Table 1
Summary of Metals in Groundwater (µg/L)
EPA Methods SW6010B and SW7470A
Explosive Ordnance Disposal Range
Vandenberg AFB, California

Location ID						EOD-MW-1		EOD-MW-1		EOD-MW-1		EOD-MW-1	
Sample ID						EOD-MW-1-1215		EOD-MW-1-1215		EOD-MW-2-1215		EOD-MW-2-1215	
Collection Date						15-Dec-15		15-Dec-15		15-Dec-15		15-Dec-15	
Sample Type						Parent Filtered		Parent Unfiltered		Duplicate Filtered		Duplicate Unfiltered	
Analyte	DL[1]	LOQ[1]	BTV[2]	RSL for Tap Water[3]	California Primary MCL[4]								
Aluminum	68	200	1,200	20,000	1,000	10,300 J		10,400 J		10,500 J		10,300 J	
Antimony	3.5	10	10	7.8	6	7 U		7 U		7 U		7 U	
Arsenic	5	30	26 [5]	0.052	10	**5.22 J**	q	10 U		**6.74 J**	q	10 U	
Barium	1	5	276	3,800	1,000	20.5		20.8		20.6		20.4	
Beryllium	1	5	0.90 [5]	25	4	2 U		2 U		2 U		2 U	
Cadmium	1	5	5	9.2	5	2 U		2 U		2 U		2 U	
Chromium	1	5	12 [5]	22,000	50	17		16.8		17.3		16.8	
Cobalt	1	5	13	6	N/A	2.24 J	q	2.5 J	q	2.18 J	q	2.35 J	q
Copper	3	10	58	800	1,300	6 U		6 U		6 U		6 U	
Iron	30	100	3,530	14,000	N/A	11,800 J		11,800 J		11,700 J		11,800 J	
Lead	3.3	10	3	15	15	6.6 UJ		6.6 UJ		6.6 UJ		6.6 UJ	
Mercury	0.067	0.2	0.2	0.63	2	0.134 UJ		0.134 UJ		0.134 UJ		0.134 UJ	
Molybdenum	2	10	12	100	N/A	4 U		2.54 J	q	2.15 J	q	2.06 J	q
Nickel	1.5	5	91 [5]	390	100	12.8 J		12.5 J		12.7 J		12.3 J	
Selenium	6	30	25 [5]	100	50	12 U		12 U		12 U		12 U	
Silver	1	5	0.2	94	N/A	2 U		2 U		2 U		2 U	
Thallium	5	20	1.7 [5]	0.20	2	10 U		10 U		10 U		10 U	
Vanadium	1	5	28	86	N/A	26.4		26.3		26.3		26.3	
Zinc	3.3	10	34 [5]	6,000	N/A	6.54 J	q	5.47 J	q	7.27 J	q	6.4 J	q

Data Validity Qualifier(s):

J - The analyte was positively identified and the result is usable; however, the analyte concentration is an estimated value.
M - The analyte has a matrix effect or matrix spike RPD issue.
R - The sample result is rejected and not usable for any purpose. The presence or absence of the analyte cannot be verified.
U - The analyte was not detected above the method Detection Limit (DL)
+/- - Plus or minus sign after the qualifier indicates a potential positive or negative bias of the sample result because of issues identified by the qualifier and comments.

Data Validity Comment(s):

c - The matrix spike and/or matrix spike duplicate recoveries were outside control limits.
e - A holding time violation occurred.
g - The data met prescribed criteria as detailed in the QAPP.
q - The analyte detection was below the LOQ.

Definition(s):

BTV - background threshold value
DL - detection limit
EPA - U.S. Environmental Protection Agency
LOQ - limit of quantitation
MCL - maximum contaminant level
µg/L- micrograms per liter
N/A- not available
QAPP- Quality Assurance Project Plan
RPD- relative percent difference
RSL- Regional Screening Level

Note(s):

5.22 - Bold type indicates results above the RSL.
10,300 - Underlined results are greater than the California primary MCL.
- Shaded results are greater than the applicable BTV.
1 - Values provided by GEL Laboratories, LLC
2 - BTVs are compared to filtered (dissolved) metals concentrations.
3 - RSLs are from U.S. EPA (U.S. EPA 2015). RSLs are compared to unfiltered (total) metals concentrations
4 - MCLs are compared to unfiltered (total) metals concentrations.
5 - Refined BTV.

Table 2
Summary of Water Quality Parameters, Perchlorate, Explosives, and TPH in Groundwater
EPA Methods E300.0, E353.1, E415.1, E314.0, and SW8015B
Explosive Ordnance Disposal Range
Vandenberg AFB, California

Location ID							**EOD-MW-1**	**EOD-MW-1**
Sample ID							**EOD-MW-1-1215**	**EOD-MW-2-1215**
Collection Date							**15-Dec-15**	**15-Dec-15**
							Parent	**Duplicate**
Method	**DL[1a]**	**LOQ[1a]**	**BTV**	**RSL for Tap Water[2]**	**MCL[3]**	**Action Level**		
Water Quality Parameters (mg/L)								
Chloride	0.0200	0.200	803.00	N/A	N/A	N/A	43	42
Sulfate	0.0500	0.500	376.00	N/A	N/A	N/A	12	12
Nitrogen as nitrate + nitrite	0.00472	0.050	N/A	N/A	10	N/A	0.0076 J q	0.0092 J q
Total organic carbon	0.354	1.00	N/A	N/A	N/A	N/A	15	15
Perchlorate (µg/L)								
Perchlorate	4.00	12.0	N/A	14	6	N/A	12 U	12 U
Total Petroleum Hydrocarbons (mg/L)								
TPHe[5]	N/A	N/A	N/A	N/A	N/A	1 [4]	ND	ND
TPHd (Diesel Range Organics [C10-C28])	0.0170	0.500	N/A	N/A	N/A	1 [4]	0.047 UJ h	0.047 UJ h
TPHmo (Motor Oil Range Organics [C28-C40])	0.0230	0.500	N/A	N/A	N/A	1 [4]	0.047 UJ h	0.047 UJ h
Explosives (µg/L)	**DL1[b]**	**LOQ[1b]**						
1,3,5-TNB (1,3,5-Trinitrobenzene)	0.08	0.25	N/A	590	N/A	N/A	0.152 U	0.153 U
1,3-DNB (m-Dinitrobenzene)	0.08	0.25	N/A	2.0	N/A	N/A	0.152 U	0.153 U
2,4,6-TNT (2,4,6-Trinitrotoluene)	0.08	0.25	N/A	2.5	N/A	N/A	0.152 U	0.153 U
2,4-DNT (2,4-Dinitrotoluene)	0.08	0.25	N/A	0.24	N/A	N/A	0.152 U	0.153 U
2,6-DNT (2,6-Dinitrotoluene)	0.08	0.25	N/A	0.049	N/A	N/A	0.152 U	0.153 U
2-Amino-4,6-DNT (2-Amino-4,6-dinitrotoluene)	0.08	0.25	N/A	39	N/A	N/A	0.152 U	0.153 U
2-Nitrotoluene (o-Nitrotoluene)	0.082	0.25	N/A	0.31	N/A	N/A	0.153 U	0.157 U
3-Nitrotoluene (m-Nitrotoluene)	0.08	0.25	N/A	1.7	N/A	N/A	0.152 U	0.153 U
4-Amino-2,6-DNT (4-Amino-2,6-dinitrotoluene)	0.08	0.25	N/A	39	N/A	N/A	0.152 U	0.153 U
4-Nitrotoluene (p-Nitrotoluene)	0.15	0.50	N/A	4.3	N/A	N/A	0.284 U	0.287 U
HMX	0.08	0.25	N/A	1,000	N/A	N/A	0.152 U	0.153 U
Nitrobenzene	0.08	0.25	N/A	0.14	N/A	N/A	0.152 U	0.153 U
RDX	0.08	0.25	N/A	0.7	N/A	N/A	0.152 U	0.153 U
Tetryl	0.08	0.50	N/A	39	N/A	N/A	0.152 U	0.153 U

Data Validity Qualifier(s):

U - The analyte was not detected above the method Detection Limit (DL).
UJ - The analyte was not detected above the DL; however, the DL is uncertain.
J - The analyte was detected below the level of quantitation; therefore the result is an estimated value.

Data Validity Comment(s):

c - The matrix spike and/or matrix spike duplicate recoveries were outside control limits.
g - The data met prescribed criteria as detailed in the QAPP.
h - The sample was prepped or analyzed beyond the specified holding time
q - The analyte detection was below the LOQ.

Definition(s):

BTV - background threshold value
DL - detection limit
DNB - dinitrobenzene
DNT - dinitrotoluene
EPA - U.S. Environmental Protection Agency

Table 2, continued
Summary of Water Quality Parameters, Perchlorate, Explosives, and TPH in Groundwater
EPA Methods E300.0, E353.1, E415.1, E314.0, and SW8015B
Explosive Ordnance Disposal Range
Vandenberg AFB, California

Definition(s):

HMX - octahydro-1,3,5,7-tetranitro-1,3,5,7- tetra, or Her Majesty's Explosive
LOQ - limit of quantitation
MCL - maximum contaminant level
µg/L - micrograms per liter
mg/L - milligrams per liter
NA - not applicable
ND - not detected
QAPP - Quality Assurance Project Plan
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine, or Royal Dutch Explosive
RSL - Regional Screening Level
Tetryl - trinitrophenylmethylnitramine
TNB - trinitrobenzene
TNT - trinitrotoluene
TPH - total petroleum hydrocarbons
TPHd - diesel-range TPH
TPHe - extractable-range TPH
TPHmo - motor oil-range TPH

Note(s):

1a - Values provided by TestAmerica
1b - Values provided by GEL Laboratories, LLC.
2 - RSLs are from U.S. EPA (EPA 2015).
3 - California Primary MCL.
4 - The project-specific action level for the sum of diesel and motor oil range TPH
5 - Extractable range TPH is calculated as the sum of diesel and motor oil range TPH.

Table 3
Summary of VOCs and SVOCs in Groundwater (µg/L)
EPA Methods SW8260C and SW8270D
Explosive Ordnance Disposal Range
Vandenberg AFB, California

Location ID					**EOD-MW-1**	**EOD-MW-1**
Sample ID					**EOD-MW-1-1215**	**EOD-MW-2-1215**
Collection Date					**15-Dec-15**	**15-Dec-15**
					Parent	**Duplicate**
Method	**DL[1]**	**LOQ[1]**	**RSL for Tap Water Tap Water[2]**	**California Primary MCL[3]**		
Volatile Organic Compounds (ug/L)						
1,1,1,2-Tetrachloroethane	0.0900	1.00	0.57	NA	0.25 U	0.25 U
1,1,1-Trichloroethane	0.0690	1.00	8,000	200	0.25 U	0.25 U
1,1,2,2-Tetrachloroethane	0.0980	1.00	0.076	1	0.25 U	0.25 U
1,1,2-Trichloroethane	0.150	1.00	0.28	5	0.25 U	0.25 U
1,1-Dichloroethane	0.0680	1.00	2.8	5	0.25 U	0.25 U
1,1-Dichloroethene	0.0830	1.00	280	6	0.25 U	0.25 U
1,1-Dichloropropene	0.0790	1.00	NA	NA	0.25 U	0.25 U
1,2,3-Trichlorobenzene	0.0870	2.00	7	NA	0.25 U	0.25 U
1,2,3-Trichloropropane	0.153	1.00	0.00075	NA	0.25 U	0.25 U
1,2,4-Trichlorobenzene	0.0780	5.00	1.2	5	0.25 U	0.25 U
1,2,4-Trimethylbenzene	0.0840	1.00	15	NA	0.25 U	0.25 U
1,2-Dibromo-3-Chloropropane	0.411	1.00	0.00033	0.2	0.50 U	0.50 U
1,2-Dichlorobenzene	0.0600	1.00	300	600	0.25 U	0.25 U
1,2-Dichloroethane	0.100	1.00	0.17	0.5	0.25 U	0.25 U
1,2-Dichloropropane	0.0970	1.00	0.44	5	0.25 U	0.25 U
1,3,5-Trimethylbenzene	0.0810	1.00	10	NA	0.25 U	0.25 U
1,3-Dichlorobenzene	0.0780	1.00	NA	NA	0.25 U	0.25 U
1,3-Dichloropropane	0.0720	1.00	370	NA	0.25 U	0.25 U
1,4-Dichlorobenzene	0.116	1.00	0.48	5	0.22 J	0.16 J
2,2-Dichloropropane	0.142	1.00	NA	NA	0.25 U	0.25 U
2-Chlorotoluene	0.0780	1.00	240	NA	0.25 U	0.25 U
2-Hexanone	0.224	5.00	38	NA	0.50 U	0.50 U
4-Chlorotoluene	0.0810	1.00	250	NA	0.25 U	0.25 U
4-Isopropyltoluene	0.0850	1.00	NA	NA	0.25 U	0.25 U
4-Methyl-2-pentanone (MIBK)	0.121	5.00	6,300	NA	0.50 U	0.50 U
Acetone	0.344	2.00	14,000	NA	1.4 J	0.88 J
Benzene	0.0640	1.00	0.46	1	0.25 U	0.25 U
Bromobenzene	0.0760	1.00	62	NA	0.25 U	0.25 U
Bromochloromethane	0.133	1.00	83	NA	0.50 U	0.50 U
Bromodichloromethane	0.0880	1.00	0.13	NA	0.25 U	0.25 U
Bromoform	0.166	1.00	3.3	NA	0.25 U	0.25 U
Bromomethane	0.250	2.00	7.5	NA	0.50 U	0.50 U
Carbon disulfide	0.0510	2.00	810	NA	0.25 U	0.25 U
Carbon tetrachloride	0.125	1.00	0.46	0.5	0.25 U	0.25 U
Chlorobenzene	0.148	2.00	78	NA	0.25 U	0.25 U
Chlorodibromomethane	0.127	1.00	0.87	NA	0.25 U	0.25 U
Chloroethane	0.0990	2.00	21,000	NA	0.25 U	0.25 U
Chloroform	0.102	1.00	0.22	NA	0.25 U	0.25 U
Chloromethane	0.0770	2.00	190	NA	0.25 U	0.25 U
cis-1,2-Dichloroethene	0.0870	1.00	36	6	0.25 U	0.25 U
cis-1,3-Dichloropropene	0.0730	1.00	NA	NA	0.25 U	0.25 U
Dibromomethane	0.210	2.00	8.3	NA	0.50 U	0.50 U
Dichlorodifluoromethane	0.0840	2.00	200	NA	0.25 U	0.25 U
DIPE	0.250	2.00	1,500	NA	0.50 U	0.50 U
EDB	0.128	1.00	0.0075	NA	0.50 U	0.50 U
Ethanol	20	50	NA	NA	R	R

Table 3, continued
Summary of VOCs and SVOCs in Groundwater (µg/L)
EPA Methods SW8260C and SW8270D
Explosive Ordnance Disposal Range
Vandenberg AFB, California

Location ID					**EOD-MW-1**	**EOD-MW-1**
Sample ID					**EOD-MW-1-1215**	**EOD-MW-2-1215**
Collection Date					**15-Dec-15**	**15-Dec-15**
					Parent	**Duplicate**
Method	**DL[1]**	**LOQ[1]**	**RSL for Tap Water Tap Water[2]**	**California Primary MCL[3]**		
Volatile Organic Compounds (ug/L)						
Ethylbenzene	0.0860	1.00	1.5	300	0.25 U	0.25 U
Hexachlorobutadiene	0.0870	1.00	0.14	NA	0.25 U	0.25 U
Isopropylbenzene	0.0830	1.00	450	NA	0.25 U	0.25 U
Methylene Chloride	0.270	1.00	11	5	0.50 U	0.50 U
MTBE	0.114	2.00	14	13	0.25 U	0.25 U
m-Xylene & p-Xylene	0.142	2.00	190	1,750	0.50 U	0.50 U
Naphthalene	0.157	5.00	0.17	NA	0.25 U	0.25 U
n-Butylbenzene	0.250	1.00	1,000	NA	0.50 U	0.50 U
N-Propylbenzene	0.0620	1.00	660	NA	0.25 U	0.25 U
o-Xylene	0.0630	1.00	190	NA	0.25 U	0.25 U
sec-Butylbenzene	0.0860	1.00	2,000	NA	0.25 U	0.25 U
Styrene	0.0740	1.00	1,200	100	0.25 U	0.25 U
TAME	0.365	2.00	NA	NA	1.0 U	1.0 U
tert-Butylbenzene	0.110	1.00	690	NA	0.25 U	0.25 U
Tetrachloroethene	0.178	1.00	11	5	0.50 U	0.50 U
Toluene	0.0720	1.00	1,100	150	0.25 U	0.25 U
trans-1,2-Dichloroethene	0.0830	1.00	360	10	0.25 U	0.25 U
trans-1,3-Dichloropropene	0.0830	1.00	NA	NA	0.25 U	0.25 U
Trichloroethene	0.250	1.00	0.49	5	0.50 U	0.50 U
Trichlorofluoromethane	0.113	1.00	5,200	150	0.25 U	0.25 U
Vinyl chloride	0.0840	2.00	0.019	0.5	0.25 U	0.25 U
Tentatively Identified Compound						
Tentatively Identified Compound					None	None

Method	**DL[1]**	**LOQ[1]**	**RSL for Tap Water Tap Water[2]**	**California Primary MCL[3]**		
Semivolatile Organic Compounds (ug/L)						
Acenaphthene	1.00	10.00	530	NA	2.80 UJ h	2.80 UJ h
Acenaphthylene	1.00	10.00	NA	NA	2.80 UJ h	2.80 UJ h
Anthracene	1.00	10.00	1,800	NA	2.80 UJ h	2.80 UJ h
Benzo[a]anthracene	1.00	10.00	0.012	NA	2.80 UJ h	2.80 UJ h
Benzo[a]pyrene	1.00	10.00	0.0034	0.2	2.80 UJ h	2.80 UJ h
Benzo[b]fluoranthene	1.00	10.00	0.034	NA	2.80 UJ h	2.80 UJ h
Benzo[g,h,i]perylene	1.00	10.00	NA	NA	2.80 UJ h	2.80 UJ h
Benzo[k]fluoranthene	1.00	10.00	0.34	NA	2.80 UJ h	2.80 UJ h
Chrysene	1.00	10.00	3.4	NA	2.80 UJ h	2.80 UJ h
Dibenz(a,h)anthracene	1.00	10.00	0.0034	NA	2.80 UJ h	2.80 UJ h
Fluoranthene	1.00	10.00	800	NA	2.80 UJ h	2.80 UJ h
Fluorene	1.00	10.00	290	NA	2.80 UJ h	2.80 UJ h
Indeno[1,2,3-cd]pyrene	1.00	10.00	0.034	NA	2.80 UJ h	2.80 UJ h
Naphthalene	1.00	10.00	0.17	NA	2.80 UJ h	2.80 UJ h
Phenanthrene	1.00	10.00	NA	NA	2.80 UJ h	2.80 UJ h
Pyrene	1.00	10.00	120	NA	2.80 UJ h	2.80 UJ h

Table 3, continued
Summary of VOCs and SVOCs in Groundwater (µg/L)
EPA Methods SW8260C and SW8270D
Explosive Ordnance Disposal Range
Vandenberg AFB, California

Data Validity Qualifier(s):

U - The analyte was not detected above the method Detection Limit (DL).
J - The detection is below the limit of quantitation and is an estimated value.

Data Validity Comment(s):

h -Sample was prepped or analyzed beyond the specified holding time

Definition(s):

DL - detection limit
LOQ - limit of quantitation
µg/L - micrograms per liter
N/A - not applicable

Note(s):

1 - Values provided by TestAmerica
2 - RSLs are from U.S. EPA (EPA 2015).
3 - California Primary MCL.

Table 4
Summary of Metals in Soil (mg/Kg)
EPA Methods SW6010B and SW7471A
Explosive Ordnance Disposal Range
Vandenberg AFB, California

Location ID					**EOD-B1**	**EOD-B2**	**EOD-B3**	**EOD-B4**	**EODB5**	**EOD-B6**	**EOD-B7**	**EOD-B8**
Sample ID					**EOD-B1-2.0**	**EOD-B2-2.5**	**EOD-B3-2.0**	**EOD-B4-2.0**	**EOD-B5-2.0**	**EOD-B6-1.0**	**EOD-B7-3.5**	**EOD-B8-1.5**
Sample Depth (ft bg					**2.0**	**2.5**	**2.0**	**2.0**	**2.0**	**1.0**	**3.5**	**1.5**
Collection Date					**15-Dec-15**	**15-Dec-15**	**15-Dec-15**	**15-Dec-15**	**15-Dec-15**	**15-Dec-15**	**15-Dec-15**	**15-Dec-15**
			Surface Alluvium	**Subsurface Alluvium**								
Analyte	**DL[1]**	**LOQ[1]**	**BTV**	**BTV**								
Aluminum	6.8	20	16,400	24,700	7,600	3,950	6,270	6,450	5,100	7,840	6,280	1,460
Antimony	0.33	1	1.1 [2]	1.1 [2]	0.588 JB q	1.95	0.923 U	0.588 JB q	0.866 U	0.721 JB q	0.666 U	0.539 JB q
Arsenic	0.5	3	8.9	8.9	6.92 J	2.48 J q	3.61 J	9.35 J	3.89 J	9.49 J	1.03 J q	1.33 J q
Barium	0.1	0.5	98.0	215.0	5.93 J	8.58 J	6.94 J	5.25 J	4.43 J	7.27 J	5.62 J	4.6 J
Beryllium	0.1	0.5	0.7	0.8	0.178 J q	0.226 J q	0.194 J q	0.211 J q	0.168 J q	0.293 J q	0.147 J q	0.0929 J q
Cadmium	0.1	0.5	1.0	2.0	0.318 U	0.23 U	0.178 J q	0.278 U	0.262 U	0.259 U	0.202 U	0.179 U
Chromium	0.15	0.5	114 [2]	114 [2]	14.3 J	9.53 J	14.1 J	21.7 J	10.5 J	23.5 J	12.2 J	3.08 J
Cobalt	0.15	0.5	4.0	6.0	0.715 J	1.49	0.659 J	0.523 J	0.561 J	1.39	0.475 J	0.349 J q
Copper	0.3	1	46.0	127.0	3.45	6.04	4.48	4.41	1.89	6.72	1.93	4.45
Iron	8	25	29,200 [2]	43,100 [2]	11,700 J	5,680 J	9,970 J	23,700 J	6,960 J	27,800 J	2,590 J	2,630 J
Lead	0.33	1	12 [2]	11 [2]	4.39 J	25.1 J	8.07 J	7.02 J	3.95 J	7.55 J	3.67 J	7.46 J
Molybdenum	0.2	1	4.6 [2]	4.7 [2]	0.681 J q	0.585 J q	0.323 J q	0.647 J q	0.502 J q	0.964 J	0.368 J q	0.421 J q
Nickel	0.15	0.5	80 [2]	91 [2]	3.09 J	4.23 J	3.49 J	3.56 J	2.02 J	4.51 J	4.12 J	1.69 J
Selenium	0.5	3	1.7 [2]	1.8 [2]	1.2 J q	1.15 U	1.4 U	1.39 U	1.31 U	1.3 U	1.01 U	0.895 U
Silver	0.1	0.5	0.2	2.0	0.369 JB q	0.577 J	0.376 JB q	0.641 J	0.196 JB q	0.585 J	0.152 JB q	0.959 J
Thallium	0.5	2	0.95 [2]	0.95 [2]	1.59 U	1.15 U	1.4 U	0.761 J q	1.31 U	1.3 U	1.01 U	0.895 U
Vanadium	0.1	0.5	63 [2]	87 [2]	27 J	12.2 J	17.2 J	48.8 J	17.7 J	48.3 J	7.97 J	7.5 J
Zinc	0.4	1	123 [2]	96 [2]	2.12	5.74	2.84	2.47	1.89	3.67	1.7	4.98
Mercury	0.00402	0.01	0.2	1.0	0.190 J	0.0287 J	0.236 J	0.152 J	0.0751 J	0.195 J	0.0746 J	0.0164 J

Table 4, continued
Summary of Metals in Soil (mg/Kg)
EPA Methods SW6010B and SW7471A
Explosive Ordnance Disposal Range
Vandenberg AFB, California

Location ID					EOD-B9	EOD-B10	EOD-B9	EOD-DU1	EOD-DU2	EOD-DU3	EOD-DU4	EOD-DU4
Sample ID					EOD-B9-2.5	EOD-B10-3.5	EOD-B11-2.5	EOD-DU1	EOD-DU2	EOD-DU3	EOD-DU4	EOD-DU5
Sample Depth (ft bg					2.5	3.5	2.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
Collection Date					15-Dec-15	15-Dec-15	15-Dec-15	15-Dec-15	15-Dec-15	15-Dec-15	15-Dec-15	15-Dec-15
					Parent		Duplicate				Parent	Duplicate
Analyte	**DL[1]**	**LOQ[1]**	**Surface Alluvium BTV**	**Subsurface Alluvium BTV**								
Aluminum	6.8	20	16,400.0	24,700.0	8,230	4,380	3,280	1,100 J	885 J	869 J	933 J	964 J
Antimony	0.33	1	1.1 [2]	1.1 [2]	0.835 U	0.796 U	0.739 U	1.66	0.329 J q	0.576 U	0.646 U	0.585 U
Arsenic	0.5	3	8.9	8.9	3.9 J	1.59 J q	1.31 J q	1.12 J q	1.12 J q	0.775 J q	0.978 U	0.816 J q
Barium	0.1	0.5	98.0	215.0	7.13 J	5.33 J	4.66 J	6.33 J	5 J	4.93 J	5.07 J	5.37 J
Beryllium	0.1	0.5	0.7	0.8	0.224 J q	0.241 U	0.122 J q	0.196 J q	0.145 J q	0.125 J q	0.196 U	0.177 U
Cadmium	0.1	0.5	1.0	2.0	0.253 U	0.241 U	0.224 U	0.399 J q	0.23 J q	0.155 J q	0.196 U	0.102 J q
Chromium	0.15	0.5	114 [2]	114 [2]	18.3 J	5.03 J	7.06 J	4.26	2.77	2.5	2.92	3.52
Cobalt	0.15	0.5	4.0	6.0	1.21	0.509 J	0.512 J	0.776	0.628	0.602	0.774	0.802
Copper	0.3	1	46.0	127.0	4.75	0.539 J q	1.95	36.4 J	12.7 J	7.56 J	3.51 J	3.37 J
Iron	8	25	29,200 [2]	43,100 [2]	10,600 J	2,310 J	3,480 J	4,160 J	1,970 J	1,870 J	1,520 J	1,550 J
Lead	0.33	1	12 [2]	11 [2]	5 J	2.69 J	2.84 J	45 J	19.9 J	12.7 J	6.88 J	6.88 J
Molybdenum	0.2	1	4.6 [2]	4.7 [2]	0.577 J q	0.325 J q	0.407 J q	0.403 J q	0.268 J q	0.226 J q	0.391 U	0.355 U
Nickel	0.15	0.5	80 [2]	91 [2]	4.46 J	2.65 J	1.86 J	3.92 J	2.26 J	1.76 J	5.22 J	4.09 J
Selenium	0.5	3	1.7 [2]	1.8 [2]	0.703 J q	1.21 U	1.12 U	0.935 U	0.943 U	0.468 J q	0.978 U	0.887 U
Silver	0.1	0.5	0.2	2.0	0.394 JB q	0.14 JB q	0.22 JB q	3.64 J	2.27 J	1.74 J	0.913 J	0.566 J
Thallium	0.5	2	0.95 [2]	0.95 [2]	1.26 U	1.21 U	1.12 U	0.935 U	0.943 U	0.873 U	0.978 U	0.887 U
Vanadium	0.1	0.5	63 [2]	87 [2]	26.3 J	7.41 J	10.1 J	5.79	5.24	5.08	4.24	4.2
Zinc	0.4	1	123 [2]	96 [2]	4.52	1.37	2.48	22.9 J	15.3 J	16.4 J	6.99 J	6.14 J
Mercury	0.00402	0.01	0.2	1.0	0.185 J	0.0675 J	0.175 J	0.0224	0.00963 J q	0.00607 J q	0.00444 J q	0.00532 J q

Table 4, continued
Summary of Metals in Soil (mg/Kg)
EPA Methods SW6010B and SW7471A
Explosive Ordnance Disposal Range
Vandenberg AFB, California

Data Validity Qualifier(s):

B - The sample result is less than 5 times (10 times for common organic laboratory contaminants) the blank contamination. The result is considered not to have originated from the environmental sample, because cross-contamination is suspected.
J - The analyte was positively identified and the result is usable; however, the analyte concentration is an estimated value.
JM - The analyte was positively identified and the result is usable; however, the analyte concentration is an estimated value and there may also be a matrix effect.
M - The analyte has a matrix effect or matrix spike RPD issue.
U - The analyte was not detected above the method Detection Limit (DL).
+/- - Plus or minus sign after the qualifier indicates a potential positive or negative bias of the sample result because of issues identified by the qualifier and comments.

Data Validity Comment(s):

a - The analyte was found in the method blank.
c - The matrix spike and/or matrix spike duplicate recoveries were outside control limits.
f - The duplicate/replicate sample's relative percent difference was outside the control limit.
g - The data met prescribed criteria as detailed in the QAPP.
q - The analyte detection was below the LOQ.

Definition(s):

BTV - background threshold value
DL - detection limit
EPA - U.S. Environmental Protection Agency
ft bgs - feet below ground surface
LOQ - limit of quantitation
mg/Kg - milligrams per kilogram
N/A - not available
QAPP - Quality Assurance Project Plan
(R) - replicate sample
RPD - relative percent difference

Note(s):

- Shaded results are greater than the applicable BTV.
1 - Values provided by GEL Laboratories, LLC.
2 - Refined BTV.

Table 5
Summary of Explosives and Perchlorate in Soil
EPA Methods 8330B and E314.0
Explosive Ordnance Disposal Range
Vandenberg AFB, California

Location ID					EOD-B1	EOD-B2	EOD-B3	EOD-B4	EOD-B5	EOD-B6
Sample ID					EOD-B1-2.0	EOD-B2-2.5	EOD-B3-2.0	EOD-B4-2.0	EOD-B5-2.0	EOD-B6-1.0
Depth (ft bgs)					2.0	2.5	2.0	2.0	2.0	1.0
Collection Date					15-Dec-15	15-Dec-15	15-Dec-15	15-Dec-15	15-Dec-15	15-Dec-15
Method	MDL[1a]	RL[1a]	RSL for Industrial Soil[2]	CHHSL for Industrial Soil						
Explosives (mg/Kg)										
1,3,5-TNB (1,3,5-Trinitrobenzene)	0.150	0.500	32,000	N/A	0.296 U	0.299 U	0.296 U	0.299 U	0.300 U	0.297 U
1,3-DNB (m-Dinitrobenzene)	0.150	0.500	82	N/A	0.296 U	0.299 U	0.296 U	0.299 U	0.300 U	0.297 U
2,4,6-TNT (2,4,6-Trinitrotoluene)	0.150	0.500	96	N/A	0.296 U	0.299 U	0.296 U	0.299 U	0.300 U	0.297 U
2,4-DNT (2,4-Dinitrotoluene)	0.150	0.500	7.4	N/A	0.296 U	0.299 U	0.296 U	0.299 U	0.300 U	0.297 U
2,6-DNT (2,6-Dinitrotoluene)	0.150	0.500	1.5	N/A	0.296 U	0.299 U	0.296 U	0.299 U	0.300 U	0.297 U
2-Amino-4,6-DNT (2-Amino-4,6-dinitrotoluene)	0.150	0.500	2,300	N/A	0.296 U	0.299 U	0.296 U	0.299 U	0.300 U	0.297 U
2-Nitrotoluene (o-Nitrotoluene)	0.150	0.500	15	N/A	0.296 U	0.299 U	0.296 U	0.299 U	0.300 U	0.297 U
3-Nitrotoluene (m-Nitrotoluene)	0.150	0.500	82	N/A	0.296 U	0.299 U	0.296 U	0.299 U	0.300 U	0.297 U
4-Amino-2,6-DNT (4-Amino-2,6-dinitrotoluene)	0.150	0.500	2,300	N/A	0.296 U	0.299 U	0.296 U	0.299 U	0.300 U	0.297 U
4-Nitrotoluene (p-Nitrotoluene)	0.150	0.500	140	N/A	0.296 U	0.299 U	0.296 U	0.299 U	0.300 U	0.297 U
HMX	0.150	0.500	57,000	N/A	0.296 U	0.299 U	0.296 U	0.299 U	0.300 U	0.297 U
Nitrobenzene	0.150	0.500	22	N/A	0.296 U	0.299 U	0.296 U	0.299 U	0.300 U	0.297 U
RDX	0.150	0.500	28	N/A	0.296 U	0.299 U	0.296 U	0.299 U	0.300 U	0.297 U
Tetryl	0.150	0.500	2,300	N/A	0.296 U	0.299 U	0.296 U	0.299 U	0.300 U	0.297 U
Perchlorate (µg/Kg)	**MDL[1b]**	**RL[1b]**								
Perchlorate	40	120	820,000	350,000	1,500 J	130 J	990 J	430 J	150 J	160 J

Location ID					EOD-B7	EOD-B8	EOD-B9	EOD-B10	EOD-B9
Sample ID					EOD-B7-3.5	EOD-B8-1.5	EOD-B9-2.5	EOD-B10-3.5	EOD-B11-2.5
Depth (ft bgs)					3.5	1.5	2.5	3.5	2.5
Collection Date					15-Dec-15	15-Dec-15	15-Dec-15	15-Dec-15	15-Dec-15
							Parent		Duplicate
Method	MDL[1a]	RL[1a]	RSL for Industrial Soil[2]	CHHSL for Industrial Soil					
Explosives (mg/Kg)									
1,3,5-TNB (1,3,5-Trinitrobenzene)	0.150	0.500	32,000	N/A	0.299 U	0.297 U	0.299 U	0.299 U	0.300 U
1,3-DNB (m-Dinitrobenzene)	0.150	0.500	82	N/A	0.299 U	0.297 U	0.299 U	0.299 U	0.300 U
2,4,6-TNT (2,4,6-Trinitrotoluene)	0.150	0.500	96	N/A	0.299 U	0.297 U	0.299 U	0.299 U	0.300 U
2,4-DNT (2,4-Dinitrotoluene)	0.150	0.500	7.4	N/A	0.299 U	0.297 U	0.299 U	0.299 U	0.300 U
2,6-DNT (2,6-Dinitrotoluene)	0.150	0.500	1.5	N/A	0.299 U	0.297 U	0.299 U	0.299 U	0.300 U
2-Amino-4,6-DNT (2-Amino-4,6-dinitrotoluene)	0.150	0.500	2,300	N/A	0.299 U	0.297 U	0.299 U	0.299 U	0.300 U
2-Nitrotoluene (o-Nitrotoluene)	0.150	0.500	15	N/A	0.299 U	0.297 U	0.299 U	0.299 U	0.300 U
3-Nitrotoluene (m-Nitrotoluene)	0.150	0.500	82	N/A	0.299 U	0.297 U	0.299 U	0.299 U	0.300 U
4-Amino-2,6-DNT (4-Amino-2,6-dinitrotoluene)	0.150	0.500	2,300	N/A	0.299 U	0.297 U	0.299 U	0.299 U	0.300 U
4-Nitrotoluene (p-Nitrotoluene)	0.150	0.500	140	N/A	0.299 U	0.297 U	0.299 U	0.299 U	0.300 U
HMX	0.150	0.500	57,000	N/A	0.299 U	0.297 U	0.299 U	0.299 U	0.300 U
Nitrobenzene	0.150	0.500	22	N/A	0.299 U	0.297 U	0.299 U	0.299 U	0.300 U
RDX	0.150	0.500	28	N/A	0.299 U	0.297 U	0.299 U	0.299 U	0.300 U
Tetryl	0.150	0.500	2,300	N/A	0.299 U	0.297 U	0.299 U	0.299 U	0.300 U
Perchlorate (µg/Kg)	**MDL[1b]**	**RL[1b]**							
Perchlorate	40	120	820,000	350,000	130 U	86 J q	140 U	130 U	150 U

Table 5, continued
Summary of Explosives and Perchlorate in Soil
EPA Methods 8330B and E314.0
Explosive Ordnance Disposal Range
Vandenberg AFB, California

Location ID					**EOD-DU1**	**EOD-DU2**	**EOD-DU3**	**EOD-DU4**	**EOD-DU4**
Sample ID					**EOD-DU1**	**EOD-DU2**	**EOD-DU3**	**EOD-DU4**	**EOD-DU5**
Depth (ft bgs)					**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**
Collection Date					**15-Dec-15**	**15-Dec-15**	**15-Dec-15**	**15-Dec-15**	**15-Dec-15**
								Parent	**Duplicate**
Method	**MDL[1a]**	**RL[1a]**	**RSL for Industrial Soil[2]**	**CHHSL for Industrial Soil**					
Explosives (mg/Kg)									
1,3,5-TNB (1,3,5-Trinitrobenzene)	0.150	0.500	32,000	N/A	0.128 U	0.128 U	0.128 U	0.128 U	0.128 U
1,3-DNB (m-Dinitrobenzene)	0.150	0.500	82	N/A	0.128 U	0.128 U	0.128 U	0.128 U	0.128 U
2,4,6-TNT (2,4,6-Trinitrotoluene)	0.150	0.500	96	N/A	0.128 U	0.128 U	0.128 U	0.128 U	0.128 U
2,4-DNT (2,4-Dinitrotoluene)	0.150	0.500	7.4	N/A	0.128 U	0.128 U	0.128 U	0.128 U	0.128 U
2,6-DNT (2,6-Dinitrotoluene)	0.150	0.500	1.5	N/A	0.128 UJ	0.128 UJ	0.128 UJ	0.128 UJ	0.128 UJ
2-Amino-4,6-DNT (2-Amino-4,6-dinitrotoluene)	0.150	0.500	2,300	N/A	0.128 U	0.128 U	0.128 U	0.128 U	0.128 U
2-Nitrotoluene (o-Nitrotoluene)	0.150	0.500	15	N/A	0.128 UJ	0.128 UJ	0.128 UJ	0.128 UJ	0.128 UJ
3-Nitrotoluene (m-Nitrotoluene)	0.150	0.500	82	N/A	0.128 UJ	0.128 UJ	0.128 UJ	0.128 UJ	0.128 UJ
4-Amino-2,6-DNT (4-Amino-2,6-dinitrotoluene)	0.150	0.500	2,300	N/A	0.128 U	0.128 U	0.128 U	0.128 U	0.128 U
4-Nitrotoluene (p-Nitrotoluene)	0.150	0.500	140	N/A	0.128 UJ	0.128 UJ	0.128 UJ	0.128 UJ	0.128 UJ
HMX	0.150	0.500	57,000	N/A	0.291 q	0.128 U	0.128 U	0.128 U	0.128 U
Nitrobenzene	0.150	0.500	22	N/A	0.128 UJ	0.128 UJ	0.128 UJ	0.128 UJ	0.128 UJ
RDX	0.150	0.500	28	N/A	0.128 U	0.128 U	0.128 U	0.128 U	0.128 U
Tetryl	0.150	0.500	2,300	N/A	0.128 U	0.128 U	0.128 U	0.128 U	0.128 UJ
Perchlorate (µg/Kg)	**MDL[1b]**	**RL[1b]**							
Perchlorate	40	120	820,000	350,000	1,200 J	170 J	60 J q	11 J q	20 J q

Data Validity Qualifier(s):

J - The analyte was positively identified and the result is usable; however, the analyte concentration is an estimated value.
R - The sample result is rejected and not usable for any purpose. The presence or absence of the analyte cannot be verified.
U - The analyte was not detected above the method Detection Limit (DL).

Data Validity Comment(s):

d - The laboratory control sample recovery was outside control limits.
g - The data met prescribed criteria as detailed in the QAPP.
q - The analyte detection was below the LOQ.

Definition(s):

CHHSL - California Human Health Screening Level
DL - detection limit
DNB - dinitrobenzene
DNT - dinitrotoluene
EPA - U.S. Environmental Protection Agency
ft bgs - feet below ground surface
HMX - octahydro-1,3,5,7-tetranitro-1,3,5,7- tetra, or Her Majesty's Explosive
LOQ - limit of quantitation
µg/kg - micrograms per kilogram
mg/kg - milligrams per kilogram
N/A - not applicable
QAPP - Quality Assurance Project Plan
(R) - replicate sample
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine, or Royal Dutch Explosive
RSL - Regional Screening Level
Tetryl - trinitrophenylmethylnitramine
TNB - trinitrobenzene
TNT - trinitrotoluene

Note(s):

1[a] - Values provided by GEL Laboratories, LLC.
1b - Values provided by TestAmerica
2 - RSLs are from U.S. EPA (EPA 2015).

Table 6
Summary of Extractable TPH in Soil (mg/kg)
EPA Method SW8015B
Explosive Ordnance Disposal Range
Vandenberg AFB, California

				TPHe as the Sum of TPHd and TPHmo	TPH as Diesel (Diesel Range Organics [C10-C28])	TPH as Motor Oil (Motor Oil Range Organics [C28-C40])	
			MDL[1]:	N/A	0.333	0.637	
			RL[1]:	N/A	25	25	
			Action Level:	1,000	N/A	N/A	
Location ID	**Sample ID**	**Depth (ft bgs)**	**Collection Date**				
EOD-TB-1	EOD-TB-1-0.0	0.0	15-Dec-15	ND	1.1 U	1.1 U	
EOD-TB-1	EOD-TB-1-0.5	0.5	15-Dec-15	ND	1.1 U	1.1 U	
EOD-TB-2	EOD-TB-2-0.0	0.0	15-Dec-15	25	1.0 U	25 J	q
EOD-TB-2	EOD-TB-2-1.0	1.0	15-Dec-15	24	1.0 U	24 J	q
EOD-TB-3	EOD-TB-3-0.0	0.0	15-Dec-15	15	1.1 U	15 J	q
EOD-TB-3	EOD-TB-3-1.0	1.0	15-Dec-15	ND	1.1 U	1.1 U	
EOD-TB-4	EOD-TB-4-0.0	0.0	15-Dec-15	17	1.0 U	17 J	q
EOD-TB-4	EOD-TB-4-2.0	2.0	15-Dec-15	ND	1.1 U	1.1 U	
EOD-TB-5	EOD-TB-5-0.0	0.0	15-Dec-15	73	1.1 U	73	
EOD-TB-5	EOD-TB-5-4.0	4.0	15-Dec-15	ND	1.1 U	1.1 U	
EOD-TB-6	EOD-TB-6-0.0	0.0	15-Dec-15	28	1.0 U	28	
EOD-TB-6	EOD-TB-7-0.0 (R)	0.0	15-Dec-15	25	1.1 U	25 J	q
EOD-TB-6	EOD-TB-6-1.5	1.5	15-Dec-15	ND	1.1 U	1.1 U	
EOD-TB-6	EOD-TB-7-1.5 (R)	1.5	15-Dec-15	ND	1.1 U	1.1 U	

Data Validity Qualifier(s):

J - The analyte was positively identified and the result is usable; however, the analyte concentration is an estimated value.

U - The analyte was not detected at or above the MDL.

Data Validity Comment(s):

g - The data met prescribed criteria as detailed in the SAP.

q - The analyte detection was below the RL.

Definition(s):

EPA - U.S. Environmental Protection Agency
ft bgs - feet below ground surface
MDL - method detection limit
mg/Kg - milligrams per kilogram
N/A - not applicable
ND - Not detected; result is less than the method detection limit.
(R) - replicate sample
RL - reporting limit
SAP - Sampling and Analysis Plan
TPHd - diesel-range total petroleum hydrocarbons
TPHe - extractable total petroleum hydrocarbons
TPHmo - motor oil-range total petroleum hydrocarbons

Note(s):

2,660 - Bolded results are greater than the project action level of 1,000 mg/kg.

1 - Values provided by TestAmerica

Table 7
Summary of Key Contaminants of Concern
Explosive Ordnance Disposal Range
Vandenberg AFB, California

	Aluminum [a]							Antimony [b]							Arsenic [c]						
Sample Location	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Groundwater (µg/L)																					
EOD-MW-1 (unfiltered)	11000	2260	1860	21700	17900	7300	10400	ND	ND	2.9	6.5	ND	ND	ND	**13**	ND	ND	**6.7**	**7.80**	**9.90**	ND
EOD-MW-1 (filtered)	490	339	94.4	3400	722	6940	10900	ND	ND	7.5	ND	ND	ND	ND	**13**	ND	ND	ND	**5.36**	**11.4**	**6.74**
Soil (mg/Kg)																					
EOD-DU1	1530	1770	1860	2840	1800	1610	1100	ND	0.182	0.41	1.4	0.650	2.3	1.66	ND	0.294	0.27	1.9	ND	ND	1.12
EOD-DU2	1770	2190	1150	2310	1220	1360	885	0.96	0.716	0.20	1.2	0.625	0.7	0.329	ND	0.572	0.17	1.9	ND	ND	1.12
EOD-DU3	1260	1830	952	2190	1190	1190	869	ND	0.349	0.26	0.7	0.575	0.5	ND	ND	0.685	ND	1.5	ND	ND	0.775
EOD-DU4	1160	1700	664	2330	1390	1910	933	ND	0.218	0.17	0.6	0.527	ND	ND	ND	0.386	ND	1.3	ND	ND	0.816
EOD-B-1	9240	12800	4590	6380	1160	2290	7600	ND	ND	0.38	ND	ND	0.9	0.588	ND	2.71	ND	**4.7**	ND	1.3	**6.92**
EOD-B-2	16600	11000	13700	13400	4530	1960	3950	ND	0.228	0.89	ND	ND	ND	1.95	ND	1.12	0.48	**3.0**	ND	ND	2.48
EOD-B-3	12800	13200	6620	11500	2050	2850	6270	ND	ND	0.73	ND	ND	ND	ND	1.5	2.73	0.63	**6.0**	ND	1.1	**3.61**
EOD-B-4	13800	17400	11900	5360	9260	10700	6450	ND	0.150	0.72	ND	ND	ND	0.588	2.7	**16.1**	1.3	2.7	ND	**5.3**	**9.35**
EOD-B-5	16700	16600	3950	7110	1640	2080	5100	ND	ND	0.33	ND	0.307	ND	ND	2.0	1.76	ND	**3.4**	ND	ND	**3.89**
EOD-B-6	13900	12600	7240	11200	1840	1410	7840	ND	ND	0.53	ND	ND	ND	0.721	**3.1**	2.22	0.68	**5.1**	ND	ND	**9.49**
EOD-B-7	17500	18800	12200	10300	2110	5330	6280	ND	ND	0.50	ND	ND	ND	ND	**20.1**	**3.82**	ND	**18.5**	ND	**3.7**	1.03
EOD-B-8	15700	16400	6340	10800	1360	2710	1460	ND	ND	0.96	ND	0.410	ND	0.539	**13.6**	**6.0**	ND	**7.1**	ND	ND	1.33
EOD-B-9	15500	21400	7730	8200	5640	8450	8230	ND	0.168	0.75	ND	0.356	ND	ND	**5.2**	**7.47**	**3.3**	**5.5**	ND	**4.6**	**3.9**
EOD-B-10	3040	13300	10500	6670	2270	11800	4380	ND	0.202	0.33	0.7	ND	ND	ND	2.9	1.97	ND	ND	ND	1.2	1.59

	Chromium [d]							Lead [e]							Silver [f]						
Sample Location	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Groundwater (µg/L)																					
EOD-MW-1 (unfiltered)	18	9.85	3.1	33.1	25.8	15.2		3.5	ND	ND	20.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EOD-MW-1 (filtered)	5.3	6.23	1.6	7.5	5.3	14.5		3.2	ND	ND	8.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Soil (mg/kg)																					
EOD-DU1	8.0	4.34	4.1	7.7	14	7.1	4.26	12.7	7.56	25.7	57.5	33.3	59.1	45	1.2	0.521	3.2	14.9	3.36	8.2	3.64
EOD-DU2	4.9	4.8	2.7	5.5	3.5	6.4	2.77	47.7	34.0	12.5	29.3	20.9	21	19.9	7.7	3.98	1.2	4.2	1.68	3.6	2.27
EOD-DU3	2.8	12.5	2.3	4	3.21	5	2.5	16.6	18.8	5.6	10.6	15.3	12.3	12.7	1.4	12.1	0.30	2.3	1.47	13.2	1.74
EOD-DU4	2.7	2.84	2	6.1	4.67	9.5	2.92	11.2	7.98	3.1	6.7	8.81	9.2	6.88	0.93	0.669	ND	1.8	0.789	2.4	0.913
EOD-B-1	14.5	22.1	5.9	13.5	4.65	3.2	14.3	3.2	4.27	1.8	5.7	3.97	2.9	4.39	ND	ND	ND	ND	0.308	0.2	0.369
EOD-B-2	28.7	24	25.3	18.4	26.5	9.1	9.53	5.2	4.45	3.8	4.5	3.13	2	23.1	ND	ND	ND	ND	0.246	ND	0.577
EOD-B-3	25.3	22.6	13.2	19.2	7.13	6.8	14.1	4.8	5.05	6.3	5.0	19.5	21.6	8.07	0.17	ND	1.2	ND	8.11	13.3	0.376
EOD-B-4	17.3	28.4	15.5	11.3	16.7	72.8	21.7	4.6	4.57	3.7	17.2	4.91	8.4	7.02	ND	ND	ND	25.4	0.113	0.5	0.641
EOD-B-5	27.3	27	5.2	13.8	5.42	3.4	10.5	5.6	5.01	2.6	4.6	2.66	3.5	3.95	ND	ND	ND	ND	ND	ND	0.196
EOD-B-6	29.4	24.9	13.3	29.2	8.4	2.5	23.5	5.7	4.25	3.3	4.9	2.96	5	7.55	ND	ND	ND	ND	ND	0.2	0.585
EOD-B-7	40.8	27.3	17.7	31.7	6.56	10.8	12.2	5.7	4.01	3.1	6.5	2.48	2.2	3.67	2.5	ND	ND	ND	0.257	ND	0.152
EOD-B-8	38.4	32.2	12.8	21.7	16.2	6	3.08	8.5	5.65	3.7	5.9	5.32	6.6	7.46	2.3	ND	0.99	ND	5.41	2.2	0.959
EOD-B-9	29.1	38.6	13.9	16.6	13.5	17.8	18.3	6.4	6.55	5.3	7.2	5.03	4.6	5	ND	ND	ND	ND	ND	ND	0.394
EOD-B-10	6.1	19.2	12.4	7.8	12.6	15	5.03	1.8	3.39	3.3	3.1	2.33	5.4	2.69	ND	ND	ND	ND	ND	ND	0.14

Table 7, continued
Summary of Key Contaminants of Concern
Explosive Ordnance Disposal Range
Vandenberg AFB, California

Sample Location	2,4,6-TNT [g]							HMX [h]							RDX [i]						
	2009	2010	2011	2012	2013	2014	2015	2009	2010	2011	2012	2013	2014	2015	2009	2010	2011	2012	2013	2014	2015
Groundwater (µg/L)																					
EOD-MW-1 (unfiltered)	ND	ND	ND	ND	ND	ND	ND	ND	R	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Soil (µg/kg)																					
EOD-DU1	ND	ND	ND	ND	ND	0.18	ND	ND	ND	0.240	0.063	ND	0.11	0.291	ND	ND	ND	0.085	ND	0.14	ND
EOD-DU2	ND	0.895	ND	0.0032	ND	ND	ND	0.053	ND	ND	0.021	ND	0.041	ND	0.021	ND	ND	0.68	ND	0.022	ND
EOD-DU3	ND	ND	ND	ND	ND	ND	ND	0.052	ND	ND	ND	ND	0.041	ND	ND	ND	ND	0.048	ND	0.052	ND
EOD-DU4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.061	ND	ND	ND	ND	0.085	ND	ND	ND
EOD-B-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.006	ND	ND	ND	ND	ND	ND	ND	ND
EOD-B-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EOD-B-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.058	ND	ND	ND	ND	ND	ND	0.018	ND
EOD-B-4	ND	0.0184	ND	ND	ND	ND	ND	ND	ND	ND	0.0078	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EOD-B-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EOD-B-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EOD-B-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EOD-B-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0079	ND
EOD-B-9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EOD-B-10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Sample Location	Perchlorate [j]								TPHd							TPHmo						
	2009	2010	2011 [k]	2011 [l,m]	2012	2013	2014	2015	2009	2010	2011	2012	2013	2014	2015	2009	2010	2011	2012	2013	2014	2015
Groundwater (mg/L)																						
EOD-MW-1 (unfiltered)	ND	0.281	**73**	12 (13)[p]	ND	ND	ND	ND	ND	0.0694	ND	0.034	ND	0.024	ND	ND	ND	ND	0.041	ND	0.056	ND
Soil (mg/Kg)																						
EOD-B-5 (1.5 ft bgs)	350	329	790	NA	3,100	1,570	3,600	1,200	4,630	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
EOD-B-5 (3.5 ft bgs)	5,700	2,360	230	NA	810	433	280	170	2,710	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
EOD-TB-1 (surface)	4,100	807	18	NA	84	329	130	60	ND	6.12	ND	26	NA	NA	ND	66	ND	ND	58	NA	NA	ND
EOD-TB-1 (subsurface)	1,800	360	11	NA	75	63.9	59	20	ND	8.06	ND	11	NA	NA	ND	ND	ND	ND	17	NA	NA	ND
EOD-TB-2 (surface)	5,000	5,310	3,800	NA	8,700	988	1,500	1,500	ND	ND	13	38	NA	NA	ND	36	27.7	12	110	NA	NA	25
EOD-TB-2 (subsurface)	1,300	453	460	NA	650	238	110	130	ND	6.78	ND	8.7	NA	NA	ND	ND	ND	ND	7.8	NA	NA	24
EOD-TB-3 (surface)	14,000	1,310	3,500	NA	2,600	918	1,200	990	ND	ND	13	16	NA	NA	ND	ND	51.9	20	61	NA	NA	15
EOD-TB-3 (subsurface)	270	351	260	NA	9.2	50.7	3700	430	ND	14.6	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	ND
EOD-TB-4 (surface)	25	376	47	NA	840	60.3	68	150	ND	ND	15	2,000	NA	NA	ND	ND	64.0	ND	660	NA	NA	17
EOD-TB-4 (subsurface)	630	250	240	NA	470	86.7	190	160	ND	3.90	ND	5.5	NA	NA	ND	ND	ND	ND	3.6	NA	NA	ND
EOD-TB-5 (surface)	0.66	3.88	ND	NA	ND	9.42	23	ND	ND	ND	ND	31	NA	NA	ND	ND	709	ND	37	NA	NA	73
EOD-TB-5 (subsurface)	440	273	ND	NA	290	72.3	62	86	ND	ND	ND	ND	NA	NA	ND	ND	16.4	ND	5.7	NA	NA	ND
EOD-TB-6 (surface)	10	8.96	4.0	NA	13	7.76	5.9	ND	ND	ND	ND	4.0	NA	NA	ND	ND	140	ND	29	NA	NA	28
EOD-TB-6 (subsurface)	100	74.8	ND	NA	ND	1.03	0.92	ND	ND	5.92	ND	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	ND

Table 7, continued
Summary of Key Contaminants of Concern
Explosive Ordnance Disposal Range
Vandenberg AFB, California

Definition(s):

CDPH - California Department of Public Health (formerly California Department of Health Services [CDHS])
BTV - background threshold value
HMX - octahydro-1,3,5,7-tetranitro-1,3,5,7- tetra, or Her Majesty's Explosive
MCL - maximum contaminant level
µg/L - micrograms per liter
mg/L - milligrams per liter
µg/Kg - micrograms per kilogram
mg/Kg - milligrams per kilogram
NA - not analyzed
ND - Not detected; result is less than the method detection limit.
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine, or Royal Dutch Explosive
RSL - Regional Screening Level
TNT - trinitrotoluene
TPHd - total petroleum hydrocarbons as diesel
TPHmo - total petroleum hydrocarbons as motor oil
R - The result was rejected and is not usable for any purpose.

Note(s):

16.1 - Bold type indicated results above the RSL.
13 - Underlined results are greater than the California primary MCL.
- Shaded results are greater than the applicable BTV.

Soil samples were collected for TPH analysis from EOD-B-5 during 2009 based on petroleum odor and staining observed during soil sampling.

a - The BTV, RSL for tap water, and MCL for aluminum in groundwater are 1,200, 20,000, and 1,000 µg/L, respectively.
The BTV for surface alluvium, the BTV for subsurface alluvium, and RSL for industrial soil for aluminum in soil are 16,400, and 24,700, and 1,100,000 mg/kg, respectively.
b - The BTV, RSL for tap water, and MCL for antimony in groundwater are 10, 15, and 6 µg/L, respectively.
The BTV and RSL for industrial soil for antimony in soil are 1.1 and 410 mg/kg, respectively.
c - The BTV, RSL for tap water, and MCL for arsenic in groundwater are 26, 0.045, and 10 µg/L, respectively.
The BTV for surface and subsurface soil and RSL for industrial soil for arsenic are 8.9 and 3.0 mg/kg, respectively.
d - The BTV and MCL for chromium in groundwater are 12 and 22,000 µg/L, respectively.
The BTV for surface alluvium and subsurface alluvium, and the RSL for industrial soil for chromium in soil are 114, and 1,800,000 mg/kg, respectively.
e - The BTV and MCL for lead in groundwater are 3 and 15 µg/L, respectively.
The surface soil BTV, subsurface soil BTV, and RSL for industrial soil for lead are 12, 11, and 800 mg/kg, respectively.
f - The BTV and RSL for tap water for silver in groundwater are 0.2 and 180 µg/L, respectively
The surface soil BTV, subsurface soil BTV, and RSL for industrial soil for silver are 0.2, 2.0, and 5,100 mg/kg, respectively.
g - The RSLs for tap water and industrial soil for 2,4,6-TNT are 2.2 µg/L and 79 mg/kg, respectively.
h - The RSLs for tap water and industrial soil for HMX are 1,800 µg/L and 49,000 mg/kg, respectively.
i - The RSLs for tap water and industrial soil for RDX are 0.61 µg/L and 24 mg/kg, respectively.
j - The RSL for tap water for perchlorate is 26 µg/L and the California primary MCL for perchlorate in water is 6 µg/L.
The RSL for industrial soil for perchlorate is 720,000 µg/kg.
k - Sample was collected in April 2011.
l - Sample was collected in June 2011.
m - The perchlorate sample result in parentheses is from a split sample collected with the primary sample and submitted to Test America, Inc.
on 29 June 2011 to confirm the result of the primary laboratory analysis.

Table 8
Comparison of Annual Field Parameters and
Perchlorate in Groundwater Samples (µg/L)
for Well EOD-MW-1
Explosive Ordnance Disposal Range
Vandenberg AFB, California

Parameter Sample Date	07-Jul-09	03-Jun-10	19-Apr-11	29-Jun-11	11-Sep-12	05-Dec-13	17-Nov-14
Water Level (ft bTOC)	6.76	6.18	4.70	6.08	6.48	6.61	8.17
Temperature (°C)	20.49	17.13	15.52	18.27	17.05	18.44	19.43
Electrical Conductivity (µhmos/cm)	345	510	285	281	295	333	292
pH	6.29	5.95	6.17	6.72	6.44	6.35	6.46
Turbidity	33.0	43.8	77.8	105	113	28	67
Dissolved Oxygen (mg/L)	0.27	0.27	2.94	0.87	1.5	0.4	0.5
Oxidation/Reduction Potential (mV)	-169.90	23.4	174.9	133.2	202.3	28.5	-26.4
Perchlorate (µg/L)	ND	0.281	73	12 (13) [a]	ND	ND	ND

Definition(s):

bTOC - below top of casing
°C - degrees Celsius
ft - feet
mg/L - milligrams per liter
µg/L - micrograms per liter
µhmos/cm - micromos per centimeter
mV - millivolts
ND - Not detected

Note(s):

a - The result in parentheses is from a split sample submitted to Test America Inc. on 29 June 2011 as a verification of the primary sample result.

15-Dec-15
8.62
17.1
315
6.31
61
0.58
1.3
ND