





**TABLE 2-2. HISTORICAL AND CURRENT PONDS/SURFACE IMPOUNDMENTS  
WITHIN OU-1  
Nevada Environmental Response Trust; Henderson, Nevada**

Impoundment	Description
<b>Closed Ponds and Surface Impoundments</b>	
Trade Effluent Settling Ponds	<p>Shown in Figure 2-2, the U.S. Government formerly operated four Trade Effluent settling ponds on the north-central side of the BMI Complex, of which about two and one-fifth of the ponds extended onto OU-1 (approximately one-fifth of Pond T4, and all of Ponds T5 and T6). The original system was comprised of four surface impoundments and a distribution pipeline; each settling pond had an area of approximately 20 acres and an average liquid level depth of 7.5 feet. The impoundments contained earthen sides and a French drain system.</p> <p>The ponds likely received wastes between 1942 and 1944, although details regarding their use are not known. Liquid wastes discharged to the pond included acid process liquor (hydrochloric acid generated from primary and secondary scrubbing towers that washed chlorinator exhaust gases in the chlorination process) and caustic process liquors (presumed to be sodium hydroxide generated from absorber towers installed to remove the last traces of chlorine and hydrochloric acid passing the primary and secondary scrubber towers). A French drain system located on the north side of the ponds allowed wastewater to seep into the area north of the settling ponds. Dark areas of apparent staining resulting from this French drain system are apparent in aerial images of OU-1 from the 1940s (visible in Figure 2-9 and more pronounced in Figures 2-2 and 2-3).</p> <p>After use of the settling ponds by the U.S. Government ceased, solid materials/wastes were also placed in this area at various times between 1945 and 1979. The nature of these materials is unknown. Portions of the southern extent of this area were converted to ammonium perchlorate storage areas by 1953. The western portion of this area was subsequently operated as a hazardous waste landfill. Surface impoundments WC-East and WC-West were constructed in the northeastern portion of this area in 1988. Limited soil sampling (primarily for metals) performed in the late 1980s and mid-1990s in this area, prior to construction of the WC and GW-11 ponds, did not identify analytes above background for regional soils (Kleinfelder 1993, ENSR 1997).</p>

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Impoundment	Description
<b>Closed Ponds and Surface Impoundments</b>	
<p>Old P-2 and Old P-3</p>	<p>Shown on Figure 2-5a, the Old P-2 Pond, installed in 1972 with a 12,000-square foot surface area and a 350,000-gallon capacity, was located approximately 300 feet southwest of the steam plant. Installed in 1978, the Old P-3 Pond had an approximate surface area of 13,000 square feet. Both ponds were taken out of service and decommissioned in 1990.</p> <p>During their operation, the Old P-2 and Old P-3 Ponds received sodium chlorate solution from process washdown, excess solution above the handling capacity of the process vessels, storm water from the process area, caustic scrubber solution from the ammonium perchlorate plant, and solution from cooling tower leaks. These solutions were concentrated in the surface impoundments through evaporation and then returned to the process where residual sodium chlorate was recovered. Process liquids sent to the surface impoundments contained hexavalent chromium, sodium chloride, sodium chlorate, and sodium perchlorate, but were not considered hazardous waste.</p> <p>Although the ponds were always lined, the lining was replaced on several occasions due to leaks and failures. With respect to the Old P-2 Pond, leaks were identified with the original single liner in 1980, and a second single liner failed (resulting in the release of approximately 50,000 gallons of solution) in 1982. The third liner placed in the Old P-2 Pond also was found to have leaked in 1984 or 1985. No detailed information regarding the liner associated with the Old P-3 Pond was located. Soil sampling within the ponds during the 1990s identified elevated chromium levels.</p>
<p>New P-2 Pond</p>	<p>Shown on Figure 2-5a, the New P-2 Pond replaced the Old P-2 and P-3 Ponds, and it received similar wastewater discharges. This pond was initially constructed by 1983, based on aerial photographs, with two synthetic liners. Approximately 18 months after it was constructed, a third polyethylene liner was installed. This pond had leak detection that was monitored monthly. This pond was decommissioned in 1996.</p>

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<b>Closed Ponds and Surface Impoundments</b>	
S-1 and P-1	<p>Shown in Figure 2-5a, the single-lined wastewater surface impoundments P-1 and S-1 were located approximately 200 feet and 60 feet south of the steam plant, respectively. The impoundments were constructed in an area that had previously been used for deposition of solid materials, including manganese dioxide process tailings. P-1 had an approximate surface area of 26,000 square feet and an approximate capacity of 700,000 gallons. S-1 had an approximate surface area of 47,500 square feet and an approximate capacity of 2,000,000 gallons. Each impoundment was constructed as an evaporation pond (not equipped to recycle liquids back to the process). Both ponds managed liquid wastes from the potassium chlorate, potassium perchlorate, sodium perchlorate, and boron manufacturing processes, as well as cooling tower and reboiler wastes from the boron trichloride process. In addition, S-1 received wastes from the sodium chlorate process, and P-1 received liquors, residual salt solutions, and rinsates generated during decommissioning and closure of pond S-1 and decommissioning of the potassium perchlorate manufacturing process. Liquid wastes discharged to both impoundments reportedly contained chromium in excess of hazardous waste criteria.</p> <p>P-1 operated from 1972 to 1975, when it was abandoned because the original liner had failed; it was relined and subsequently operated from 1980 to 1983. S-1 operated from 1974 to 1982, and records suggest that a liner failure may have been identified in 1980. Both impoundments were closed in 1983/4 pursuant to RCRA under a NDEP-approved closure plan, and confirmatory soil sampling was performed to demonstrate that residual chromium levels were below the required cleanup level of 5.0 mg/L. Soils contaminated with chromium were removed during closure activities associated with both ponds. NDEP approved final closure of S-1 and P-1 on December 5, 1985.</p>

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Impoundment	Description
<b>Closed Ponds and Surface Impoundments</b>	
State Industries, Inc. Impoundments	<p>Shown on Figure 2-5b, State Industries, Inc. operated two surface impoundments on the southwestern portion of OU-1 beginning in 1972 associated with its hot water heater manufacturing operations. Both impoundments were single-lined. The western impoundment was circular and measured approximately 130 feet in diameter. The eastern impoundment was rectangular and measured approximately 150 feet by 250 feet. The impoundments received spent pickling process wastes (for solar evaporation). The process wastes (approximately 35,000 gallons per month) included spent sulfuric acid, borax, soda ash, phosphates, and TURCO II H.T.C. soap. One of the State Industries impoundments is known to have leaked on three separate occasions in 1974, and a liner apparently ripped on one impoundment in 1980.</p> <p>The western impoundment was closed and covered by a warehouse in approximately 1983. The eastern impoundment was closed by 1988, which involved leaving the liner in place and mixing the contents with soil until the material solidified; an engineered protective cover may not have been placed over this area. Sludge within the ponds was sampled prior to closure and found to be nonhazardous.</p>
C-1	<p>Shown on Figure 2-5a, this single-lined process wastewater surface impoundment, with a 69,000-square foot surface area and an approximate capacity of 3,125,000 gallons, was located near the eastern property boundary, approximately 400 feet north of the manganese tailings pile area. C-1 was constructed in 1974 and was used to hold nonhazardous industrial liquid waste for evaporation (the pond was not equipped to recycle liquids back to the process). Wastewaters received included boiler plant blowdown, boiler plant washdown, manganese dioxide cathode wash solution, boron neutralization solutions, hot process water softener solutions, and main cooling tower blowdown and filter wash. Wastewater discharged to C-1 was nonhazardous but contained sodium hexametaphosphate, neutralized sulfuric acid, calcium and magnesium hydroxide, metal wastes, various sulfates and phosphates, and boron neutralization wastewater. Pond C-1 and associated piping were decommissioned in 1994.</p>
AP-1, 2, 3 and 4	<p>Shown on Figure 2-6, these lined surface impoundments were associated with the former ammonium perchlorate process, specifically to concentrate dilute ammonium perchlorate-containing solutions. AP-1, AP-2, and AP-3 were placed into operation in May 1974, and AP-4 was constructed in 1983. Impoundment AP-2 was found to have leaked in 1979, and the liner was replaced (along with the liner for AP-3). Impoundments AP-1 and AP-3 required frequent patching by late 1983 to mitigate leaks that had developed; the liners were ultimately replaced with double liner systems. Elevated nitrates were identified in groundwater downgradient of AP-1, 2, and 3 in the 1990s. All four ponds were removed from service, cleaned, and emptied in the early 2000s.</p>

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Impoundment	Description
<b>Closed Ponds and Surface Impoundments</b>	
AP-5	As shown in Figure 2-5a and 2-6, AP-5, covering an area of approximately 10.88 acres, was historically used associated with the former ammonium perchlorate process, specifically as part of a larger impoundment cluster used to concentrate dilute ammonium perchlorate-containing solutions. AP-5 has been decommissioned, a closure report was submitted in June 2019 (Tetra Tech 2019), and administrative closure is pending. The area beneath AP-5 was sampled as part of the RI and these data are presented in Section 7.
AP-6 (inactive but still physically present)	Shown on Figure 2-5a and 2-6, AP-6 is a double-lined pond located directly east of AP-5 and, based on aerial photographs, was constructed by Kerr-McGee sometime between 1993 and 1995. Limited information has been identified about the historical use of AP-6, but accumulated solids from AP-2 were reportedly transferred to AP-6 for subsequent product recovery. In 1996, minor damage to AP-6's top liner required pond liquor to be transferred out in preparation for repair. The pond was reportedly removed from active service in approximately 2001 but is still physically present at the NERT Site within OU-1. NERT intends to close AP-6 pond as part of final remedy, unless BWPC requests closure in advance of reaching final remedy.
Mn-1	<p>Shown on Figures 2-5a and 2-6, this double-lined process wastewater surface impoundment (equipped with leak detection between the two liners), with a surface area of 53,000 square feet and a capacity of 3.5 million gallons, is located within the EMD leasehold near the eastern property boundary, approximately 200 feet north of the manganese tailings pile area. Mn-1 was placed into operation in 1983 and is used to hold nonhazardous industrial liquid waste for evaporation (the pond is not equipped to recycle liquids back to the process). Mn-1 was temporarily removed from active service following the construction of Mn-2 (discussed below). According to correspondence between EMD and the Trust in 2020, EMD removed the pond sediments, re-lined the pond, and returned the pond to service during Q4 of 2020.</p> <p>Most recently wastewaters included manganese dioxide cell feed filter waste and potassium phosphate cathode wash solution. Historically, Mn-1 also received calcine belt filter wash water from the manganese dioxide Leach Plant until 1989. Wastewater discharged to Mn-1 was nonhazardous but contains calcium, magnesium, manganese from cathode scale, tank mud, cell sludge, sodium hexametaphosphate, and other naturally occurring constituents.</p>

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Impoundment	Description
<b>Ponds in Current Operation</b>	
GW-11	<p>Shown on Figure 2-6, this approximately 11-acre, double-lined impoundment (equipped with leak detection between the liners) is located in the area of the former Trade Effluent ponds on the northern portion of OU-1. GW-11 was constructed in late 1998 to contain perchlorate-containing groundwater extracted from the IWF and the AWF systems. This pond is still used for water management associated with operation of the GWETS. The Trust is currently developing a closure strategy for GW-11 and removing it from long-term GWETS operations planning.</p>
Mn-2	<p>Mn-2, which is shown on Figure 2-6, was constructed in 2013 and is a quadruple-lined surface water impoundment located within the EMD leasehold, with a surface area of 1.8 acres and a capacity of 3.75 million gallons (at 3 feet vertical freeboard). Mn-2 is currently used as an evaporation pond for water from various effluent sources, which include: cathode cleaning effluent, wastewater from the boron products area, waste water plant effluent (as needed) and slurries from process tank clean outs in the leach plant (as needed). According to Tronox (now operated by EMD), none of these waste streams are considered hazardous.</p> <p>Mn-2 is located immediately south of Mn-1.</p>
WC-West (also known as WC-1)	<p>Shown on Figure 2-6, this double-lined wastewater surface impoundment (equipped with leak detection between the liners), with a 67,600-square foot surface area and a capacity of 12,515,200 gallons, is located within the former Trade Effluent settling pond area on the northern portion EMD leasehold and is currently operated by EMD.</p> <p>WC-West was placed into operation in 1989 and subsequently received a composite liquid waste stream from Units 3, 5, and 6 and the steam plant. The solutions discharged to WC-West include process water softeners, steam generation blowdown, cooling tower blowdown from Units 3 and 5, manganese dioxide product wash solution from Unit 6, manganese dioxide cathode wash solution, process seal water/filter flush, and concentrated brine from the vapor recompression units. Solution from WC-West was processed through vapor recompression units to reclaim water for cooling and process use, and the concentrated brine effluent was discharged to surface impoundments WC-West or WC-East.</p> <p>Currently, WC-West continues to receive process wastewater discharges, which are routed through an on-site distillation process for purification before being recycled back to the process water system.</p>

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Impoundment	Description
<b>Ponds in Current Operation</b>	
<p>WC-East (also known as WC-2)</p>	<p>Shown on Figure 2-6, this triple-lined wastewater surface impoundment (equipped with leak detection between the liners), with an 88,580-square foot surface area and a capacity of 19,658,500 gallons, is located within the former Trade Effluent settling pond area near the east-central portion of the EMD leasehold and is currently operated by EMD.</p> <p>WC-East was placed into operation in 1988 and subsequently received waste streams similar to those received at WC-West, as described above.</p> <p>Currently, WC-East continues to receive process wastewater discharges, which are routed through an on-site distillation process for purification before being recycled back to the process water system.</p>
<p>Central Retention Basin and Northern Retention Basin</p>	<p>During the 2010-2011 interim soil removal action, which is further discussed in Section 3.2 and shown on Figure 2-6, OU-1 was graded such that storm water would be retained on-site. Two retention basins and a drainage channel were constructed: 1) the Central Retention Basin, located approximately 800 feet south (upgradient) of the IWF and 2) the Northern Retention Basin, located approximately 300 feet north (downgradient) of the IWF. A shallow channel located along the eastern side of OU-1 connects the two retention basins and conveys overflow from the Central Retention Basin into the Northern Retention Basin.</p> <p>Surface runoff from within OU-1 and a majority of water collected by the storm sewer network within the EMD-leased area are directed to the Central Retention Basin.</p>

**TABLE 2-3. WASTE MIGRATION TO THE UPPER AND LOWER BMI PONDS  
Nevada Environmental Response Trust Site; Henderson, Nevada**

Company	Period	Solid Waste	Liquid Waste	Quantity of Waste
<b>Waste Migration from within OU-1</b>				
U.S Defense Plant Corp (Basic Magnesium)	1942-1944 (unknown disposal route <sup>1</sup> )	--	Acid effluent and waste caustic liquor	Unknown
WECCO/ AP&CC/ Kerr-McGee <sup>2</sup>	1945-1974 (Upper Ponds via the Beta Ditch)	Sodium chlorate filter cake wastes (graphite, calcium carbonate, calcium sulfate, diatomaceous earth, hexavalent chromium)	(solid wastes were sluiced and migrated to Upper Ponds)	391,000 ft <sup>3</sup>
	1951-1974 (Upper Ponds via the Beta Ditch)	Ammonium perchlorate filter cake wastes (calcium carbonate, chromium hydroxide, and diatomaceous earth)	(solid wastes were sluiced and migrated to Upper Ponds)	Unknown
	1945-1976 (Upper Ponds via the Beta Ditch)	Potassium perchlorate process wastes (sodium chloride, potassium chloride, and potassium perchlorate)	(solid wastes were sluiced and migrated to Upper Ponds)	293,756 tons
	1972-1976 (Upper Ponds via the Beta Ditch)	--	Aqueous boron solution (magnesium, sodium, sulfate, borate ions)	1,000,000 gallons
	May 1980 (Upper Ponds via the Beta Ditch)	Sodium dichromate	(solid wastes were sluiced and migrated to Upper Ponds)	1,000 to 1,300 lbs.
State Industries, Inc.	1970-1972 (Upper Ponds via the Beta Ditch)	--	Sulfuric acid, borox, soda ash, phosphate chemicals, cyanide	35,000 gallons per month
Koch Materials	1979 to ~1995 (unspecified)	--	Fluids containing petroleum hydrocarbon related materials including heavy oils/tars, asphalt cement, and washout of chemical tanks	Unknown
W.S. Hatch Company/ J.B. Kelley Trucking	1980 to 1988 (unspecified)	--	Truck waste water (contained lime, soda ash, barite, magnesium chloride) and may also have included dilute concentrations of ferric chloride, hydrochloric acid, sodium hydrosulfide, sodium hydroxide, and/or titanium tetrachloride.	Unknown

**TABLE 2-3. WASTE MIGRATION TO THE UPPER AND LOWER BMI PONDS  
Nevada Environmental Response Trust Site; Henderson, Nevada**

Company	Period	Solid Waste	Liquid Waste	Quantity of Waste
<b>Waste Migration from Center of BMI Complex Outside of OU-1</b>				
U.S Lime Company <sup>2</sup>	1969-1972 (Upper Ponds via the Beta Ditch)	--	Industrial wastes from cooling dust control operations	60,000 gallons/day
<b>Waste Migration within BMI Complex and West of OU-1</b>				
Stauffer	1946-1970 (Lower Ponds)	Asbestos sludge	--	Unknown, >1,045 tons
	1971-1976 (Upper Ponds via the Beta Ditch using the Beta Ditch Extension)			
	1956-1958 (Lower Ponds)	--	Effluent containing organics, caustics and cell liquor	Unknown
	1971-1975 (Upper Ponds via the Beta Ditch using the Beta Ditch Extension)	--	Unknown and cooling water	Unknown
Montrose	1947-1970 (Lower Ponds) & 1971-1976 (Upper Ponds via the Beta Ditch using the Beta Ditch Extension)	--	Sulfuric acid	137,000 tons
			Hydrochloric acid	18,000 tons
			Sulfonated metabolites of DDT	6,958 tons
<b>Waste Migration within the BMI Complex and East of OU-1</b>				
TIMET <sup>2</sup>	1953-1976 (Upper Ponds via the Beta Ditch)	--	Leach liquor (hydrogen, magnesium, calcium, sodium, titanium, chloride, nitrate, sulfate)	1,200,000 tons
	1952-1977 (Upper Ponds via the Beta Ditch)	--	Caustic waste (sodium chloride, sodium hypochlorate, mixed chloride, and sulfate salts)	807,000 tons
	1951-1977 (Upper Ponds via the Beta Ditch)	--	Other Process Wastes effluents (hydrochloric acid, mixed metal chlorides)	3,600,000 tons
Jones Chemical Company (within TIMET facility) <sup>2</sup>	Unknown (Upper Ponds via the Beta Ditch)	--	Rinse and wash unknown water containing small amounts of chloride	Unknown

**TABLE 2-3. WASTE MIGRATION TO THE UPPER AND LOWER BMI PONDS  
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Company	Period	Solid Waste	Liquid Waste	Quantity of Waste
<b>Waste Migration from East of the BMI Complex</b>				
COH Sewage Treatment Plant #1 (HSTP1)	1958-1985 (Area of Lower Ponds named the Evaporation and Percolation Ponds [EPP])	--	Municipal sewage effluent	~1.0-1.5 MGD
COH Sewage Treatment Plant #2 (HSTP2)	Operated as part of BMI Complex from 1942-1974 (Upper Ponds)	--	Sewage from BMI Complex and municipal sewage effluent	~0.5 MGD
	Operated by COH from 1974-1984 (Upper Ponds until 1981. Unlined infiltration basins located immediately south of the Upper Ponds from 1981-1985.)			
COH Sewage Treatment Plant #3 (HSTP3)	1983 – 1994 (Area of Lower Ponds named the Evaporation and Percolation Ponds [EPP])	--	Municipal sewage effluent	6.3 - 9.5 MGD
<p><b>Notes:</b>            Information in this table is summarized from Geraghty and Miller (1993) and Batista et al. (2003).  <sup>1</sup> The Upper and Lower BMI Ponds were constructed in the early 1940s to receive wastes from Basic Magnesium, but information specifying the route and volume of waste migrating is not available.  <sup>2</sup> An unknown quantity of waste from this operator may have migrated to the Lower Ponds prior to 1971, but historical records suggest the vast majority of wastes from this operator migrated to the Upper Ponds via the Beta Ditch.            BMI = Basic Management, Inc. or Basic Magnesium, Inc.            COH = City of Henderson            ft<sup>3</sup> = cubic feet            lbs = pounds            MGD = million gallons per day</p>				

**TABLE 2-4. SALE PARCEL SUMMARY**  
**Nevada Environmental Response Trust Site; Henderson, Nevada**

Parcel	Current APN	Date Sold Tronox or Trust	Sold By	Current Parcel Status	Parcel History	Remedial Activities
Parcel A (52.52 acres)	178-01-415-001	12/4/2013	NERT	NDEP issued an NFA for Parcels A and B within the same letter on 11/26/2013 (NDEP 2013) following completion of: a voluntary Environmental Covenant dated 11/20/2013 limiting use of the subject property; a human health risk assessment and supporting technical data (ENVIRON 2013b). Parcels A and the western portion of Parcel B were sold to Treco LLC on 12/4/2013. Parcels A and the western portion of Parcel B are currently owned by Jasmine Development LLC.	Parcel A was not directly used for any manufacturing or waste disposal activities. Parcel A is comprised primarily of vacant land, but includes an area in the northeast corner of the Parcel formerly leased by Lavern Vohs (LOU 67) (BEC 2007a). Research on the Parcel recognizes that historic uses/disposals on or near Parcel A may have occurred (BEC 2007a). Given the vicinity of BMI Industrial Complex, it is also possible that Parcel A or portions thereof could also have been indirectly impacted by such historical operations (BEC 2008c).	In 2007, following an initial sampling effort to identify contaminated areas (BEC 2007a), 3 to 6 inches of surface soil was scraped in several areas within Parcel A to remove the asbestos. Post-scrape samples were then collected and analyzed for asbestos. The post-scrape samples confirmed that asbestos-impacted soil had been removed (BEC 2007f; BEC 2008c). NDEP approved completion of the removal action and issued an NFA for Parcels A and B on April 8, 2008 (NDEP 2008). However, this NFA specifically excluded evaluation of potential vapor intrusion concerns. A soil gas evaluation was subsequently performed within Parcels A and B (Northgate 2010).
Parcel B (11.63 acres)	178-12-110-006; 178-12-110-007	12/4/2013			Parcel B was not directly used for any manufacturing or waste disposal activities. Parcel B is comprised of primarily of vacant land (BEC 2007a). Research on the Parcel recognizes that historic uses/disposals on or near Parcel B may have occurred (BEC 2007a). Also, given the vicinity of BMI Complex, it is also possible that Parcel B or portions thereof could also have been indirectly impacted by historical operations (BEC 2008c).	
Parcel C (20.4 acres)	A portion of 178-12-201-011	5/8/2020	NERT	NDEP issued an NFA for Parcel C and D within the same letter on 12/11/2018 (NDEP 2018a) following completion of: a voluntary Environmental Covenant limiting use of the subject property and a human health risk assessment and supporting technical data (Ramboll 2017a). Treco LLC exercised its option to acquire Parcels C and D and the Parcels were conveyed on 5/8/2020.	Parcel C is located directly north and adjacent to the former Trade Effluent Settling Ponds (LOU 1). The parcel is entirely vacant land (ENVIRON 2013a). Historical use of Parcel C has been limited, based on review of historical aerial photographs and reports of past activities (Northgate 2013). No LOUs are located within Parcel C; however, several LOUs are located upgradient of Parcel C (ENVIRON 2013a). Review of aerial photographs indicates that sometime prior to 1950, multiple ditches lined with French drains were installed across Parcel C, perpendicular to, and leading from, a main French drain that traversed east-west along the northern berm of the ponds located along the southern boundary of Parcel C. The drains were likely used for capturing underflow from the former Trade Effluent Ponds. The drains were constructed because infiltration from the former, unlined Trade Effluent Ponds resurfaced in Parcel C (Converse 2007). At some point, these ditches were disturbed and possibly graded over (Northgate 2013).	During 2010, following an initial sampling effort to identify contaminated areas (BEC 2007c), Northgate remediated Parcels C and D in accordance with the Removal Action Workplan for Soil, Tronox Parcels "C", "D", "F", "G", and "H" Sites (the RAW) (BEC 2008b). Parcels C and D are presented together because they share boundaries and have similar site-use history (Northgate 2013). BEC developed polygons for Parcels C and D to define areas with SRG exceedances. Total scrape depths in Parcel C and D ranged from 0.4 to 1.0 feet below original grade surface. A total of 1,807 cy and 82 cy of soil were removed from Parcels C and D, respectively. Following the removal action, confirmation soil samples were collected in a manner consistent with the RAW (BEC 2008b). Confirmation sample results indicated that all analytes were detected below their respective NDEP BCLs and target goals (Northgate 2013). Additional evaluation of soil gas was subsequently performed and approved by NDEP (ENVIRON 2013a).
Parcel D (24.6 acres)	A portion of 178-12-201-011	5/8/2020	NERT		Parcel D is located directly north of Parcel C. The entire parcel is vacant land (ENVIRON 2013a). Historical use of Parcel D has been limited, based on review of historical aerial photographs and reports of past activities. Based on review of historical aerial photographs, the ditches (French drains) described for Parcel C extended into and terminated in the eastern two-thirds of Parcel D (Northgate 2013). Southern Nevada Auto Parts (a former Kerr-McGee tenant, also referred to as Nevada Pick-a-Part) operated an auto impound yard where wrecked, police-impounded, and repossessed vehicles were stored. NDEP identified this area as LOU 68, which the tip of the southern portion of extends across Parcel D (ENVIRON 2013a, Northgate 2013). The southern portion of the lease area appeared to have minor soil staining (ENVIRON 2013a). LOU 6 (the Unnamed Drainage Ditch Segment, also referred to as the Northwest Ditch) extends across Parcel D. The Northwest Ditch, which originated near the Beta Ditch (LOU 5) and crossed the northern portion of OU-1 (Kleinfelder 1993), migrated process waste streams from the BMI Complex facilities to the BMI Common Area (ENSR 2005; Broadbent & Associates, Inc. 2011, ENVIRON 2013a).	
Parcel E	178-12-101-005; 178-12-201-009		Unsold	There are currently no plans to sell Parcel E due to the active operation of a groundwater remediation system associated with the OSSM property within the parcel boundaries.	Parcel E is located on the northwest portion of OU-1 between Parcels C and D and has a similar site history.	No remedial activities have been conducted within Parcel E.

**TABLE 2-4. SALE PARCEL SUMMARY**  
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Parcel	Current APN	Date Sold Tronox or Trust	Sold By	Current Parcel Status	Parcel History	Remedial Activities
Parcel F (7.2 acres)	No APN(s) currently correspond to this Parcel area	Unsold		NDEP issued an NFA for Parcel F on 12/11/2018 (NDEP 2018b) following completion of: a voluntary Environmental Covenant limiting use of the subject property and a human health risk assessment and supporting technical data (Ramboll 2017b). Treco LLC exercised its option to acquire Parcels F and will close within 30 days after Clark County's approval and recording of a final commercial subdivision map and record of survey establishing the parcel as a separate legal parcel.	Parcel F is located on the western boundary of OU-1. Most of the parcel is vacant land, although portions of a building foundation are located within the parcel (ENVIRON 2013a). LOUs 63, 65c, and a portion of LOU 59 are located in Parcel F. Parcel F was leased from 1980 to 1986 by W.S. Hatch Company, a trucking operation. The area within Parcel F that now comprises LOU 63 was leased by J.B. Kelley (also a trucking operation) from 1986 through at least 1993 (Kleinfelder 1993). Trucking operations included operation of diesel and waste oil USTs (the tanks were investigated, found to be leaking, and removed in 1991), and a truck washing area. Rinsate from truck washing was reportedly discharged to the former vault floors, metal containment tanks, a storm sewer (which received additional fluids from truck maintenance), and/or the ground surface until 1991 (ENVIRON 2013a, Kleinfelder 1993). LOU 65c was formerly occupied by Nevada Pre-Cast Concrete, which used office space (no waste streams or reported chemical use) near the J.B. Kelley Site operations from January 1973 to May 1978. Segments of LOU 59 (the Storm Sewer System) are located in Parcel F.	During 2010, following an initial sampling effort to identify contaminated areas (BEC 2007d), Northgate remediated Parcel F in accordance with the RAW (BEC 2008b). BEC developed polygons for Parcel F to define areas with SRG exceedances. Eight scrape areas were located in Parcel F. A total of 3,928 cy of soil was removed from Parcel F. Total scrape depths in Parcel F ranged from 0.2 to 0.9 feet below original grade surface. Two small portions of proposed remediation area were not scraped because of impediments. Following the removal action confirmation soil samples were collected in a manner consistent with the RAW (BEC 2008b). Confirmation sample results indicated that all analytes were detected below their respective NDEP BCLs or target goals (Northgate 2013). Additional evaluation of soil gas was subsequently performed and approved by NDEP (ENVIRON 2013a).
Parcel G (2.8 acres)	No APN(s) currently correspond to this Parcel area	Unsold		NDEP issued an NFA for Parcel G on 12/11/2018 (NDEP 2018c) following completion of: a voluntary Environmental Covenant limiting use of the subject property and a human health risk assessment and supporting technical data (Ramboll 2017a). Treco LLC exercised its option to acquire Parcels G and will close within 30 days after Clark County's approval and recording of a final commercial subdivision map and record of survey establishing the parcel as a separate legal parcel.	Parcel G is located on the west side of OU-1. The parcel is comprised primarily of vacant land, although a building is located on the northern portion of the parcel, and a utility vault, portions of a rail line, and several drain inlets are also present (ENVIRON 2013). LOUs 59, 60, and 65d are located within Parcel G. Segments of LOUs 59 (the Storm Sewer System) and 60 (the Acid Drain System) are located in the parcel. Green Ventures International (LOU 65d) leased a building ("S3 Changehouse") from August 1980 to September 1981 for use as a marketing office by a green farming operation. Only office activities (no known waste streams or chemical use) were conducted by Green Ventures International (Kleinfelder 1993).	During 2010, following an initial sampling effort to identify contaminated areas (BEC 2007b), Northgate remediated Parcel G in accordance with the RAW (BEC 2008b). BEC developed polygons for Parcel G to define areas with SRG exceedances. Two scrape areas were located in Parcel G. A total of 1,094 cy of soil was removed from Parcel G, including soil removed from land that is no longer included in Parcel G. Total scrape depths in Parcel G ranged from 0.3 to 0.4 feet below original grade surface. Following the removal action confirmation soil samples were collected in a manner consistent with the RAW (BEC 2008b). Confirmation sample results indicated that all analytes were detected below their respective NDEP BCLs or target goals (Northgate 2013).
Parcel H (26 acres)	178-13-601-013; 178- 13-601-012	5/8/2020	NERT	NDEP issued an NFA for Parcel H on 12/11/2018 (NDEP 2018d) following completion of: a voluntary Environmental Covenant limiting use of the subject property and a human health risk assessment and supporting technical data (Ramboll 2017c). Treco LLC exercised its option to acquire Parcels H and the Parcel was conveyed on 5/8/2020.	Parcel H is located in the southern portion OU-1 and is divided into two sections by the paved entrance road to the EMD leasehold, which is not included within Parcel H. The parcel is comprised primarily of vacant land that is crossed by dirt roads and drainage channels (ENVIRON 2013a, Converse 2007). No LOUs were identified within Parcel H (ENVIRON 2013a, Northgate 2013). However, research on the Parcel has recognized that other historic uses/disposals on or near Parcel H may have occurred. Review of historical aerial photographs from 1950 through 2006 of Parcel H indicates that the property has remained undeveloped (Northgate 2013).	During 2010, following an initial sampling effort to identify contaminated areas (BEC 2007e), Northgate remediated Parcel H in accordance with the RAW (BEC 2008b). BEC developed polygons for Parcel H to define areas with SRG exceedances. Two scrape areas were located in Parcel H. A total of 617 cy of soil was removed from Parcel H. Total scrape depths in Parcel H ranged from 0.3 to 0.7 feet below original grade surface. Two portions of the proposed remediation area were not scraped because of impediments. Following the removal action confirmation soil samples were collected in a manner consistent with the RAW (BEC 2008b). Confirmation sample results indicated that all analytes were detected below their respective NDEP BCLs or target goals (Northgate 2013). Additional evaluation of soil gas was subsequently performed and approved by NDEP (ENVIRON 2013a).







**TABLE 6-1. SUMMARY OF DATES OF THE NERT RI FIELD WORK  
Nevada Environmental Response Trust Site  
Henderson, Nevada**

Phase of RI	Date Range that Field Work was Completed
Phase 1 RI	October 2014 - May 2015
Unit 4 and 5 Buildings Investigation	October 2015 - December 2017
AECOM Downgradient Study Area Investigation	December 2015 - August 2019
Initial Phase 2 RI	February 2017 - November 2017
Phase 2 RI Modifications (1-15)	May 2017 - April 2019 <sup>a</sup>
Initial Phase 3 RI	December 2017 <sup>b</sup> - November 2018
Phase 3 RI Modifications (1-15)	June 2018 - October 2022 <sup>c</sup>

**Notes:**

<sup>a</sup> Phase 2 RI modifications involving monthly surface water sampling in the Las Vegas Wash are ongoing.

<sup>b</sup> Prior to the start of the initial Phase 3 RI, well inspections were performed as part of Phase 3 RI Modification No. 1 beginning in August 2017.

<sup>c</sup> Sampling activities for the Phase 3 RI modifications conducted within OU-1 and OU-2 were completed between June 2018 and January 2020.

















































**TABLE 7-2a. SUMMARY OF SECONDARY COPC SCREENING IN OU-1  
Nevada Environmental Response Trust Site  
Henderson, Nevada**

Chemical Group	Chemical	RESULTS OF INITIAL SCREENING					RETAINED OU-1 COPCs	
		Vadose Zone Soil			Groundwater		Soil	Groundwater
		Upper 10 Feet	Deeper Alluvium	UMCf	Shallow WBZ	Middle WBZ		
Pesticides - OCPs	alpha-BHC	X	X				X	
	beta-BHC	X	X				X	
	gamma-BHC	X	X				X	
	4,4'-DDE	X					---	
	4,4'-DDT	X					---	
	Dieldrin	X	X				---	
Pesticides - OPPs	Dimethoate	X		X			---	
	Stirophos	X					---	
Other Organics	4-Chlorobenzenesulfonic Acid				X			X
	Formaldehyde	X	X	NS		X	X	X

**Notes:**

COPC: Chemical of potential concern

WBZ: Water-Bearing Zone

NS: Not Sampled (in accordance with approved Work Plans)

Blank cell denotes that chemical is not a COPC because it was not detected at a rate exceeding 5%, was below screening level or no screening level is available.

**Chemicals Retained in Initial Screening:**

X: Requires secondary screening from Table 7-1 or 7-3 due to detection rate and exceedance of a screening level or lack of screening level.

[B]: Consistent with background soil concentrations (see Appendix I)

**RETAINED OU-1 COPCs:**

---: Eliminated as COPC during secondary screening.

X: Retained as COPC during secondary screening.

[\*]: A detailed analysis of hexavalent chromium to total chromium ratios was performed as part of the 2016 Groundwater Monitoring Optimization Plan. The analysis found that the concentration of total chromium is generally equal to the concentration of hexavalent chromium within the NERT groundwater plume. With NDEP approval, hexavalent chromium was generally eliminated from NERT's on-going monitoring program in 2016. Therefore, total chromium and hexavalent chromium are not regarded as separate COPCs and interpretations of the lateral and vertical extent of chromium in soil and groundwater will primarily rely on total chromium data (rather than hexavalent chromium data).

**TABLE 7-2b. CHEMICALS OF POTENTIAL CONCERN IN OU-1 SOIL AND GROUNDWATER  
Nevada Environmental Response Trust Site  
Henderson, Nevada**

<b>RETAINED OU-1 COPCs</b>		
	<b>Soil</b>	<b>Groundwater</b>
<b><i>Chlorates and General Chemistry</i></b>		
Bromide		X
Chlorate	X	X
Nitrate	X	X
Nitrite		X
Perchlorate	X	X
<b><i>Metals</i></b>		
Antimony	X	
Arsenic	X	X
Barium	X	
Boron	X	X
Chromium VI	X	X
Cobalt	X	
Lead	X	
Magnesium	X	X
Manganese	X	X
Nickel	X	
Strontium		X
Uranium (total)		X
<b><i>Radionuclides</i></b>		
Thorium-228		X
Thorium-230		X
<b><i>Volatile Organic Compounds (VOCs)</i></b>		
Benzene	X	X
Bromodichloromethane		X
Bromoform		X
Carbon Tetrachloride	X	X
Chlorobenzene	X	X
Chloroform	X	X
1,2-Dichlorobenzene		X
1,3-Dichlorobenzene		X
1,4-Dichlorobenzene		X
1,1-Dichloroethane		X
1,2-Dichloroethane		X
1,1-Dichloroethene		X
1,4-Dioxane		X
Methylene Chloride	X	X
1,1,1,2-Tetrachloroethane		X
Tetrachloroethene		X
Trichloroethene		X
1,2,3-Trichloropropane	X	X

































**TABLE 7-3b. STATISTICAL SUMMARY OF OU-1 GROUNDWATER RESULTS, MIDDLE WATER BEARING ZONE**  
**Nevada Environmental Response Trust Site**  
**Henderson, Nevada**

Chemical Group	Chemical	Unit	Groundwater Screening Levels <sup>1</sup>		Middle Background		No. of Samples	No. of Detects	% Detects	Nondetects		Detects									
			Level	Source <sup>[1-6]</sup>	Minimum	Maximum				Minimum	Maximum	Minimum	Maximum	Median	Mean	Standard Deviation	Coefficient of Variation	Location of Maximum	No. Above GWSL	Max Sample Ratio to GWSL	
Other Organics	Propionic acid	µg/L	--	--	--	--	1	0	0	3,500 UJ	3,500 UJ	--	--	--	--	--	--	--	--	--	--
	Pyruvic acid	µg/L	--	--	--	--	1	0	0	19,000 UJ	19,000 UJ	--	--	--	--	--	--	--	--	--	--

**Notes:**

- Groundwater screening levels (GWSLs).  
 MCL: Maximum Contaminant Level, USEPA.  
 MCLG: Maximum Contaminant Level Goal, USEPA.  
 PRG: Preliminary Remediation Goal, USEPA 2008 and USEPA 2009.  
 BCL: Residential Water Basic Comparison Level, NDEP 2023.  
 RSL: Regional Screening Levels (RSLs) for tapwater, USEPA 2023.  
 CAL: Primary MCL of 2,3,7,8-tetrachlorodibenzo-p-dioxin divided by Toxic Equivalency Factor (Van den Berg et al. 2006).

	Detected at a rate of 5% or less, fewer than 10 samples exceeded the GWSL, and the maximum concentration less than a factor of 20 above the GWSL.
	Detected at a rate of 5% or less with no applicable GWSL.
	No detections or maximum detected concentration is below groundwater screening level.
	Essential Nutrient, macronutrient or salt.

**Sources:**

- NDEP. 2023. User's Guide and Background Technical Document for NDEP Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas. Revision 16, June.
- USEPA. 2008. Interim Drinking Water Health Advisory for Perchlorate EPA 822-R-08-025. December.
- USEPA. 2009. Memorandum: Revised Assessment Guidance for Perchlorate. January 8.
- USEPA. 2023. Regional Screening Levels (RSL) for Chemical Contaminants at Superfund sites. May.
- USEPA. National Primary Drinking Water Regulations. Code of Federal Regulations, 40 CFR Part 141.
- Van den Berg M et al. 2006. Review: The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds. Toxicological Sciences 93 (2): 223-241.













**TABLE 7-4. SUMMARY OF ANALYTICAL RESULTS FOR WELLS IN OU-1 - PRIMARY COPCs**  
**Nevada Environmental Response Trust Site**  
**Henderson, Nevada**

On-Site Monitoring Well ID	Date Installed	Surveyed Coordinates		Elevation		Well Screen		Stratigraphic Unit		2015-2018 Sampling Results				
		Northing (ft)	Easting (ft)	Ground Surface (ft msl)	Top of Casing (ft msl)	Top (ft bgs)	Bottom (ft bgs)	Screened Unit(s)	GW table in Unit <i>Criteria:</i>	Perchlorate (mg/L)	Chlorate (mg/L)	Chromium (µg/L)	Total VOCs (µg/L)	Chloroform (µg/L)
										0.015	1.0	100	na	70

**bold value:** Perchlorate concentrations above 1,000 mg/L.

1. If a field duplicate sample was taken on the date sampled, the higher of the two concentrations is shown in this table for each chemical.
2. While not considered a Primary COPC, results for Total VOCs are provided on this table to aid in interpretation of chloroform analytical results.
3. "Total VOCs" is the sum of all positive VOC detections using EPA Methods 8260B and 8260SIM. "Total VOCs" for which all results were non-detects are marked "All ND".



















**TABLE 7-6. SUMMARY OF ANALYTICAL RESULTS FOR WELLS IN OU-1 - OTHER COPCs (non-VOCs)**  
**Nevada Environmental Response Trust Site**  
**Henderson, Nevada**

On-Site Monitoring Well ID	Date Installed	Well Screen		Stratigraphic Unit		2015-2018 Sampling Results												
		Top (ft bgs)	Bottom (ft bgs)	Screened Unit(s)	GW table in Unit Criteria:	Bromide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	Arsenic (mg/L)	Boron (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Strontium (mg/L)	Uranium (total) (mg/L)	Thorium-228 (pCi/L)	Thorium-230 (pCi/L)	4-Chlorobenzenesulfonic acid (µg/L)	Formaldehyde (µg/L)
						13.3	na	1	0.01	6.67	189	0.801	20	0.03	0.14	0.05	3,340	0.387
M-219	03/29/17	25	45	UMCf-fg1	UMCf-fg1	<1.3	140	<0.35	0.019	2.9	120	<0.015	7.0	0.014	---	---	---	---
M-220	03/28/17	60	70	UMCf-fg1	na (1)	0.27 J	17	<0.070	0.036	0.97	28	<0.015	1.4	0.0066	---	---	---	---
M-221	02/13/17	75	85	UMCf-fg1	na (1)	0.28 J	9.3	<0.070	0.025	0.85	15	<0.015	0.78	0.0075	---	---	---	---
M-223	07/17/17	40	55	UMCf-fg1	na (1)	<13	25	<3.5	0.049	2.4	490	<0.030	25	0.0069	---	---	---	---
M-224R	01/21/18	60	80	UMCf-fg1	na (1)	<2.5	3.5 J	<0.70	0.014	1.5	420	<0.075	22	0.0053	---	---	---	---
M-226	07/15/17	40	55	UMCf-fg1	na (1)	<2.5	5.7	<0.70	0.046	2.3	290	0.045	14	0.010	---	---	---	---
M-227R	01/24/18	60	80	UMCf-fg1	na (1)	<5.0	13	<1.4	0.018	2.2	950	<0.075	49	0.015	---	---	---	---
M-229	06/05/17	40	55	UMCf-fg1	na (1)	0.90 J	33	<0.14	0.042	1.9	140	<0.015	5.9	0.0036	---	---	---	---
M-230	06/29/17	70	90	UMCf-fg1	na (1)	0.32 J	6.7	<0.070	0.031	0.90	29	<0.015	1.6	0.0044	---	---	---	---
M-234	06/30/17	65	85	UMCf-fg1	na (1)	<2.5	11	<0.70	0.024	1.7	310	0.035 J	15	0.0091	---	---	---	---
M-237	07/01/17	45	60	UMCf-fg1	UMCf-fg1	2.1	29	<0.14	0.19	2.8	85	<0.015	4.4	0.0035	---	---	---	---
M-239	07/25/17	65	85	UMCf-fg1	na (1)	<1.3	18	<0.35	0.065	2.8	130	0.020	5.7	0.013	---	---	---	---
M-242	05/08/17	38	53	UMCf-fg1	UMCf-fg1	<5.0	<5.0	<1.4	0.12	2.5	740	3.0	26	0.041	---	---	---	---
M-243	05/08/17	60	70	UMCf-fg1	na (1)	<2.5	<2.5	<0.70	0.042	2.2	350	0.38	17	0.0066	---	---	---	---
M-245	05/08/17	35	50	UMCf-fg1	UMCf-fg1	<2.5	3.7 J	<0.70	0.042	2.3	350	0.71	16	0.022	---	---	---	---
M-246	05/06/17	60	70	UMCf-fg1	na (1)	<2.5	3.8 J	<0.70	0.026	2.3	270	0.12	12	0.0059	---	---	---	---
M-247-60	10/09/17	61	71	UMCf-fg1	na (1)	0.53 J	2.5	0.18 J	<0.010	0.36	0.11	<0.015	3.5	0.0000870 J	0.274 J	0.297 J	---	<5.0
M-249-60	09/14/17	60	70	UMCf-fg1	na (1)	0.51 J	8.4	0.16 J	<0.020	0.93	4.4	<0.015	2.3	0.000363 J	0.152	0.146 J	---	<5.0
M-251-60	09/19/17	53	63	UMCf-fg1	na (1)	<1.3	10.4	<0.35	0.045 J	1.0	0.091	<0.015	0.67	0.000614 J	0.0679	0.349 J+	---	<5.0
M-253-60	10/04/17	61	71	UMCf-fg1	na (1)	0.84	1.4	<0.070	0.030	0.87	12	<0.015	1.9	0.00144	0.181	0.184 J	---	<5.0
M-255-60	10/16/17	60	70	UMCf-fg1	na (1)	<1.3	12	0.52 J	0.13	1.6	1.4	<0.015	0.50	0.00447 J	0.0762	0.325 J	---	<5.0
M-256-60	09/22/17	60	70	UMCf-fg1	na (1)	<0.50	5.3	<0.14	0.062	1.3	4.1	<0.015	1.1	0.00147	0.397 J	0.169 J	---	<5.0
M-259-60	09/26/17	61	71	UMCf-fg1	na (1)	<1.3	8	<0.35	0.072	2.6	0.16	0.031	2.5	0.00237	0.117	0.127 J	---	<5.0
M-260	11/28/18	65	75	UMCf-fg1	na (1)	0.31 J+	0.27 J+	<0.025	0.032	0.94	37	0.052	1.8	0.0058	---	---	---	---
M-261	11/29/18	60	75	UMCf-fg1	na (1)	<2.5	<2.5	<0.25	0.013	1.2	140	0.019 J	7.4	0.0056	---	---	---	---
M-262	11/30/18	80	90	UMCf-fg1	na (1)	0.25 J+	0.44 J	<0.025	0.027	0.97	24	0.027	1.3	0.0067	---	---	---	---
M-263	11/30/18	60	70	UMCf-fg1	na (1)	<5.0	5.6 J	<0.50	0.017	3.2	230	0.021	10	0.014	---	---	---	---
M-264	12/03/18	85	95	UMCf-fg1	na (1)	0.31 J	4.6	<0.025	0.031	0.92	19	<0.015	1.1	0.0097	---	---	---	---
M-265	12/04/18	60	70	UMCf-fg1	na (1)	0.47 J	4.0	<0.025	0.028	1.1	34	<0.015	1.5	0.0096	---	---	---	---
M-267	12/20/18	80	95	UMCf-fg1	na (1)	0.37 J	9.8	<0.025	0.032	0.95	27	<0.015	1.5	0.0057	---	---	---	---
M-269	01/25/19	60	70	UMCf-fg1	na (1)	23 J	69	<1.3	0.011	11	370	0.050	20	0.010	---	---	---	---
M-270	01/24/19	90	100	UMCf-fg1	na (1)	<0.25	8.2	<0.025	0.038	0.81	15	<0.015	0.80	0.0051	---	---	---	---
MC-29	09/01/82	38	50	Qal/ UMCf-fg1	Qal	<13	13 UJ	<3.5	0.083	1.8	630	0.72	19	0.022	-0.00540 U	0.252 U	---	---
MC-45	01/13/83	30	34	Qal	Qal	<13	<13	<3.5	0.093	1.9	430	1.0	14	0.024	-0.0202 U	1.20	---	---
MC-50	05/18/83	24	49	Qal	Qal	<13	<12	<3.5	0.089	2.0	510	0.81 J+	18	0.018	0.146 U	0.169 U	---	---
MC-51	05/18/83	24	49	Qal/ UMCf-fg1	Qal	<13	<1.2	<3.5	0.12	2.0	520	0.28	19	0.038	0.493 U	0.434 U	---	---
MC-53	05/19/83	20	40	Qal/ UMCf-fg1	Qal	<13	<12	<3.5	0.10	2.2	400	0.14	18	0.042	0.123 U	1.23	---	---
MC-93	11/03/83	32	42	Qal/ UMCf-fg1	Qal	2.6 J	<12	<0.70	0.069	3.4	370	0.027	18	0.062	0.563 J	0.388 U	---	---
MC-97	11/04/83	31	41	Qal/ UMCf-fg1	Qal	<5.0	<12	<1.4	0.097	2.1	450	0.097	15	0.034	0.440 U	1.18	---	---



**TABLE 7-6. SUMMARY OF ANALYTICAL RESULTS FOR WELLS IN OU-1 - OTHER COPCs (non-VOCs)**  
**Nevada Environmental Response Trust Site**  
**Henderson, Nevada**

On-Site Monitoring Well ID	Date Installed	Well Screen		Stratigraphic Unit		2015-2018 Sampling Results												
		Top (ft bgs)	Bottom (ft bgs)	Screened Unit(s)	GW table in Unit Criteria:	Bromide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	Arsenic (mg/L)	Boron (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Strontium (mg/L)	Uranium (total) (mg/L)	Thorium-228 (pCi/L)	Thorium-230 (pCi/L)	4-Chlorobenzenesulfonic acid (µg/L)	Formaldehyde (µg/L)
						13.3	na	1	0.01	6.67	189	0.801	20	0.03	0.14	0.05	3,340	0.387
M-259-100	09/26/17	101	111	UMCf-fg1	na (1)	0.32 J	9.7 J-	0.070 UJ	<b>0.020</b>	0.83	32	<0.015	1.7	0.00234 J	0.174	<b>0.201 J</b>	---	<5.0
M-266	12/05/18	90	100	UMCf-fg1	na (1)	0.29 J	1.6	<0.025	<b>0.024</b>	0.81	14	<0.015	0.67	0.0078	---	---	---	---
M-268	12/11/18	100	115	UMCf-fg1	na (1)	0.27 J	7.6	<0.025	<b>0.035</b>	0.88	15	<0.015	0.79	0.0072	---	---	---	---
M-271	01/23/19	125	135	UMCf-fg1	na (1)	<0.25	5.5	<0.025	<b>0.025</b>	0.88	16	<0.015	0.93	0.0038 J	---	---	---	---
TR-4	09/15/99	125	145	UMCf-fg1	na (1)	1.4	6.2 J+	<0.070	<b>0.024</b>	0.79	16	<0.010	1.3	0.0031	0.0530 U	0.0387 U	---	---
<b>MIDDLE WATER-BEARING ZONE WELLS (~130 - 300 ft bgs)</b>																		
M-117	03/01/06	130	150	UMCf-fg1	na (1)	1.3	8	<0.070	<b>0.014</b>	0.83	19	<0.010	1.0 J-	0.0023	0.00756 U	<b>0.151 J</b>	---	---
M-118	03/01/06	138	158	UMCf-fg1	na (1)	0.39 J	6.6	<0.070	<b>0.053</b>	0.77	21	<0.010	1.2	0.0020 J	0.0177 U	0.167 U	---	---
M-153	09/30/09	150	170	UMCf-fg1	na (1)	1.0	6.6	<0.070	<b>0.012</b>	0.79 J-	17	<0.010	1.2	0.0043 J+	-0.0736 U	<b>0.522 J</b>	---	---
M-154	10/01/09	175	195	UMCf-fg1	na (1)	1.1	5.3	<0.070	<b>0.015</b>	0.78	15	0.022	1.1	0.0029	0.0351 U	<b>0.119 J</b>	---	---
M-155	10/04/09	200	220	UMCf-cg2	na (1)	0.28 J	3.1	<0.070	<b>0.016</b>	0.80	14	<0.010	0.90	0.0039	-0.00500 U	<b>0.736 J</b>	---	---
M-161D	12/05/14	130	140	UMCf-fg1	na (1)	0.37 J	4.4	<0.070	<b>0.022</b>	0.90 J+	18	<0.010	1.1	0.0039 J	0.131 U	<b>0.529 J</b>	<0.097	---
M-162D	12/11/14	130	140	UMCf-fg1	na (1)	0.29 J	8.4 J+	<0.070	<b>0.026</b>	0.80 J+	14	<0.010	0.82	0.0045 J	0.200 U	0.170 U	<0.097	---
M-186D	12/10/14	153	173	UMCf-fg1	na (1)	<0.25	9.3	<0.070	<b>0.025</b>	0.72	15	<0.015	0.98	0.0046	0.116 U	<b>0.310 J</b>	0.097 UJ	---
M-241	12/06/16	145	150	UMCf-fg1	na (1)	<0.25	1.9	<0.070	<b>0.019</b>	0.77	15	0.027	1.0	0.00233	0.188	<b>0.352 J</b>	---	<5.0
M-248	09/07/17	140	150	UMCf-fg1	na (1)	<0.25	6.2	<0.070	<b>0.016 J</b>	0.96	17	<0.015	1.1	0.00244	<b>0.159 J+</b>	<b>0.182 J+</b>	---	<5.0
M-250	09/12/17	139	149	UMCf-fg1	na (1)	0.64	6.2	<0.070	0.010	0.90	21	<0.015	1.1	0.00212	0.0514	<b>0.257 J+</b>	---	<5.0
M-252	08/25/17	132	142	UMCf-fg1	na (1)	<0.25	10.8	<0.070	<b>0.019 J</b>	0.93	19	<0.015	1.3	0.00229	0.0728	<b>0.179 J+</b>	---	<5.0
M-254	08/30/17	138	148	UMCf-fg1	na (1)	<0.25	7.5	<0.070	<b>0.017</b>	0.93	18 J-	<0.015	1.2	0.00203	0.151	0.0951	---	<5.0
M-257	08/31/17	140	150	UMCf-fg1	na (1)	<0.25	7.1	<0.070	<b>0.021 J</b>	0.73	15	<0.015	1.2	0.00218	0.0259	<b>0.169 J+</b>	---	<5.0
M-258	08/22/17	140	150	UMCf-fg1	na (1)	0.33 J	7.5	<0.070	<b>0.017</b>	0.68	13	<0.015	0.94	0.00203	0.150	<b>0.320 J</b>	---	<5.0
TR-1	09/03/99	282	312	UMCf-cg2	na (1)	1.6	4.4	<0.070	<b>0.022</b>	0.85	22	<0.010	1.5	0.0026	-0.0101 U	<b>0.212 J</b>	---	---
TR-2	09/09/99	145	175	UMCf-fg1	na (1)	1.1	5.8	<0.070	<b>0.024</b>	0.80	18	<0.010	1.2	0.0031	<b>0.188</b>	0.0626 U	---	---
TR-3	09/12/99	220	250	UMCf-cg2	na (1)	0.42 J	4	<0.070	<b>0.023</b>	0.83	19	<0.010	1.4	0.0019	0.115 U	0.169 U	---	---
TR-5	09/22/99	221	251	UMCf-cg2	na (1)	1.6	4.4 J+	<0.070	<b>0.022</b>	0.77	22	<0.010	1.4	0.0024	0.00123 U	0.0690 U	---	---
TR-7	09/27/99	260	290	UMCf-cg2	na (1)	0.39 J	4.4	<0.070	<b>0.040</b>	0.57	22	<0.010	1.1	0.0025	-0.0277 U	<b>0.169 J</b>	---	---
TR-9	10/07/99	230	250	UMCf-cg2	na (1)	0.32 J	5.3	<0.070	<b>0.045</b>	0.49	21	<0.010	1.2	0.0024 J+	0.117 U	0.134 U	---	---
TR-11	10/11/99	210	230	UMCf-cg2	na (1)	0.38 J	4.4	<0.070	<b>0.032</b>	0.70	24	<0.010	2.0	0.003	0.0717 U	<b>0.244 J</b>	---	---

**Notes:**

µg/L: micrograms per liter (parts per billion)  
 mg/L: milligrams per liter (parts per million)  
 GW table: Groundwater table  
 NA: not available  
 na (1): not applicable; deeper well screened below the water table.  
 nm: not measured  
 "----" means the analyte was not tested.

**Data Qualifiers:**

J = Estimated value  
 J- = Estimated value, potential negative bias  
 J+ = Estimated value, potential positive bias  
 UJ = The analyte was not detected, and the detection limit is an estimated quantity.  
 U = Detected radionuclide concentration below minimum detectable concentration

**bold value:** Concentrations above the screening criteria.

1. If a field duplicate sample was taken on the date sampled, the higher of the two concentrations is shown in this table for each chemical.















**TABLE 8-1a. STATISTICAL SUMMARY OF OU-2 GROUNDWATER RESULTS, SHALLOW WATER-BEARING ZONE (0-40 FT BGS)**  
**Nevada Environmental Response Trust Site**  
**Henderson, Nevada**

Chemical Group	Chemical	Unit	Groundwater Screening Levels <sup>1</sup>		Shallow Background		No. of Samples	No. of Detects	% Detects	Nondetects		Detects							
			Level	Source <sup>[1-5]</sup>	Minimum	Maximum				Minimum	Maximum	Minimum	Maximum	Median	Mean	Standard Deviation	Coefficient of Variation	Location of Maximum	No. Above GWSL

**Notes:**

- Groundwater screening levels (GWSLs).  
MCL: Maximum Contaminant Level, USEPA.  
MCLG: Maximum Contaminant Level Goal, USEPA.  
PRG: Preliminary Remediation Goal, USEPA 2008 and USEPA 2009.  
BCL: Residential Water Basic Comparison Level, NDEP 2023.  
RSL: Regional Screening Levels (RSLs) for tapwater, USEPA 2023.

	Detected at a rate of 5% or less, fewer than 10 samples exceeded the GWSL, and the maximum concentration less than a factor of 20 above the GWSL.
	Detected at a rate of 5% or less with no applicable GWSL.
	No detections or maximum detected concentration is below groundwater screening level.
	Essential Nutrient, macronutrient or salt.

**Sources:**

- NDEP. 2023. User's Guide and Background Technical Document for NDEP Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas. Revision 16, June.
- USEPA. 2008. Interim Drinking Water Health Advisory for Perchlorate. EPA 822-R-08-025. December.
- USEPA. 2009. Memorandum: Revised Assessment Guidance for Perchlorate. January 8.
- USEPA. 2023. Regional Screening Levels (RSL) for Chemical Contaminants at Superfund sites. May.
- USEPA. National Primary Drinking Water Regulations. Code of Federal Regulations, 40 CFR Part 141.







**TABLE 8-1c. STATISTICAL SUMMARY OF OU-2 GROUNDWATER RESULTS, MIDDLE WATER-BEARING ZONE**  
 Nevada Environmental Response Trust Site  
 Henderson, Nevada

Chemical Group	Chemical	Unit	Groundwater Screening Levels <sup>1</sup>		Middle Background		No. of Samples	No. of Detects	% Detects	Nondetects		Detects									
			Level	Source <sup>[1-5]</sup>	Minimum	Maximum				Minimum	Maximum	Minimum	Maximum	Median	Mean	Standard Deviation	Coefficient of Variation	Location of Maximum	No. Above GWSL	Max Sample Ratio to GWSL	
VOCs	1,2-Dichloroethane	µg/L	5	MCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	1,1-Dichloroethane	µg/L	7	MCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	cis-1,2-Dichloroethane	µg/L	70	MCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	trans-1,2-Dichloroethane	µg/L	100	MCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	1,2-Dichloropropane	µg/L	5	MCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	1,3-Dichloropropane	µg/L	667	BCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	2,2-Dichloropropane	µg/L	--	--	<0.40	<0.40	10	0	0	<0.40	<0.40	--	--	--	--	--	--	--	--	--	--
	1,1-Dichloropropene	µg/L	--	--	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	cis-1,3-Dichloropropene	µg/L	--	--	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	trans-1,3-Dichloropropene	µg/L	--	--	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	1,4-Dioxane	µg/L	0.46	BCL	<0.50	<0.50	10	0	0	<0.50	<0.50	--	--	--	--	--	--	--	--	--	--
	Ethyl benzene	µg/L	700	MCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	Ethyl tert-butyl ether	µg/L	70	RSL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	Hexachlorobutadiene	µg/L	0.203	BCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	Methylene Chloride	µg/L	5	MCL	<0.88	<0.88	10	2	20	<0.88	<0.88	0.98 J	1.2 J	1.1	1.1	0.16	0.14	M-152	0	--	--
	Naphthalene	µg/L	0.132	BCL	<0.40	<0.40	10	0	0	<0.40	<0.40	--	--	--	--	--	--	--	--	--	--
	n-Propylbenzene	µg/L	1,280	BCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	Styrene	µg/L	100	MCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	1,1,1,2-Tetrachloroethane	µg/L	0.605	BCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	1,1,2,2-Tetrachloroethane	µg/L	0.0775	BCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	Tetrachloroethane	µg/L	5	MCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	Toluene	µg/L	1,000	MCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	1,2,3-Trichlorobenzene	µg/L	26.7	BCL	<0.40	<0.40	10	0	0	<0.40	<0.40	--	--	--	--	--	--	--	--	--	--
	1,2,4-Trichlorobenzene	µg/L	70	MCL	<0.40	<0.40	10	0	0	<0.40	<0.40	--	--	--	--	--	--	--	--	--	--
	1,1,1-Trichloroethane	µg/L	200	MCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	1,1,2-Trichloroethane	µg/L	5	MCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	Trichloroethane	µg/L	5	MCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	Trichlorofluoromethane	µg/L	10,000	BCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	1,2,3-Trichloropropane	µg/L	0.000835	BCL	<0.0025	<0.40	20	0	0	<0.0025	<0.40	--	--	--	--	--	--	--	--	--	--
	1,2,4-Trimethylbenzene	µg/L	64.6	BCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	1,3,5-Trimethylbenzene	µg/L	2,000	BCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	Vinyl chloride	µg/L	2	MCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--
	m,p-Xylene	µg/L	--	--	<0.50	<0.50	10	0	0	<0.50	<0.50	--	--	--	--	--	--	--	--	--	--
	o-Xylene	µg/L	202	BCL	<0.25	<0.25	10	0	0	<0.25	<0.25	--	--	--	--	--	--	--	--	--	--

**Notes:**

1. Groundwater screening levels (GWSLs).  
 MCL: Maximum Contaminant Level, USEPA.  
 MCLG: Maximum Contaminant Level Goal, USEPA.  
 PRG: Preliminary Remediation Goal, USEPA 2008 and USEPA 2009.  
 BCL: Residential Water Basic Comparison Level, NDEP 2023.  
 RSL: Regional Screening Levels (RSLs) for tapwater, USEPA 2023.

	Detected at a rate of 5% or less, fewer than 10 samples exceeded the GWSL, and the maximum concentration less than a factor of 20 above the GWSL.
	Detected at a rate of 5% or less with no applicable GWSL.
	No detections or maximum detected concentration is below groundwater screening level.
	Essential Nutrient, macronutrient or salt.

**Sources:**

- [1] NDEP. 2023. User's Guide and Background Technical Document for NDEP Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas. Revision 16, June.
- [2] USEPA. 2008. Interim Drinking Water Health Advisory for Perchlorate. EPA 822-R-08-025. December.
- [3] USEPA. 2009. Memorandum: Revised Assessment Guidance for Perchlorate. January 8.
- [4] USEPA. 2023. Regional Screening Levels (RSL) for Chemical Contaminants at Superfund sites. May.
- [5] USEPA. National Primary Drinking Water Regulations. Code of Federal Regulations, 40 CFR Part 141.

**TABLE 8-2. SUMMARY OF SECONDARY COPC SCREENING AND RETAINED COPCs IN OU-2  
Nevada Environmental Response Trust Site; Henderson, Nevada**

Chemical Group	Chemical	RETAINED OU-1 GROUNDWATER COPCs	RESULTS OF INITIAL OU-2 GROUNDWATER SCREENING			RETAINED OU-2 COPCs		
			Shallow WBZ (0-40 ft bgs)	Shallow WBZ (~40-90 ft bgs)	Middle WBZ (90-300 ft bgs)	NERT Off-Site Study Area	Eastside Sub-Area	
						Groundwater	Groundwater	Vadose Zone Soil (below 10 ft)
<b>General Chemistry</b>	Bromide	X	X	X		----		
	<b>Chlorate</b>	X	X	X	X	X	X [a]	X [b]
	<b>Nitrate</b>	X	X	X		X		
	<b>Nitrite</b>	X	X	X		X		
	<b>Perchlorate</b>	X	X	X	X	X	X [a]	X [b]
<b>Metals</b>	<b>Arsenic</b>	X	X	X	X	X		
	<b>Boron</b>	X	X	X		X		
	Chromium (total)	[*]	X	X		[*]		
	<b>Chromium VI</b>	X	X	X	X	X		
	Iron		X			----		
	<b>Magnesium</b>	X	X	X		X		
	<b>Manganese</b>	X	X			X		
	Strontium	X	X			----		
	Uranium (total)	X	NS	NS	NS	NS		
	Vanadium		X			----		
<b>Radio-nuclides</b>	Thorium-228	X	NS	NS	NS	NS		
	Thorium-230	X	NS	NS	NS	NS		
<b>VOCs</b>	<b>Benzene</b>	X	X	X		X		
	<b>Bromodichloromethane</b>	X	X	X		X		
	Bromoform	X	X			----		
	<b>Carbon Tetrachloride</b>	X	X	X		X		
	<b>Chlorobenzene</b>	X	X	X		X		
	<b>Chloroform</b>	X	X	X		X		
	1,2-Dichlorobenzene	X						
	1,3-Dichlorobenzene	X						
	1,4-Dichlorobenzene	X						
	<b>1,1-Dichloroethane</b>	X	X	X		X		

**TABLE 8-2. SUMMARY OF SECONDARY COPC SCREENING AND RETAINED COPCs IN OU-2 Nevada Environmental Response Trust Site; Henderson, Nevada**

Chemical Group	Chemical	RETAINED OU-1 GROUNDWATER COPCs	RESULTS OF INITIAL OU-2 GROUNDWATER SCREENING			RETAINED OU-2 COPCs		
			Shallow WBZ (0-40 ft bgs)	Shallow WBZ (~40-90 ft bgs)	Middle WBZ (90-300 ft bgs)	NERT Off-Site Study Area	Eastside Sub-Area	
						Groundwater	Groundwater	Vadose Zone Soil (below 10 ft)
<b>VOCs (continued)</b>	1,2-Dichloroethane	X						
	1,1-Dichloroethene	X						
	<b>1,4-Dioxane</b>	X	X	X		X		
	Hexachlorobutadiene		X			----		
	Methylene Chloride	X	X	X		----		
	Naphthalene		X			----		
	1,1,1,2-Tetrachloroethane	X						
	<b>Tetrachloroethene</b>	X	X			X		
	Trichloroethene	X	X			----		
<b>1,2,3-Trichloropropane</b>	X	X	X		X			
<b>Other Organics</b>	4-Chlorobenzenesulfonic Acid	X	NS	NS	NS	NS		
	Formaldehyde	X	NS	NS	NS	NS		

**Notes:**

COPC: Chemical of potential concern

NS: Not Sampled. The analytes in the OU-2 groundwater sampling program were developed based on reviews of previous investigations and were presented in the RI Data Evaluation Tech Memo which was approved by NDEP.

WBZ: Water-Bearing Zone

X: Chemical retained in initial screening of chemicals in the NERT Off-Site Study Area groundwater; requires secondary screening from Table 8-1 due to detection rate and exceedance of a screening level.

[\*]: A detailed analysis of hexavalent chromium to total chromium ratios was performed as part of the 2016 Groundwater Monitoring Optimization Plan. The analysis found that the concentration of total chromium is generally equal to the concentration of hexavalent chromium within the NERT groundwater plume. With NDEP approval, hexavalent chromium was generally eliminated from NERT's on-going monitoring program in 2016. Therefore, total chromium and hexavalent chromium are not regarded as separate COPCs and interpretations of the lateral and vertical extent of chromium in soil and groundwater will primarily rely on total chromium data (rather than hexavalent chromium data).

**RETAINED OU-2 COPCs (NERT Off-Site Study Area):**

----: Eliminated as a COPC during secondary screening

X: Retained as a groundwater COPC

**RETAINED OU-2 COPCs (Eastside Sub-Area):**

X [a]: Identified as a Henderson Legacy Chemical to be evaluated in Eastside Sub-Area groundwater. Chemicals in shallow soil (0-10 feet bgs) were evaluated by BRC and have received an NFA.

X [b]: Identified as a Henderson Legacy Chemical to be evaluated in Eastside Sub-Area vadose zone soil (below 10 feet). Chemicals in shallow soil (0-10 feet bgs) were evaluated previously by BRC and have received an NFA.

█ : Not investigated because COPCs are Administratively Limited













**TABLE 8-3b. SUMMARY OF ANALYTICAL RESULTS FOR COPCs IN OU-2 EASTSIDE SUB-AREA MONITORING WELLS**  
**Nevada Environmental Response Trust Site**  
**Henderson, Nevada**

Off-Site Monitoring Well ID	Date Installed	Surveyed Coordinates		Elevation		Well Screen		Stratigraphic Unit		2015-2018 Sampling Results		
		Northing (ft)	Easting (ft)	Ground Surface (ft msl)	Top of Casing (ft msl)	Top (ft bgs)	Bottom (ft bgs)	Screened Unit(s)	GW table in Unit	Date Sampled	Perchlorate (mg/L)	Chlorate (mg/L)
ES-20	02/02/18	26727738.94	840584.03	1716.20	1718.10	91	111	UMCf-fg1	na (1)	04/10/18	0.0090	0.13
MCF-05	07/14/04	26728512.87	832871.14	1625.00	1627.26	221	231	UMCf-fg1	na (1)	04/03/18	<b>0.65</b>	0.11 J
MCF-09B	06/18/04	26723449.62	831019.19	1693.00	1695.77	105	125	UMCf-fg1	na (1)	04/05/18	<0.00095	<0.010
MCF-09A	04/17/04	26723427.11	831024.27	1694.26	1695.87	270	290	UMCf-fg1	na (1)	04/05/18	<0.0048	<0.10
MCF-11	07/02/04	26725461.46	830656.16	1657.75	1659.95	94	104	UMCf-fg1	na (1)	04/12/18	<b>0.13</b>	<0.050
MCF-16B	06/03/04	26726026.53	835867.57	1689.75	1692.26	284	314	UMCf-fg1	na (1)	04/04/18	<0.048	<0.50
MCF-24B	06/20/09	26725619.34	833839.35	1680.00	1684.60	150	170	UMCf-fg1	na (1)	04/05/18	<0.048	<0.50
MCF-32B	06/17/09	26724074.91	835753.14	1728.31	1732.70	140	160	UMCf-fg1	na (1)	03/27/18	<0.00095	<0.050
<b>OU-2 Eastside Sub-Area Deep WBZ Wells</b>												
MCF-01A	05/21/04	26720244.86	830905.30	1754.44	1756.61	335	355	UMCf-fg1	na (1)	03/26/18	<0.00095	<0.050
MCF-03A	02/14/04	26721058.78	836835.26	1783.23	1784.06	364	384	UMCf-fg1	na (1)	03/27/18	<0.00095	<0.010
MCF-06A-R	03/31/08	26729028.09	834929.39	1630.00	1632.77	353	373	UMCf-fg1	na (1)	04/09/18	<0.048	<1.0
MCF-16A	03/24/04	26726023.30	835886.90	1689.67	1691.66	365	385	UMCf-fg1	na (1)	04/03/18	<0.048	<0.50
MCF-20A	03/26/08	26728860.07	833381.19	1622.99	1626.23	340	380	UMCf-fg1	na (1)	04/03/18	<0.048	<1.0
MCF-24A	04/17/08	26725570.88	833661.11	1674.07	1676.98	355	375	UMCf-fg1	na (1)	04/04/18	<b>2.8</b>	<0.50
MCF-27	07/06/04	26719293.06	832488.10	1787.03	1789.43	362	382	UMCf-fg1	na (1)	03/27/18	<0.00095	<0.010
MCF-32A	06/17/09	26724066.56	835743.75	1727.88	1732.26	350	370	UMCf-fg1	na (1)	03/28/18	<0.00095	<0.050

**Notes:**

µg/L: micrograms per liter (parts per billion)

mg/L: milligrams per liter (parts per million)

GW table: Groundwater table

na: not available

na (1): not applicable; deeper well screened below the water table.

nm: not measured

"---" means the analyte was not tested.

**bold value:** Concentrations above the screening criteria, or perchlorate concentrations above 1 mg/L.

**bold value:** Perchlorate concentrations below 1 mg/L and above the screening criterion.

J = Estimated value

J- = Estimated value, potential negative bias

J+ = Estimated value, potential positive bias

UJ = The analyte was not detected, and the detection limit is an estimated quantity.

1. If a field duplicate sample was taken on the date sampled, the higher of the two concentrations is shown in this table for each chemical.













**Table 9-1. Summary of Retained COPCs in OU-1 and OU-2  
Nevada Environmental Response Trust Site  
Henderson, Nevada**

Chemicals	OU-1		OU-2		
	NERT Site Study Area		NERT Off-Site Study Area	Eastside Sub-Area	
	Soil	Groundwater	Groundwater	Soil	Groundwater
<b>Primary COPCs</b>					
Perchlorate	X	X	X	X [a]	X [a]
Chlorate	X	X	X	X [a]	X [a]
Chromium	X [b]	X [c]	X [c]		
Chloroform	X	X	X		
<b>Other COPCs</b>					
Bromide		X			
Nitrite		X			
Nitrate	X	X	X		
<i>Metals</i>					
Antimony	X				
Arsenic	X	X	X		
Barium	X				
Boron	X	X	X		
Cobalt	X				
Lead	X				
Magnesium	X	X	X		
Manganese	X	X	X		
Nickel	X				
Strontium		X			
Uranium (total)		X			
<i>Radionuclides</i>					
Thorium-228		X			
Thorium-230		X			
<i>Volatile Organic Compounds (VOCs)</i>					
Benzene	X	X	X		
Bromodichloromethane		X	X		
Bromoform		X			
Carbon Tetrachloride	X	X	X		
Chlorobenzene	X	X	X		
1,2-Dichlorobenzene		X			
1,3-Dichlorobenzene		X			
1,4-Dichlorobenzene		X			
1,1-Dichloroethane (1,1-DCA)		X	X		
1,2-Dichloroethane (1,2-DCA)		X			
1,1-Dichloroethene (1,1-DCE)		X			
1,4-Dioxane		X	X		
Methylene Chloride	X	X			
1,1,2,2-Tetrachloroethane		X			
Tetrachloroethene (PCE)		X	X		
Trichloroethene (TCE)		X			
1,2,3-Trichloropropane	X	X	X		

**Table 9-1. Summary of Retained COPCs in OU-1 and OU-2  
Nevada Environmental Response Trust Site  
Henderson, Nevada**

Chemicals	OU-1		OU-2		
	NERT Site Study Area		NERT Off-Site Study Area	Eastside Sub-Area	
	Soil	Groundwater	Groundwater	Soil	Groundwater
<i>Semivolatile Organic Compounds (SVOCs)</i>					
1,4-Dioxane	X				
Hexachlorobenzene	X				
<i>Polycyclic Aromatic Hydrocarbons (PAHs)</i>					
1-Methylnaphthalene	X				
2-Methylnaphthalene	X				
<i>Polychlorinated Biphenyls (PCBs)</i>					
Aroclor-1248	X				
Aroclor-1254	X				
Aroclor-1260	X				
<i>Dioxins/Furans</i>					
2,3,7,8-tetrachlorodibenzo-p-dioxin	X				
2,3,7,8-tetrachlorodibenzofuran	X				
Other 14 congeners with TEFs	X [d]				
<i>Organochlorine Pesticides (OCPs)</i>					
alpha-BHC	X				
beta-BHC	X				
gamma-BHC	X				
<i>Other Organics</i>					
4-Chlorobenzenesulfonic Acid		X			
Formaldehyde	X	X			

**Notes:**

COPCs = Chemicals of Potential Concern

X = Retained COPC; retained as a COPC during secondary screening.

[a] Identified as a Henderson Legacy Condition (HLC) to be evaluated in Eastside Sub-Area vadose zone soil (below 10 feet) and groundwater (NDEP 2016). Chemicals in shallow soil (0-10 feet bgs) were evaluated previously by BRC and have received an NFA.

[b] Hexavalent chromium.

[c] A detailed analysis of hexavalent chromium to total chromium ratios was performed as part of the 2016 Groundwater Monitoring Optimization Plan. The analysis found that the concentration of total chromium is generally equal to the concentration of hexavalent chromium within the NERT groundwater plume. With NDEP approval, hexavalent chromium was generally eliminated from NERT's on-going monitoring program in 2016. Therefore, total chromium and hexavalent chromium are not regarded as separate COPCs and interpretations of the lateral and vertical extent of chromium in groundwater will primarily rely on total chromium data (rather than hexavalent chromium data).

[d] Within the group of 15 other congeners with TEFs, one compound (octachlorodibenzo-p-dioxin) was screened out in the initial screening. The other 14 compounds were retained as COPCs.

**Table 9-2. KEY CHEMICAL AND PHYSICAL PARAMETERS OF COPCs ASSOCIATED WITH THE NERT RI STUDY AREA**

**Nevada Environmental Response Trust Site; Henderson, Nevada**

<b>ANALYTES</b>	<b>Solubility (Water)<sup>1</sup></b>	<b>Volatility<sup>2</sup></b>	<b>Soil-Water Partition Coefficient (Kd)<sup>3</sup></b>
<i>Chlorates and Inorganic Anions</i>	<i>highly soluble</i>	<i>non-volatile</i>	<i>low</i>
<i>Metals</i>	<i>semi-soluble</i>	<i>non-volatile</i>	<i>low</i>
<i>Volatile Organic Compounds (VOCs)</i>	<i>semi-soluble</i>	<i>highly volatile</i>	<i>low</i>
<i>Semivolatile Organic Compounds (SVOCs)</i>	<i>semi-soluble</i>	<i>semivolatile</i>	<i>medium</i>
<i>Organochlorine Pesticides (OCPs)</i>	<i>semi-soluble</i>	<i>semivolatile</i>	<i>high</i>
<i>Polycyclic Aromatic Hydrocarbons (PAHs)</i>	<i>semi-soluble</i>	<i>semivolatile</i>	<i>high</i>
<i>Polychlorinated Biphenyls (PCBs)</i>	<i>semi-soluble</i>	<i>semivolatile</i>	<i>high</i>
<i>Dioxins/Furans</i>	<i>semi-soluble</i>	<i>semivolatile</i>	<i>high</i>
<i>Radionuclides</i>	<i>semi-soluble</i>	<i>non-volatile</i>	<i>medium/variable</i>

**Notes:**

1. The solubility of a contaminant in water is a key parameter that affects the transport of solute via the water medium. Soluble contaminants may be dissolved in surface water and transported in runoff and recharge, impacting the vadose (unsaturated) zone and potentially the groundwater. Solubilities of organic chemicals generally range from less than 0.001 mg/L to greater than 100,000 mg/L.

2. The volatility of a chemical in its pure state is dependent on its vapor pressure. Vapor pressure is the pressure (often expressed in millimeters of mercury) of a vapor in equilibrium with its liquid or solid form at a given temperature. Vapor pressure typically ranges from  $1 \times 10^{-7}$  to  $7.6 \times 10^2$  millimeters of mercury at 25 degrees Celsius for liquids, with the higher values indicating a greater tendency to volatilize or enter the gas phase.

3. Chemicals with higher Kd values have a higher potential to remain sorbed to soil, which would restrict their mobility in soil and groundwater.