

ROCKY FLATS SITE REGULATORY CONTACT RECORD 2015-04

Purpose: Mound Site Plume Treatment System (MSPTS) Reconfiguration Conceptual Approach

Contact Record Approval Date: July 8, 2015

Site Contact(s)/Affiliation(s): Scott Surovchak, U.S. Department of Energy (DOE); John Boylan, George Squibb, Linda Kaiser, David Ward, Stoller Newport News Nuclear, Inc. (SN3), a wholly owned subsidiary of Huntington Ingalls Industries, Inc.

Regulatory Contact(s)/Affiliation(s): Carl Spreng, Colorado Department of Public Health and Environment (CDPHE); Vera Moritz, U.S. Environmental Protection Agency (EPA)

Date of Consultation Meeting: May 20, 2015

Consultation Meeting Participants: Carl Spreng, CDHPE; Vera Moritz, EPA; Scott Surovchak, DOE; Linda Kaiser, SN3; David Ward, SN3; John Boylan, SN3; George Squibb, SN3

Introduction: The existing MSPTS includes a groundwater collection trench, treatment components, and a subsurface discharge gallery. Groundwater collected in the trench gravity flows through two plastic treatment cells (approximately 10 feet in diameter and 11.5 feet tall) filled with zero-valent iron (ZVI) media. The ZVI is obtained from a source in Detroit, Michigan, and is trucked to the site for installation. Periodic spent-media removal and replacement is costly and labor intensive and requires the use of heavy construction equipment. The most recent MSPTS media replacement was performed in 2010–2011, and based on historical operations of the MSPTS, routine media replacement is required approximately every 4–5 years. Routine maintenance to remove the existing spent ZVI was planned for calendar year 2015.

Because the MSPTS system effluent typically contains one or more volatile organic compound (VOC) constituents at levels above *Rocky Flats Legacy Management Agreement* (RFLMA) standards, the RFLMA Parties have consulted on ways to optimize treatment to further reduce the potential VOC contaminant load to surface water (RFLMA Contact Record [CR] 2010-07, dated November 2, 2010). A solar-powered pump was installed in the existing MSPTS effluent manhole to circulate water from the bottom of the manhole through a spray nozzle (also situated within the effluent manhole) to further treat the effluent using the air-stripping process (RFLMA CR 2011-01, dated January 14, 2011). This has been extremely effective, but requires significant maintenance to keep the treatment effectiveness high, and even then at least one VOC typically exceeds the corresponding RFLMA Table 1 value.

The positive results of the MSPTS effluent manhole air stripper eventually led DOE to install a commercial air stripper, adapted to the existing solar/battery power facility, at the East Trenches Plume Treatment System (ETPTS) to replace the ZVI treatment media in 2014 (RFLMA CR 2012-02, dated October 16, 2012; RFLMA CR 2014-01, dated January 21, 2014; and RFLMA CR 2014-04, dated February 19, 2014). Following completion of the air-stripper installation in January 2015, concentrations of VOCs in ETPTS effluent have met all corresponding RFLMA Table 1 standards.

Information on the status of operation and performance of the MSPTS and ETPTS air strippers is provided in RFLMA quarterly and annual site surveillance and maintenance reports. RFLMA contact records and site surveillance and maintenance reports are available on the Rocky Flats public website at http://www.lm.doe.gov/rocky_flats/Sites.aspx.

Discussion: While in planning to remove the spent ZVI media at the MSPTS, DOE also evaluated the potential for the addition of a commercially available air stripper unit to eliminate the use of ZVI media at this treatment system, as was accomplished at the ETPTS. Included in the evaluation was a more cost-effective option to treat the MSPTS influent in the ETPTS air stripper. The manufacturer of the commercial air stripper installed at the ETPTS modeled treatment using the ETPTS air stripper to treat the combined influent from both the MSPTS and ETPTS. The model results indicate that the MSPTS influent could be added to ETPTS influent and the combined influent could be treated by the ETPTS air stripper to meet stream standards.

A conceptual approach has been developed and discussed among the RFLMA parties. This approach includes routing the MSPTS influent to the ETPTS air stripper; see Figure 1. The existing MSPTS tanks will initially be maintained and modified for optional water storage. The existing MSPTS effluent manhole will be replaced with a lift station and pump; water collected by the MSPTS will be pumped from this lift station to the ETPTS influent manhole. The combined MSPTS and ETPTS influents would then flow to the ETPTS influent tank and be pumped to the ETPTS air stripper in batches, just as is currently done with ETPTS influent alone. Additional solar power, piping, valves, instrumentation, and other necessary components would be installed to support this approach. Minor modifications to RFLMA Attachment 2 to reflect changes in MSPTS effluent and performance sampling locations have also been identified.

Based on DOE's evaluation of the combined MSPTS and ETPTS influent VOC concentration and flow rate, the amounts and types of VOCs that the air stripper will volatilize to the air will meet Colorado Air Quality Control Regulations exemption criteria for Air Pollutant Emission Notice (APEN) reporting thresholds and permitting.

The following minor modifications to RFLMA Attachment 2 are required for the MSPTS reconfiguration and one additional updating modification. Modifications to tables and figures are summarized:

1. Table 2, "Water Monitoring Locations and Sampling Criteria," for the Mound Site Plume and Treatment System (MSPTS): rename rows for sampling locations MOUND R2-E (MSPTS effluent location) to MSETEF and GS10 (MSPTS performance location) to POM2; and for the East Trenches Plume and Treatment System (ETPTS), rename ET

EFFLUENT (ETPTS effluent location) to MSETEF to reflect the combined influents being treated.

2. Figure 1, “Water Monitoring at Rocky Flats: RFLMA,” sampling location MOUND R2-E will be relocated to the previous ET EFFLUENT location and renamed MSETEF, and sampling location ET EFFLUENT will be renamed MSETEF.
3. Figure 11, “Groundwater Treatment Systems,” in Note 5, “Effluent locations,” rename R2-E to MSETEF and ET EFFLUENT to MSETEF; and in Note 6, “Performance locations,” change GS10 to POM2.
4. Figure 2, “Composite Plume Map”, update to reflect changes in Site base features.

Resolution: It was agreed that DOE will prepare engineering designs for treating the MSPTS influent using the ETPTS air stripper. The RFLMA parties will consult in a timely manner on proceeding with the MSPTS reconfiguration to allow further planning and implementation as part of the MSPTS ZVI media removal project. Approval of the reconfiguration and of any required Soil Disturbance Review Plan for the work will be documented in a subsequent contact record.

Closeout of Contact Record: This contact record will be closed when consultation on the MSPTS reconfiguration project engineering design is completed and the minor modifications to RFLMA Attachment 2 are approved.

Contact Record Prepared by: David Ward

Distribution:

Carl Spreng, CDPHE
Vera Moritz, EPA
Scott Surovchak, DOE
Linda Kaiser, SN3
Rocky Flats Contact Record File

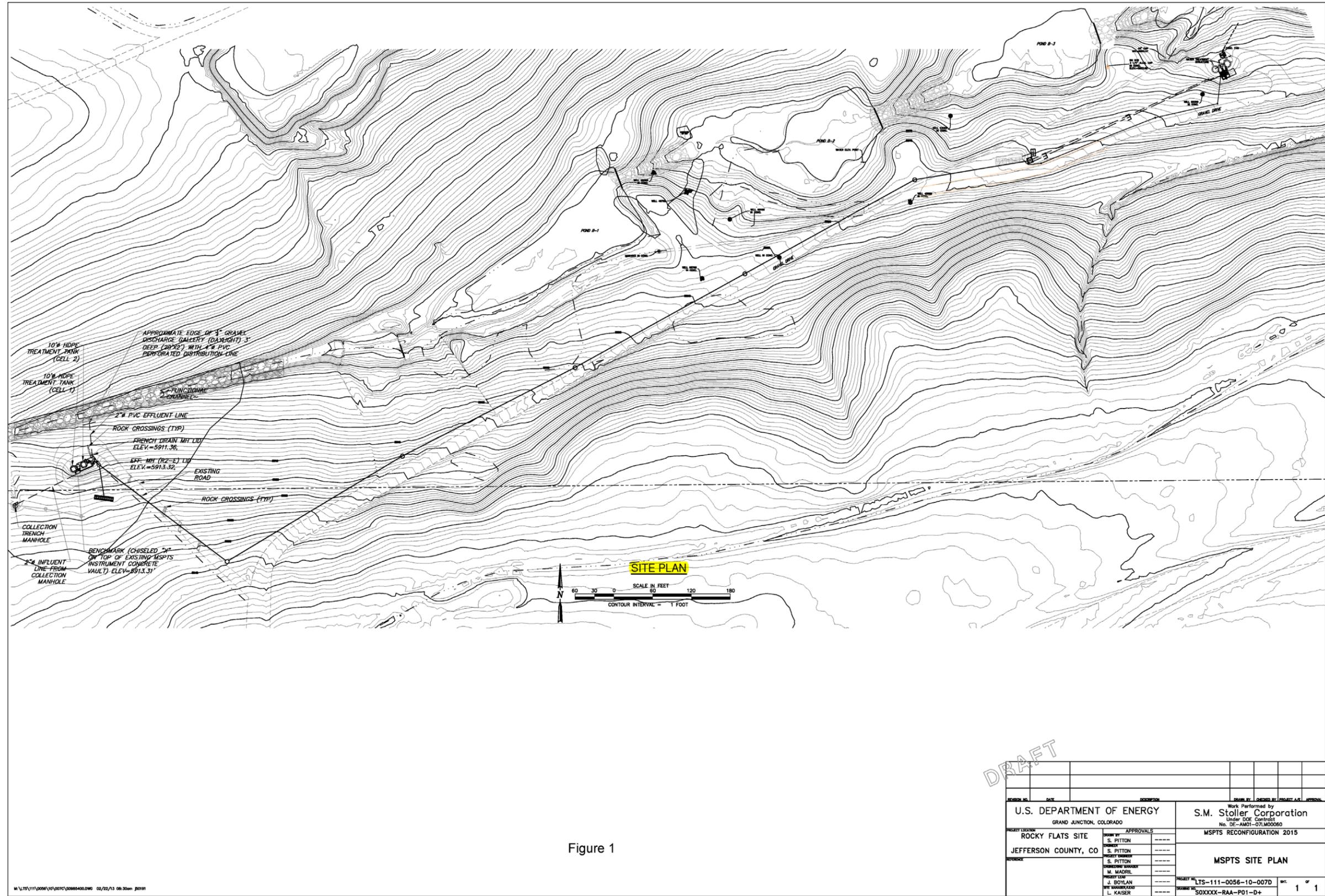


Figure 1

DRAFT

REVISION NO.	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	PROJECT A.S.	APPROVAL
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO			Work Performed by S.M. Stoller Corporation Under DOE Contract No. DE-AM01-07-M00080			
ROCKY FLATS SITE JEFFERSON COUNTY, CO			APPROVALS DRAWN BY: S. PITTON CHECKED BY: S. PITTON PROJECT MANAGER: S. PITTON SUPERVISOR: M. MADRIL		MSPTS RECONFIGURATION 2015	
			PROJECT USE: J. BOYLAN BY: MARGARET L. KAISER		MSPTS SITE PLAN PROJECT NO.: LTS-111-0056-10-007D DRAWING NO.: S0XXXX-RAA-P01-D+	
						SHEET 1 OF 1