

	Comment	Response	Closure Plan Modification
	Comments dated March 26, 2018		Yes/No
1	Under Section 4.c. Conceptual Site Model second paragraph it is stated “The soil exposure pathway for cyanide from incidental ingestion, dermal contact, and inhalation of chemicals adsorbed to windblown soils released to outdoor air is identified as complete because cyanide exceeds the NMED residential SSLs in surface and subsurface soil.” The condition that is being described within this paragraph is a surface exposure pathway consideration and not as a sub-surface pathway consideration. Sub-surface exposure pathway determination should be evaluated separately.	The purpose of this comment is not clear. The phrasing in Section 4.c (Conceptual Site Model) is directly from the Closure Plan submittal dated April 2017 in Section 2.1.7.2 (Fate and Transport). Section 2.1.7.3 (Data Gaps) of the Permittee’s April 2017 Closure Plan states, “[t]he ACA conducted as SWMU 89 may have left small area of residual cyanide in surface and subsurface soil, and the vertical extent of residual cyanide is not fully defined. Therefore, additional soil analytical data are needed to confirm the presence or absence of cyanide contamination in soil...” The Permittee must collect additional soil samples to further assess the exposure risk. Residential soil screening levels are applicable to depths of ten feet below the ground surface; therefore, the surface and sub-surface are both addressed when comparing soil analytical cyanide results to residential soil screening levels.	No
2	An Accelerated Corrective Action Completion was performed as a presumptive remedy at the Former Acid Neutralization Unit (Evaporation Tank No. S-22896), Solid Waste Management Unit (SWMU) 89 at the Hazardous Waste Storage Facility, White Sands Missile Range (WSMR). The presumptive remedy consisted of the demolition of the loading dock, ramp and concrete evaporation tank, soil excavation and disposal, confirmation soil sampling, monitoring well development, and groundwater sampling. The soil excavation was conducted to a level that COC concentrations	The purpose of this comment is not clear. As stated above, the Permittee’s April 2017 Closure Plan, Section 2.1.7.3 (Data Gaps), states that there are data gaps regarding residual cyanide contamination in soils. The site was not fully characterized during the ACA. Figure 2-7 (Site Conceptual Model) depicts locations where cyanide exceeds the NMED Residential Soil Screening level; therefore, the assertion in the comment that soil excavation was conducted and removed soils to results below the NMED Residential Soil Screening limits is not accurate. In order to meet residential cleanup levels,	No

	<p>results were below NMED residential SSLs. Thereby removing the any future source of potential contamination.</p>	<p>the activities proposed in the Closure Plan must address the residual cyanide contamination.</p>	
<p>3</p>	<p>The soil analysis that is being referenced in the Conceptual Site Model was based on the April 1992 Phase I RFI Report and September 1994 Phase II RFI Report analysis. Although cyanide was detected above residential soil screening levels (SSLs) all the results were below the industrial SSLs. Any free Cyanide at the surface would have degraded rapidly once the loading dock and concrete was removed and the bluish discoloration that was observed during soil removal is an indication of ferrocyanide, which is very stable and tends not to release free cyanide. Therefore the exposure pathway at the surface has been eliminated, determined by the sampling results and the soil removal conducted at the site. Exposure Assessment of sub-surface potential exposure pathway shows to be incomplete. Cyanide was not detected in any of the groundwater samples from the 1994 Phase II RFI or the 2012 remedial action, groundwater is not suitable as a drink[ing] water source and with groundwater being at approximately 200 feet below ground level, the conclusion is that there is no exposure pathway. Additionally the current and future land use will remain as industrial, due to being adjacent to the permitted Hazardous Waste Storage Facility, within a 6 foot chain link fence.</p>	<p>Section 2.1.7.2 (Fate and Transport) of the Permittee’s April 2017 Closure Plan states, “Cyanide is not expected to naturally degrade significantly in soil.” This statement contradicts the comment. Additionally, the statement that the bluish discoloration that was observed during soil removal is an indication of ferrocyanide, which is very stable and tends not to release free cyanide, is not accurate. Iron cyanide solubility increases with increasing pH and is soluble above a pH of 6. Ferrocyanide develops because of a reaction to air and is indicative that cyanide remains in the soils. Additionally, the assertion that cyanide has not been detected in groundwater is speculative, because groundwater monitoring at the site has been inconsistent. Even the direction of groundwater flow is not clear. Groundwater from wells TW2 and TW3 was analyzed for cyanide in 1994 with a result listed in Table 2-5 of the April 2017 Closure Plan as <5 mg/L the table compared that result to the tap water standard of 0.00146 mg/L. TW2 appears to be an upgradient well. In 2012 wells TW1, TW2, TW3, and TW4 were sampled and analyzed for cyanide with results recorded in Table 2-13 of the Permittee’s April 2017 Closure Plan as <0.01 mg/L. Wells TW1, TW2, and TW4 appear to be either upgradient or cross-gradient from the HWMU and likely would not intercept groundwater contaminants. Groundwater samples obtained from the wells were tested for cyanide only in 1994 and 2012. Further, while the</p>	<p>No</p>

		groundwater is not currently used as potable water, all groundwater in New Mexico with total dissolved solids concentrations less than 10,000 mg/L is subject to the New Mexico Water Quality Control Commission standards and groundwater quality must meet the levels included in Appendix 3, Section 3,1 of WSMR's RCRA Permit. While the current and future land use of the site will remain industrial, in order to achieve clean closure, residential soil screening limits must be achieved.	
4	It is not clear or understood what an additional eight quarters of groundwater monitoring will provide, other than an increased level of effort and added burden to the U.S. Tax payers. The 2012 groundwater [monitoring was] conducted in accordance with the approved Work Plan [<i>no date provided</i>]. It does not seem apparent that there was any different (sic) between the 1994 and 2012 groundwater conditions over the 25 years (sic) period.	As stated in the response to Comment 3, the groundwater monitoring program at the site has been inconsistent and even the groundwater flow direction is uncertain. The ability of the current monitoring well network to effectively detect potential groundwater contamination is questionable. Groundwater monitoring is required to establish a defensible and accurate data set regarding groundwater quality and groundwater flow direction.	
5	At stated in Section 5.a. Installation of additional soil borings of the DRAFT Closure Plan, eight soil borings are proposed, with six boring[s] at the locations of previous sampling to evaluate the potential residual cyanide concentrations. Also per Section 5.a.iii. Soil Excavation will be conducted and necessary. Per the historical action conducted along with these added conditions for closure at SWMU 89, WSMR has met closure requirements per the RCRA Permit Section II.O clean closure of the Facility in accordance with all the requirements of 40 CFR 19 264.111 and with the Hazardous Waste Storage Facility Closure Plan.	WSMR has not met the clean closure requirements in RCRA Permit Section II.O or 40 CFR § 264.111 for the following reasons: 1) the vertical extent of soil contaminants is not determined; 2) residual cyanide contamination at concentrations above the Residential soil screening levels remains in soils to depths of ten feet below ground surface; and, 3) the groundwater monitoring network has not been demonstrated to be adequate to determine whether groundwater quality meets the cleanup levels established by the WSMR RCRA Permit. The Permittee acknowledged that additional work was necessary in its April 2017 Closure Plan that	No

		proposed additional soil investigation and potential soil removal.	
	Comments dated March 29, 2018		
1	WSMR disagrees with the inclusion of 8 quarters of groundwater monitoring for SWMU 89. The primary and secondary contaminant sources have been removed, the depth to groundwater is greater than 200 feet below ground surface and there is no evidence of any impact to groundwater based on the results from 2012 groundwater sampling.	See NMED responses to Comments 3 and 4 above.	
2	WSMR disagrees with the potential requirement for construction of additional monitoring wells when there is no reason to believe contamination could have reached groundwater and also considering the primary and secondary contaminant sources have been removed.	See NMED response to Comments 3 and 4 above.	