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April 11, 2016

Mr. James D. Dotchin
Chief, Bureau of Industrial Site Cleanup
Nevada Division of Environmental Protection
2030 East Flamingo Road, Suite 230
Las Vegas, Nevada 89119

Subject: **Amendment No. 1 to Work Plan (#2015-150) for Implementation of Initial Surface Water Sampling Plan, Historical Sampling Locations – Nevada Environmental Response Trust Remedial Investigation, Downgradient Study Area, Henderson, Nevada**

Dear Mr. Dotchin:

AECOM is pleased to provide this Amendment No. 1 to Work Plan #2015-150 to implement the initial Surface Water Sampling Plan (SWSP)) at historical sampling locations in support of the Downgradient Study Area component of the Nevada Environmental Response Trust (NERT) Remedial Investigation in Henderson, Nevada. The SWSP was approved by Nevada Division of Environmental Protection (NDEP) and stakeholders and the Final SWSP was issued on April 4, 2016. This amendment to Work Plan #2015-150 includes additional labor hours, travel cost, equipment cost and subcontractor costs to implement the SWSP, which includes surface water sampling and requested additional sampling at the historical seeps and springs previously sampled by Kerr McGee in 2000.

The objective of the initial surface water sampling, which is to assess current surface water conditions and provide current data that will help refine the understanding of data gaps, remains unchanged. These data will be used, in conjunction with historical data, to select locations within the Las Vegas Wash (LVW) where additional surface water sampling will be conducted as part of a planned detailed surface water investigation. In addition, seeps and springs sampled by Kerr McGee in 2000 will be resampled where accessible. The status of the seeps and springs (pit locations are not included) will be documented and they will be sampled, if possible, for the same list of analytes proposed for surface water.

SCOPE OF WORK

This scope of work will be conducted in conformance with the Final SWSP issued on April 4, 2016 and the Final Quality Assurance Project Plan (QAPP), Revision 0, issued on April 8, 2016.

The following summarizes the scope for AECOM labor and other direct costs, and subcontractors.

AECOM Labor: AECOM labor, travel, and equipment rates account for efforts as described below. The following sub-tasks of the surface water and seep/spring sampling scope of work are included in the cost estimate:

- Task Order Management – The task order management task has been augmented to allow management of this additional scope of work i.e., implementation of the SWSP.
- Seep/Spring Locate and Sample – AECOM will attempt to locate up to fourteen seeps and springs sampled by Kerr McGee in 2000 using coordinates recorded in 2000 (**Table 1**). Once each seep or spring is located, a determination of accessibility and whether it yields sufficient flow will be made and, following a task hazard analysis, the seep/spring

will be sampled if it can be performed safely. Our budget assumes all 14 seeps will be readily accessible and can be safely sampled without the need for brush clearing.

- SW Grab Sampling – AECOM will locate and sample up to 21 historical locations as described in the Final SWSP and presented in **Table 2**. Due to sample time constraints (sampling must be completed during low daily flows), five days have been allotted to collect these samples. Samples will be collected from boat or from shore. Procurement of a sampling vessel (e.g., an aluminum canoe or other durable and lightweight vessel) has been included in the costs. This is anticipated to be a one-time expense; the vessel will be used for other surface water sampling elements. Time has also been included for office management, local personnel coordination, site access confirmation, and creation of labels for sample bottles for all samples (including seeps/springs). As indicated above, this sub-task includes mobilization, demobilization, travel, equipment, subcontractor costs, and all other shared costs for this single mobilization effort.
- Subcontractor Management – Management of subcontractors includes schedule coordination, lab ware bottle orders, issuing purchase orders to the laboratories conducting the analysis and review and processing of subcontractor invoices.
- Data Validation – Time required for data validation due to the expanded analytical suite is reflected in the hour estimate. This time includes discussions about data and review of reporting by the management team.
- Reporting – The hours in the reporting budget reflect time and resources involved in reviews and response to comments of documents submitted to NDEP and stakeholders. The reporting budget includes one round of response to NDEP comments and one round of response to stakeholder comments. Hours include time for generation of figures depicting the locations sampled (seeps/springs and LVW locations) and results of perchlorate, chromium, and total dissolved solids.
- Response to Comments on Surface Water Sampling Plan (SWSP) – The hours reflect time and resources involved in reviews and response to comments of documents submitted to NDEP and stakeholders. Initial cost estimates provided to NDEP (for the SWSP) did not include time to address stakeholder comments.
- Deliverable(s): Technical Memorandum (Preliminary Draft, Final Draft, and Final).

Subcontractors: AECOM will be supported in the execution of this Amendment No 1 to Work Plan #2015-150 by, TestAmerica and Silver State laboratories. These labs will analyze surface water samples collected as follows.

- TestAmerica will analyze samples for perchlorate, total dissolved chromium, chlorate, chloride, bromide, and total dissolved solids.
- Silver State Laboratory will analyze samples for hexavalent chromium.

It is estimated that 50 surface water samples will be collected as part of the surface water and seep sampling program, including quality control samples.

PRELIMINARY SCHEDULE AND ESTIMATED COST

The following summarizes the preliminary implementation schedule, the base cost estimate included in the December 2015 Work Plan for the development of the SWSP, the cost associated with this Work Plan Amendment No.1, and the total revised cost estimate. Subcontractor costs include the 7-percent AECOM mark-up allowed by the contract on all subcontractors.

Task Order and Title	Approximate Schedule	Initial Est. Cost (Dec 2015)	Amendment No. 1 (R1)	Total Revised Est. Cost (March 2016)
2015-150-01 – Initial Surface Water Sampling (AECOM)	December 2015 – July 2016	$26,304	$146,715	$173,200
2015-150-03 – Laboratory Subcontractor (TestAmerica)	March 2016 – April 2016	$0	$3,385	$3,385
2015-150-03 Cr – Laboratory Subcontractor (TestAmerica)	March 2016 – April 2016	$0	$1,470	$1,470
2015-150-04 – Laboratory Subcontractor (Silver State)	March 2016 – April 2016	$0	$4,120	$4,120
	Work Plan Total	**$26,304**	**$155,690**	**$182,175**

The total request for Addendum No. 1 is **$155,690**. A detailed breakdown of the Addendum No. 1 cost is included in **Table 2**. Total cost for this Task Order, including cost requested in this amendment, is provided on **Table 3**. Scope of work for Task Order 2015-150-01 (AECOM labor) and subcontractor task orders (2015-150-03, 2015-150-03 Cr, and 2015-150-04,) will be uploaded once NDEP's approves this amendment. If this amendment meets with your approval, please send AECOM your authorization at your earliest convenience.

If you have any questions regarding this amendment, or if AECOM may be of further assistance, please contact Carmen Caceres-Schnell at (805) 764-4031 or either of the undersigned.

Sincerely,

Sally W. Bilodeau

Sally Bilodeau, CEM
Project Manager

Harry Van Den Berg, PE
Principal-in-Charge

Attachments:
Table 1 – Historic Surface Water Locations Proposed for Sampling
Table 2 – Seeps and Springs from 2000 Proposed for Sampling
Table 3 – Amendment No. 1 Initial Surface Water Sampling Cost Estimate
Table 4 – Initial Surface Water Sampling Cost Estimate - Total Revised Cost
Figure 1 – Targeted Historical Surface Water Sampling Locations
Figure 2 – Targeted Historical Surface Water Sampling Locations in Tributary/Seeps
Figure 3 –Seep and Surface Water Sampling Conducted by Kerr McGee in 2000

Table 1 List of Surface Water Locations Proposed for Sampling
NERT Remedial Investigation - Downgradient Study Area
Henderson, Nevada

Surface Water Location Sample ID	Location	Target Location[(1)]	
		Longitude	Lattitude
LW3.1	Downstream of Fire Station Weir	-114.9374811	36.10173043
LW3.4	Downstream of Rainbow Gardens Weir	-114.942616	36.10049065
LWC3.7	Downstream of Demonstration Replacement Weir	-114.9457275	36.09704899
LW3.75	Downstream of Demonstration Replacement Weir	-114.9463175	36.0966525
LW3.85	Upstream of Demonstration Replacement Weir	-114.9475306	36.09601536
LW4.1	Upstream of Homestead Weir	-114.9519108	36.09507867
LWC4.1	Upstream of Homestead Weir	-114.9526444	36.09526627
LWC4.6	Upstream of Lower Narrows Weir	-114.9586059	36.09422822
LW4.95	Upstream of Calico Ridge Weir	-114.9663297	36.09185999
LW5.3	Downstream of Historic Lateral Weir	-114.9730294	36.08982729
LW5.5	Downstream of Historic Lateral Weir	-114.9751197	36.08955999
LW5.7	Upstream of Historic Lateral Weir	-114.9791563	36.08756346
LW5.9	Downstream of Pabco Weir	-114.9835214	36.08781077
LW6.05	Near Pabco Weir	-114.9854297	36.08893999
LWC6.1	Wastewater Tributary Upstream of Pabco Road	-114.9860781	36.08710671
LWC6.1_1	Wastewater Tributary Upstream of Pabco Road	-114.9861896	36.08601586
LWC6.1_2	Wastewater Tributary Upstream of Pabco Road	-114.9862897	36.08589999
LWC6.3_1	Wastewater Tributary Upstream of Pabco Road	-114.9869079	36.08707229
LW6.7	Downstream of Duck Creek Confluence Weir	-114.9964458	36.08912947
LW6.85	Near Duck Creek Confluence Weir	-114.9994344	36.09050391
LW7.2	Upstream of Duck Creek Confluence Weir	-115.0002987	36.09096

Notes:
ID = Identification
(1) Location obtained from Neptune database.

Table 2. Seep and Surface Water Locations from 2000 Kerr McGee Sampling

NERT Remedial Investigation - Downgradient Study Area

Seep ID	Seep (S), Spring (SP), Pit (P)	2000 Perchlorate Concentration in µg/L	Location [1]	Currently Located on Land? [2]	Possible Sampling Location	Comments	Easting	Northing
KM60	S	ND	On peninsula of land; in 1999 on land on north side of LVW. This area has been regraded since 1999.	Yes	X		827831.1187	26735050.61
KM59	P	5	In LVW; in 1999 on land on north side of wash.	No			828518.6187	26735175.61
KM58	S	31	In LVW; in 1999 on land on north side of wash.	No			829164.452	26734779.78
KM57	SP	42	On weir; In 1999 on land on island on northern side of wash.	No			829831.1187	26734758.94
KM56	S	ND	In LVW; in 1999 on land on north side of wash.	No			830664.452	26734696.44
KM71	S	3,400	In LVW; in 1999 on land on north side of wash.	No			831497.7854	26734758.94
KM70	S	57,000	Appears to be at edge of LVW; in 1999 on land on north side of wash.	Yes	X		832164.452	26734488.11
KM45	P	43,000	On land near Pabco Trailhead between Pabco Road and weir; in 1999 on land on south side of wash, on south edge of sand bar/flood plain.	Yes		No sample will be collected because the previous sample was collected from a pit. Access agreements do not authorize intrusive activities.	832435.2854	26733925.61
KM55	S	4,500	Middle of graded road; in 1999 on land on south side of wash, on south edge of sand bar/flood plain.	Yes	X		833726.952	26733883.94
KM93	S	400	In LVW; in 1999 on land on north side of wash, on south edge of sand bar/flood plain.	No	X	Possibly sampling location if spring is still located on northern bank of wash.	834706.1187	26734196.44
KM54	P	280	On island in LVW upstream of weir; in 1999 on south side of wash, in central portion of sand bar/flood plain.	Yes		No sample will be collected because the previous sample was collected from a pit. Access agreements do not authorize intrusive activities.	835726.952	26734863.11
KM92	P	290	On south bank of LVW; in 1999 on south side of wash in floodplain with little vegetation.	Yes		No sample will be collected because the previous sample was collected from a pit. Access agreements do not authorize intrusive activities.	837289.452	26735446.44
KM53	S	321	On island in middle of LVW; in 1999 on north side of wash, on south edge of sand bar/flood plain.	Yes	X	Access may be limited by location in middle of wash and by dense vegetation.	838143.6187	26735696.44
KM91	S	2,100	In LVW; in 1999 in north side of wash, on north part of sand bar/flood plain.	No			839560.2854	26736196.44
KM65	SP	3,000	In LVW; in 1999 in north side of wash, dense vegetation.	No			840997.7854	26736592.28
KM90	S	170	In weir in LVW; in 1999 on land on north side of wash, on north edge of sand bar/flood plain.	No			842122.7854	26736967.28
KM66	S	460	In LVW; in 1999 on north side of wash.	No			843289.452	26736946.44
KM67	SP	2,100	On land on south side of LVW; in 1999 on north side of wash, dense vegetation.	No			844435.2854	26737675.61

Notes:

ID = Identification

µg/L = micrograms per liter

ND = non-detect

LVW = Las Vegas Wash

1. Current and historical conditions are based on Google Earth images on 3/22/2015 and 11/11/1999. KMZ file of samples in LVW were imported and reviewed in Google Earth Pro.

2. Determination of whether a location is currently located on land is based on Google Earth image dated 3/22/2015 and an overlay of the historical sampling locations.

Table 3. Amendment No. 1 Initial Surface Water Sampling Cost Estimate
Task Order 2015-150-01-R1
NERT Remedial Investigation - Downgradient Study Area

LABOR				Task Order Management		Grab Sample Work Plan		Seep/Spring Locate and Sample		SW Grab Sampling		Subcontractor Management		Data Validation		Reporting (Draft, RTC, Final Draft, & Final)		RTC SWSP		GRAND TOTAL	
Staff	Position Job Title	Units	Labor Bill Rate	Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01			
				Hours	Total	Hours	Total	Hours	Total	Hours	Total	Hours	Total	Hours	Total	Hours	Total	Hours	Total	Hours	Total
Harry Van Den Berg	Program Director/Principal	h	$ 203.75	22	$ 4,482.50	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	20	$ 4,075.00	6	$ 1,120.63	48	$ 9,678.13
Sally Bilodeau	Project Manager	h	$ 157.13	22	$ 3,456.86	0	$ -	2	$ 314.26	0	$ -	0	$ -	4	$ 628.52	20	$ 3,142.60	4	$ 628.52	52	$ 8,170.76
Kristen Durocher	Senior Scientist	h	$ 156.66	0	$ -	0	$ -	16	$ 2,506.56	20	$ 3,133.20	0	$ -	0	$ -	80	$ 12,532.80	11	$ 1,723.26	127	$ 19,895.82
Kevin Russell	Senior Scientist	h	$ 156.66	0	$ -	0	$ -	8	$ 1,253.28	8	$ 1,253.28	0	$ -	0	$ -	0	$ -	0	$ -	16	$ 2,506.56
Steve Cole	Senior Scientist	h	$ 156.66	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	24	$ 3,759.80	20	$ 3,133.17	0	$ -	44	$ 6,892.97
Chad Roper	Senior Scientist	h	$ 156.66	0	$ -	0	$ -	0	$ -	14	$ 2,193.22	0	$ -	36	$ 5,639.70	28	$ 4,386.43	0	$ -	78	$ 12,219.35
Carmen Caceres-Schnell	Deputy Project Manager	h	$ 125.41	22	$ 2,759.02	0	$ -	4	$ 501.64	8	$ 1,003.28	8	$ 1,003.28	4	$ 501.64	28	$ 3,511.48	7	$ 909.22	81	$ 10,189.56
Ryan McCarthy	Project/Staff Scientist	h	$ 124.73	0	$ -	0	$ -	64	$ 7,982.72	110	$ 13,720.30	0	$ -	0	$ -	36	$ 4,490.28	0	$ -	210	$ 26,193.30
C. Steve Howe	Project/Staff Scientist	h	$ 124.73	0	$ -	0	$ -	64	$ 7,982.72	86	$ 10,726.78	0	$ -	0	$ -	26	$ 3,242.98	0	$ -	176	$ 21,952.48
Sara Arav-Piper	Project/Staff Scientist	h	$ 124.73	0	$ -	0	$ -	0	$ -	8	$ 997.84	0	$ -	0	$ -	0	$ -	0	$ -	8	$ 997.84
Karsten Kelm	Project Drafting	h	$ 95.24	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	30	$ 2,857.27	6	$ 571.45	36	$ 3,428.72
Budin/Pena/Olsen	Administrative/Clerical	h	$ 72.83	75	$ 5,447.86	0	$ -	0	$ -	6	$ 436.99	30	$ 2,184.97	0	$ -	20	$ 1,456.65	2	$ 163.87	133	$ 9,690.34
			TOTAL	141	$ 16,146.24	0	$ -	158	$ 20,541.18	260	$ 33,464.89	38	$ 3,188.25	68	$ 10,529.66	308	$ 42,828.65	36	$ 5,116.95	1,009	$ 131,815.83
																				2% Mark-up on Labor	$ 2,636.32
																		TOTAL LABOR		1,009	$ 134,452.14

NON-LABOR TASKS

TRAVEL - DAILY				Task Order Management		Grab Sample Work Plan		Seep/Spring Locate and Sample		SW Grab Sampling		Subcontractor Management		Data Validation		Reporting (Draft, RTC, Final Draft, & Final)		RTC SWSP		Total	
Description	Rate (per diem = GSA rates+ taxes)			Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01			
																				Units	Total
Airfare - (Boston Logan)	$ 750.00			0	$ -	0	$ -	0	$ -	2	$ 1,500.00	0	$ -	0	$ -	0	$ -	0	$ -	2	$ 1,500.00
			SUBTOTAL		$ -		$ -		$ -		$ 1,500.00		$ -		$ -		$ -		$ -	**2**	**$ 1,500.00**
Per Diem - Hotel	$ 120.96		daily rate	0	$ -	0	$ -	10	$ 1,209.60	14	$ 1,693.44	0	$ -	0	$ -	0	$ -	0	$ -	24	$ 2,903.04
Per Diem - Meals	$ 64.00		daily rate	0	$ -	0	$ -	12	$ 768.00	14	$ 896.00	0	$ -	0	$ -	0	$ -	0	$ -	26	$ 1,664.00
Car Rental (Stand'd SUV)	$ 53.96		daily rate	0	$ -	0	$ -	6	$ 323.76	7	$ 377.72	0	$ -	0	$ -	0	$ -	0	$ -	13	$ 701.48
Gas (for rental vehicle)	$ 3.25		per gallon	0	$ -	0	$ -	50	$ 162.50	60	$ 195.00	0	$ -	0	$ -	0	$ -	0	$ -	110	$ 357.50
Parking (airport)	$ 15.00		daily rate	0	$ -	0	$ -	6	$ 90.00	14	$ 210.00	0	$ -	0	$ -	0	$ -	0	$ -	20	$ 300.00
				0	$ -	0	$ -		$ -		$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
			SUBTOTAL		$ -		$ -		$ 2,553.86		$ 3,372.16		$ -		$ -		$ -		$ -	**193**	**$ 5,926.02**
			TOTAL		$ -		$ -		$ 2,553.86		$ 4,872.16		$ -		$ -		$ -		$ -	**195**	**$ 7,426.02**

TRAVEL - MILEAGE				Task Order Management		Grab Sample Work Plan		Seep/Spring Locate and Sample		SW Grab Sampling		Subcontractor Management		Data Validation		Reporting (Draft, RTC, Final Draft, & Final)		RTC SWSP		Total	
Description	Rate (Effective January 1, 2015)		miles/RT	Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01			
				Miles	Total	Miles	Total	Miles	Total	Miles	Total	Miles	Total	Hours	Total	Hours	Total	Hours	Total	Units	Total Cost
Manchester to Airport	$ 0.540		90	0	$ -	0	$ -	0	$ -	230	$ 124.20	0	$ -	0	$ -	0	$ -	0	$ -	230	$ 124.20
			TOTAL	**0**	**$ -**	**0**	**$ -**	**0**	**$ -**	**230**	**$ 124.20**	**0**	**$ -**	**0**	**$ -**	**0**	**$ -**	**0**	**$ -**	**230**	**$ 124.20**

EQUIPMENT - CONTRACT RATE				Task Order Management		Grab Sample Work Plan		Seep/Spring Locate and Sample		SW Grab Sampling		Subcontractor Management		Data Validation		Reporting (Draft, RTC, Final Draft, & Final)		RTC SWSP		TOTAL	
Description	Rate		Hrs/Unit	Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01			
				Qty	Total	Qty	Total	Qty	Total	Hours	Total	Hours	Total	Qty	Total	Qty	Total	Hours	Total	Units	Total
Life jackets (PFD)	$ 15.00		per day	0	$ -	0	$ -	8	$ 120.00	10	$ 150.00	0	$ -	0	$ -	0	$ -	0	$ -	18	$ 270.00
Field kit	$ 25.00		per day	0	$ -	0	$ -	4	$ 100.00	5	$ 125.00	0	$ -	0	$ -	0	$ -	0	$ -	9	$ 225.00
Trimble GeoExplorer GeoXH 6000 Series	$ 95.00		per day	0	$ -	0	$ -	4	$ 380.00	5	$ 475.00	0	$ -	0	$ -	0	$ -	0	$ -	9	$ 855.00
Pegasus Alexis Peristaltic Pump	$ 35.00		per day	0	$ -	0	$ -	4	$ 140.00	5	$ 175.00	0	$ -	0	$ -	0	$ -	0	$ -	9	$ 315.00
Level D PPE	$ 15.00		per day	0	$ -	0	$ -	8	$ 120.00	10	$ 150.00	0	$ -	0	$ -	0	$ -	0	$ -	18	$ 270.00
			TOTAL	**0**	**$ -**	**0**	**$ -**	**28**	**$ 860.00**	**0**	**$ 1,075.00**	**0**	**$ -**	**0**	**$ -**	**0**	**$ -**	**0**	**$ -**	**63**	**$ 1,935.00**

EQUIPMENT - OTHER				Task Order Management		Grab Sample Work Plan		Seep/Spring Locate and Sample		SW Grab Sampling		Subcontractor Management		Data Validation		ng (Draft, RTC, Final Draft,		RTC SWSP		TOTAL	
Description	Rate		Unit	Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01			
				Units	Total	Qty	Total	Qty	Total	Hours	Total	Hours	Total	Qty	Total	Qty	Total	Hours	Total	Units	Total
Field supplies	$ 50.00		per day	0	$ -	0	$ -	4	$ 200.00	5	$ 250.00	0	$ -	0	$ -	0	$ -	0	$ -	9	$ 450.00
Boat	$ 1,000.00		each	0	$ -	0	$ -	0	$ -	1	$ 1,000.00	0	$ -	0	$ -	0	$ -	0	$ -	1	$ 1,000.00
In-line water filter (0.45 micron) – 30 cm capacity	$ 7.10		per filter	0	$ -	0	$ -	0	$ -	35	$ 248.50	0	$ -	0	$ -	0	$ -	0	$ -	35	$ 248.50
In-line water filter (0.45 micron) – 609 cm capacity	$ 17.95		per filter	0	$ -	0	$ -	0	$ -	15	$ 269.25	0	$ -	0	$ -	0	$ -	0	$ -	15	$ 269.25
YSI	$ 127.50		per week	0	$ -	0	$ -	1	$ 50.00	1	$ 127.50	0	$ -	0	$ -	0	$ -	0	$ -	2	$ 177.50
Tubing, peristaltic pump, LDPE (8 ft/sample)	$ 0.20		per foot	0	$ -	0	$ -	0	$ -	400	$ 80.00	0	$ -	0	$ -	0	$ -	0	$ -	400	$ 80.00
Tubing, peristaltic pump (pump head), silicone (2 ft per sample)	$ 2.50		per foot	0	$ -	0	$ -	0	$ -	100	$ 250.00	0	$ -	0	$ -	0	$ -	0	$ -	100	$ 250.00
Turbidity Meter	$ 75.86		per week	0	$ -	0	$ -	1	$ 50.00	1	$ 75.86	0	$ -	0	$ -	0	$ -	0	$ -	2	$ 125.86
YSI cable	$ 127.50		per week	0	$ -	0	$ -	1	$ 50.00	1	$ 127.50	0	$ -	0	$ -	0	$ -	0	$ -	2	$ 177.50
			TOTAL	**0**	**$ -**	**0**	**$ -**		**$ 350.00**	**559**	**$ 2,428.61**	**0**	**$ -**	**0**	**$ -**	**0**	**$ -**	**0**	**$ -**	**566**	**$ 2,778.61**
			AECOM SUB-TASK TOTAL		$ 16,469.16		$ -		$ 24,715.86		$ 42,634.16		$ 3,252.02				$ 43,685.23		$ 5,219.29	TOTAL	$ 146,715.97

Table 3. Amendment No. 1 Initial Surface Water Sampling Cost Estimate
Subcontractor Task Orders 2015-150-01-R1
NERT Remedial Investigation - Downgradient Study Area

				Task Order Management		Grab Sample Work Plan		Seep/Spring Locate and Sample		SW Grab Sampling		Subcontractor Management		Data Validation		Reporting (Draft, RTC, Final Draft, & Final)		RTC SWSP					
SUBCONTRACTORS				Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		SUBTOTAL		TOTAL	
Description	**Task Order**	**Rate**	**Hrs/Unit**	**Qty**	**Total**	**Qty**	**Total**	**Qty**	**Total**	**Hours**	**Total**	**Hours**	**Total**	**Qty**	**Total**	**Qty**	**Total**	**Hours**	**Total**	**Units**	**Total**	**7% Mark Up**	**Total**
TestAmerica Laboratories	2015-150-03	$ 3,162.50	event	0	$ -	0	$ -	0	$ -	1	$ 3,162.50	0	$ -	0	$ -	0	$ -	0	$ -	1	$ 3,162.50	$ 221.38	$ 3,383.88
Test America Laboratories - Cr	2015-150-03 Cr	$ 1,375.00	event	0	$ -	0	$ -	0	$ -	1	$ 1,375.00	0	$ -	0	$ -	0	$ -	0	$ -	1	$ 1,375.00	$ 96.25	$ 1,471.25
Silver State Laboratories	2015-150-04	$ 3,850.00	event	0	$ -	0	$ -	0	$ -	1	$ 3,850.00	0	$ -	0	$ -	0	$ -	0	$ -	1	$ 3,850.00	$ 269.50	$ 4,119.50
	TOTAL SUBCONTRACTOR COSTS			**0**	**$ -**	**0**	**$ -**	**0**	**$ -**	**0**	**$ 8,387.50**	**0**	**$ -**	**0**	**$ -**	**0**	**$ -**	**0**	**$ -**	**3**	**$ 8,387.50**	**$ 587.13**	**$ 8,974.63**
	TOTAL NON-LABOR COSTS				**$ -**		**$ -**		**$ 3,763.86**		**$ 16,887.47**		**$ -**		**$ -**		**$ -**		**$ -**				
	SUB-TASK TOTAL (Includes 2%)				**$ 16,469.16**		**$ -**		**$ 1,290.24**		**$ 51,021.66**		**$ 3,252.02**		**$ 10,740.25**		**$ 43,685.23**		**$ 5,219.29**		**GRAND TOTAL**		**$ 155,690.60**

DESCRIPTION AND ASSUMPTIONS

Scope: AECOM will conduct surface water and seep/spring sampling activities in support of the NERT Regional Groundwater Remedial Investigation. The scope of work includes sampling of up to 21 surface water and 14 seep/spring locations within the Downgradient Study Area. The objectives of the sampling are to assess current surface water conditions, update accessibility and concentrations in seeps/springs, and provide current data that will help refine the understanding of data gaps.

Deliverables: Surface Water and Seep/Spring Sampling Technical Memorandum (Draft and Final)

Schedule: December 2015 through June 2016

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Develop surface water grab sampling plan.
Modify HASP, develop JHAs for vessel on-water use, modify QAPP, write SOPs specific to grab sampling.
Kick-off meeting with Durocher and McCarthy.

SURFACE WATER SAMPLING (1 Event)

- 21 locations
- Sampling must occur during daily low flow (approximately 0830 - 1400 daily)
- 4 to 5 locations sampled per day

SW Field Sampling Schedule:

SW sampling Team 1:

- AECOM staff #1 (McCarthy) + AECOM staff #2 (Howe)
- AECOM: 5 days of sw sampling
- 12 hour field days; includes time after sampling completed to plan next day.
- Field Prep & Post Field – Equipment orders, travel arrangements, tabulate field data, label pictures, 32 hrs (24 McCarthy; 8 Howe);
- Generate Sample Labels - 5 hrs (Admin Staff)
- Travel Time – 16 hrs RT mob/demob; 2 people; 1 mobilization total = 32 hrs
- Hotel = 14 days
- Per Diem = 14 days
- Sampling to be conducted M-F due to shipping constraints.

Other Staff:

- Kristen in-office field oversight – 20 hrs
- Time for Kevin to kick-off field work and occasional site visit = 8 hrs
- Chad Roper to review laboratory check in and chain of custody at 1 hr/day plus develop labels and sample table – 14 hrs
- 8 hours for Sara Piper to confirm property owner notifications per access agreements (includes SW and seep/spring sampling)
- Time added for subcontractor coordination for sample bottles and shipments and deliveries during field work – 1 hr/day = 9 hrs

SEEP/SPRING SAMPLING (1 Event)

- AECOM staff #1 (McCarthy) + AECOM staff #2 (Howe)
- Check seep and spring location/accessibility (14 locations); 2 days.
- 2 days for locating + 2 days to sample
- Work days = M-Th
- Field Prep & Post Field – Equipment orders, travel arrangements, tabulate field data, label pictures, 20 hrs (14 McCarthy; 6 Howe);
- Hotel = 12 days
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Other Staff:

- Time for Kevin to kick-off field work and occasional site visit = 8 hrs
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LABORATORY COSTS (1 Event)

- SW and seep/spring sampling costed as a single event. One deliverable to be received from each laboratory.
- 21 SW + 5 seep/spring + 5% (2) EB + 5% (2) FB + 10% (4) FD + 5% (2) MS + 5% (2) MSD + 12 contingency samples = 50 samples
- Costs include reporting from laboratory and 7% sub-contractor charge

Subcontractor Management

- High volume of work pre-field and through field work, and one month after (7 weeks)
- 4 hrs x 10 weeks = 40 hrs @ $72.83
- DPM 2 hrs per week x 4 weeks = 8 hrs @ $124.73

Data Validation

- All samples take 0.5 hr for NDEP Level 2B. 10% of samples take additional 1 hr for Level IV.
- Steve Cole: load EDDs and ensure validation is correct and uploaded (24 hours)
- Chad Roper: 50 samples x 0.5 hr plus 10% (5) samples x 1 hr; time for discussions with QA team (6 hrs) = 36 hours
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- Carmen Caceres-Schnell, including figure prep/coordination – 28 hrs
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- Formatting, technical review and publication (Budin/Olsen) - 20 hours
- Figures:
  - Figure 1. Surface Water Sampling Locations
  - Figure 2. Seep/Spring Status and Locations
  - Figure 3. Perchlorate Concentration Map

- Figure 4. Chromium Concentration Map
- Figure 5. TDS Concentration Map
- Figure 6. As needed for an NDEP requested figure.
- Figure generation and edits = 5 hrs each
- 5 hrs x 6 Figures = 30 hrs Karsten Kelm

SWSP Review

- Original estimate did not include time for stakeholder review. Comments required inputs from several members of project team. RTC took 38.5 hours to complete at a cost of $5,451.

Table 4. Initial Surface Water Sampling Plan Cost Estimate - Total Revised Cost
Task Order 2015-150-01
NERT Remedial Investigation - Downgradient Study Area

LABOR				Task Order Management		Grab Sample Work Plan		Seep/Spring Locate and Sample		SW Grab Sampling		Subcontractor Management		Data Validation		Reporting (Draft, RTC, Final Draft, & Final)		RTC SWSP			
Staff	Position Job Title	Units	Labor Bill Rate	Task 2015-150B-01 Hours	Total	Task 2015-150B-01 Hours	Total	Task 2015-150B-01 Hours	Total	Task 2015-150B-01 Hours	Total	Task 2015-150B-01 Hours	Total	Task 2015-150B-01 Hours	Total	Task 2015-150B-01 Hours	Total	Task 2015-150B-01 Hours	Total	GRAND TOTAL Hours	Total
Harry Van Den Berg	Program Director/Principal	h	$ 203.75	26	$ 5,297.50		$ -		$ -		$ -		$ -		$ -	20	$ 4,075.00	6	$ 1,120.63	52	$ 10,493.13
Sally Bilodeau	Project Manager	h	$ 157.13	26	$ 4,085.38	6	$ 942.78	2	$ 314.26		$ -		$ -	4	$ 628.52	20	$ 3,142.60	4	$ 628.52	62	$ 9,742.06
Kristen Durocher	Senior Scientist	h	$ 156.66	0	$ -	80	$ 12,532.80	16	$ 2,506.56	20	$ 3,133.20		$ -		$ -	80	$ 12,532.80	11	$ 1,723.26	207	$ 32,428.62
Kevin Russell	Senior Scientist	h	$ 156.66	0	$ -		$ -	8	$ 1,253.28	8	$ 1,253.28		$ -		$ -		$ -		$ -	16	$ 2,506.56
Steve Cole	Senior Scientist	h	$ 156.66	0	$ -		$ -		$ -		$ -		$ -	24	$ 3,759.80	20	$ 3,133.17		$ -	44	$ 6,892.97
Chad Roper	Senior Scientist	h	$ 156.66	0	$ -		$ -		$ -	14	$ 2,193.22		$ -	36	$ 5,639.70	28	$ 4,386.43		$ -	78	$ 12,219.35
Carmen Caceres-Schnell	Deputy Project Manager	h	$ 125.41	35	$ 4,389.35	4	$ 501.64	4	$ 501.64	8	$ 1,003.28	8	$ 1,003.28	4	$ 501.64	28	$ 3,511.48	7	$ 909.22	98	$ 12,321.53
Ryan McCarthy	Project/Staff Scientist	h	$ 124.73	0	$ -	40	$ 4,989.20	64	$ 7,982.72	110	$ 13,720.30		$ -		$ -	36	$ 4,490.28		$ -	250	$ 31,182.50
C. Steve Howe	Project/Staff Scientist	h	$ 124.73	0	$ -		$ -	64	$ 7,982.72	86	$ 10,726.78		$ -		$ -	26	$ 3,242.98		$ -	176	$ 21,952.48
Sara Arav-Piper	Project/Staff Scientist	h	$ 124.73	0	$ -		$ -		$ -	8	$ 997.84		$ -		$ -		$ -		$ -	8	$ 997.84
Karsten Kelm	Project Drafting	h	$ 95.24	0	$ -	8	$ 761.94		$ -		$ -		$ -		$ -	30	$ 2,857.27	6	$ 571.45	44	$ 4,190.66
Budin/Pena/Olsen	Administrative/Clerical	h	$ 72.83	110	$ 7,996.99	6	$ 436.99		$ -	6	$ 436.99	30	$ 2,184.97		$ -	20	$ 1,456.65	2	$ 163.87	174	$ 12,676.47
		TOTAL		197	$ 21,769.22	144	$ 20,165.35	158	$ 20,541.18	260	$ 33,464.89	38	$ 3,188.25	68	$ 10,529.66	308	$ 42,828.65	36	$ 5,116.95	1,209	$ 157,604.16
																				2% Mark-up on Labor	$ 3,152.08
																				TOTAL LABOR	1,209	$ 160,756.24

NON-LABOR TASKS

TRAVEL - DAILY				Task Order Management		Grab Sample Work Plan		Seep/Spring Locate and Sample		SW Grab Sampling		Subcontractor Management		Data Validation		Reporting (Draft, RTC, Final Draft, & Final)		RTC SWSP		Total	
Description	Rate (per diem = GSA rates+ taxes)			Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Task 2015-150B-01		Units	Total
Airfare - (Boston Logan)	$ 750.00				$ -		$ -		$ -	2	$ 1,500.00		$ -		$ -		$ -		$ -	2	$ 1,500.00
			SUBTOTAL		$ -		$ -		$ -		$ 1,500.00		$ -		$ -		$ -		$ -	2	$ 1,500.00
Per Diem - Hotel	$ 120.96		daily rate		$ -		$ -	10	$ 1,209.60	14	$ 1,693.44		$ -		$ -		$ -		$ -	24	$ 2,903.04
Per Diem - Meals	$ 64.00		daily rate		$ -		$ -	12	$ 768.00	14	$ 896.00		$ -		$ -		$ -		$ -	26	$ 1,664.00
Car Rental (Stand'd SUV)	$ 53.96		daily rate		$ -		$ -	6	$ 323.76	7	$ 377.72		$ -		$ -		$ -		$ -	13	$ 701.48
Gas (for rental vehicle)	$ 3.25		per gallon		$ -		$ -	50	$ 162.50	60	$ 195.00		$ -				$ -			110	$ 357.50
Parking (airport)	$ 15.00		daily rate		$ -		$ -	6	$ 90.00	14	$ 210.00		$ -		$ -		$ -		$ -	20	$ 300.00
			SUBTOTAL		$ -		$ -		$ 2,553.86		$ 3,372.16		$ -		$ -		$ -		$ -	193	$ 5,926.02
			TOTAL		$ -		$ -		$ 2,553.86		$ 4,872.16		$ -		$ -		$ -		$ -	195	$ 7,426.02

TRAVEL - MILEAGE				Task Order Management		Grab Sample Work Plan		Seep/Spring Locate and Sample		SW Grab Sampling		Subcontractor Management		Data Validation		Reporting (Draft, RTC, Final Draft, & Final)		RTC SWSP		Total	
Description	Rate (Effective January 1, 2015)		miles/RT	Task 2015-150B-01 Miles	Total	Task 2015-150B-01 Miles	Total	Task 2015-150B-01 Miles	Total	Task 2015-150B-01 Miles	Total	Task 2015-150B-01 Miles	Total	Task 2015-150B-01 Hours	Total	Task 2015-150B-01 Hours	Total	Task 2015-150B-01 Hours	Total	Units	Total Cost
Manchester to Airport	$ 0.540		90		$ -		$ -		$ -	230	$ 124.20		$ -		$ -		$ -		$ -	230	$ 124.20
			TOTAL	0	$ -	0	$ -		$ -	230	$ 124.20	0	$ -	0	$ -	0	$ -	0	$ -	230	$ 124.20

EQUIPMENT - CONTRACT RATE				Task Order Management		Grab Sample Work Plan		Seep/Spring Locate and Sample		SW Grab Sampling		Subcontractor Management		Data Validation		Reporting (Draft, RTC, Final Draft, & Final)		RTC SWSP		TOTAL	
Description	Rate		Hrs/Unit	Task 2015-150B-01 Qty	Total	Task 2015-150B-01 Qty	Total	Task 2015-150B-01 Qty	Total	Task 2015-150B-01 Hours	Total	Task 2015-150B-01 Hours	Total	Task 2015-150B-01 Qty	Total	Task 2015-150B-01 Qty	Total	Task 2015-150B-01 Hours	Total	Units	Total
Life jackets (PFD)	$ 15.00		per day		$ -		$ -	8	$ 120.00	10	$ 150.00		$ -		$ -		$ -		$ -	18	$ 270.00
Field kit	$ 25.00		per day		$ -		$ -	4	$ 100.00	5	$ 125.00		$ -		$ -		$ -		$ -	9	$ 225.00
Trimble GeoExplorer GeoXH 6000 Series	$ 95.00		per day		$ -		$ -	4	$ 380.00	5	$ 475.00		$ -		$ -		$ -		$ -	9	$ 855.00
Pegasus Alexis Peristaltic Pump	$ 35.00		per day		$ -		$ -	4	$ 140.00	5	$ 175.00		$ -		$ -		$ -		$ -	9	$ 315.00
Level D PPE	$ 15.00		per day		$ -		$ -	8	$ 120.00	10	$ 150.00		$ -		$ -		$ -		$ -	18	$ 270.00
			TOTAL	0	$ -	0	$ -	28	$ 860.00	0	$ 1,075.00	0	$ -	0	$ -	0	$ -	0	$ -	63	$ 1,935.00

EQUIPMENT - OTHER				Task Order Management		Grab Sample Work Plan		Seep/Spring Locate and Sample		SW Grab Sampling		Subcontractor Management		Data Validation		Reporting (Draft, RTC, Final Draft, & Final)		RTC SWSP		TOTAL	
Description	Rate		Unit	Task 2015-150B-01 Units	Total	Task 2015-150B-01 Qty	Total	Task 2015-150B-01 Qty	Total	Task 2015-150B-01 Hours	Total	Task 2015-150B-01 Hours	Total	Task 2015-150B-01 Qty	Total	Task 2015-150B-01 Qty	Total	Task 2015-150B-01 Hours	Total	Units	Total
Field supplies	$ 50.00		per day		$ -		$ -	4	$ 200.00	5	$ 250.00		$ -		$ -		$ -		$ -	9	$ 450.00
Boat	$ 1,000.00		each		$ -		$ -		$ -	1	$ 1,000.00		$ -		$ -		$ -		$ -	1	$ 1,000.00
In-line water filter (0.45 micron) – 30 cm capacity	$ 7.10		per filter		$ -		$ -		$ -	35	$ 248.50		$ -		$ -		$ -		$ -	35	$ 248.50
In-line water filter (0.45 micron) – 609 cm capacity	$ 17.95		per filter		$ -		$ -		$ -	15	$ 269.25		$ -		$ -		$ -		$ -	15	$ 269.25
YSI	$ 127.50		per week		$ -		$ -	1	$ 127.50	1	$ 127.50		$ -		$ -		$ -		$ -	2	$ 255.00
Tubing, peristaltic pump, LDPE (8 ft/sample)	$ 0.20		per foot		$ -		$ -		$ -	400	$ 80.00		$ -		$ -		$ -		$ -	400	$ 80.00
Tubing, peristaltic pump (pump head), silicone (2 ft per sample)	$ 2.50		per foot		$ -		$ -		$ -	100	$ 250.00		$ -		$ -		$ -		$ -	100	$ 250.00
Turbidity Meter	$ 75.86		per week		$ -		$ -	1	$ 75.86	1	$ 75.86		$ -		$ -		$ -		$ -	2	$ 151.72
YSI cable	$ 127.50		per week		$ -		$ -	1	$ 127.50	1	$ 127.50		$ -		$ -		$ -		$ -	2	$ 255.00
			TOTAL	0	$ -	0	$ -	7	$ 530.86	559	$ 2,428.61	0	$ -	0	$ -	0	$ -	0	$ -	566	$ 2,959.47
			AECOM SUB-TASK TOTAL		$ 22,204.61		$ 20,568.66		$ 24,896.72		$ 42,634.16		$ 3,252.02		$ 10,740.25		$ 43,685.23		$ 5,219.29	TOTAL	$ 173,200.93

SUBCONTRACTORS					Task Order Management		Grab Sample Work Plan		Seep/Spring Locate and Sample		SW Grab Sampling		Subcontractor Management		Data Validation		Reporting (Draft, RTC, Final Draft, & Final)		RTC SWSP		SUBTOTAL		TOTAL	
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Test America Laboratories - Cr	2015-150-03 Cr	$ 1,375.00		event		$ -		$ -		$ -	1	$ 1,375.00		$ -		$ -		$ -		$ -	1	$ 1,375.00	$ 96.25	$ 1,471.25
Silver State Laboratories	2015-150-04	$ 3,850.00		event		$ -		$ -		$ -	1	$ 3,850.00		$ -		$ -		$ -		$ -	1	$ 3,850.00	$ 269.50	$ 4,119.50
				TOTAL	0	$ -	0	$ -	0	$ -	0	$ 8,387.50	0	$ -	0	$ -	0	$ -	0	$ -	3	$ 8,387.50	$ 587.13	$ 8,974.63
				SUB-TASK TOTAL		$ 22,204.61		$ 20,568.66		$ 24,896.72		$ 51,021.66		$ 3,252.02		$ 10,740.25		$ 43,685.23		$ 5,219.29			GRAND TOTAL	$ 182,175.56

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NERT Remedial Investigation, Downgradient Study Area

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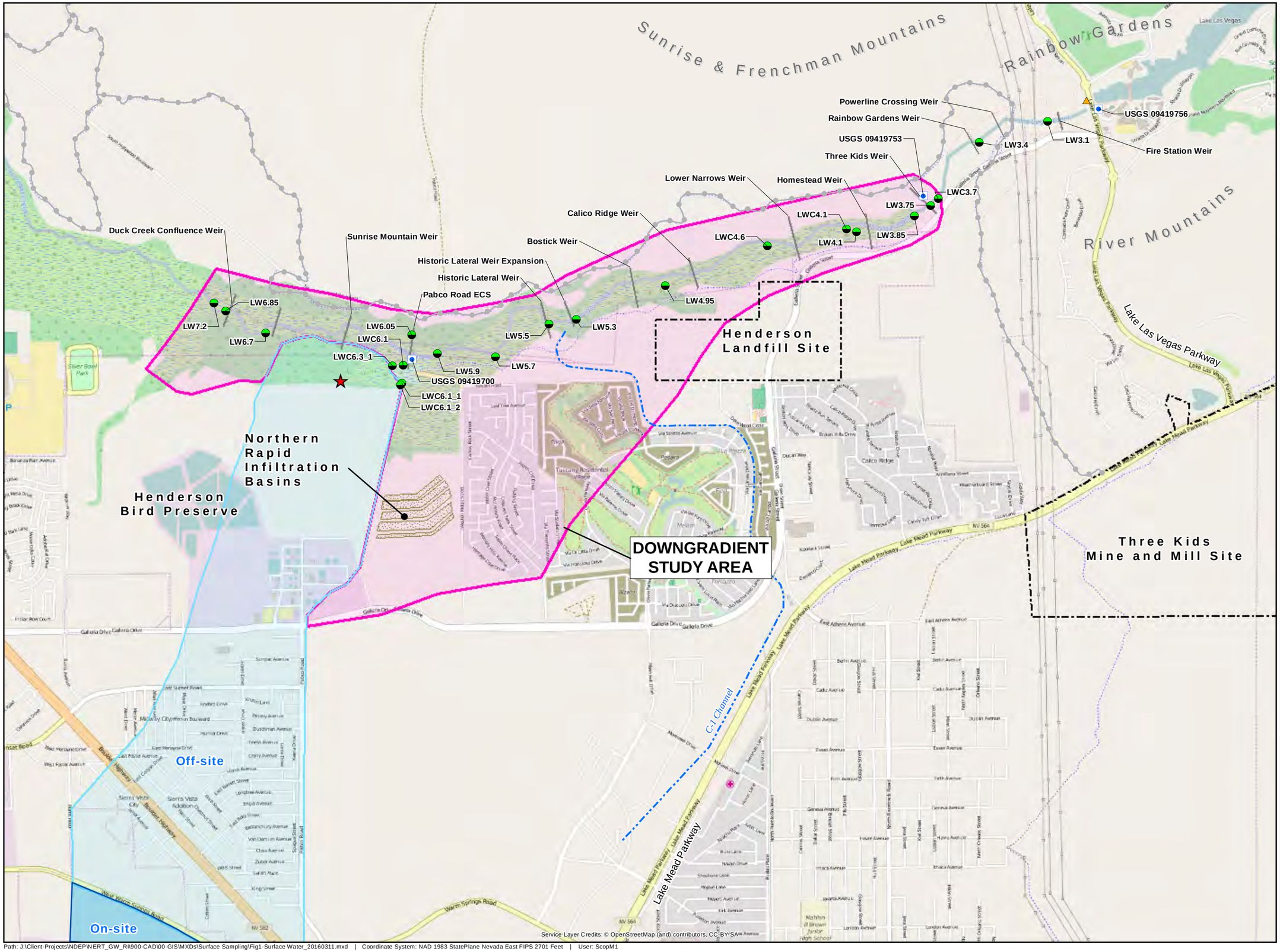
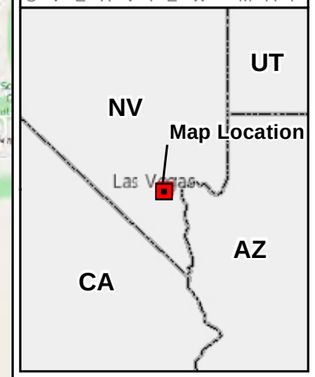


OVERVIEW MAP



Legend

- Original Seep Location
- Lake Las Vegas Intake
- Targeted Historical Surface Water Location to be Sampled
- USGS Staff Gages
- Wetlands Trail
- Channels
- Weir
- Evaporation Basin
- NERT Downgradient Study Area
- NERT Off-site Study Area
- NERT On-site Study Area

NORTH

0 2,000

Feet

Scale 1:24,000

1 inch = 2,000 feet

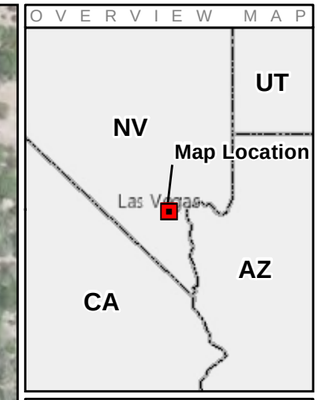
NERT
Remedial Investigation
Downgradient Study Area

TARGETED HISTORICAL SURFACE WATER SAMPLING LOCATIONS

Date: 3/17/2016 Project: 60477365

AECOM

Figure 1



Legend

- Original Seep Location
- Targeted Historical Surface Water Location to be Sampled
- USGS Staff Gages
- Weir
- NERT Off-site Study

NORTH

0 150

Feet

Scale 1:1,800

1 inch = 150 feet

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TARGETED HISTORICAL SURFACE WATER SAMPLING LOCATIONS IN TRIBUTARY / SEEPS

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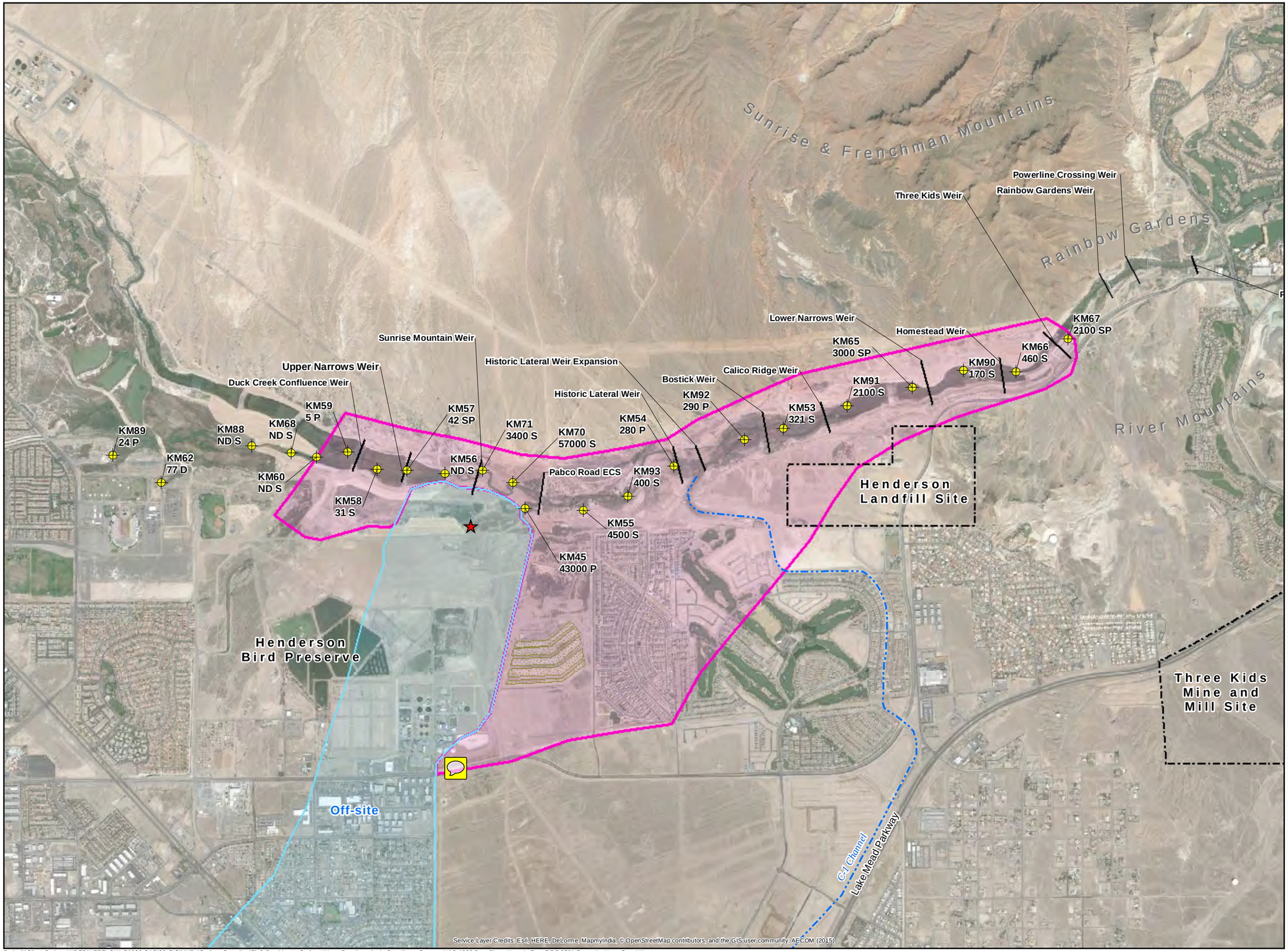
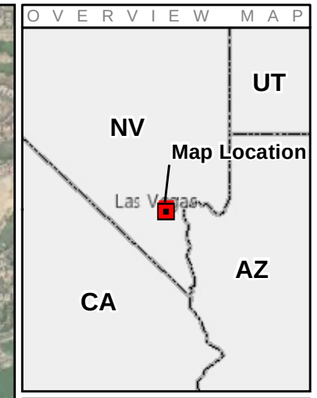
AECOM

Figure 2

Path: J:\Client-Projects\NDEP\NERT_GW_RI\900-CAD\00-GIS\MXDs\Surface Sampling\Fig2-Surface Water Tributary_20160311.mxd | Coordinate System: NAD 1983 StatePlane Nevada East FIPS 2701 Feet | User: ScopM1





Legend

- Original Seep Location
- 2000 Seep Location
- Channels
- Weir
- Evaporation Basin
- KM66 460 S — Location ID; Perchlorate Result in microgram per liter (µg/l)

Category Chart

P = Pit
S = Seep
Sp = Spring

NORTH

0 2,000

Feet

Scale 1:24,000

1 inch = 2,000 feet

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SEEP AND SURFACE WATER SAMPLING CONDUCTED BY KERR MCGEE IN 2000

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AECOM

Figure 3