



DEPARTMENT OF THE ARMY  
 FORT WINGATE DEPOT ACTIVITY  
 P.O. BOX 265  
 FORT WINGATE, NM 87315

September 4, 2009

Mr. James P. Bearzi  
 Chief, Hazardous Waste Bureau  
 New Mexico Environment Department  
 2905 Rodeo Park Drive East, Building 1  
 Santa Fe, New Mexico 87505-6303

Dear Mr. Bearzi:

The purpose of this letter is to propose reducing the groundwater sampling requirements for the Ground Water Monitoring Program at Fort Wingate Depot Activity (RCRA Permit EPA ID No. NM6213820974). The enclosed letter report contains an evaluation of groundwater chemical data from sampling activities conducted in April 2008, October 2008, and April 2009. If approved by the New Mexico Environmental Department, the Army proposes to institute the testing requirements outlined in the enclosed report during the October 2009 sampling event. If you have questions or require further information, please call me at (330) 358-7312 or Mr. David Henry at (505) 342-3139.

Sincerely,

Mark Patterson  
 BRAC Environmental Coordinator

Enclosure

CF:

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 Richard Cruz, Fort Wingate  
 Chuck Hendrickson, U.S. EPA Region 6  
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**Fort Wingate Depot Activity  
Ground water Monitoring Program  
Proposed  
Reduction of Ground water Sample Analytical Testing Requirement**

**Introduction:**

The purpose of this letter report is to propose reduced ground water sample analytical testing requirements for the Fort Wingate Depot Activity (FWDA) ground water monitoring program. The following is an evaluation of ground water sample chemical analytical results for FWDA. Under Resource, Conservation, and Recovery Act (RCRA) Permit No. NM621382074, FWDA is required to monitor ground water for potential contaminants. Ground water samples were collected from existing monitoring wells in April and October of 2008 and again in April 2009. These existing monitoring wells are located in two major areas of FWDA; the Northern Area (TNT Washout, Administration, East Landfill and Perimeter) and the Open Burn and Open Detonation (OB/OD) Area. Ground water samples obtained from these monitoring wells were analyzed for constituents and constituent groups listed below:

**OB/OD Area Wells:**

- Explosives (EPA Method 8330)
- Nitrate/Nitrite (EPA Method 300.0)
- Perchlorate (EPA Method 6850)
- White Phosphorus (EPA Method 7580)
- Target Analyte List (TAL) Metals Total and Dissolved (EPA Method 6010B/6020)
- Mercury (EPA Method 7470A)
- Target Compound List (TCL) Volatile Organic Compounds (EPA Method 8260B)
- TCL Semi-Volatile Organic Compounds (EPA Method 8270C&D)
- Dioxins and Furans (EPA Methods 8290/1613B)
- Cyanide (EPA Method 335.2)
- Polychlorinated Biphenyls PCB's (EPA Method 8082)
- Pesticides/Herbicides (EPA Methods 8081A/8151A)

**Northern Area Wells:**

- Explosives (EPA Method 8330)
- Nitrate/Nitrite (EPA Method 300.0)
- Perchlorate (EPA Method 6850)
- TAL Metals Total and Dissolved (EPA Method 6010B/6020)
- TCL Volatile Organic Compounds (EPA Method 8260B)
- Mercury (EPA Method 7470A)

Clayton Seoutewa, SW BIA	1 Hard Copy
Charles Long, Navajo Council	1 Hard Copy
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- TCL Semi-Volatile Organic Compounds (EPA Method 8270C&D)
- Dioxins and Furans (EPA Methods 8290 & 1613B)
- MW18D, MW20, MW22S & MW22D for Gasoline Range Organics GRO and Diesel Range Organics DRO (EPA Methods 8015B GRO & DRO)

All analytical results were compared to regulatory standards referred to in Attachment 7 of the Permit. Standards are shown below.

- New Mexico Water Quality Control Commission (NMWQCC) standards of 20.6.2.4103.A and B NMAC.
- Environmental Protection Agency (EPA) drinking water Maximum Contaminant Level (MCL) under 40 CFR Parts 141 and 14.
- If both a NMWQCC standard and an EPA MCL have been established for a contaminant, the lower of the two is used as the criteria.
- If no WQCC standard or EPA MCL has been established for a carcinogenic hazardous constituent, the most recent version (April 2009) of the EPA Region VI *Human Health Medium-Specific Screening Levels (MSSL)* for tap water is used.
- If no WQCC standard or EPA MCL has been established for a non-carcinogenic hazardous constituent, the most recent version (April 2009) of the EPA Region VI MSSL for tap water is used.
- There currently is no NMWQCC ground water standard or MCL for perchlorate; however, perchlorate concentrations (6 µg/L) were compared to the value noted in the Permit.

#### Discussion:

Table 1 summarizes the comparison of the April 2008, October 2008, and April 2009 ground water chemical analytical results to regulatory standards. The following is a discussion of Table 1.

- Results for metals (EPA Method 6010B/6020) are not shown on the table. Until valid background levels are established for metals, it is uncertain if any regulatory standards are exceeded.
- There have been no detections for Cyanide (EPA Method 335.2), White Phosphorus (EPA Method 7580), Herbicides (EPA Method 8151A) and Polychlorinated Biphenyls PCB's (EPA Method 8082) in any ground water sample from the OB/OD or Northern Area.

- There have been no detections above regulatory standards in the OB/OD Area for Dioxins and Furans (EPA Methods 8290 & 1613B), Mercury (EPA Method 7470A), Pesticides (EPA Method 8081A), Perchlorate (EPA Methods 6850), Volatile Organic Compounds (EPA Method 8260B), Semi Volatile Organic Compounds (EPA Method 8270C&D) or Explosives (EPA Method 8330).
- There have been no detections above regulatory standards in the Northern Area for Dioxins and Furans (EPA Methods 290 & 1613B), Mercury (EPA Method 7470A), Pesticides (EPA Method 8081A).
- There have been detections of Gasoline Range Organics (GRO) and Diesel Range Organics (DRO), EPA Methods 8015B, in ground water samples collected from monitoring wells associated with SWMU 45. There are no regulatory standards for GRO and DRO.
- Detects for chloromethane and chloroform (EPA Method 8260B) are common laboratory contaminants and are not present in the ground water at FWDA.

Table 2 shows results of the comparison of legacy ground water chemical analytical results to regulatory standards. Results of ground water samples collected prior to April 2008 are consistent with current ground water sample chemical analytical results.

Table 3 is a proposed matrix for the collection of ground water samples based on the evaluation noted above. Ground water sample collection and analysis required for each monitoring well was determined by, 1) detected constituents in current and historical data, and 2) the proximity of monitoring wells to a known ground water contaminant plume. For example, if a monitoring well is located down or cross gradient of a plume, and within close proximity, a ground water sample is proposed at this monitoring well for that plume's constituents. Sample collection and analytical methods are also proposed for monitoring wells that are not associated with a plume(s), but have had a constituent(s) detected above a regulatory standard. The only exception to this is TMW11. Perchlorate was detected in TMW11 at a concentration of 9.4 µg/L in October 2002. However, perchlorate had not been detected above the regulatory standard of 6 µg/L since that date.

The Army proposes to remove ground water sample collection and analysis from monitoring wells that have had constituents detected, but at concentrations below a regulatory standard, and monitoring wells that have had non-detects for constituents. This group of monitoring wells is not associated with a plume(s). The Army also proposes to continue collecting ground water samples from all monitoring wells for analysis of metals until background levels are established.

There are no established plumes in the OB/OD area. The Army proposes to collect and analyze ground water samples for constituents that have been detected at concentrations above a regulatory limit in current and historical ground water samples.

CURRENT FWDA GROUND WATER SAMPLE CHEMICAL ANALYSIS DATA FOR ALL MONITORING POINTS AND CLEAN UP LEVELS																							
EPA Method	Groundwater Parameter & Units	Analysis	Removal Event Date	CONCENTRATION (ug/L)																		RELATIVE STANDARD DEVIATION (%)	PERMITS
				04-2008	04-2009	04-2010	04-2011	04-2012	04-2013	04-2014	04-2015	04-2016	04-2017	04-2018	04-2019	04-2020	04-2021	04-2022	04-2023	04-2024			
EPA Method 309 Nitrate/Nitrite	EPA MCL <sup>1</sup> 10.0 (mg/L)	Nitrate (mg/L)	04-2008	20.8	14.0																		
			10-2008	27.7																			
			04-2009																				
EPA Method 8350 Nitrite	EPA MCL <sup>1</sup> 1.0 (mg/L)	Nitrite (mg/L)	04-2008																				
			10-2008																				
			04-2009																				
EPA Method 8350 Perchlorate	EPA PERMIT <sup>2</sup> 5.0 (ug/L)	Perchlorate (ug/L)	04-2008			204.0																	
			10-2008			128.0																	
			04-2009			342.0																	
EPA Method 8260 <sup>3</sup> VOC's	RSL CA <sup>4</sup> 0.15 (ug/L)	Chlorobenzene <sup>5</sup> (ug/L)	04-2008																				
			10-2008																				
			04-2009																				
EPA Method 8260 <sup>3</sup> VOC's	RSL CA <sup>4</sup> 1.0 (ug/L)	Chloroethane <sup>6</sup> (ug/L)	04-2008	3.1																			
			10-2008																				
			04-2009																				
EPA Method 8260 <sup>3</sup> VOC's	EPA MCL <sup>1</sup> 0.5 (ug/L)	Dichloroethane, 1,2- (ug/L)	04-2008																				
			10-2008																				
			04-2009																				
EPA Method 8270 <sup>3</sup> SVOC's	RSL CA <sup>4</sup> 1.2 (ug/L)	Chlorobenzene, p- (ug/L)	04-2008																				
			10-2008																				
			04-2009																				
EPA Method 8270 <sup>3</sup> SVOC's	RSL CA <sup>4</sup> 73.0 (ug/L)	Dibenzofuran, 2,4- (ug/L)	04-2008																				
			10-2008																				
			04-2009																				
EPA Method 8330 Explosives	RSL CA <sup>4</sup> 0.61 (ug/L)	RDX (ug/L)	04-2008																				
			10-2008																				
			04-2009																				
EPA Method 8330 Explosives	RSL NC <sup>7</sup> 3.4 (ug/L)	Nitrobenzene (ug/L)	04-2008	84.0																			
			10-2008	81.0																			
			04-2009	82.0																			

1. Final remedial cleanup levels for hazardous waste and inorganic constituents in ground water as established by 5, 6, 8, 9 or f below  
2. Water Quality Control Commission (WQCC) Executive Order 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 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1187, 1188, 1189, 1190, 1191, 1192, 1193, 1194, 1195, 1196, 1197, 1198, 1199, 1200, 1201, 1202, 1203, 1204, 1205, 1206, 1207, 1208, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1216, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1224, 1225, 1226, 1227, 1228, 1229, 1230, 1231, 1232, 1233, 1234, 1235, 1236, 1237, 1238, 1239, 1240, 1241, 1242, 1243, 1244, 1245, 1246, 1247, 1248, 1249, 1250, 1251, 1252, 1253, 1254, 1255, 1256, 1257, 1258, 1259, 1260, 1261, 1262, 1263, 1264, 1265, 1266, 1267, 1268, 1269, 1270, 1271, 1272, 1273, 1274, 1275, 1276, 1277, 1278, 1279, 1280, 1281, 1282, 1283, 1284, 1285, 1286, 1287, 1288, 1289, 1290, 1291, 1292, 1293, 1294, 1295, 1296, 1297, 1298, 1299, 1300, 1301, 1302, 1303, 1304, 1305, 1306, 1307, 1308, 1309, 1310, 1311, 1312, 1313, 1314, 1315, 1316, 1317, 1318, 1319, 1320, 1321, 1322, 1323, 1324, 1325, 1326, 1327, 1328, 1329, 1330, 1331, 1332, 1333, 1334, 1335, 1336, 1337, 1338, 1339, 1340, 1341, 1342, 1343, 1344, 1345, 1346, 1347, 1348, 1349, 1350, 1351, 1352, 1353, 1354, 1355, 1356, 1357, 1358, 1359, 1360, 1361, 1362, 1363, 1364, 1365, 1366, 1367, 1368, 1369, 1370, 1371, 1372, 1373, 1374, 1375, 1376, 1377, 1378, 1379, 1380, 1381, 1382, 1383, 1384, 1385, 1386, 1387, 1388, 1389, 1390, 1391, 1392, 1393, 1394, 1395, 1396, 1397, 1398, 1399, 1400, 1401, 1402, 1403, 1404, 1405, 1406, 1407, 1408, 1409, 1410, 1411, 1412, 1413, 1414, 1415, 1416, 1417, 1418, 1419, 1420, 1421, 1422, 1423, 1424, 1425, 1426, 1427, 1428, 1429, 1430, 1431, 1432, 1433, 1434, 1435, 1436, 1437, 1438, 1439, 1440, 1441, 1442, 1443, 1444, 1445, 1446, 1447, 1448, 1449, 1450, 1451, 1452, 1453, 1454, 1455, 1456, 1457, 1458, 1459, 1460, 1461, 1462, 1463, 1464, 1465, 1466, 1467, 1468, 1469, 1470, 1471,

PWDA LEGACY (1988-2003) GROUND WATER SAMPLE CHEMICAL ANALYTICAL RESULTS ABOVE LIMITS																						
EPA Method	Ground Water Standards and Limits	Analyte	Sampling Event Dates	FOUR POINTS			WASH STATE WELLS					SADAN AREA WELLS										
				CAW16	CAW18	CAW20	TMW01	TMW02	TMW03	TMW04	TMW05	TMW06	TMW11	WV02	WV08	WV20	WV25	TMW25				
EPA Method 8330 Explosives	RSL CA <sup>a</sup> 0.61 (ug/L)	Hexahydro 1,3,5-tri-ortho 1,3,5-triazine (RDX) (ug/L)	10-1998	17.3																		
			02-1997	13.8	170.0	0.7																
			10-1998	15.8	100.0			237.0														
			01-1999	12.4	89.4																	
			05-1999																			
			08-1999																			
			10-1999																			
			01-2000	15.8																		
			04-2000	15.8	109.5																	
			10-2000	16.3	101.6																	
			01-2001	15.4	110.5																	
			04-2001	11.0	66.5																	
			07-2001	11.1	71.8																	
			10-2001	10.7	57.8																	
			02-2002	12.0	54.8																	
			05-2002	13.5	61.3																	
			07-2002	13.9	72.0																	
			10-2002	14.0	89.0																	
	01-2003	12.0	80.0																			
	04-2003	12.0	58.5																			
	RSL NC <sup>c</sup> 3.4 (ug/L)	Nitrobenzene (ug/L)	10-2002																			
			01-2003																			
	RSL CA <sup>a</sup> 0.31 (ug/L)	Nitrotoluene, o- (ug/L)	04-2003																			
			04-2003																			
EPA Method 8650 Perchlorate	RCRA PERMIT <sup>b</sup> 8.0 (ug/L)	Perchlorate (ug/L)	10-2002					84.8														
			01-2003																			
			04-2003																			
			04-2003																			
EPA Method 8290B <sup>f</sup> VOC's	EPA MCL <sup>b</sup> 5.0 (ug/L)	Dichloroethane, 1,2- (ug/L)	10-1998																			
			01-1999																			
			10-2002																			
			01-2001																			
			03-2003																			
			04-2003																			

a. Final result is above ground water clean up levels for hazardous waste and hazardous constituents in ground water as established by b, c, d, e and f below  
b. Water Quality Control Commission (WQCC) standards of 20.6.2.4(1)(3) A and B New Mexico Administrative Code (NMAC)  
c. EPA Maximum Contaminant Level (MCL) under 40 CFR Parts 141 and 143  
d. EPA Region VI Regional Screening Level (RSL) for table tap water for a carcinogenic hazardous waste or hazardous constituent (CA) APRIL 2009  
e. EPA Region VI Regional Screening Level (RSL) for table tap water for a noncarcinogenic hazardous waste or hazardous constituent (NC) APRIL 2009  
f. Limits as established For Wastage Resource Conservation and Recovery Act (RCRA) permit  
g. Inconsistencies in the data required the chemicals Aldrin, Dieldrin, PCB's and several chlorine/bromine alkanes detects - than standards be removed from reported data

TABLE 2

PWDA Reduction of Groundwater Sample Analytical Testing Requirement



PROPOSED SAMPLE COLLECTION AND ANALYTICAL METHODS										
Well Identification	Total Explosives Expanded List (SW-846, modified 8280) (1st-1-L, Amber)	TCL Volatile Organic Compounds (SW-846 800) (1st-1-L, Glass, HCl to pH <2)	TCL Semi-volatile Organic Compounds (SW-846 8278) (1st-1-L, Amber)	TAL Total Metals (SW-846 8010, 8020, 7470) (1st-1-L, Plastic, HNO3 to pH <2)	TAL Dissolved Metals (SW-846 8010, 4020, 7470) (1st-1-L, Plastic, HNO3 to pH <2)	Nitraminates non-specific (EPA 363.2) (1x500-mL, Plastic, H2SO4 to pH <2)	Total Nitrate (EPA 300.0) (1x250-mL, Plastic)	Perchlorate (SW-846 80008 860) (1x250-mL, Plastic)	Total Petroleum Hydrocarbons Gasoline Range Organics and Diesel Range Organics (SW-846)	Constituent/Constituent Group Association
TMW15				X	X					Background only
TMW16				X	X					Background only
TMW17				X	X					Background only
TMW18			X	X	X					SVOC Detected
TMW19				X	X					Background only
TMW21	X			X	X	X	X			Nitrates and Total Explosives Plumes
TMW22	X			X	X	X	X			Nitrates and Total Explosives Plumes
TMW23	X			X	X	X	X			Nitrates and Total Explosives Plumes
TMW24	X			X	X		X			Nitrates and Total Explosives Plumes
TMW25				X	X					Background only
TMW26				X	X					Background only
TMW27				X	X					Background only
TMW28				X	X					Background only
SMW29	X			X	X	X	X			Nitrates and Total Explosives Plumes
SMW01				X	X					Background only
MW185										Typically dry
MW18D	X	X		X	X	X	X	X	X	TPH, VOC, Nitrates and Total Explosives Plumes
MW20	X	X		X	X	X	X		X	TPH, VOC, Nitrates and Total Explosives Plumes
MW22S	X	X		X	X	X	X		X	TPH, VOC, Nitrates and Total Explosives Plumes
MW23D	X	X		X	X	X	X		X	TPH, VOC, Nitrates and Total Explosives Plumes
MW1	X	X		X	X	X	X			VOC, Nitrates, and Total Explosives Plumes
MW2	X	X		X	X	X	X			VOC, Nitrates, and Total Explosives Plumes
MW3	X			X	X	X	X			Nitrates, and Total Explosives Plumes
FW07										Typically dry
FW08										Typically dry
FW70				X	X					Perchlorate Plume (sample when there is water)
FW11								X		Typically dry
FW12										Typically dry
FW13										Typically dry
FW26										Typically dry
FW27										Typically dry
FW28										Typically dry

TABLE 3  
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