the Rocky Flats website and stakeholders are notified of the posting in accordance with the RFLMA Public Involvement Plan.

Closeout of Contact Record: This Contact Record will be closed when the work is completed, post construction reseeded has been performed, and post construction erosion controls are in place.

Approval: Carl Spreng, CDPHE, approved this Contact Record.

Contact Record Prepared by: Rick DiSalvo

Distribution:

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Rocky Flats Contact Record File

**Rocky Flats Legacy Management Agreement (RFLMA)
Soil Disturbance Review Plan**

Proposed Project: Soil Disturbance Review Plan—GS10 Flume Replacement Project

This Soil Disturbance Review Plan provides information required by RFLMA Attachment 2, “Legacy Management Requirements,” Section 4.1, “Soil Disturbance Review Plan,” regarding the work proposed by DOE.

Description of the proposed project, including the purpose, the location, and the lateral and vertical extent of excavation.

The purpose of the project is to replace the flume for RFLMA POE GS10, as described in Contact Record 2013-01.

Contact Record 2013-01 Figures 2 and 3 show the location and the lateral and vertical extent of the excavation. The material excavated from the cut areas, plus an additional approximately 11 cubic yards of clean fill will be placed in the fill areas shown in Figures 2 and 3. The source of the additional clean fill will be from onsite stockpiled soil remaining from construction and maintenance of gravel road rock crossings, from the temporary soil ramp and pad made from imported clean fill used to support the geoprobe unit in sampling of the Solar Ponds Plume Treatment System media and from the regrading of the eastern end of the Original Landfill diversion berm 7. Clean fill material may also be imported from the Bestway, Inc. commercial gravel pit located directly west of the Central Operable Unit. Depending on the availability and pricing of suitable fill material from the Bestway, Inc. pit, an alternative commercial source, such as the Pioneer, Inc. supply yard on Highway 93 just north of Golden, CO will be used. When completed, the new surface elevations will be tapered into the north and south side of the creek as shown in Figure 2, and the creek flowline will be consistent with the profile view shown in Figure 3.

Information about any remaining subsurface structures in the vicinity of the proposed project.

Remaining subsurface structures in the vicinity of the proposed project include the diversion structure and buried CMP and the concrete base for the current GS10 flume components. A downstream portion of the 24-inch-diameter CMP will be removed, and the concrete base for the current GS10 flume will be removed to an appropriate depth below the planned finished grade. The headgates and associated components on the upstream side of the diversion structure will be removed, and the CMP openings sealed. The portion of the 24-inch-diameter CMP not removed and all of the 48-inch-diameter CMP will remain in the subsurface. The upstream side of the diversion structure will be filled and graded so that the sealed CMP openings and former headgates will be in the subsurface.

Process knowledge (i.e., familiarity based on past experience at the site) regarding the characteristics for each removed item will be confirmed by visual inspection. If process knowledge cannot be confirmed by visual inspection, additional characterization will be performed to determine proper disposal. Based on process knowledge, it is expected that removed items will be disposed of offsite as solid waste or recycled, as appropriate. However, routine radiological field screening of these waste items which will be accessible when they are removed will also be performed to determine if offsite

disposal under DOE directives and policy as radioactive waste is required. Items removed for disposal will be staged in a manner to prevent run-on and runoff of precipitation pending offsite disposition.

Information about any former Individual Hazardous Substance Sites (IHSSs), Potential Areas of Concern (PACs), or other known or potential soil or groundwater contamination in the vicinity of the proposed project.

The project area is located in former IHSS 190, Caustic Leak (also referred to as Central Avenue Ditch). Approximately 1,000 to 1,500 gallons of 2.5 Normal sodium hydroxide was released from a tank in 1978 into the Central Avenue Ditch and was diverted into South Walnut Creek. A 1- to 3-gallon spill of concentrated sodium hydroxide also occurred from the same tank in 1989. The 1978 release was neutralized with alum. Based on the steps taken to neutralize the caustic solution, the large volume of water conveyed in the creek since the spill, and results of characterization soil sampling, the IHSS was approved for No Further Action in 2004. The summary for this IHSS is in Appendix B, "Historical Release Report," in the June 2006 *RCRA Facility Investigation – Remedial Investigation/Corrective Measures Study – Feasibility Study Report for the Rocky Flats Environmental Technology Site (RI/FS)*.

The project area is in the Upper Walnut Drainage Area Exposure Unit (EU) evaluated in the Comprehensive Risk Assessment, in Appendix A of the RI/FS. The only contaminant of concern (COC) identified for this EU is benzo(a)pyrene in surface soil/surface sediment, resulting in an estimated total excess lifetime cancer risk of 2×10^{-6} based on the wildlife refuge worker exposure scenario. There were no COCs identified for subsurface soil or subsurface sediment in this EU.

Concentrations of americium, plutonium, and uranium have been measured above their respective RFLMA standards at GS10, which constitutes an RFLMA reportable condition, as described in Contact Records 2011-04, 2011-05, and 2012-08. DOE is currently implementing an evaluation plan consisting of additional monitoring at locations upstream and downstream of GS10 and expedited analysis of samples collected at GS10. Information regarding the evaluation monitoring is reported in RFLMA quarterly and annual reports.

The RFLMA standards for americium, plutonium, and uranium are based on Colorado health-based standards for a drinking water exposure scenario. Incidental contact with contaminated surface water was determined to be a complete, but insignificant, exposure pathway for the Comprehensive Risk Assessment exposure scenario. There is no actual drinking water use onsite, and incidental exposure resulting from the work to complete this project will be minimized by DOE hazard control procedures (no eating, drinking, or smoking in the construction area), construction worker personal protective equipment (gloves, eye protection, and work boots) use, and good hygiene practices (hand washing before eating or drinking).

Upstream from the GS10 project area is the Mound Site Plume Treatment System (MSPTS). The MSPTS intercepts volatile organic compound (VOC)-contaminated groundwater to remove VOC loading from South Walnut Creek from the groundwater to surface water pathway. The MSPTS discharges treated water to a subsurface discharge gallery located upgradient of GS10, and GS10 serves as the RFLMA surface water performance monitoring location for the MSPTS. Groundwater

treated by the MSPTS meets RFLMA standards at the effluent monitoring location and water at GS10 meets RFLMA standards for VOCs.

To the south of the GS10 project area is the western end of the groundwater intercept barrier for the East Trenches Plume Treatment System (ETPTS). Like the MSPTS, the ETPTS intercepts VOC-contaminated groundwater to remove VOC loading from South Walnut Creek from the groundwater to surface water pathway. The ETPTS subsurface discharge gallery is located to the south of former retention pond B-4. The project will not impact the ETPTS intercept barrier.