Table 5.1-1 Summary of Major Base-Case and Bounding-Case Model Inputs

Model Input Parameter	Base-Case Condition	Bounding-Case Condition	Modeled Constituent	Rationale
Precipitation-Based Areal Groundwater Recharge	Water recharge inputs assumed future precipitation was based on the historical model period (2002-2019) average PRISM precipitation (approximately 10.6 inches/year) and was varied over 200-year cycles in which the precipitation rates were linearly varied from a low of approximately 8.9 inches/year and a high of 12.3 inches/year in a "sawtooth" pattern (PRISM, 2004). Recharge was assigned as a percentage of precipitation based on a modified Maxey-Eakin methodology (Maxey and Eakin, 1949; Wilson and Guan, 2004). • If the average precipitation rate in a stress period was less than 11 inches/year diffuse areal recharge was assigned as 3% of precipitation. • If the average precipitation rate in a stress period was between 11 and 12 inches/year, diffuse areal recharge was assigned as 4% of precipitation. • If the precipitation rate in a stress period was greater than 12 inches/year, diffuse areal recharge was assigned as 5% of precipitation.	Water recharge assumed future precipitation rates were varied over the 200-year cycles based on the 1981-2010 PRISM 30-year normal average of approximately 11.7 inches/year across the model domain (PRISM, 2012). The linear variations range from a low of approximately 8.9 inches per year to a high of approximately 12.8 inches per year, although the first 100 years were the same as the base-case condition as a "warmup" period. The percentages of recharge were assigned based on the same modified Maxey-Eakin methodology, and the same calculations of enhanced ephemeral channel recharge were performed as the base-case condition (Maxey and Eakin, 1949; Wilson and Guan, 2004).	Uranium and conservative constituent (molybdenum modeled for base-case, not for bounding case)	While the ranges of assumed future precipitation rates are somewhat similar between the core and bounding conditions, the variation around the greater normal 30-year PRISM precipitation leads to many more model stress periods where precipitation rates are above 11 and 12 inches per year and thus greater lengths of time in which recharge is 4% and 5% of precipitation rather than 3%. As such, the volumes of groundwater recharge assigned in the bounding condition simulation are much greater than in the base-case condition.
Large Tailings Pile Seepage Recharge Rate	Base-case condition Large Tailings Pile seepage rate with asymptotic decline to 0.6 gpm	Bounding-case condition Large Tailings Pile seepage rate with asymptotic decline to 2.4 gpm (Hydro-Engineering, 2020b)	Uranium and conservative constituent (molybdenum modeled for base-case, not for bounding case)	Bounding-case condition of greater seepage rate than base-case rate. Bounding-case infiltration rates through tailings cover are comparable to native ground infiltration rates.
Large Tailings Pile Seepage Recharge Concentration	Base-case Large Tailings Pile seepage uranium concentration with asymptotic decline to 5.16 mg/L	Bounding-case Large Tailings Pile seepage uranium concentrations set to 45 mg/L based on pre-flushing toe drain seepage concentrations	Uranium and conservative constituent only	Bounding-case condition of greater uranium concentrations in tailings seepage to alluvial groundwater recharge, basically assumes tailings concentrations rebound to pre-flushing concentrations, which is not indicated by site-specific tailings studies and characterization.
Freundlich Sorption-Based Retardation Factor	Freundlich sorption parameter values determined from geochemical modeling and used in calibration of historical period model.	Freundlich sorption parameter values that produce retardation factors that are approximately 80% of those produced by the calibrated parameter values across the observed range of aqueous uranium concentrations	Uranium only	Bounding-case condition of greater advective transport than suggested by site data and calibration of the historical model. Surrogate conservative constituent is assumed to be non-reactive and non-sorptive, therefore sorptive processes were not simulated.
Initial Mobile Domain Concentration Conditions in Alluvial Aquifer Beneath the Large Tailings Pile and Small Tailings Pile	Historical period model simulated final concentrations (end of 2019)	Historical period model simulated final concentrations (end of 2019), except in alluvium beneath Large and Small Tailings Piles where mobile domain initial concentrations were increased equivalent to the addition of 25% of the immobile domain mass in each model cell	Uranium and conservative constituent only	Increases initial mobile domain mass beneath the Large and Small Tailings Piles to mimic the bounding-case condition of an under-characterization of uranium concentrations beneath the piles.
San Andres-Glorieta Municipal Groundwater Supply Extraction	Simulation of constant average 2012-2018 extraction rates presented in DOE (2020b) at existing municipal wells	Simulation of constant average 2012-2018 extraction rates presented in DOE (2020b) at existing municipal wells, plus five theoretical new wells simulated to increase the total San Andres-Glorieta municipal groundwater pumping to five times that of the base-case simulations. The theoretical new wells are simulated to be completed and extracting with increasing rates through time.	Uranium and conservative constituent (molybdenum modeled for base-case, not for bounding case)	Bounding-case condition of increased population and thus increased municipal extraction from the San Andres-Glorieta aquifer such that downward gradients from the alluvium to the San Andres-Glorieta would be increased at the San Andres-Glorieta subcrop, promoting greater potential transport of groundwater from the Rio San Jose alluvium to the San Andres-Glorieta through the subcrop.
Dual-Domain Mass Transfer Coefficients	Mass transfer rate coefficient values determined during calibration of the historical period	Increase by one order of magnitude mass transfer rate coefficients determined during calibration of the historical period	Uranium and conservative constituent (molybdenum modeled for base-case, not for bounding case)	Bounding-case condition of greater back-diffusion of mass from the immobile domain to the mobile domain. (Note: observed to be a generally insensitive parameter)
Dual-Domain Mobile/Immobile Alluvium Porosity Ratio	Mobile and immobile domain alluvium porosity values determined during calibration of the historical period	Decrease ratio of mobile/immobile domain porosity values by increasing immobile domain porosity from 13% to 21% in the lower total porosity alluvium and from 13% to 24% in the higher total porosity alluvium (to preserve effective porosity values used in calculation of advective transport)	Uranium and conservative constituent (molybdenum modeled for base-case, not for bounding case)	Bounding condition of producing slightly greater transport distances during sensitivity simulations. (Note: observed to be a generally insensitive parameter)

Table 5.1-2 Proposed Action Maximum Predicted POE Groundwater Concentrations for Uranium

Bounding-Case Groundwater Uranium Concentrations For Natural Attenuation Predictive Model

	Alluvial Aquifer	Upper Chinle	Middle Chinle	Lower Chinle		San Andres-Glorieta Aquifer
				Non-Mixing	Mixing	
POE Protective Limit (mg/L)	**0.16**	**0.09**	**0.07**	**0.03**	**0.18**	**0.03**
Maximum POE 1 Concentration (mg/L)	Dry	Absent	0.0200	0.0200	Absent	0.0058
Maximum POE 2 Concentration (mg/L)	0.0237	0.0295	0.0209	0.0200	Absent	0.0057
Maximum POE 3 Concentration (mg/L)	0.0187	0.0204	0.0194	0.0200	Absent	0.0058
Maximum POE 4 Concentration (mg/L)	0.0143	0.0222	0.0203	0.0200	Absent	0.0057
Maximum POE 5 Concentration (mg/L)	0.0214	0.0201	0.0201	0.0200	Absent	0.0057
Maximum POE 6 Concentration (mg/L)	Dry	Absent	0.0200	0.0200	Absent	0.0058
Maximum POE 7 Concentration (mg/L)	Dry	Absent	Absent	NA	0.0250	0.0081
Maximum POE 8 Concentration (mg/L)	Dry	Absent	Absent	NA	0.0425	0.0095
Maximum POE 9 Concentration (mg/L)	0.0225	Absent	Absent	Absent	Absent	0.0107
Maximum POE 10 Concentration (mg/L)	0.0198	Absent	Absent	Absent	Absent	0.0136
Maximum POE 11 Concentration (mg/L)	0.0145	Absent	Absent	Absent	Absent	0.0076
Maximum POE 12 Concentration (mg/L)	Dry	Absent	Absent	0.0200	Absent	0.0058
Maximum POE Concentration	**0.0225**	**0.0222**	**0.0209**	**0.0200**	**0.0425**	**0.0136**

Base-Case Groundwater Uranium Concentrations For Natural Attenuation Predictive Model

	Alluvial Aquifer	Upper Chinle	Middle Chinle	Lower Chinle		San Andres-Glorieta Aquifer
				Non-Mixing	Mixing	
POE Protective Limit (mg/L)	**0.16**	**0.09**	**0.07**	**0.03**	**0.18**	**0.03**
Maximum POE 1 Concentration (mg/L)	Dry	Absent	0.0200	0.0200	Absent	0.0055
Maximum POE 2 Concentration (mg/L)	0.0231	0.0243	0.0209	0.0200	Absent	0.0055
Maximum POE 3 Concentration (mg/L)	0.0191	0.0204	0.0194	0.0200	Absent	0.0055
Maximum POE 4 Concentration (mg/L)	0.0142	0.0213	0.0201	0.0200	Absent	0.0055
Maximum POE 5 Concentration (mg/L)	0.0214	0.0201	0.0201	0.0200	Absent	0.0055
Maximum POE 6 Concentration (mg/L)	Dry	Absent	0.0200	0.0200	Absent	0.0056
Maximum POE 7 Concentration (mg/L)	Dry	Absent	Absent	NA	0.0250	0.0057
Maximum POE 8 Concentration (mg/L)	Dry	Absent	Absent	NA	0.0200	0.0059
Maximum POE 9 Concentration (mg/L)	0.0188	Absent	Absent	Absent	Absent	0.0089
Maximum POE 10 Concentration (mg/L)	0.0198	Absent	Absent	Absent	Absent	0.0128
Maximum POE 11 Concentration (mg/L)	-	Absent	Absent	Absent	Absent	0.0055
Maximum POE 12 Concentration (mg/L)	Dry	Absent	Absent	0.0200	Absent	0.0055
Maximum POE Concentration	**0.0214**	**0.0213**	**0.0209**	**0.0200**	**0.0250**	**0.0128**

Difference in Predicted POE Maximum Uranium Concentration Between Bounding-Case and Base-Case Models

	Alluvial Aquifer	Upper Chinle	Middle Chinle	Lower Chinle		San Andres-Glorieta Aquifer
				Non-Mixing	Mixing	
Maximum POE 1 Concentration (mg/L)	Dry	Absent	0.000	0.000	Absent	0.000
Maximum POE 2 Concentration (mg/L)	0.001	0.005	0.000	0.000	Absent	0.000
Maximum POE 3 Concentration (mg/L)	0.000	0.000	0.000	0.000	Absent	0.000
Maximum POE 4 Concentration (mg/L)	0.000	0.001	0.000	0.000	Absent	0.000
Maximum POE 5 Concentration (mg/L)	0.000	0.000	0.000	0.000	Absent	0.000
Maximum POE 6 Concentration (mg/L)	Dry	Absent	0.000	0.000	Absent	0.000
Maximum POE 7 Concentration (mg/L)	Dry	Absent	Absent	NA	0.000	0.002
Maximum POE 8 Concentration (mg/L)	Dry	Absent	Absent	NA	0.023	0.004
Maximum POE 9 Concentration (mg/L)	0.004	Absent	Absent	Absent	Absent	0.002
Maximum POE 10 Concentration (mg/L)	0.000	Absent	Absent	Absent	Absent	0.001
Maximum POE 11 Concentration (mg/L)	0.014	Absent	Absent	Absent	Absent	0.002
Maximum POE 12 Concentration (mg/L)	Dry	Absent	Absent	0.000	Absent	0.000
Maximum POE Concentration Difference	**0.004**	**0.005**	**0.000**	**0.000**	**0.023**	**0.004**

Water-yielding unit not present at this location due to absence of saturation or geologically absent

Excluded, value reflects upgradient inputs, not mill-related source

POE- Point of Exposure POC = Point of Compliance

Table 5.1-3 Proposed Action Maximum Predicted POE Groundwater Concentrations for Conservative Constituent

Bounding-Case Groundwater Unit Conservative Constituent Concentrations For Natural Attenuation Predictive Model

	Alluvial Aquifer	Upper Chinle	Middle Chinle	Lower Chinle		San Andres-Glorieta Aquifer
				Non-Mixing	Mixing	
Maximum Modeled POC-Area Groundwater Concentration (mg/L)	0.93	0.93	0.93	0.93	0.93	0.93
Maximum POE 1 Concentration (mg/L)	Dry	Absent	9.89E-13	3.05E-15	Absent	5.31E-15
Maximum POE 2 Concentration (mg/L)	5.69E-14	1.13E-16	4.18E-17	7.04E-15	Absent	1.70E-10
Maximum POE 3 Concentration (mg/L)	1.19E-15	5.80E-08	3.23E-10	9.38E-12	Absent	1.47E-09
Maximum POE 4 Concentration (mg/L)	0.0002	0.0002	0.0003	0.0016	Absent	7.02E-06
Maximum POE 5 Concentration (mg/L)	8.31E-07	0.0085	0.0016	0.0024	Absent	2.97E-05
Maximum POE 6 Concentration (mg/L)	Dry	Absent	0.0094	0.0097	Absent	0.0009
Maximum POE 7 Concentration (mg/L)	Dry	Absent	Absent	NA	0.0091	0.0015
Maximum POE 8 Concentration (mg/L)	Dry	Absent	Absent	NA	0.0117	0.0014
Maximum POE 9 Concentration (mg/L)	0.0023	Absent	Absent	Absent	Absent	0.0033
Maximum POE 10 Concentration (mg/L)	0.0019	Absent	Absent	Absent	Absent	0.0072
Maximum POE 11 Concentration (mg/L)	0.0057	Absent	Absent	Absent	Absent	0.0008
Maximum POE 12 Concentration (mg/L)	Dry	Absent	Absent	0.0001	Absent	4.61E-08
Maximum POE Concentration	**0.0057**	**0.0085**	**0.0094**	**0.0097**	**0.0117**	**0.0072**

Water-yielding unit not present at this location due to absence of saturation or geologically absent

Excluded, value reflects upgradient inputs, not mill-related source

POE- Point of Exposure POC = Point of Compliance

Table 5.1-4 Current Source Area and POC Area Groundwater Constituent Concentrations

				[1a]Source Area				POC Area Only			
Constituent	Lowest Promulgated Standard		License Standard	Current Measured Maximum	Current Average Measured	[1a]Count	Well With Measured Maximum	[2a]Current Measured Maximum	[2a]Current Average Measured	[2a]Count	Well With Measured Maximum
Arsenic	mg/L	0.01	--	0.525	0.095	22	T23	0.013	0.003	43	1K
Boron	mg/L	0.75	--	0.960	0.544	18	T23	0.97	0.637	29	D1
Cadmium	mg/L	0.005	--	0.0220	0.0045	22	T2	0.008	0.001	45	M3
Molybdenum	mg/L	0.1	0.1	81.10	30.35	22	T41	80.8	8.85	50	SZ
Selenium	mg/L	0.01	0.06 - 0.32	1.01	0.34	22	T2	4.4	0.509	48	SZ
Uranium	mg/L	0.03	0.03 - 0.18	79.00	19.08	22	T23	57.7	6.29	49	SZ
Vanadium	mg/L	--	0.01 - 0.02	0.44	0.09	21	T41	0.04	0.012	26	K9
Chloride	mg/L	250	250 - 634	1,620	664	22	T23	1430	350	47	SZ
Fluoride	mg/L	1.6	--	10.5	3.9	22	T41	1.2	0.509	45	1K
Nitrate+Nitrite	mg/L	10	12 - 15	229.00	26.13	22	T23	11.6	2.82	28	1A
Sulfate	mg/L	600	857 - 2,000	13,200	4,803	23	T23	12300	1908	47	SZ
Thorium-230	pCi/L	--	0.3	16.50	2.77	16	T54	0.2	0.073	20	1A
Radium-226+228	pCi/L	5	5	123.70	1.25	14	T41	2.2	1.25	26	S4

[1]Data Set = Source area wells T2, T19, T23, T41, T54; except as noted

[2]Data Set = POC area wells 1A, 1K, C2, D1, K9, M3, S4, SB, SZ, X

[a]Data Set date range = 2018-2020 measured concentration

POC - Point of Compliance

Table 5.1-5 Calculation of Maximum POC Area Groundwater Constituent Concentrations

Well	Model Year of Maximum	Maximum Predicted Conservative Constituent Concentration	Attenuation Factor (Source POC)		Arsenic	Boron	Cadmium	‡Molybdenum	Selenium	†Uranium	Vanadium	Chloride	Fluoride	Nitrate	Sulfate	Thorium-230	Radium-226+228
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	pCi/L	pCi/L
				Maximum Source Area Measured Concentration	0.525	0.960	0.022	81.10	1.01	79.00	0.44	1620	10.5	229.00	13200	16.50	123.70
C2	125	0.4655	1.798	Maximum Current Measured	NA	NA	NA	0.258	0.035	0.096	NA	NA	NA	NA	444	NA	NA
				Maximum Predicted	0.292	0.534	0.012	45.10	0.56	11.04	0.24	901	5.84	127	7341	9.18	68.8
D1	24	0.7694	1.088	Maximum Current Measured	0.001	0.970	0.001	3.80	0.75	2.80	0.00	157	0.500	1.5	867	0.070	2.00
				Maximum Predicted	0.483	0.882	0.020	74.54	0.928	20.58	0.404	1489	9.65	210	12133	15.2	114
M3	3	0.5822	1.438	Maximum Current Measured	0.001	0.540	0.008	22.20	0.575	14.76	NA	468	0.30	9	4350	0.20	NA
				Maximum Predicted	0.365	0.668	0.015	56.40	0.702	21.19	0.306	1127	7.30	159	9180	11.47	86.03
SB	7	0.3557	2.353	Maximum Current Measured	NA	NA	NA	31.30	1.80	15.00	NA	562	NA	2.50	4080	NA	2.10
				Maximum Predicted	0.223	0.408	0.009	34.47	0.43	27.94	0.187	688	4.46	97.32	5610	7.01	52.6
SZ	3	0.0424	19.73	Maximum Current Measured	NA	NA	NA	80.80	4.40	57.70	NA	1430	NA	<0.1	12300	NA	1.50
				Maximum Predicted	0.027	0.049	0.001	4.11	0.05	29.89	0.022	82.11	0.532	11.61	669	0.836	6.27
X	55	0.0003	2499	Maximum Current Measured	0.004	0.6000	0.001	0.18	0.03	0.05	0.010	133	0.80	1.75	654	0.05	1.20
				Maximum Predicted	0.0002	0.0004	8.80E-06	0.032	0.000	2.35	1.76E-04	0.648	0.004	0.092	5.28	0.007	0.049
				Maximum POC Area Concentrations ACLs	**0.483**	**0.970**	**0.020**	**80.8**	**4.400**	**57.7**	**0.404**	**1489**	**9.65**	**210**	**12300**	**15.2**	**114**

†Uranium values are from bounding-case uranium model output

‡ For these calculations only, molybdenum is considered to transport without retardation

From bounding-case uranium predictive model

	Source Area Wells					
Well	**T2**	**T19**	**T23**	**T41**	**T54**	**2nd Highest**
Maximum Predicted Unit Concentration (unitless)	0.4546	0.7314	0.8826	0.8371	0.1605	**0.8371**

2nd highest source area concntration selected for added conservatism

Table 5.1-6 Summary of Attenuation Factors (POC-POE)

Bounding-Case Uranium Model Predicted Values

Maximum Predicted POE Uranium Concentration (mg/L)		0.0225	0.0222	0.0209	0.0200	0.0250	0.0136
		Uranium Attenuation Factor (POC to POE)					
POC Area Well	**[1]Maximum Predicted POC Area Concentration**	**Alluvial Aquifer**	**Upper Chinle**	**Middle Chinle**	**Lower Chinle Non-Mixing**	**Lower Chinle Mixing**	**San Andres-Glorieta Aquifer**
C2	11.0	490.8	498.3	528.1	551.7	442.5	810.6
D1	20.6	914.5	928.4	984.0	1,027.9	824.5	1,510.3
M3	21.2	941.9	956.2	1,013.4	1,058.7	849.2	1,555.5
SB	27.9	1,241.7	1,260.5	1,336.0	1,395.7	1,119.5	2,050.7
SZ	29.9	1,328.7	1,348.8	1,429.6	1,493.4	1,198.0	2,194.3
X	2.35	104.3	105.9	112.2	117.2	94.0	172.2
Maximum:	29.89	1328.70	1348.84	1429.59	1493.44	1197.96	2194.31

Bounding-Case Conservative Constituent Model Predicted Values

Maximum Predicted POE Uranium Concentration (mg/L)		0.0057	0.0085	0.0094	0.0097	0.0117	0.0072
		Conservative Constituent Attenuation Factor (POC to POE)					
POC Area Well	**[1]Maximum Predicted POC Area Concentration**	**Alluvial Aquifer**	**Upper Chinle**	**Middle Chinle**	**Lower Chinle Non-Mixing**	**Lower Chinle Mixing**	**San Andres-Glorieta Aquifer**
C2	0.4655	82.3	54.7	49.3	48.2	39.7	64.3
D1	0.7694	136.1	90.4	81.5	79.7	65.6	106.2
M3	0.5822	103.0	68.4	61.7	60.3	49.7	80.4
SB	0.3557	62.9	41.8	37.7	36.9	30.3	49.1
SZ	0.0424	7.5	5.0	4.5	4.4	3.6	5.9
X	0.0003	0.06	0.04	0.04	0.03	0.03	0.05
Maximum:	**0.769**	**136.080**	**90.448**	**81.542**	**79.705**	**65.642**	**106.246**

Table 5.1-7 Maximum Predicted POE Groundwater Constituent Concentrations

			0.013	0.97	0.008	80.8	4.4	57.7	0.04	1430	1.2	11.6	12300	0.2	2.2
			Arsenic	**Boron**	**Cadmium**	**[‡]Molybdenum**	**Selenium**	**[†]Uranium**	**Vanadium**	**Chloride**	**Fluoride**	**Nitrate**	**Sulfate**	**Thorium-230**	**Combined Radium-226+228**
Attenuation Factor (POC-POE)			**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**pCi/L**	**pCi/L**
UNIT	**Natural Uranium**	**[1a]Maximum Predicted POC Concentrations (ACLs)**	**0.483**	**0.970**	**0.020**	**80.8**	**4.40**	**57.7**	**0.404**	**1489**	**9.65**	**210**	**12300**	**15.2**	**114**
		License Standard or Lowest Promulgated Standard	**0.01**	**0.75**	**0.005**	**0.1**	**0.32**	**0.16**	**0.02**	**250**	**1.6**	**12**	**1500**	**0.3**	**5**
Alluvium			**Predicted Maximum POE Concentrations**												
136.080	1328.70	POE 11 Controls	0.0035	0.0071	0.0001	0.0608	0.0323	0.0225	0.0030	10.9422	0.0709	1.5468	90.3881	0.1114	0.8355
		License Standard or Lowest Promulgated Standard	**0.01**	**0.75**	**0.005**	**0.1**	**0.06**	**0.09**	**0.01**	**412**	**1.6**	**10**	**914**	**NA**	**5**
Upper Chinle Non-Mixing			**Predicted Maximum POE Concentrations**												
90.448	1348.84	POE 5 Controls	0.0053	0.0107	0.0002	0.0599	0.0486	0.0222	0.0045	16.4627	0.1067	2.3271	135.9895	0.1677	1.2571
		License Standard or Lowest Promulgated Standard	**0.01**	**0.75**	**0.005**	**0.1**	**0.07**	**0.07**	**0.0086**	**250**	**1.6**	**10**	**857**	**NA**	**5**
Middle Chinle Non-Mixing			**Predicted Maximum POE Concentrations**												
81.542	1,430	POE 6 Controls	0.0059	0.0119	0.0002	0.0565	0.0540	0.0209	0.0050	18.2608	0.1184	2.5813	150.8428	0.1860	1.3944
		License Standard or Lowest Promulgated Standard	**0.01**	**0.75**	**0.005**	**0.1**	**0.32**	**0.03**	**0.0086**	**634**	**1.6**	**10**	**2000**	**NA**	**5**
Lower Chinle Non-Mixing Zone			**Predicted Maximum POE Concentrations**												
79.705	1,493	POE 12 Controls	0.0061	0.0122	0.0003	0.0541	0.0552	0.0200	0.0051	18.6817	0.1211	2.6408	154.3196	0.1903	1.4265
		License Standard or Lowest Promulgated Standard	**0.01**	**0.75**	**0.005**	**0.1**	**0.14**	**0.18**	**0.0086**	**250**	**1.6**	**15**	**1750**	**NA**	**5**
Lower Chinle Mixing Zone			**Predicted Maximum POE Concentrations**												
65.642	1.20E+03	POE 8 Controls	0.0074	0.0148	0.0003	0.0674	0.0670	0.0717	0.0062	22.6840	0.1470	3.2066	187.3806	0.2310	1.7321
		License Standard or Lowest Promulgated Standard	**0.01**	**0.75**	**0.005**	**0.1**	**0.01**	**0.03**	**0.0086**	**250**	**1.6**	**10**	**600**	**NA**	**5**
San Andres-Glorieta			**Predicted Maximum POE Concentrations**												
106.246	2,194	POE 10 Controls	0.0045	0.0091	0.0002	0.0368	0.0414	0.0136	0.0038	14.0148	0.0908	1.9811	115.7691	0.1427	1.0701
		Maximum at Any POE:	**0.0074**	**0.0148**	**0.0003**	**0.0674**	**0.0670**	**0.0717**	**0.0062**	**22.6840**	**0.1470**	**3.2066**	**187.3806**	**0.2310**	**1.7321**

[a]Data Set date range = 2018-2020 measured concentration
[1]POC wells C2, D1, M3, SB, SZ, X

Table 5.2 -1 Groundwater Compliance Monitoring Plan Summary

Monitoring Area/Unit	Constituents	ACLs	Methods	Reporting Limit	Frequency
Tailings	Arsenic (mg/L)	0.483	E200.8	0.005 mg/L	**Water Quality Sampling and Analysis for all Constituents:**
East 1 Sump, East 2 Sump, North 1 Sump, North 3 Sump, South 1 Sump, West 1 Sump	Boron (mg/L)	0.970	E200.7 or E200.8	0.1 mg/L	Annually (all listed wells)
Alluvial Aquifer	Cadmium (mg/L)	0.020	E200.8	0.001 mg/L	
POC Wells:	Molybdenum (mg/L)	80.8	E200.7 or E200.8	0.03 mg/L	**Water Levels:**
C2, D1, M3, SB, SZ, X	Selenium (mg/L)	4.40	E200.8	0.005 mg/L	Quarterly for first year, annually, thereafter (all listed wells)
	Uranium (mg/L)	57.7	E200.8	0.02 mg/L	
Upgradient Monitoring Wells:	Vanadium (mg/L)	0.404	E200.8	0.005 mg/L	Wells monitoring groundwater under the Large Tailings Pile will be sampled until construction of the Large Tailings Pile final cover is initiated (CE7, T2, T4, T19, T23, T41, T54)
P, Q	Chloride (mg/L)	1,489	E300.0	1 mg/L	
	Fluoride (mg/L)	9.65	4500-F	1 mg/L	
On-Site Monitoring Wells	Nitrate+Nitrite (mg/L)	210	E353.2	1 mg/L	
1A, 1K, 0639, 0802, B11, F, FB, GH, GN, L, L5, K9, MB, MQ, MX,	Sulfate (mg/L)	12,300	E300.0	4 mg/L	
NC, S4, SUB3, T2, T19, T23, T41, T54	Thorium-230 (pCi/L)	15.2	E908.0	0.3 pCi/L	
	Combined Radium-226+228 (pCi/L)	114	E903.0	0.2 pCi/L	
Off-Site Monitoring Wells	Total Dissolved Solids	NA	A2540 C	20 mg/L	
0490, 0497, 0540, 0541, 0551, 0555, 0556, 0557, 0631, 0643, 0644, 0647, 0649, 0654,					
0659, 0688, 844, 0845, 0846, 0864, 0869, 0881, 0882, 0883, 0884, 0886, 0888, 0893,	Field Measurements[1]				
0899, 0996, H2A, MR, H55, MO, Q5, SUB2	Static Water Level*				
Upper Chinle	pH				
0494, CE2, CE7, CE8, CE9, CE15, CW3, CW13, CW18, CW25	Temperature				
Middle Chinle	Conductivity				
0493, ACW, CW2, CW17, CW28, CW45, CW55, CW62, CW76, R3, Y7	Dissolved Oxygen				
Lower Chinle	ORP				
CW29, CW32, CW41, CW42, CW43, V6					
San Andres					
Deep Well 1R, Deep Well 2R					

pCi/L - picocuries per liter, POC - point of compliance; POE - point of exposure

E - EPA

[1] Water quality indicator constituents only.

*Note: Water level measurements will be taken at each well prior to well purging and sampling.