

Final

Groundwater Periodic Monitoring Report

January through June 2015

Fort Wingate Depot Activity

McKinley County, New Mexico

October 2015

Contract No. W9126G-12-D-0027

Task Order No. DM01

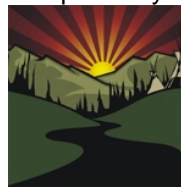
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14. ABSTRACT This Groundwater Periodic Monitoring Report documents the activities conducted from January through June 2015 at Fort Wingate Depot Activity (FWDA) under the Interim Facility-Wide Groundwater Monitoring Plan, Version 8. The report describes the monitoring activities, presents the analytical data, evaluates the data, and makes recommendations for future investigation at FWDA.					
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BIA = Bureau of Indian Affairs

BIA SW = Bureau of Indian Affairs, Southwest Region

BRACD = U.S. Army Base Realignment and Closure Division

DOI – Department of the Interior

FWDA BRAC = Fort Wingate Depot Activity Base Realignment and Closure Environmental Coordinator

NMED HWB = New Mexico Environment Department, Hazardous Waste Bureau

USACE SPA= U.S. Army Corps of Engineers, Albuquerque District

USACE SWF = U.S. Army Corps of Engineers, Fort Worth District

USEPA = U.S. Environmental Protection Agency

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List of Acronyms and Abbreviations

1	µg/L	microgram(s) per liter
2	µS/cm	microsiemen(s) per centimeter
3	ADR	Automated Data Review
4	AOC	area of concern
5	bgs	below ground surface
6	BRAC	Base Realignment and Closure
7	BTOC	below top of casing
8	°C	degrees Celsius
9	CAS	Chemical Abstracts Service
10	CERCLA	<i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i>
11	CFR	<i>Code of Federal Regulations</i>
12	DO	dissolved oxygen
13	DoD	U.S. Department of Defense
14	DOI	U.S. Department of the Interior
15	DQE	data quality evaluation
16	DRO	diesel range organics
17	DTW	depth to water
18	EDD	electronic data deliverable
19	EDMS	Electronic Data Management System
20	Eh	redox potential
21	EPA	U.S. Environmental Protection Agency
22	ERP	Environmental Restoration Program
23	ft/ft	foot per foot
24	FWDA	Fort Wingate Depot Activity
25	GPMP	Groundwater Periodic Monitoring Report
26	GRO	gasoline range organics
27	GWMP	Groundwater Monitoring Plan
28	HMX	octahydro-1.3.5.7-tetranitro-1.3.5.7-tetrazocine
29	HWMR	New Mexico Hazardous Waste Management Regulations
30	ID	identification
31	J	analyte was positively identified; reported value is estimated
32	MAROS	Monitoring and Remediation Optimization System
33	MCL	maximum contaminant level
34	MEPH	mephedrone
35	mg/L	milligram(s) per liter
36	MS	matrix spike
37	MSD	matrix spike duplicate
38	mS/cm	millisiemen(s) per centimeter
39	mV	millivolt(s)
40	N	nitrogen
41	N/A	not applicable
42	NA	not analyzed
43	NAD88	North American Datum of 1988
44	NAVD88	North American Vertical Datum of 1988
45	NM	not measured
46	NMAC	New Mexico Administrative Code
47	NMED	New Mexico Environment Department

List of Acronyms and Abbreviations

1	NMHW	New Mexico Hazardous Waste Act
2	NMSA	New Mexico State Rules Act
3	NM WQCC	New Mexico Water Quality Control Commission
4	NS	not sampled
5	NTU	nephelometric turbidity unit
6	OB/OD	Open Burn/Open Detonation
7	ORP	oxidation-reduction potential
8	pH	scale used to measure the concentration of hydrogen atoms (acidity) of a sample
9	QA	quality assurance
10	QC	quality control
11	QSM	Quality Systems Manual
12	R	result is not usable for any purpose
13	RCRA	<i>Resource Conservation and Recovery Act</i>
14	RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine
15	RFI	Resource Conservation and Recovery Act (RCRA) Facility Investigation
16	RSL	Regional Screening Level
17	SVOC	semivolatile organic compound
18	SWMU	solid waste management unit
19	TAL	target analyte list
20	TCL	target compound list
21	TDS	total dissolved solids
22	TNT	trinitrotoluene
23	TOC	top of casing
24	TPH	total petroleum hydrocarbon
25	TPMC	TerranearPMC
26	U	non-detected result below the limit of detection
27	USACE	U.S. Army Corps of Engineers
28	VOC	volatile organic compound

1 Executive Summary

2 This Groundwater Periodic Monitoring Report (GPMR) documents groundwater monitoring activities conducted at
3 Fort Wingate Depot Activity (FWDA) from January through June 2015 in accordance with the *Interim Facility-Wide*
4 *Groundwater Monitoring Plan, Version 8* (Innovar Environmental Inc. [Innovar], 2015). Groundwater monitoring
5 was performed by Sundance Consulting and CH2M HILL at FWDA under contract to the U.S. Army Corps of
6 Engineers, Fort Worth District, as part of the Environmental Restoration Program. The GPMR was prepared on
7 behalf of the U.S. Department of the Army Base Realignment and Closure Division for submission to the New
8 Mexico Environment Department (NMED) – Hazardous Waste Bureau, as required by Section V.A of the *Resource*
9 *Conservation and Recovery Act* (RCRA) Permit EPA ID Number (No.) NM6213820974 for FWDA (NMED, 2005;
10 NMED, 2014; NMED, 2015). This GPMR summarizes the monitoring activities and results, evaluates the results,
11 and provides recommendations for future monitoring events and investigations.

12 Field activities conducted during the reporting period included two groundwater elevation surveys and one
13 groundwater sampling event. Groundwater elevation surveys were performed on January 20 and 21, 2015, and
14 March 30, 2015. Depth to water was measured at 77 monitoring wells and piezometers; 2 wells were verified as
15 dry during each monitoring event. The groundwater sampling event for the reporting period was performed from
16 March 31 to April 10, 2015. Groundwater samples were collected from 62 monitoring wells listed in the
17 Groundwater Monitoring Plan (Innovar, 2015). The groundwater samples were analyzed for the constituents
18 listed in Table 2-1 of this GPMR. During this monitoring period, access to the Open Burn/Open Detonation Area
19 was not allowed due to explosive hazards associated with the excavation and removal of unexploded ordnance,
20 munitions, and explosives of concern.

21 Groundwater flow directions at FWDA are controlled by regional geologic structure orientation and by local
22 topography and stratigraphy. The flow of groundwater in the Northern Area alluvium is from potentiometric highs
23 in the east, north, and south toward a potentiometric low west of the Administration Area (Figures 4-1 and 4-2 in
24 this GPMR). Hydraulic gradients in alluvium ranged from 0.003 foot per foot (ft/ft) to 0.03 ft/ft. Groundwater flow
25 in the bedrock appears to flow radially to a potentiometric low south of monitoring well TMW32 in the eastern
26 portion of the Workshop Area. Bedrock groundwater flow is to the west in the western portion of the Workshop
27 Area, with an interpreted geologic structural feature impeding flow between the two areas. Groundwater
28 elevation in the bedrock groundwater unit is slightly higher than in the alluvial groundwater unit and exists under
29 hydraulically confined conditions in most of the Northern Area. Groundwater hydraulic gradients in the bedrock
30 unit range from approximately 0.005 ft/ft to 0.006 ft/ft in the Workshop Area.

31 Nitrate, perchlorate, explosives, one volatile organic compound (VOC), three semivolatile organic compounds
32 (SVOCs), and metals were detected in groundwater samples at concentrations above the regulatory screening
33 levels. Six groundwater contaminant plumes have been identified: two nitrate plumes, one in the alluvial
34 groundwater unit and one in the bedrock groundwater unit; two perchlorate plumes, one in the alluvial
35 groundwater unit and one in the bedrock groundwater unit; an explosives plume in the alluvial groundwater unit;
36 and a 1,2-dichloroethane plume in the alluvial groundwater unit. SVOC detections are sporadic and not attributed
37 to groundwater plumes.

38 The highest concentrations of nitrate contamination occur in shallow alluvial groundwater units of the Northern
39 Area. The nitrate plume in the alluvial groundwater unit appears to originate from the trinitrotoluene (TNT)
40 Leaching Beds and extends downgradient to the Administration Area. The groundwater concentrations in the
41 alluvial nitrate plume decline in the vicinity of the former water storage cistern (monitoring wells MW01 and
42 MW02) and the installation water supply well. The extent of the alluvial nitrate plume is not defined to the west
43 of the Administration Area. The bedrock nitrate plume is also present at the TNT Leaching Beds, but extends
44 upgradient from solid waste management unit (SWMU) 1 to the south. A portion of the bedrock nitrate plume is
45 collocated with the bedrock perchlorate plume. The collocated perchlorate and nitrate plumes appear to have a
46 common source at the Building 528 Complex (SWMU 27).

Executive Summary

1 The highest perchlorate concentrations were detected in groundwater samples from the bedrock groundwater
2 unit in the Workshop Area. The northern boundary of the bedrock perchlorate plume has not been defined. The
3 alluvial perchlorate plume is located in the same vicinity as the bedrock plume. The source of perchlorate appears
4 to be the Building 528 Complex (SWMU 27).

5 The compound hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) is the primary explosive compound of interest. This
6 compound is consistently detected at concentrations above screening levels in the Workshop and eastern
7 Administration Areas. The explosives plume in the alluvial groundwater unit appears to originate from the TNT
8 Leaching Beds in the Workshop Area. Groundwater concentrations of explosive compounds (primarily RDX)
9 attenuate to levels below the screening level within 2,500 feet downgradient of the TNT Leaching Beds (SWMU 1).

10 One VOC was detected in groundwater samples at concentrations above regulatory cleanup standards. The
11 compound 1,2-dichloroethane was historically used as a gasoline additive and degreasing solvent. The
12 1,2-dichloroethane plume in the alluvial groundwater unit is limited to a group of wells near a former fueling
13 facility (SWMU 45, Building 6) in the Administration Area. Groundwater samples collected from three alluvial
14 monitoring wells had concentrations above the U.S. Environmental Protection Agency's maximum contaminant
15 level of 5 micrograms per liter. No other VOCs were detected above cleanup standards. The SVOCs
16 1,2-diphenylhydrazine and benzo(a)anthracene were detected at one bedrock monitoring well at concentrations
17 above the U.S. Environmental Protection Agency's Regional Screening Levels. The SVOC bis(2-ethylhexyl)
18 phthalate was detected at concentrations above the regulatory cleanup standard. The detection of
19 bis(2-ethylhexyl) phthalate is likely attributable to sampling and laboratory contamination.

20 Dissolved aluminum, arsenic, iron, manganese, and selenium were detected above regulatory screening levels in
21 multiple groundwater samples. Because background groundwater concentrations have not been accepted for
22 FWDA, it cannot clearly be demonstrated whether the detected concentrations are a result of natural conditions
23 or anthropogenic sources of contamination. A background evaluation of FWDA groundwater was issued to NMED
24 in September 2014 and is in review.

25 Additional delineation and investigation for groundwater plumes at FWDA are planned. A Supplemental RCRA
26 Facility Investigation Work Plan is in preparation and was submitted to NMED in February 2015. This document
27 proposes locations for additional groundwater monitoring wells necessary to further delineate the alluvial and
28 bedrock groundwater contaminant plumes.

1.0 Introduction

2 This Groundwater Periodic Monitoring Report (GPMR) documents groundwater monitoring activities conducted at
3 Fort Wingate Depot Activity (FWDA) from January through June 2015 in accordance with the *Interim Facility-Wide*
4 *Groundwater Monitoring Plan*, Version 8 (Innovar, 2015). Groundwater monitoring was performed by Sundance
5 Consulting and CH2M HILL at FWDA under contract to the U.S. Army Corps of Engineers (USACE), Fort Worth
6 District, as part of the Environmental Restoration Program (ERP). The GPMR was prepared on behalf of the U.S.
7 Department of the Army Base Realignment and Closure (BRAC) Division for submission to the New Mexico
8 Environment Department (NMED) – Hazardous Waste Bureau, as required by Section V.A of the *Resource*
9 *Conservation and Recovery Act* (RCRA) Permit EPA ID No. NM6213820974 for FWDA (NMED, 2005; NMED, 2011;
10 NMED, 2014; NMED 2015).

11 The U.S. Department of the Army BRAC Division is managing FWDA for closure and transfer of property. As part of
12 the planned property transfer to the U.S. Department of the Interior (DOI), the installation has been divided into
13 reuse parcels as specified by the RCRA Permit. Pending RCRA closure and property transfer of the reuse parcels,
14 the ERP must comply with the RCRA Permit.

1.1 Site Description and Activities

16 FWDA is located in McKinley County of western New Mexico, approximately 7 miles east of Gallup and 130 miles
17 west of Albuquerque (Figure 1-1). The current facility occupies an area of approximately 24 square miles
18 (15,277 acres).

19 FWDA was founded as a U.S. Cavalry post in the 1860s. In 1918, the facility became a munitions storage depot for
20 the U.S. Department of the Army. The facility was operated by the U.S. Department of the Army for numerous
21 missions from 1918 until 1993, when FWDA was selected for closure under the BRAC Act of 1988. In 2002, the
22 U.S. Department of the Army reassigned many functions at FWDA to the BRAC Division, including property
23 management and ERP activities. In addition to property management and ERP activities, FWDA is currently used
24 for missile testing. The Missile Defense Agency leases portions of the installation for these tests.

25 Historical activities at FWDA that may have contributed to soil and groundwater contamination include munitions
26 storage, maintenance, and disposal; the use and storage of petroleum fuels; and equipment maintenance
27 (TerranearPMC [TPMC], 2008). The following areas had historical activities with known or potential impacts to site
28 soils and/or groundwater:

- 29 ○ The Administration Area in the northern portion of FWDA is the location of all active administrative and
30 maintenance buildings. Munitions storage and shipping, fuel storage and dispensary, and mechanical
31 maintenance activities were performed in this area.
- 32 ○ The Workshop Area is located directly south of the Administration Area and encompasses former industrial
33 facilities for munitions maintenance and renovation activities, including the former trinitrotoluene (TNT)
34 washout facility and the TNT Leaching Beds (solid waste management unit [SWMU] 1) Area. The buildings and
35 other structures were demolished in 2010.
- 36 ○ The Igloo Areas cover almost half of the current FWDA and were used for the storage of various munitions.
37 These areas consist of rows of earth-covered igloos (also known as earth-covered magazines) located in the
38 central portion of the installation. The 10 Igloo Areas contain a total of 732 earth-covered igloos and
39 241 earthen revetments (Innovar, 2015).
- 40 ○ The Open Burn/Open Detonation (OB/OD) Area includes munitions disposal locations in the southwest and
41 western portions of the installation. The Closed OB/OD Area was used from 1948 to 1955 and includes the Old
42 Burning Ground, the Demolition Landfill Area, and the Old Demolition Area (Program Management Company,

1999). The current OB/OD Area was used from 1955 to 1993 and contains the hazardous waste management unit identified in the RCRA Permit.

1.2 Hydrogeologic Setting

This section presents a brief description of the hydrogeologic setting at FWDA to provide context for the contaminant nature and extent discussions presented in Section 5 of this GPMR.

The geologic units exposed at FWDA were largely deposited in the Mesozoic Era and have been significantly modified by more recent erosion and redeposition. The lithified stratigraphic units are Triassic to Cretaceous in age with uplift and deformation occurring in the Cretaceous during the Laramide orogeny series of mountain-building events in western North America (McCraw et al., 2009). Quaternary alluvial and colluvial deposits unconformably overlie the Mesozoic bedrock in the lower elevation and northern portions of FWDA (Anderson et al., 2003).

The majority of FWDA is underlain by the Triassic-age Chinle Group, which is predominantly non-marine, red-bed siliciclastics. The Chinle Group consists of the Shinarump, Bluewater Creek, Petrified Forest, and Owl Rock Formations (Anderson et al., 2003). The Petrified Forest Formation directly underlies the majority of the installation and is subdivided into three members: the Blue Mesa, Sonsela, and Painted Desert. All three members of the Petrified Forest Formation outcrop in various locations across the installation. The Blue Mesa, Sonsela, and Painted Desert lithologies are green-gray smectitic¹ mudstone, light-gray to yellowish-brown cross-bedded sandstone, and reddish-brown and grayish-red smectitic mudstone, respectively (Innovar, 2015). In the eastern portion of FWDA, the older Bluewater Creek and Shinarump Formations outcrop intermittently between layers of Quaternary alluvium (Innovar, 2015).

Permian-age bedrock underlies the Mesozoic-age rock beneath FWDA. These strata do not outcrop in FWDA and are not known to be contaminated by historical activities at the installation. However, the deeper, older San Andres Limestone and Glorieta Sandstone Formations provide the potable water supply to the installation.

In the northern portion of the installation, the surface is covered by either remnants of the Chinle Group or Quaternary alluvial and colluvial deposits. The majority of the alluvial deposits are present in the Northern Area of the installation in lowland areas between bedrock remnants. Alluvial deposits are also present along intermittent streams draining the Nutria Monocline (also known as the Hogback) and Zuni Mountains. The intermittent streams flow downgradient through the northern portion of the installation before joining the south fork of the Rio Puerco. Based on soil boring logs from the installation, alluvial deposits are heterogeneous and are thickest near major drainages. The alluvium has been found to be up to 150 feet thick near the south fork of the Rio Puerco. In the Administration Area, alluvium thickness generally ranges between 30 and 70 feet.

The regional groundwater aquifer in the vicinity of FWDA is present in the Permian San Andres Limestone and Glorieta Sandstone Formations (Cooper and John, 1968; Summers, 1972). Shallow groundwater is also present in the unconsolidated alluvium and Mesozoic-age bedrock overlying these units but is typically of poor quality.

Groundwater flow in the San Andres-Glorieta aquifer is to the north beneath FWDA and is separated from the shallow groundwater units by shales and claystones across much of FWDA (Anderson et al., 2003). The top of the San Andres-Glorieta aquifer is approximately 1,100 feet below ground surface (bgs) near the Administration Area. Recharge to both the regional aquifer and to shallow groundwater units is from precipitation and snowmelt primarily in the upland areas and along faults south of FWDA.

¹ A liquid crystal characterized by the arrangement of its molecules in layers with the long molecular axes in a given layer being parallel to one another and those of other layers being perpendicular or slightly inclined to the plane of the layer.

1 Shallow groundwater flow in the southern portions of the installation (OB/OD Area) is to the north. Groundwater
2 recharge occurs in the higher elevations and discharges to the arroyos. Significant thicknesses of alluvium are not
3 present in the OB/OD Area, and shallow groundwater typically occurs in the bedrock units in these areas;
4 however, water-bearing zones are occasionally identified in the alluvium present in arroyo bottoms.

5 The groundwater flow direction in the alluvium present in the northern portion of FWDA is predominantly to the
6 southwest and west. Along the northern border of the installation, hydraulic communication exists between the
7 groundwater and the Rio Puerco during periods of active stream flow. Groundwater flow in the alluvium occurs
8 primarily in discontinuous, stream-deposited sand and gravel units. Groundwater flow in the bedrock units in the
9 northern portion of FWDA is to the west and north. The direction of groundwater flow in the bedrock units is
10 largely controlled by geologic structural features.

11 The depth to water (DTW) under FWDA is generally between 10 and 100 feet bgs. Groundwater is present at
12 shallow depths in the alluvium along drainages, including the Rio Puerco, with DTW ranging from 13 to 68 feet bgs
13 in northern area alluvial wells. Groundwater in the northern area bedrock aquifer wells is also shallow with DTW
14 ranging from 28 to 65 feet bgs in the bedrock monitoring wells.

15 1.3 Regulatory Background

16 Environmental restoration activities at FWDA began in 1989 under the *Comprehensive Environmental Response,*
17 *Compensation, and Liability Act* of 1980 (CERCLA) guidelines, as part of the Installation Restoration Program. The
18 one exception was the current OB/OD Area, which was classified as a RCRA Interim Status, thermal treatment
19 unit.

20 Since that time, NMED has become the lead regulatory agency. In 2002, NMED determined that the remediation
21 pathway would be solely through a RCRA permit for post-closure care of the current OB/OD Area with a RCRA
22 corrective action module attached to address requirements for other SWMUs and areas of concern (AOCs). The
23 RCRA Permit was finalized in December 2005 and became effective December 31, 2005 (NMED, 2005). Since the
24 original permit issuance, the permit has been revised through NMED-issued modifications in 2011, 2014, and 2015
25 (NMED, 2011; NMED, 2014; NMED, 2015). The RCRA Permit identified one hazardous waste management unit
26 within the current OB/OD Unit (Parcel 3) and a total of 93 SWMUs and AOCs.

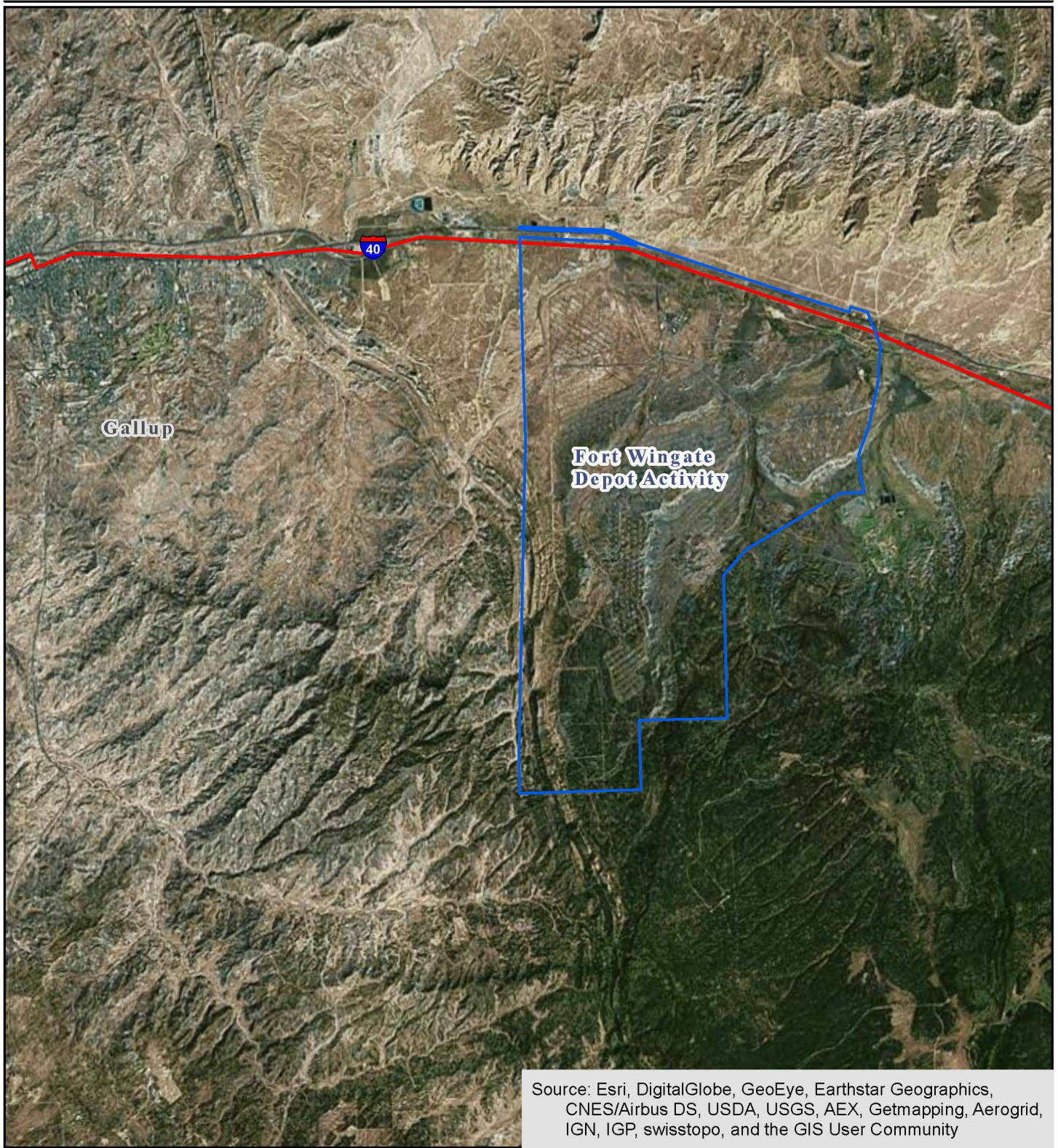
27 Since the 1980s, a number of groundwater investigations have been completed at FWDA. Groundwater
28 investigation efforts have primarily focused on five areas: the TNT Leaching Beds Area (SWMU 1 located within
29 Parcel 21); the Administration Area (multiple SWMUs and AOCs located in Parcels 6, 7, and 11); the Eastern
30 Landfill Area (SWMU 13 located within Parcel 18); Buildings 542 and 600 Area (SWMUs 11 and 4 located within
31 Parcel 6); and the OB/OD Area (located within Parcel 3). Numerous groundwater monitoring wells have been
32 installed to characterize the nature and extent of contamination that resulted from activities associated with the
33 OB/OD Area and various SWMUs and AOCs. Figure 1-2 shows the current monitoring well network, pertinent site
34 features, and the reuse parcels at FWDA.

35 The Interim Facility-Wide Groundwater Monitoring Plan (GWMP) is required by Permit Section V.A and describes
36 the groundwater monitoring activities to be conducted as part of the ERP at FWDA. The current monitoring
37 network has been designed to evaluate the horizontal and vertical extent of chemical constituents in groundwater
38 and the transport of chemicals that originate from multiple sources. The current GWMP combines the original
39 2008 Plan, approved by NMED, and subsequent annual revisions. Revisions to the GWMP are based on an analysis
40 of historical groundwater monitoring data and a data quality objective assessment. Sampling under the NMED-
41 approved GWMP has been ongoing since 2008. The results of the monitoring activities are documented in
42 semiannual groundwater monitoring reports and submitted to NMED, tribes, and other stakeholders.

1 1.4 Document Organization

2 The GPMR is organized to comply with the guidance presented in NMED's *General Reporting Requirements for*
3 *Routine Groundwater Monitoring at RCRA Sites* (NMED, 2003). The remainder of this GPMR is organized into the
4 following sections:

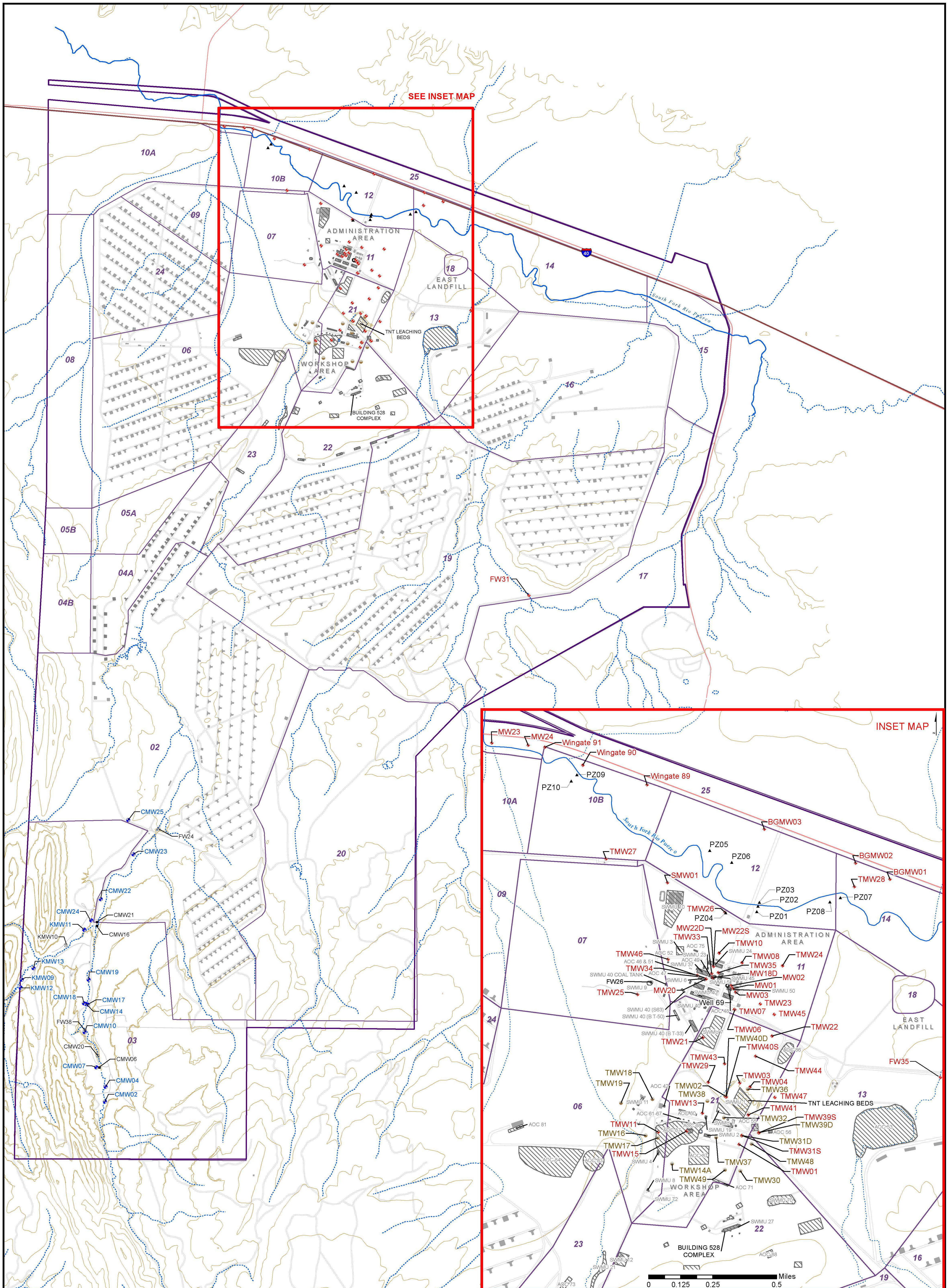
- 5 ○ Section 2 provides a discussion of the activities or scope of services performed during the January through
6 June 2015 reporting period.
- 7 ○ Section 3 presents the applicable regulatory criteria against which sample analytical results are compared for
8 FWDA.
- 9 ○ Section 4 presents the results of the quarterly groundwater elevation surveys.
- 10 ○ Section 5 presents the groundwater sample analytical data for the January through June 2015 monitoring
11 period.
- 12 ○ Section 6 presents a summary discussion of the groundwater monitoring results and provides
13 recommendations for future monitoring events.



**FIGURE 1-1
LOCATION MAP**

Groundwater Periodic Monitoring
Report for January to June 2015
*Fort Wingate Depot Activity,
McKinley County, New Mexico*





Legend

- ▲ Piezometers
- OB/OD Monitoring Well
- ◆ Alluvial Monitoring Well
- Bedrock Monitoring Well
- ⊗ Dry or Damaged Well
- Buried Well
- Water Supply Well 69
- ▬ Arroyo
- ▬ Stream
- ▨ AOC and SWMU
- Building
- ▭ Fort Wingate Installation Boundary
- ▬ Topographic Contour (100 foot Interval)
- ▬ Fort Wingate Road

Notes:
 AOC = Area of Concern
 OB/OD = Open Burn/Open Detonation
 SWMU = Solid Waste Management Unit

Data Sources:
 Roads, Railroad: Tele Atlas GDT-Dynamap, 2008;
 Populated Places: ESRI 2005;
 Fort Wingate Environmental Restoration Detail: USACE.

FIGURE 1-2
SITE FEATURES
 Groundwater Periodic Monitoring
 Report for January to June 2015
 Fort Wingate Depot Activity,
 McKinley County, New Mexico

Scale: 1:20,000

0 0.5 1 1.5 2 mi
 0 0.5 1 1.5 2 2.5 3 km

1 2.0 Scope of Services

2 This section presents an overview the field activities, laboratory analyses, and data management activities
3 conducted during the period from January through June 2015. Field activities conducted during the reporting
4 period included two groundwater elevation surveys and one groundwater sampling event. All monitoring
5 activities were conducted in accordance with the GWMP (Innovar, 2015). The groundwater monitoring locations
6 are shown on Figure 1-2.

7 2.1 Groundwater Elevation Measurements

8 Groundwater elevation surveys were performed at FWDA on January 20 and 21, 2015, and March 30, 2015.
9 During each of the elevation surveys, DTW was measured at 77 monitoring wells and piezometers; 2 wells were
10 verified as dry. Of the 75 monitoring locations with water, 49 locations were alluvial monitoring wells, 16 locations
11 were bedrock monitoring wells, and 10 locations were piezometers—all located in the Northern Area
12 (Administration and Workshop Areas). No access to the OB/OD Area has been permitted for groundwater
13 monitoring since April 2013 due to explosive hazards associated with the excavation and removal of unexploded
14 ordnance, munitions, and explosives of concern. No groundwater elevation measurements were collected in the
15 OB/OD Area during the current monitoring period.

16 As a health and safety consideration, water level measurements were collected by two-person teams. One team
17 member documented the field measurements and the other operated the water level meter. The DTW was
18 measured from the top of the casing reference point at each monitoring well and piezometers using a Solonist
19 Model 101 water level meter. The DTW measurements were recorded in the field data sheets or field notebooks
20 to the nearest 0.01 foot. Copies of the field notes are provided in Appendix A.

21 The portions of the water level meter that came into contact with groundwater were decontaminated after each
22 use by washing with Liqui-Nox soap solution and rinsing with deionized water. Decontamination fluids were
23 contained in 5-gallon buckets for later disposal at the FWDA evaporation tank. The portions of the water level
24 meter that were lowered into wells were wiped down with paper towels as they were retrieved from the well
25 casings.

26 The DTW data were tabulated and compared to historical data to identify potential field measurement errors.
27 After this evaluation, the groundwater elevation at each monitoring location was calculated by subtracting the
28 DTW from the surveyed elevation of the top of casing reference point. The groundwater elevation data were
29 subsequently used to generate groundwater elevation contour maps and calculate hydraulic gradients for the
30 alluvial and bedrock water-bearing units at FWDA. The groundwater elevation data and analyses are presented in
31 Section 4 of this report.

32 2.2 Groundwater Sampling

33 The groundwater sampling event for the reporting period was performed from March 31 to April 10, 2015.
34 Groundwater samples were collected from 62 of the 78 monitoring wells listed in the GWMP (Innovar, 2015). The
35 16 monitoring wells in the OB/OD Area were not sampled due to the explosive hazards associated with the
36 excavation and removal of unexploded ordnance and explosives of concern in the area. The groundwater samples
37 were analyzed for the constituents listed in Table 2-1. The sample analytical results are presented in Section 5 of
38 this report. Variances from the GWMP are also discussed in Section 5. One field variance occurred due to
39 breakage of sample bottles in transit for one semivolatile organic compound (SVOC) analysis as described in
40 Section 5.4.

41 Monitoring well purging and sampling was performed using a variety of sampling techniques: dedicated low-flow
42 pneumatic pumps from BESST Products, dedicated pneumatic Bennett Sample Pumps, a non-dedicated Grundfos
43 Redi-Flo2 submersible pump, and disposable bailers. During well purging operations, the water quality
44 parameters of pH, temperature, specific conductance, dissolved oxygen, turbidity, and oxygen reduction potential

2.0 Scope of Services

1 (ORP) were measured using Horiba Instruments Inc. U-52 water quality meters, and recorded on groundwater
2 sampling field data sheets. All water quality meters were calibrated daily according to manufacturer
3 specifications. The groundwater sampling field data sheets for each monitoring well are provided in Appendix B.

4 Monitoring wells equipped with dedicated low-flow pneumatic pumps were purged in accordance with the
5 GWMP and NMED's position paper *Use of Low-Flow and Other Non-Traditional Sampling Techniques for RCRA*
6 *Compliant Groundwater Monitoring* (NMED, 2001). Well purging was performed until water quality parameters
7 stabilized within the following ranges: temperature (± 10 percent), pH (± 0.5 standard units), specific conductance
8 (± 10 percent), dissolved oxygen (± 10 percent), turbidity (± 10 percent), and ORP (± 10 percent). In general,
9 drawdown was minimized during final parameter stabilization and during sampling to ensure that formation
10 water was being measured and sampled. Drawdown was minimized by slow purging of the wells; however, poor
11 groundwater production from the screened intervals resulted in greater than desired drawdown in some wells.
12 During the initial period of low-flow pumping prior to stabilization, drawdown in several wells was greater than
13 0.5 foot, but only greater than 1.0 foot in one well during this monitoring event.

14 Monitoring wells not equipped with low-flow pumps were purged by pumping or bailing three well volumes of the
15 water standing in the well (including the saturated annular space). Water quality parameters were measured
16 during the well purging operations until they stabilized within the ranges presented above. If a monitoring well
17 was emptied prior to the purging of three well volumes due to a slow recharge rate, then the well was sampled
18 after it refilled with sufficient groundwater volume. This typically required the sample team to return to the well
19 location on the next day to collect the groundwater sample. A minimum of three water quality parameter
20 measurements were collected from wells that emptied during purging operations.

21 Nine wells in the monitoring program are equipped with dedicated Bennett Sample Pumps. The wells equipped
22 with Bennett Sample Pumps were purged dry and sampled using the installed pumps.

23 The 18 wells not equipped with dedicated pumps were purged dry either by bailing or with a non-dedicated,
24 Grundfos Redi-Flow2 submersible electric pump. All samples from wells without dedicated pumps were collected
25 using disposable bailers.

26 The Grundfos Redi-Flo2 submersible pump was decontaminated between sample locations by pumping
27 Liqui-Nox[®] soap solution through the pump and pumping through two rinse cycles with deionized water. The
28 Grundfos pump discharge tubing was discarded at the end of each day that it was used for well purging.
29 Disposable bailers used for well purging and sampling were also discarded and not reused at other sample
30 locations. Three quality assurance (QA) equipment rinse samples were collected from the decontaminated
31 submersible pump and the analytical results were evaluated as part of the data validation process. Eleven
32 monitoring wells were purged using the Grundfos Redi-Flo2 submersible pump. The three equipment rinse
33 samples comply with the 10 percent sample frequency requirement of the GWMP (Innovar, 2015). The equipment
34 rinse sample results indicate equipment decontamination was sufficient to prevent cross-contamination.

35 After well purging, groundwater samples were collected in laboratory-supplied bottles for the analyses listed in
36 Table 2-1. The QA/quality control (QC) samples collected during the monitoring event are also listed in Table 2-1
37 and meet the requirements specified in the GWMP. Filled sample bottles were placed on ice in coolers for
38 shipment to TestAmerica Laboratories. Sample coolers were shipped daily, under chain of custody, by FedEx
39 overnight delivery. Copies of the chain of custody forms for the groundwater sampling event are provided in
40 Appendix B.

41 Water was generated during well-purging activities as part of the sampling process. Decontamination fluids were
42 generated during the decontamination of non-dedicated sampling equipment and reusable monitoring
43 equipment. Purge water and decontamination fluids were contained in closable 5-gallon and 15-gallon containers
44 during sampling activities and emptied into the FWDA evaporation tank daily. Solid waste such as disposable
45 sampling equipment, personal protective equipment, and general refuse was placed in rented refuse containers.

2.3 Data Management and Validation

An electronic database was created to support the data management and tracking activities for the groundwater sampling event. The database was used to prepare sample labels in advance of the sampling event, as well as to prepare electronic chain of custody forms daily at FWDA during the sampling event. Sample identifiers were assigned based on the convention described in the GWMP. Groundwater sample identifiers consisted of the well identification (ID) and sample date. The QA and QC samples used the same ID number as the parent sample and followed by MS (matrix spike) and MSD (matrix spike duplicate), as dictated by the work plan. Changes were made to the sample identifiers for field duplicates so that these QC samples would be blind to the laboratory. The duplicate naming convention was not used. The duplicates relating to normal samples are presented in Table 2-1. Copies of the chain of custody forms were emailed to the project chemist daily to facilitate sample tracking and laboratory interaction.

Sample analyses were performed by TestAmerica Laboratories in accordance with the *Department of Defense Quality Systems Manual for Environmental Laboratories* (U.S. Department of Defense [DoD], 2013). Electronic data deliverables (EDDs) of the analytical results for each sample delivery group were provided by TestAmerica Laboratories for validation. The sample result EDDs were loaded into the Automated Data Review (ADR) software for data validation. Results were subjected to 100 percent Stage 2a validation using the ADR software. An additional 10 percent of the sample results were subjected to Stage 3 data validation by the project chemist. The validated data output files from the ADR software were exported to the FWDA Electronic Data Management System (EDMS) database. The EDMS database was used to prepare the validated data table output presented in this GPMR. The overall data validation assessment found that data were of sufficient quality for evaluation of data quality objectives. Information on the data validation process and the results is provided in Appendix C.

2.4 Evaporation Tank Sediment Sampling

Sediment samples were collected from the north cell of the evaporation tank as part of maintenance activities for the waste disposal. Samples were collected on May 29, 2014, and March 31, 2015. The analytical results are discussed in Section 5.3 and presented in Appendix D.

2.0 Scope of Services

TABLE 2-1

Spring 2015 Groundwater Sample Matrix (Page 1 of 3)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well ID	Sample ID	Total Explosives Method 8330B	TCL VOCs Method 8260B	TCL SVOCs Method 8270C	TCL Pesticides Method 8081A	TAL Total Metals Methods 6010C/6020A/7470A	TAL Dissolved Metals Methods 6010C/6020A/7470A	Total Nitrate/Nitrite Method 9056	Perchlorate Method 6860	TPH DRO Method 8015C	TPH GRO Method 8015C
OB/OD Area Monitoring Wells - No Sampling due to No Safe Access											
Northern Area Monitoring Wells - Alluvial											
BGMW01	BGMW01042015	X	X	X	X	X	X	X	X		
BGMW02	BGMW02042015	X	X	X	X	X	X	X	X		
<i>Matrix Spike</i>	BGMW02042015MS	X	X	X	X	X	X	X	X		
	BGMW02042015MSD	X	X	X	X	X	X	X	X		
BGMW03	BGMW03042015	X	X	X	X	X	X	X	X		
FW31	FW31042015	X	X	X	X	X	X	X			
FW35	FW35042015	X	X	X		X	X	X			
MW01	MW01042015	X	X		X	X	X	X	X	X	X
MW02	MW02042015	X	X		X	X	X	X	X	X	X
MW03	MW03042015	X	X			X	X	X	X	X	X
MW18D	MW18D042015	X	X			X	X	X	X	X	X
MW20	MW20042015	X	X	X	X	X	X	X	X	X	X
MW22D	MW22D042015	X	X	X	X	X	X	X	X	X	X
<i>Matrix Spike</i>	MW22D042015MS	X	X	X	X	X	X	X	X	X	X
	MW22D042015MSD	X	X	X	X	X	X	X	X	X	X
MW22S	MW22S042015	X	X	X	X	X	X	X	X	X	X
MW23	MW23042015	X	X	X	X	X	X	X	X		
<i>Duplicate</i>	DMW23042015	X	X	X	X	X	X	X	X		
<i>Matrix Spike</i>	MW23042015MS	X	X	X	X	X	X	X	X		
	MW23042015MSD	X	X	X	X	X	X	X	X		
MW24	MW24042015	X	X	X	X	X	X	X	X		
<i>Duplicate</i>	DMW24042015	X	X	X	X	X	X	X	X		
SMW01	SMW01042015	X	X	X		X	X	X	X		
TMW01	TMW01042015	X	X			X	X	X	X		
TMW03	TMW03042015	X	X	NA		X	X	X	X		
TMW04	TMW04042015	X	X	X		X	X	X	X		
TMW06	TMW06042015	X	X	X		X	X	X			
TMW07	TMW07042015	X	X	X		X	X	X			
TMW08	TMW08042015		X		X	X	X	X	X	X	X

TABLE 2-1

Spring 2015 Groundwater Sample Matrix (Page 2 of 3)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well ID	Sample ID	Total Explosives Method 8330B	TCL VOCs Method 8260B	TCL SVOCs Method 8270C	TCL Pesticides Method 8081A	TAL Total Metals Methods 6010C/6020A/7470A	TAL Dissolved Metals Methods 6010C/6020A/7470A	Total Nitrate/Nitrite Method 9056	Perchlorate Method 6860	TPH DRO Method 8015C	TPH GRO Method 8015C
Northern Area Monitoring Wells - Alluvial											
TMW10	TMW10042015	X	X			X	X	X	X		
TMW11	TMW11042015	X	X			X	X	X	X		
TMW13	TMW13042015		X			X	X	X	X		
TMW15	TMW15042015	X	X	X		X	X	X	X		
<i>Duplicate</i>	DTW15042015	X	X	X		X	X	X	X		
TMW21	TMW21042015	X	X			X	X	X	X		
TMW22	TMW22042015	X	X	X		X	X	X	X		
TMW23	TMW23042015	X	X		X	X	X	X	X		
TMW24	TMW24042015	X	X		X	X	X	X	X		
TMW25	TMW25042015	X	X			X	X	X			
TMW26	TMW26042015	X	X			X	X	X	X		
<i>Duplicate</i>	DTW26042015	X	X			X	X	X	X		
TMW27	TMW27042015		X			X	X		X		
TMW28	TMW28042015		X			X	X				
TMW29	TMW29042015	X	X			X	X	X	X		
TMW31S	TMW31S042015	X	X	X	X	X	X	X	X		
TMW33	TMW33042015		X	X		X	X	X		X	X
TMW34	TMW34042015		X			X	X	X	X	X	X
<i>Duplicate</i>	DTW34042015		X			X	X	X	X	X	X
TMW35	TMW35042015		X	X	X	X	X	X	X	X	X
TMW39S	TMW39S042015	X	X	X	X	X	X	X	X		
TMW40S	TMW40S042015	X	X	X	X	X	X	X	X		
TMW41	TMW41042015	X	X	X	X	X	X	X	X		
TMW43	TMW43042015	X	X	X	X	X	X	X	X		
<i>Duplicate</i>	DTW43042015	X	X	X	X	X	X	X	X		
<i>Matrix Spike</i>	TMW43042015MS	X	X	X	X	X	X	X	X		
	TMW43042015MSD	X	X	X	X	X	X	X	X		
TMW44	TMW44042015	X	X	X	X	X	X	X	X		
TMW45	TMW45042015	X	X	X	X	X	X	X	X		
TMW46	TMW46042015	X	X	X	X	X	X	X	X		
TMW47	TMW47042015	X	X	X	X	X	X	X	X		

2.0 Scope of Services

TABLE 2-1

Spring 2015 Groundwater Sample Matrix (Page 3 of 3)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well ID	Sample ID	Total Explosives Method 8330B	TCL VOCs Method 8260B	TCL SVOCs Method 8270C	TCL Pesticides Method 8081A	TAL Total Metals Methods 6010C/6020A/7470A	TAL Dissolved Metals Methods 6010C/6020A/7470A	Total Nitrate/Nitrite Method 9056	Perchlorate Method 6860	TPH DRO Method 8015C	TPH GRO Method 8015C
Northern Area Monitoring Wells - Bedrock											
TMW02	TMW02042015	X	X			X	X	X	X		
TMW14A	TMW14A042015	X	X	X		X	X	X			
TMW16	TMW16042015	X	X	X		X	X		X		
TMW17	TMW17042015		X			X	X	X	X		
TMW18	TMW18042015	X	X	X		X	X	X	X		
TMW19	TMW19042015	X	X	X		X	X		X		
TMW30	TMW30042015	X	X	X	X	X	X	X	X		
TMW31D	TMW31D042015	X	X	X	X	X	X	X	X		
TMW32	TMW32042015	X	X	X	X	X	X	X	X		
TMW36	TMW36042015	X	X	X	X	X	X	X	X		
TMW37	TMW37042015	X	X	X	X	X	X	X	X		
TMW38	TMW38042015	X	X	X	X	X	X	X	X		
TMW39D	TMW39D042015	X	X	X	X	X	X	X	X		
Duplicate	DTW39D042015	X	X	X	X	X	X	X	X		
TMW40D	TMW40D042015	X	X	X	X	X	X	X	X		
TMW48	TMW48042015	X	X	X	X	X	X	X	X		
TMW49	TMW49042015	X	X	X	X	X	X	X	X		

Notes:

Trip blank samples were collected daily, and equipment blanks were collected twice a week (not shown above).

DRO = diesel range organics

GRO = gasoline range organics

ID = identification

NA = not analyzed due to breakage in transit

SVOC = semivolatiles organic compounds

TAL = target analyte list

TCL = target compound list

TPH = total petroleum hydrocarbon

VOC = volatile organic compound

X = samples collected according to work plan (Innovar, 2015)

1 3.0 Regulatory Criteria

2 On December 1, 2005, NMED issued a RCRA Permit (EPA ID No. NM6213820974) to the U.S. Department of the
3 Army (Permittee), the owner and operator of FWDA. The Permit established the general and specific standards
4 and requirements for these activities pursuant to the New Mexico Hazardous Waste Act (NMHWA), as amended;
5 New Mexico State Rules Act (NMSA) 1978, §§ 74-4-1 et seq.; and the New Mexico Hazardous Waste Management
6 Regulations (HWMR), 20 New Mexico Administrative Code (NMAC) Part 4.1 (NMED, 2005). Since the original
7 permit issuance, the FWDA RCRA permit has been revised through NMED-issued modifications on June 27, 2011,
8 April 4, 2014, and February 25, 2015 (NMED, 2011; NMED, 2014; NMED, 2015).

9 As required by Section V.A of the Permit, the U.S. Department of the Army developed and implemented a
10 groundwater monitoring program. A GWMP was developed according to provisions of the Permit, Section VIII.B.1
11 (20 NMAC § 4.1.500, incorporating 40 *Code of Federal Regulations* [CFR] 264.101) (TPMC, 2008). NMED approved
12 the initial GWMP in March 2008. The GWMP has been revised six times, with the revisions submitted to NMED in
13 2009, 2010, 2011, 2012, 2014, and 2015. All groundwater monitoring, sampling, and reporting activities are
14 conducted in compliance with the Permit, applicable Permit attachments, and the GWMP.

15 Attachment 7 of the Permit provides cleanup levels applicable to the FWDA groundwater monitoring program.
16 Groundwater analytical results are evaluated and compared to these cleanup levels. The following documents and
17 regulations are used to determine whether the concentration of a particular hazardous constituent exceeds the
18 RCRA Permit cleanup level (NMED, 2005; NMED, 2011; NMED, 2014; NMED, 2015):

- 19 ○ New Mexico Water Quality Control Commission (NM WQCC) standards in 20 NMAC § 6.2.4103.A and B
- 20 ○ U.S. Environmental Protection Agency (EPA) drinking water maximum contaminant level (MCL) under 40 CFR
21 Parts 141 and 142
- 22 ○ No current NM WQCC or MCL standard exists for perchlorate. Pending NMED approval of a standard, a
23 screening level of 6 micrograms per liter (µg/L) will be used for perchlorate as stated in the RCRA Permit.

24 If both an NM WQCC standard and an EPA MCL have been established for a contaminant, the lower of the two is
25 used as the criterion. The Permit does not specify cleanup standards for compounds (other than perchlorate) that
26 do not have either NM WQCC or MCL standards. The Permit specifies that risk-based cleanup standards should be
27 developed for these compounds and must be approved by NMED. Pending the development and approval of
28 cleanup criteria, the EPA Region 6 Regional Screening Levels (RSLs) for Residential Tapwater are used as
29 temporary screening criteria. The RSLs have replaced EPA Human Health Medium-Specific Screening Levels as EPA
30 guidance.

31 The GWMP requires the Permittee to submit periodic monitoring reports within 60 days of receipt of validated
32 groundwater chemical analytical results, and the Permit Section V.A.2 requires the format to be consistent with
33 NMED's *General Reporting Requirements for Routine Groundwater Monitoring at RCRA Sites* (Innovar, 2015;
34 NMED, 2003).

1 4.0 Groundwater Elevations

2 Groundwater elevation surveys in monitoring wells and piezometers at FWDA are currently performed on a
3 quarterly basis. Two groundwater elevation surveys were performed during this monitoring period, the first on
4 January 20 and 21, 2015, and the second on March 30, 2015. As discussed in Section 2, no groundwater elevation
5 measurements were collected in the OB/OD Area during these events. The groundwater elevation data are used
6 to calculate hydraulic gradients and determine groundwater flow directions in the Northern Area alluvium and
7 Northern Area bedrock water-bearing units. Tables 4-1 through 4-4 present the DTW measurements in feet, the
8 surveyed elevation of the top of casing, and calculated groundwater elevations in feet above the North American
9 Vertical Datum of 1988 (NAVD88) for the January and March 2015 monitoring events. Figures 4-1 through 4-4
10 show the groundwater elevation maps for the two monitoring events.

11 4.1 Northern Area Groundwater Elevations

12 Shallow groundwater in the Northern Area is present in both unconsolidated alluvium and bedrock. The water
13 quality and hydraulic properties differ between these two groundwater-bearing units. Therefore, the
14 groundwater elevation data and chemistry are presented and discussed separately. Table 4-1 presents the
15 groundwater elevation data for wells screened in alluvium. Table 4-2 presents the groundwater elevation data for
16 wells screened in the bedrock. The Northern Area groundwater elevation contour maps are shown as Figures 4-1
17 through 4-4. The groundwater elevation contours presented as Figure 4-1 and Figure 4-2 were drafted using the
18 mathematical interpolation algorithms in Surfer, Version 11 software. The Kriging geostatistical interpolation
19 method was used to generate a 100-foot by 100-foot interpolated grid based on the groundwater elevations. An
20 experienced hydrogeologist reviewed and digitally adjusted the contours based on known hydrogeologic
21 conditions and professional judgment. Boundary conditions were used to crop the interpolation grids based on
22 geologic constraints and data limitations. Groundwater elevation contours were interpreted by a hydrogeologist
23 using site-specific information on bedrock structure from the site conceptual model and groundwater elevation
24 data. The bedrock groundwater contours shown as Figure 4-3 and Figure 4-4 were hand drawn.

25 4.1.1 Northern Area Alluvial Groundwater System

26 The groundwater flow direction in the alluvium is from potentiometric highs in the east, north, and south toward
27 a potentiometric low west of the Administration Area (Figures 4-1 and 4-2). From the Administration Area, the
28 groundwater flow direction is generally to the west. These groundwater flow directions are consistent with recent
29 historical data. A small groundwater mound is present in the Administration Area near monitoring wells MW01,
30 MW02, and MW03. This feature has been previously attributed to a leaking water storage cistern (USACE, 2012).
31 The cistern is no longer in service and the groundwater mound was expected to attenuate over time. However,
32 the groundwater mound is still observed in the water level data for monitoring well MW02 and may be the result
33 of leakage from the installation water supply well or borehole. Groundwater flow directions and elevations were
34 similar between the January and March 2015 monitoring events and were also consistent with recent historical
35 data. The recent historical data are also included in Table 4-1.

36 Hydraulic gradients ranged from 0.003 foot per foot (ft/ft) to 0.03 ft/ft in the alluvial groundwater unit. The
37 steepest gradients were found in the southeast portions of the monitoring area and the flattest gradients were
38 found in the western portions of the monitoring area. Hydraulic gradients did not vary significantly in direction or
39 magnitude between the January and March 2015 monitoring events and were similar to those calculated in the
40 winter and spring of 2014.

4.1.2 Northern Area Bedrock Groundwater System

Groundwater flow in the shallow bedrock is generally to the north and west in the Workshop Area (Figures 4-3 and 4-4). Steep horizontal gradients from east to west (in particular, between monitoring wells TMW38 and TMW40D and between monitoring wells TMW17 and TWM37) indicate that a geologic structural feature impedes groundwater flow. Vertical offset of the sandstone layers in the bedrock aquifer by a fault or fracture zones may be present in this area and impede groundwater flow. Contaminant transport of perchlorate to the north (instead of to the west) also provides evidence supporting the conceptual model of a structural impediment to westerly groundwater flow in bedrock beneath the Workshop Area.

Groundwater flow in the bedrock appears to flow radially to a potentiometric low south of TMW32 in the eastern portion of the Workshop Area and to the west in the western portion of the Workshop Area. Groundwater elevations were similar between the January and March 2015 monitoring events. Water-level elevation data from monitoring well TMW02 were not used in the generation of the groundwater elevation contour maps or the calculation of hydraulic gradients because the well is completed in a different water-bearing zone than the other bedrock monitoring wells. Two water-bearing sandstone layers or units of the Painted Desert Member of the Petrified Forest Formation are known to exist in the Workshop Area. The upper sandstone unit is monitored by monitoring well TMW02. The remaining bedrock monitoring wells are completed in the lower sandstone unit. Since January 2013, groundwater elevations in most of the bedrock monitoring wells have declined approximately 1 foot, with the exception of monitoring wells TMW02 and TMW30, which have relatively stable water levels. Groundwater elevation in the bedrock groundwater unit is slightly higher than in the alluvial groundwater unit and is under hydraulically confined conditions in most of the Northern Area. The confining unit for the bedrock groundwater unit is missing in the vicinity of monitoring wells TWM30 and TMW48.

Groundwater hydraulic gradients are moderate in the Workshop Area at approximately 0.005 ft/ft to 0.006 ft/ft to the north and west. The groundwater elevations were similar to recent historical data, but flow direction was reinterpreted in 2014. Therefore, gradients are slightly different from those reported in monitoring reports from 2013 and before.

4.2 OB/OD Area Groundwater Elevations

No monitoring data were collected in this area during the January through June 2015 monitoring period. No groundwater elevation data are available for the last two years from this area; therefore, no historical data are presented in this GPMR. Monitoring of the OB/OD Area wells may resume when access to the area is not restricted due to munition safety concerns.

TABLE 4-1

Northern Area Groundwater Elevations (Wells Screened in Alluvial Sediments) (Page 1 of 3)
Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	TOC Elevation (feet)	Elevation (feet)									
		9-Jul-13	28-Oct-13	13-Jan-14	7-Apr-14	15/16-July-14	20-Oct-14	DTW (feet BTOC) 20/21-Jan-15	Elevation (feet) 20/21-Jan-15	DTW (feet BTOC) 30-Mar-15	Elevation (feet) 30-Mar-15
BGMW01	6692.68	6673.27	6673.92	6674.02	6674.00	6673.46	6673.41	19.02	6673.66	18.95	6673.73
BGMW02	6691.99	6670.58	6671.23	6671.30	6671.38	6670.82	6670.58	21.13	6670.86	20.96	6671.03
BGMW03	6680.57	6663.53	6663.96	6664.34	6664.66	6663.52	6663.42	16.37	6664.20	16.09	6664.48
FW26	6674.4	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
FW31	6832.49	6790.24	6790.20	6790.22	6790.28	6790.09	6790.00	42.41	6790.08	42.39	6790.10
FW35	6711.11	6684.11	6683.28	6683.80	6684.33	6682.16	6680.82	29.85	6681.26	29.51	6681.60
MW01	6685.94	6643.63	6643.59	6643.34	6643.35	6643.38	6643.31	42.54	6643.40	42.69	6643.25
MW02	6685.22	6645.40	6645.26	6644.97	6645.06	6644.89	6644.71	40.71	6644.51	40.76	6644.46
MW03	6689.53	6643.31	6643.45	6643.13	6643.14	6643.17	6643.18	46.30	6643.23	46.42	6643.11
MW18D	6686.32	6643.05	6643.12	6642.80	6642.85	6642.84	6642.77	43.41	6642.91	43.61	6642.71
MW18S	6686.61	Dry	6648.01*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
MW20	6687.67	6642.48	6642.44	6642.34	6642.34	6642.34	6642.22	45.32	6642.35	45.42	6642.25
MW22D	6684.55	6642.47	6642.49	6642.30	6642.30	6642.28	6642.14	42.25	6642.30	42.31	6642.24
MW22S	6684.69	6642.71	6642.77	6642.54	6642.60	6642.52	6642.42	42.18	6642.51	42.37	6642.32
MW23	6654.5	6638.96	6639.36	6639.52	6639.66	6639.30	6638.97	15.26	6639.24	14.75	6639.75
MW24	6657.08	6636.83	6637.32	6637.71	6638.02	6637.22	6636.77	19.71	6637.37	19.30	6637.78
SMW01	6669.94	6639.25	6639.30	6639.16	6639.40	6639.09	6638.85	30.72	6639.22	30.80	6639.14
TMW01	6711.84	6673.86	6673.78	6673.44	6673.24	6673.13	6672.83	39.01	6672.83	39.23	6672.61
TMW03	6702.43	6645.35	6645.42	6645.30	6645.21	6645.28	6645.19	57.18	6645.25	57.32	6645.11
TMW04	6700.86	6644.42	6644.50	6644.37	6644.32	6644.41	6644.35	56.42	6644.44	56.52	6644.34
TMW06	6690.63	6643.42	6643.67	6643.38	6643.32	6643.44	6643.36	47.10	6643.53	47.31	6643.32
TMW07	6690.47	6643.09	6643.71	6643.02	6643.50	6643.06	6643.41	47.25	6643.22	47.10	6643.37
TMW08	6680.31	6643.46	6643.56	6643.17	6643.25	6643.38	6643.24	36.94	6643.37	37.17	6643.14
TMW10	6680.04	6642.43	6642.44	6642.21	6642.27	6642.26	6642.14	37.75	6642.29	37.94	6642.10
TMW11	6718.28	6651.15	6650.94	6650.91	6650.86	6650.70	6650.55	67.80	6650.48	67.81	6650.47
TMW13	6707.49	6647.32	6647.30	6647.22	6647.18	6647.12	6647.02	60.46	6647.03	60.50	6646.99
TMW15	6713.89	6649.26	6649.19	6649.14	6649.09	6648.95	6648.84	65.08	6648.81	65.11	6648.78
TMW21	6695.14	6644.36	6644.51	6644.33	6644.26	6644.29	6644.24	50.82	6644.32	50.91	6644.23
TMW22	6691.74	6642.90	6643.28	6642.92	6642.99	6643.02	6643.06	48.52	6643.22		

4.0 Groundwater Elevations

TABLE 4-1

Northern Area Groundwater Elevations (Wells Screened in Alluvial Sediments) (Page 2 of 3)
Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	TOC Elevation (feet)	Elevation (feet)	Elevation (feet)	Elevation (feet)	Elevation (feet)	Elevation (feet)	Elevation (feet)	DTW (feet BTOC)	Elevation (feet)	DTW (feet BTOC)	Elevation (feet)
TMW23	6687.66	6642.05	6642.40	6642.11	6642.12	6642.22	6642.17	45.32	6642.34	45.48	6642.18
TMW24	6680.42	6641.75	6641.67	6641.95	6642.05	6642.15	6642.11	38.12	6642.30	38.20	6642.22
TMW25	6672.88	6633.82	6633.89	6633.69	6633.88	6633.96	6633.83	38.86	6634.02	38.93	6633.95
TMW26	6677.71	6650.45	6651.84	6652.26	6652.28	6651.16	6650.65	27.13	6650.58	27.15	6650.56
TMW27	6668.13	6639.96	6639.89	6640.02	6640.31	6640.09	6639.82	28.20	6639.93	28.07	6640.06
TMW28	6689.17	6669.68	6671.04	6671.06	6671.01	6670.21	6669.81	19.02	6670.15	18.69	6670.48
TMW29	6702.88	6645.55	6645.57	6645.47	6645.38	6645.43	6645.32	57.51	6645.37	57.57	6645.31
TMW31S	6710.2	6673.00	6672.99	6672.58	6672.45	6672.34	6672.07	38.11	6672.09	38.35	6671.85
TMW33	6686.6	6642.84	6642.91	6642.58	6642.62	6642.62	6642.53	43.95	6642.65	44.10	6642.50
TMW34	6687.29	6641.49	6641.44	6641.37	6641.38	6641.37	6641.25	45.92	6641.37	45.99	6641.30
TMW35	6686.52	6642.67	6642.64	6642.44	6642.46	6642.44	6642.33	44.13	6642.39	44.25	6642.27
TMW39S	6708.61	6673.44	6673.24	6673.18	6673.16	6672.91	6672.73	35.95	6672.66	36.07	6672.54
TMW40S	6706.4	6646.12	6646.15	6646.08	6646.06	6646.07	6646.00	60.38	6646.02	60.42	6645.98
TMW41	6705.21	6664.54	6664.70	6664.30	6664.31	6664.22	6664.11	41.00	6664.21	41.28	6663.93
TMW43	6698.63	6645.20	6645.30	6645.14	6645.06	6645.12	6645.04	53.50	6645.13	53.59	6645.04
TMW44	6697.31	6644.52	6644.83	6644.52	6644.47	6644.59	6644.55	52.62	6644.69	52.82	6644.49
TMW45	6689	6641.22	6641.60	6641.33	6641.32	6641.57	6641.51	47.31	6641.69	47.39	6641.61
TMW46	6680.98	6636.78	6636.59	6636.67	6636.82	6636.81	6636.57	44.10	6636.88	44.05	6636.93
TMW47	6701.88	6655.67	6655.70	6655.69	6655.70	6655.48	6655.47	46.33	6655.55	46.32	6655.56
Wingate89	6663.69	6648.35	NM-flooded	NM-flooded	6648.39	6648.22	NM-flooded	15.61	6648.08	15.41	6648.28
Wingate90	6656.49	6640.78	6642.78	6643.01	6643.25	6642.96	6642.58	13.62	6642.87	13.28	6643.21
Wingate91	6659.74	6645.30	6645.34	6645.57	6645.79	6645.49	6645.12	14.37	6645.37	14.12	6645.62
PZ01	6677.29	6650.17	6650.39	6650.17	6650.39	6650.17	6650.39	26.64	6650.65	26.80	6650.49
PZ02	6674.95	6651.73	6651.69	6651.73	6651.69	6651.73	6651.69	23.31	6651.64	23.25	6651.70
PZ03	6679.44	6653.02	6653.16	6653.02	6653.16	6653.02	6653.16	26.20	6653.24	26.20	6653.24

TABLE 4-1

Northern Area Groundwater Elevations (Wells Screened in Alluvial Sediments) (Page 3 of 3)
Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	TOC Elevation (feet)	Elevation (feet)	Elevation (feet)	Elevation (feet)	Elevation (feet)	Elevation (feet)	Elevation (feet)	DTW (feet BTOC)	Elevation (feet)	DTW (feet BTOC)	Elevation (feet)
		9-Jul-13	28-Oct-13	13-Jan-14	7-Apr-14	15/16-July-14	20-Oct-14	20/21-Jan-15	20/21-Jan-15	30-Mar-15	30-Mar-15
PZ04	6676.68	6648.28	6648.66	6648.28	6648.66	6648.28	6648.66	28.15	6648.53	28.24	6648.44
PZ05	6674.15	6653.10	6653.54	6653.10	6653.54	6653.10	6653.54	20.42	6653.73	20.27	6653.88
PZ06	6676.04	6655.34	6656.88	6655.34	6656.88	6655.34	6656.88	18.76	6657.28	18.46	6657.58
PZ07	6684.53	6668.37	6672.51	6668.37	6672.51	6668.37	6672.51	15.00	6669.53	14.14	6670.39
PZ08	6686.81	6666.95	6671.71	6666.95	6671.71	6666.95	6671.71	18.25	6668.56	17.14	6669.67
PZ09	6653.61	6637.24	6638.27	6637.24	6638.27	6637.24	6638.27	15.39	6638.22	14.92	6638.69
PZ10	6657.27	6637.04	6638.08	6637.04	6638.08	6637.04	6638.08	19.21	6638.06	18.76	6638.51

Notes:

* Well was nearly dry and not sampled; water elevation may not be representative of the water table.

Elevations are recorded in U.S. feet above North American Vertical Datum of 1988 (NAVD88).

BTOC = below top of casing

DTW = depth to water

NM = not measured

TOC = top of casing

TABLE 4-2

Northern Area Groundwater Elevations (Wells Screened in Bedrock)*Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity*

Well Identifier	TOC Elevation (feet)	Elevation (feet)	Elevation (feet)	Elevation (feet)	Elevation (feet)	Elevation (feet)	Elevation (feet)	DTW (feet BTOC)	Elevation (feet)	DTW (feet BTOC)	Elevation (feet)
		9-Jul-13	28-Oct-13	13-Jan-14	7-Apr-14	15/16-July-14	20-Oct-14	20/21-Jan-15	20/21-Jan-15	30-Mar-15	30-Mar-15
TMW02	6705.35	6649.70	6649.85	6649.67	6649.63	6649.67	6649.59	55.69	6649.66	55.82	6649.53
TMW14A	6723.54	6659.04	6659.32	6658.88	6658.78	6658.67	6658.60	65.07	6658.47	65	6658.54
TMW16	6714.15	6657.95	6657.95	6657.82	6657.78	6657.57	6657.49	56.68	6657.47	56.74	6657.41
TMW17	6719.89	6657.30	6657.28	6656.90	6656.83	6656.67	6656.56	63.32	6656.57	63.43	6656.46
TMW18	6713.49	6658.38	6658.36	6658.31	6658.27	6658.05	6657.96	55.56	6657.93	55.55	6657.94
TMW19	6700.52	6657.65	6657.81	6657.62	6657.60	6657.36	6657.32	43.14	6657.38	43.20	6657.32
TMW30	6714.59	6674.12	6674.44	6674.26	6674.02	6673.99	6674.04	40.56	6674.03	39.95	6674.64
TMW31D	6710.44	6673.03	6672.93	6672.62	6672.46	6672.30	6672.03	38.45	6671.99	38.65	6671.79
TMW32	6709.31	6669.70	6669.56	6669.37	6669.25	6669.02	6668.82	40.53	6668.78	40.69	6668.62
TMW36	6699.04	6671.79	6672.55	6671.40	6671.33	6670.86	6670.78	28.4	6670.64	28.49	6670.55
TMW37	6713.09	6667.29	6667.22	6667.01	6666.94	6666.68	6666.58	46.61	6666.48	46.75	6666.34
TMW38	6706.79	6659.91	6659.80	6659.66	6659.60	6659.35	6659.28	47.46	6659.33	47.55	6659.24
TMW39D	6708.61	6673.94	6673.83	6673.47	6673.35	6673.21	6672.93	35.72	6672.89	35.92	6672.69
TMW40D	6706.15	6673.80	6673.65	6673.40	6673.26	6673.06	6672.80	33.39	6672.76	33.58	6672.57
TMW48	6709.84	6673.99	6673.84	6673.63	6673.40	6673.23	6672.95	36.97	6672.87	37.10	6672.74
TMW49	6714.71	6670.81	6670.60	6670.34	6670.15	6670.02	6669.74	45.05	6669.66	45.22	6669.49

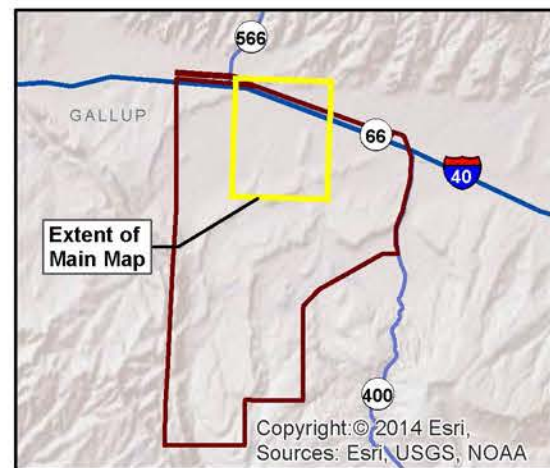
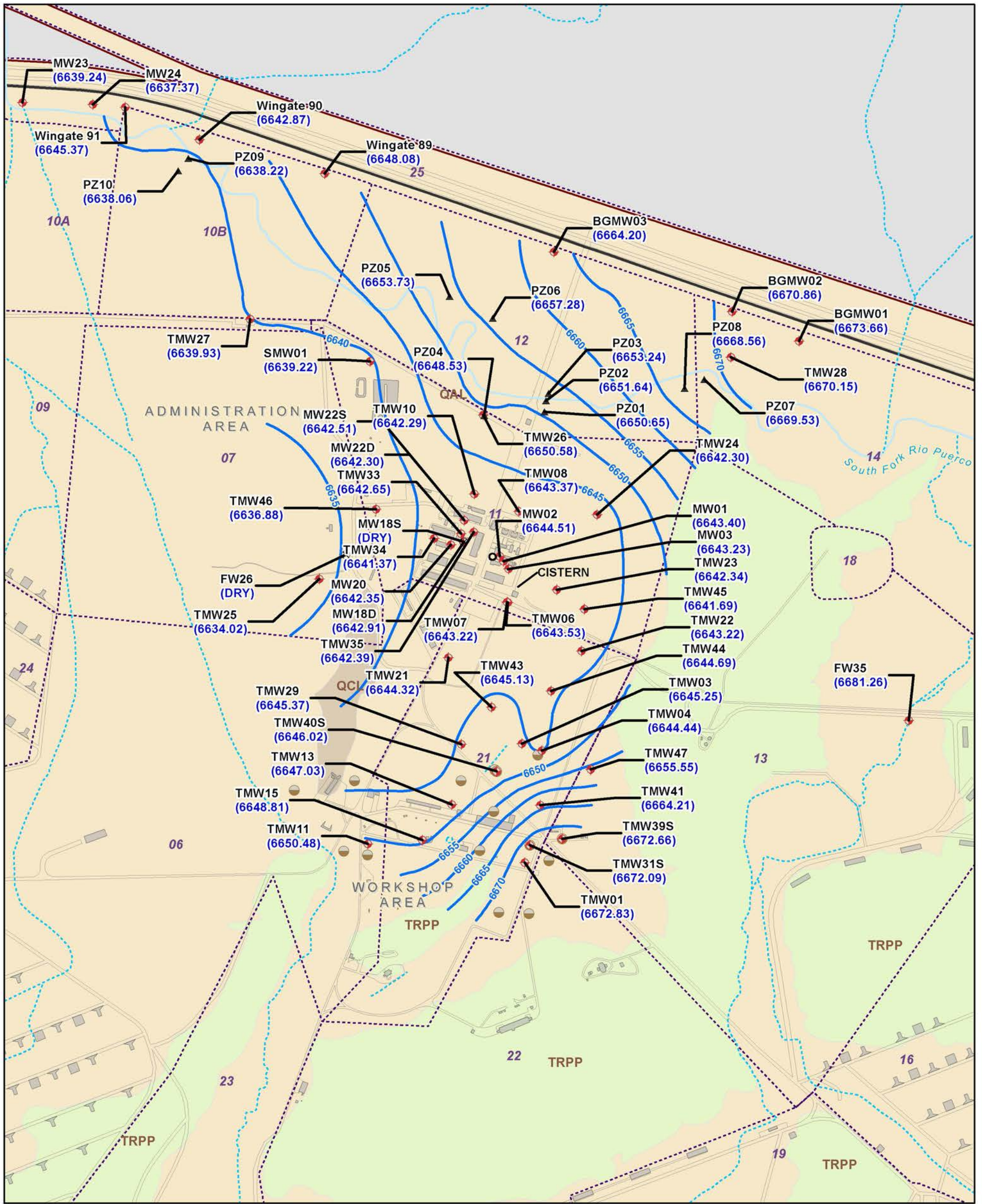
Notes:

Elevations are recorded in U.S. feet above North American Vertical Datum of 1988 (NAVD88).

BTOC = below top of casing

DTW = depth to water

TOC = top of casing



Legend

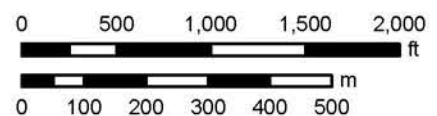
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- Bedrock Monitoring Well
- ▲ Piezometer
- ⊗ Dry Well
- Water Supply Well 69
- TMW11 Well Label = Well ID (6651.15) (Groundwater Elevation in feet)
- 6635- Alluvial Groundwater Contours, January 2015
- Building
- 10A Property Transfer Parcel
- Fort Wingate Installation Boundary

Surface Geology

- QAL QAL - Quarternary Alluvial Deposits
- QCL QCL - Quaternary Colluvial and Gravel Deposits
- TRPP TRPP - Petrified Forest Formation, Painted Desert Member

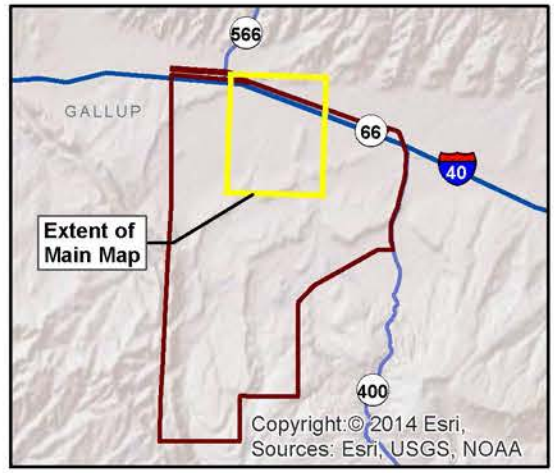
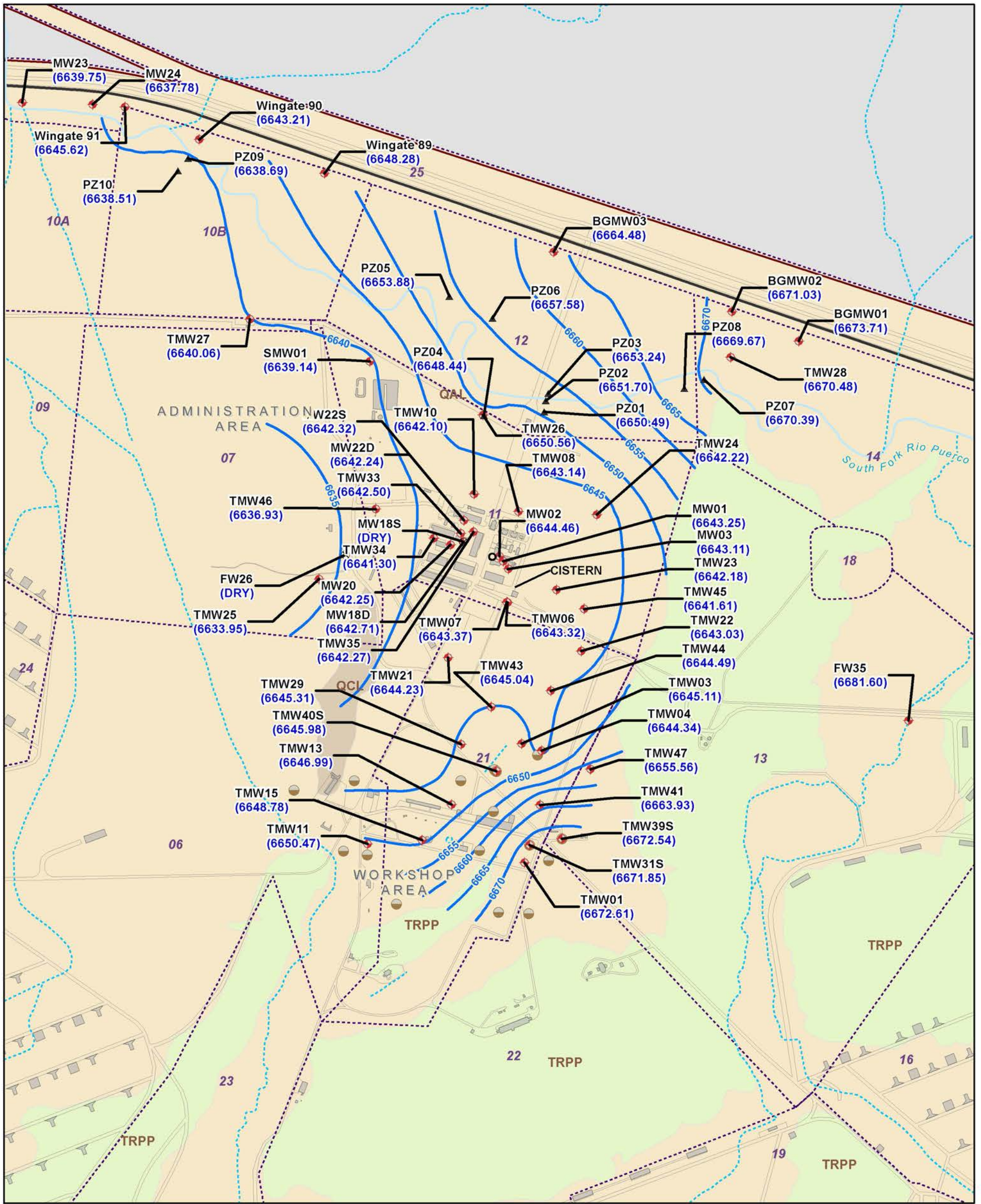
- - - Arroyo
- Stream
- Road

FIGURE 4-1
January 2015 Northern Area Alluvial Groundwater Contour Map
 Groundwater Periodic Monitoring Report for January to June 2015
 Fort Wingate Depot Activity, McKinley County, New Mexico



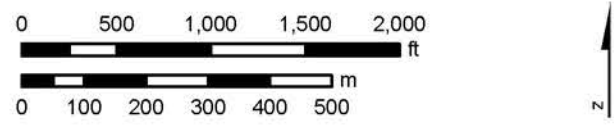
State Plane Coordinate System, New Mexico West,
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 North American Vertical Datum 1988, US Feet.

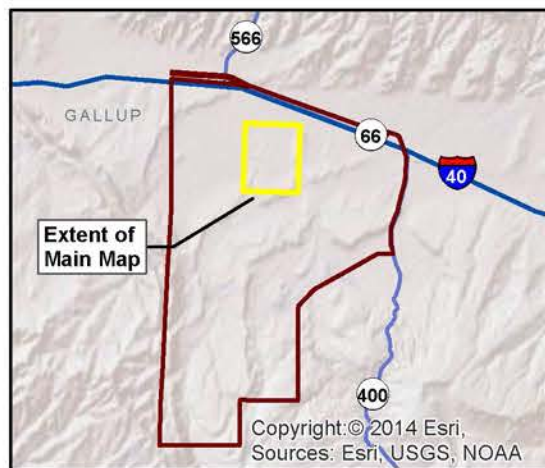
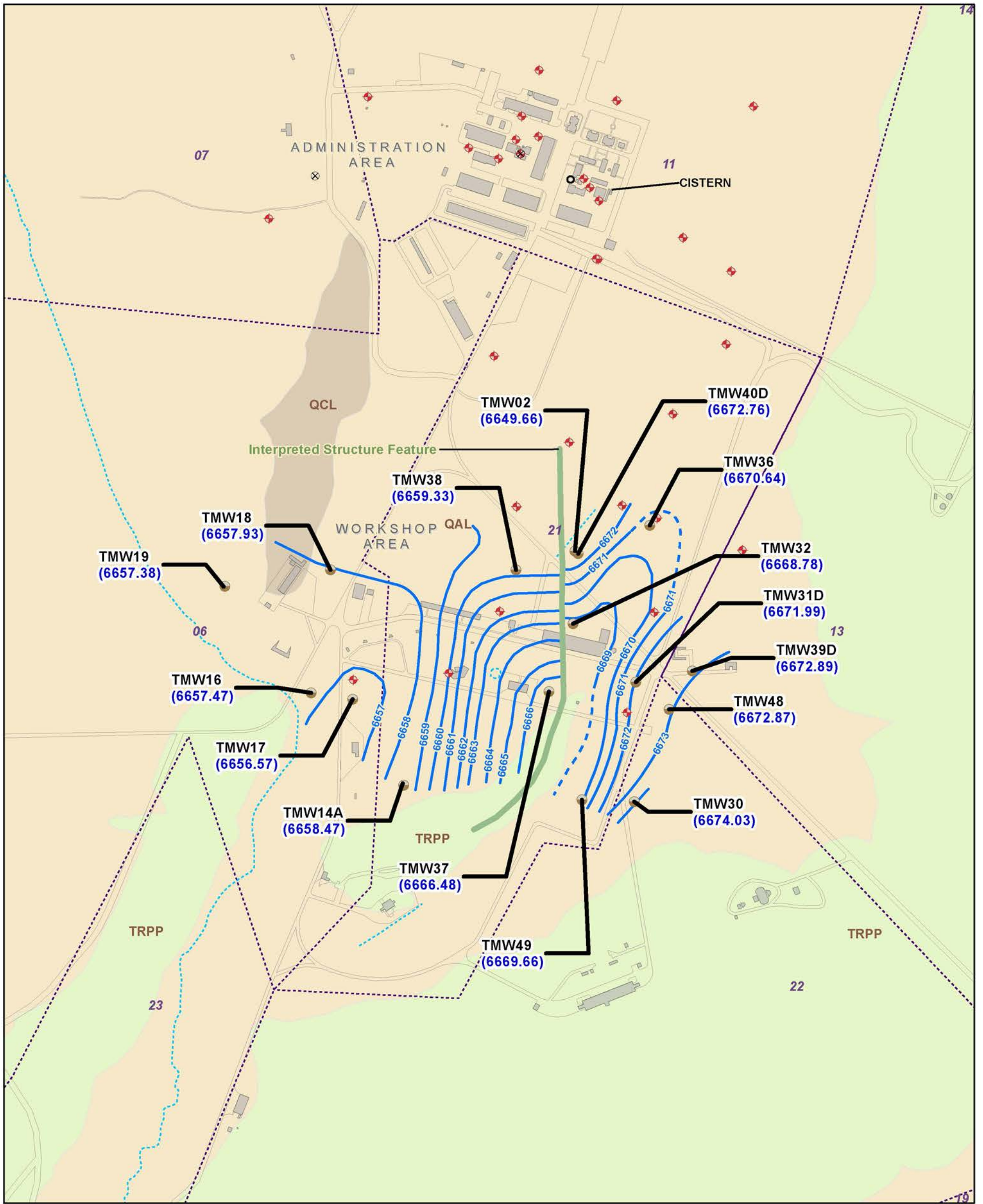
Data Sources:
 Roads, Railroad: Tele Atlas GDT-Dynamap, 2008;
 Populated Places: ESRI 2005;
 Fort Wingate Environmental Restoration Detail: USACE.



- Legend**
- Alluvial Monitoring Well
 - Bedrock Monitoring Well
 - ▲ Piezometer
 - ⊗ Dry Well
 - Water Supply Well 69
- TMW11 Well Label = Well ID
(6651.15) (Groundwater Elevation in feet)
- 6635 - Alluvial Groundwater Contours, March 2015
- Building
 - 10A Property Transfer Parcel
 - Fort Wingate Installation Boundary
- Surface Geology**
- QAL QAL - Quarternary Alluvial Deposits
 - QCL QCL - Quaternary Colluvial and Gravel Deposits
 - TRPP TRPP - Petrified Forest Formation, Painted Desert Member

FIGURE 4-2
March 2015 Northern Area Alluvial Groundwater Contour Map
 Groundwater Periodic Monitoring Report for January to June 2015
 Fort Wingate Depot Activity, McKinley County, New Mexico





Legend

- ◆ Alluvial Monitoring Well
- Bedrock Monitoring Well
- ⊗ Dry Well
- Water Supply Well 69
- TMW11 Well Label = Well ID (Groundwater Elevation in feet) (6650.94)
- Bedrock Groundwater Contours, January 2015 (Dashed where inferred)
- 10A Property Transfer Parcel
- Fort Wingate Installation Boundary
- Arroyo
- Road

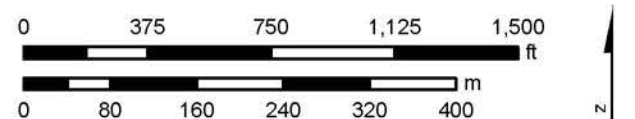
Surface Geology

- QAL QAL - Quaternary Alluvial
- QCL QCL - Quaternary Colluvial and Gravel
- TRPP TRPP - Petrified Forest Formation, Painted Desert

FIGURE 4-3
January 2015 Northern Area Bedrock Groundwater Contour Map

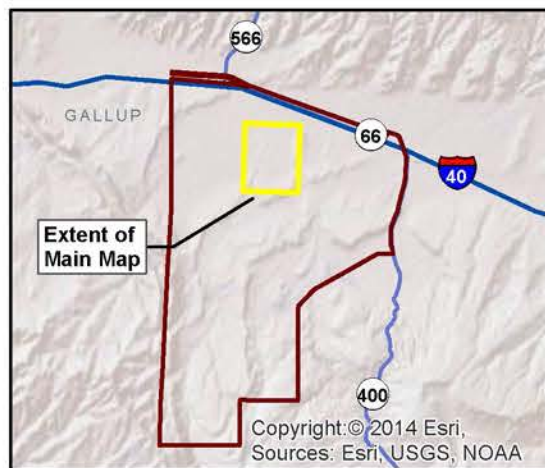
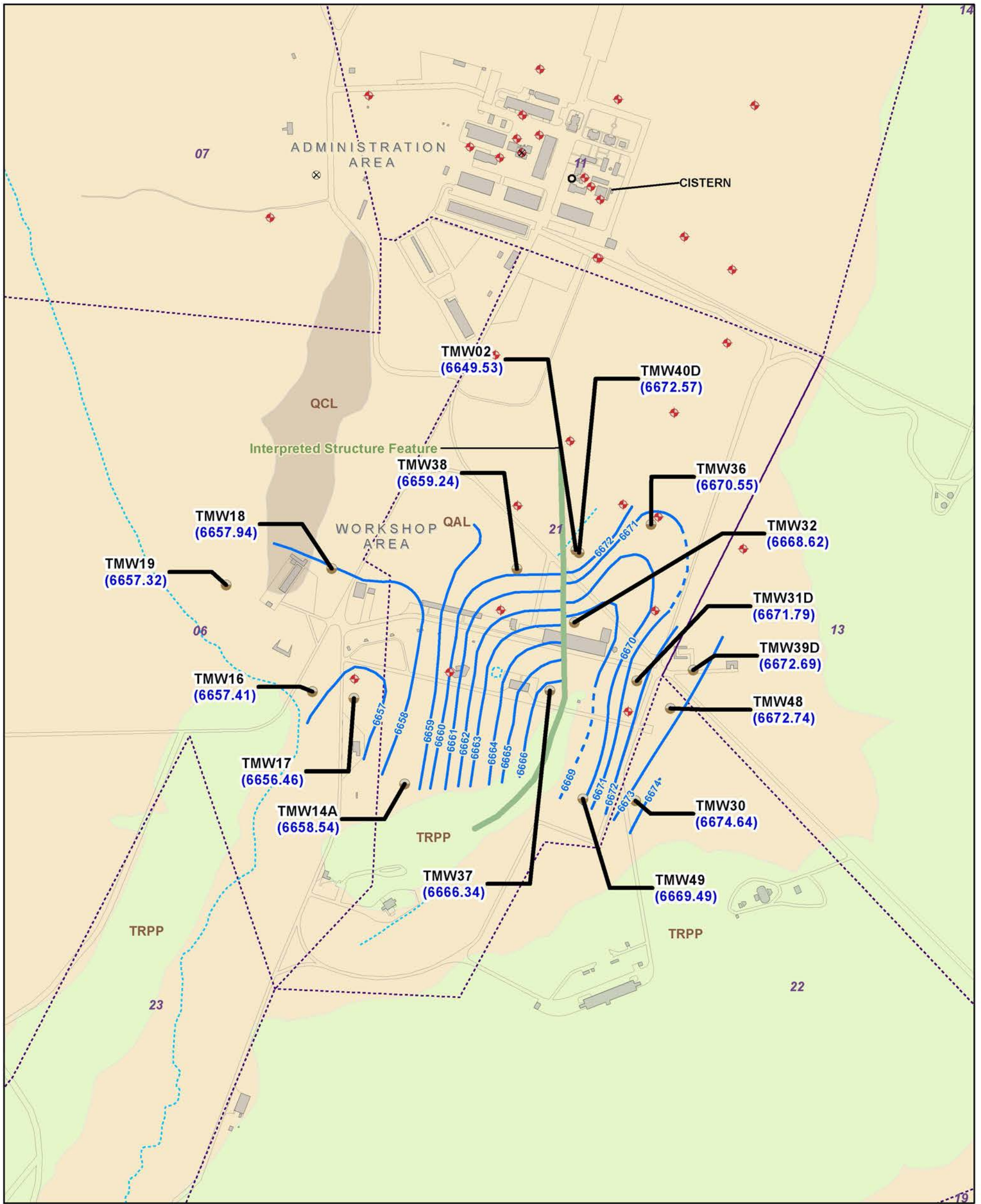
Groundwater Periodic Monitoring Report for January to June 2015
 Fort Wingate Depot Activity,
 McKinley County, New Mexico

Note: Elevation data from well TMW02 is not used to generate contours. Well screens for this well are not consistent with adjacent bedrock monitoring wells resulting in anomalous low water elevations.



State Plane Coordinate System, New Mexico West,
 North American Datum 1983, US Feet,
 North American Vertical Datum 1988, US Feet.

Data Sources:
 Roads, Railroad: Tele Atlas GDT-Dynamap, 2008;
 Populated Places: ESRI 2005;
 Fort Wingate Environmental Restoration Detail: USACE.



Legend

- ◆ Alluvial Monitoring Well
- Bedrock Monitoring Well
- ⊗ Dry Well
- Water Supply Well 69
- TMW11 Well Label = Well ID (Groundwater Elevation in feet) (6650.94)
- Bedrock Groundwater Contours, March 2015 (Dashed where inferred)
- Arroyo
- Road
- Building
- 10A Property Transfer Parcel
- Fort Wingate Installation Boundary

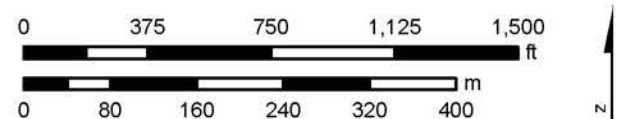
Surface Geology

- QAL QAL - Quaternary Alluvial Deposits
- QCL QCL - Quaternary Colluvial and Gravel Deposits
- TRPP TRPP - Petrified Forest Formation, Painted Desert Member

FIGURE 4-4
March 2015 Northern Area Bedrock Groundwater Contour Map

Groundwater Periodic Monitoring Report for January to June 2015
 Fort Wingate Depot Activity,
 McKinley County, New Mexico

Note: Elevation data from well TMW02 is not used to generate contours. Well screens for this well are not consistent with adjacent bedrock monitoring wells resulting in anomalous low water elevations.



State Plane Coordinate System, New Mexico West,
 North American Datum 1983, US Feet,
 North American Vertical Datum 1988, US Feet.

Data Sources:
 Roads, Railroad: Tele Atlas GDT-Dynamap, 2008;
 Populated Places: ESRI 2005;
 Fort Wingate Environmental Restoration Detail: USACE.

1 5.0 Analytical Results

2 The groundwater quality parameters and laboratory analytical results for the April 2015 groundwater sampling
3 event are presented in Tables 5-1 through 5-8. Figures 5-1 through 5-6 are maps for the various groundwater
4 contaminants identified at FWDA. The laboratory data were reviewed and determined to be valid and suitable for
5 the project objectives. The Data Quality Evaluation (DQE) Report is provided in Appendix C. The historical
6 groundwater monitoring data is provided in Appendix E.

7 5.1 Northern Area Analytical Results

8 5.1.1 Water Quality Parameters

9 The water quality parameter measurements collected in the field provide useful data for assessing general water
10 quality and evaluating contaminant fate and transport. The stable parameter readings and drawdown
11 measurements collected during well purging activities are presented in Table 5-1. Some groundwater parameter
12 measurements in the data set are skewed (biased high) due to well design and limiting aquifer conditions as well
13 as differing sample collection methods. Therefore, the median value is presented for each parameter for
14 discussion purposes.

15 The specific conductance of groundwater is considered a proxy for total dissolved solids (TDS) concentration. For
16 most groundwater, multiplying the specific conductance value in microsiemens per centimeter ($\mu\text{S}/\text{cm}$) by a factor
17 of 0.55 to 0.75 yields an approximate TDS concentration in milligrams per liter (mg/L) (Hem, 1989). Groundwater-
18 specific conductance values ranged from 0.639 to 9.89 millisiemens per centimeter (mS/cm). Median values for
19 groundwater from the Northern Area monitoring wells were 3.43 and 2.72 mS/cm in the alluvial and bedrock
20 units, respectively. When converted to TDS concentrations using a conversion factor of 0.65, the median values
21 for groundwater in the alluvial and bedrock units are 2,230 and 1,770 mg/L, respectively.

22 Groundwater pH measurements ranged from 6.65 to 9.05, with one data point above 9 in water from the
23 Northern Area bedrock monitoring wells. Median pH values were 7.40 and 7.95 in the Northern Area alluvial and
24 bedrock groundwater units, respectively.

25 Dissolved oxygen is a measure of aerobic and anaerobic conditions in the water-bearing units. Dissolved oxygen
26 values ranged from 0.0 to 8.50 mg/L, with median values of 1.34 and 0.34 mg/L for the alluvial and bedrock
27 groundwater units, respectively. Low median values indicate that anaerobic conditions (<1 mg/L) are likely
28 present in some areas of FWDA. The dissolved oxygen measurements for samples collected using bailer
29 techniques are considered to be somewhat elevated due to the introduction of a bailer into the water column.

30 The oxidation state for groundwater was measured as the ORP and subsequently calculated as the redox potential
31 (Eh). These values are a measure of electrical potential in the aquifer that can be used to determine the stability
32 of contaminants in groundwater. The Eh values were calculated from the instrument-specific ORP readings using a
33 formula that accounts for the instrument calibration standard and location-specific water temperature (Horiba
34 Instruments, 2014; Matsushita et al., 1974). The formula used for the calculation and the Eh values are presented
35 in Table 5-1.

36 The Eh values ranged from 422 to -59 millivolts (mV) across the monitoring area. Median values of Eh were
37 236 mV in water from alluvial aquifer wells and 79 mV in water from bedrock wells, respectively. Values of Eh
38 below approximately 400 mV in neutral pH waters indicate that perchlorate is susceptible to chemical
39 degradation (Takeno, 2005). Values of Eh below approximately 300 mV in neutral pH waters indicate that nitrate
40 and some nitrogen-based explosive compounds are susceptible to chemical degradation (Takeno, 2005).

41 5.1.2 Nitrate and Nitrite

42 Nitrate and nitrite were released at FWDA due to historical activities relating to munitions storage and disposal.
43 Nitrate is also a naturally occurring compound commonly detected in natural surface water and groundwater

5.0 Analytical Results

1 systems. Nitrate and nitrite were analyzed by EPA Method 9056 and reported as nitrogen mass concentrations,
2 nitrate-nitrogen, and nitrite-nitrogen. A summary of the nitrate and nitrite analytical results is presented in
3 Table 5-2.

4 Nitrate was detected in samples from 36 alluvial monitoring wells in the Northern Area. Concentrations of nitrate
5 ranged from 0.099 J to 130 mg/L, and exceeded the EPA MCL of 10 mg/L in samples from 13 alluvial monitoring
6 wells in the Northern Area. Nitrite was detected in one sample alluvial monitoring well (TMW40S) in the Northern
7 Area, at a concentration of 2.2 J mg/L, which exceeded the EPA MCL of 1 mg/L. The highest nitrate concentrations
8 in alluvial groundwater were found in the Workshop Area immediately downgradient of the TNT Leaching Beds
9 (monitoring wells TMW40S and TMW03). Groundwater nitrate concentrations were also detected above the
10 MCLs in multiple samples collected from wells in the Administration Area. The extent of nitrate contamination
11 downgradient (to the west) of the Administration Area has not been defined. In addition, elevated nitrate
12 concentrations are detected in samples from background alluvial monitoring well BGMW02. Well BGMW02 is
13 located on the FWDA boundary and upgradient of any SWMUs or AOCs. Therefore, the source of nitrate in this
14 area does not appear to originate from FWDA. Figure 5-1 shows the groundwater nitrate and nitrite concentration
15 data for the alluvial monitoring wells in the Northern Area.

16 Nitrate was detected in samples from eight bedrock monitoring wells in the Northern Area. Groundwater nitrate
17 concentrations in samples from bedrock monitoring wells ranged from 0.86 J to 88 mg/L and exceeded the EPA
18 MCL in samples from four wells. Nitrite was detected in one sample (monitoring well TMW32) at a concentration
19 of 1.2 mg/L, exceeding the MCL. The highest groundwater nitrate concentrations in the bedrock groundwater unit
20 were found in the Workshop Area (samples from monitoring well TMW02) immediately downgradient of the TNT
21 Leaching Beds (SWMU 1). However, samples from three monitoring wells upgradient of the TNT Leaching Beds
22 also had nitrate concentrations that exceeded the EPA MCL. Figure 5-2 shows the groundwater nitrate and nitrite
23 concentration data for the bedrock monitoring wells in the Northern Area.

24 5.1.3 Explosive Compounds

25 Explosive compounds were released into the environment at FWDA due to historical munitions storage,
26 maintenance, and disposal activities. Groundwater samples were analyzed for explosives using EPA
27 Method SW8330B. A summary of the explosive analytical results is presented in Table 5-3. To date, no
28 groundwater regulatory cleanup standards have been established for explosive compounds at FWDA. The EPA
29 Region 6 RSLs are presented in Table 5-3 as reference screening criteria.

30 The following explosive compounds were detected in groundwater samples from alluvial and bedrock monitoring
31 wells collected during the April 2015 groundwater sampling event (the maximum concentrations are shown in
32 parentheses):

- 33 ○ 1,3,5-Trinitrobenzene (3.1 µg/L at alluvial monitoring well TMW04); detected in samples from two alluvial and
34 no bedrock monitoring wells
- 35 ○ 2,4-Dinitrotoluene (0.44 µg/L at alluvial monitoring well TMW03); detected in samples from two alluvial and
36 no bedrock monitoring wells
- 37 ○ 2-Amino-4,6-dinitrotoluene (2.9 J µg/L at alluvial monitoring well TMW04); detected in samples from five
38 alluvial and one bedrock monitoring wells
- 39 ○ 2-Nitrotoluene (1.5 J µg/L at alluvial monitoring well TMW04); detected in samples from four alluvial and no
40 bedrock monitoring wells
- 41 ○ 3-Nitrotoluene (0.78 J µg/L at alluvial monitoring well TMW40S)
- 42 ○ 4-Amino-2,6-dinitrotoluene (2.6 J µg/L at alluvial monitoring well TMW04); detected in samples from four
43 alluvial and one bedrock monitoring wells
- 44 ○ 4-Nitrotoluene (40 J µg/L at alluvial monitoring well TMW04); detected in samples from one alluvial and one
45 bedrock monitoring wells

- 1 ○ Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) (1,200 J µg/L at alluvial monitoring well TMW40S); detected in
2 samples from five alluvial and no bedrock monitoring wells
 - 3 ○ Methyl-2,4,6-trinitrophenylnitramine (0.49 J µg/L at alluvial monitoring well TMW04)
 - 4 ○ Nitrobenzene (2.6 J µg/L at alluvial monitoring well TMW40S); detected in samples from two alluvial and no
5 bedrock monitoring wells
 - 6 ○ Octahydro-1.3.5.7-tetranitro-1.3.5.7-tetrazocine (HMX) (22 J µg/L at alluvial monitoring well TMW40S);
7 detected in samples from four alluvial and no bedrock monitoring wells
- 8 Five explosive compounds (RDX, 2,4-dinitrotoluene, 2-nitrotoluene, 4-nitrotoluene, and nitrobenzene) were
9 detected above the screening levels in groundwater samples from the April 2015 sampling event.

10 RDX is a recognized groundwater explosive compound of interest. The compound RDX is detected at
11 concentrations several orders of magnitude higher than the screening level in several samples from alluvial
12 monitoring wells. The highest concentrations of RDX were detected downgradient of the TNT Leaching Beds
13 (SWMU 1) in samples from monitoring wells TMW03 and TMW40S at concentrations of 420 J and 1,200 µg/L,
14 respectively. The RDX plume is well-defined in the alluvial aquifer and is shown with other explosives detections
15 on Figures 5-3 and 5-4 for the alluvial and bedrock groundwater aquifers, respectively.

16 Other explosives analytes are occasionally detected in both the alluvial and bedrock aquifers. Detections occur
17 most frequently and at higher concentrations in the alluvial aquifer downgradient of the TNT Leaching Beds
18 (SWMU 1). The compounds 2,4-dinitrotoluene and 4-nitrotoluene were detected above the RSLs (of 2.5 and 4.2
19 µg/L, respectively) in alluvial monitoring wells TMW03 and TWM04 directly downgradient of the TNT Leaching
20 Beds. The compounds 2-nitrotoluene and nitrobenzene were also detected above the RSLs (of 0.31 and 0.14 µg/L,
21 respectively) in well TWM04, but were also detected above RSLs at other monitoring wells (MW02 and TMW30).

22 5.1.4 Perchlorate

23 Groundwater samples were analyzed for perchlorate by EPA Method 6860. A summary of analytical results is
24 presented in Table 5-4. Groundwater perchlorate-concentration data for the Northern Area are shown on
25 Figures 5-3 and 5-4. The regulatory screening level for perchlorate is 6 µg/L, as defined in the FWDA RCRA Permit.
26 The highest perchlorate concentrations were found in groundwater samples collected from the bedrock
27 monitoring wells in the Workshop Area. The extent of perchlorate groundwater contamination has not been
28 completely defined to date.

29 Perchlorate was detected in groundwater samples from 25 alluvial monitoring wells in the Northern Area with
30 concentrations ranging from 0.0083 J to 670 µg/L. Perchlorate was detected in groundwater samples from
31 11 bedrock wells with concentrations ranging from 0.02 J to 1,400 µg/L. Overall, the regulatory screening level
32 was exceeded in groundwater samples collected from three alluvial and seven bedrock monitoring wells.

33 The higher perchlorate concentrations detected in groundwater samples collected from bedrock monitoring wells
34 suggest that the source area of perchlorate contamination is located upgradient in a recharge area for the
35 bedrock groundwater unit. Based on site history and analytical results from previous investigations, the source
36 area for perchlorate contamination is believed to be SWMU 27, Building 528 Complex (USACE, 2011). The
37 perchlorate contamination identified in the alluvial water-bearing unit is collocated with the bedrock groundwater
38 plume and is believed to result from a common source.

39 5.1.5 Volatile Organic Compounds

40 Groundwater contamination from VOCs at concentrations above screening levels is limited to a small number of
41 shallow alluvial monitoring wells in the Administration Area. The detected VOCs are primarily associated with
42 chlorinated solvents, petroleum fuels, and their degradation products. Groundwater samples were analyzed for
43 VOCs using EPA Method SW8260B. A summary of the VOC analytical results is presented in Table 5-5. Seven VOCs
44 were detected in one or more groundwater samples collected during the April 2015 groundwater sampling event.

5.0 Analytical Results

- 1 Figures 5-5 and 5-6 show the VOC data for samples collected in the Northern Area alluvial wells and bedrock
2 wells, respectively.
- 3 The following VOCs were detected in samples collected during the April 2015 groundwater sampling event in the
4 Northern Area (the maximum detected concentrations are shown in parentheses):
- 5 ○ 1,1,1-Trichloroethane (1.9 µg/L at alluvial monitoring well MW22S)
 - 6 ○ 1,1-Dichloroethane (0.68 J µg/L at alluvial monitoring well MW22S)
 - 7 ○ 1,2-Dichloroethane (100 µg/L at alluvial monitoring well MW18D); detected in samples from seven alluvial
8 and no bedrock monitoring wells
 - 9 ○ Acetone (4.9 J µg/L at bedrock monitoring well TMW18); detected in samples from four alluvial and one
10 bedrock monitoring wells
 - 11 ○ Carbon disulfide (2.5 µg/L at bedrock monitoring well TMW17); detected in samples from one alluvial and one
12 bedrock monitoring wells
 - 13 ○ Chloroform (0.66 J µg/L at alluvial monitoring well TMW40S)
 - 14 ○ Toluene (1.7 J µg/L at bedrock monitoring well TMW18); detected in samples from no alluvial and four
15 bedrock monitoring wells
- 16 The only VOC detected in groundwater samples at concentrations above regulatory screening levels was the
17 gasoline additive and chlorinated solvent 1,2-dichloroethane. Groundwater samples collected from three alluvial
18 monitoring wells in the vicinity of a former fueling facility had concentrations above the EPA MCL of 5 µg/L.
19 Samples collected from wells MW18D, MW20, and TMW33, had 1,2-dichloroethane concentrations of 100, 5.3 J,
20 and 35 µg/L, respectively. No other VOCs were detected in groundwater samples above screening levels.
- 21 Overall, VOCs were detected in samples from 10 alluvial wells and five bedrock wells of the Northern Area. The
22 majority of VOC detections were sporadic and at concentrations below regulatory screening levels.

23 5.1.6 Other Organic Compounds

- 24 Detections of organic compounds other than VOCs in groundwater samples from FWDA are generally sporadic
25 and at concentrations below screening levels. A summary of the detected organic compounds other than VOCs is
26 presented in Table 5-6. No pesticides, as analyzed using EPA Method SW8081A, were detected in any
27 groundwater samples. Petroleum hydrocarbons were detected in the diesel and gasoline range, as analyzed using
28 EPA Method SW8015C, and SVOCs were analyzed using EPA Method SW8270D.
- 29 Detected concentrations of petroleum hydrocarbons and SVOCs detected in more than one sample are as follows
30 (the maximum detected concentrations are shown in parentheses):
- 31 ○ Diesel range organics (DRO) (1,100 µg/L at alluvial monitoring well MW18D); detected in samples from
32 11 alluvial and no bedrock monitoring wells
 - 33 ○ Gasoline range organics (GRO) (49 J µg/L at alluvial monitoring well MW18D); detected in samples from two
34 alluvial and no bedrock monitoring wells
 - 35 ○ 1,2-Diphenylhydrazine (0.37 J µg/L at bedrock monitoring well TMW31D); detected in samples from one
36 alluvial and one bedrock monitoring wells. Detection at alluvial well MW23 may be anomalous.
 - 37 ○ 2,4-Dinitrophenol (15 µg/L at alluvial monitoring well TMW40S); detected in samples from three alluvial and
38 no bedrock monitoring wells
 - 39 ○ Acetonaphthene (0.38 J µg/L at alluvial monitoring well TMW23); detected in samples from two alluvial and
40 no bedrock monitoring wells

- 1 ○ Acetophenone (1.4 J µg/L at bedrock monitoring well TMW19); detected in samples from one alluvial and
- 2 three bedrock monitoring wells
- 3 ○ Benzo(a)anthracene (0.46 J µg/L at bedrock monitoring well TMW31D)
- 4 ○ Benzoic acid (10 J µg/L at alluvial monitoring well TMW45)
- 5 ○ Bis(2-ethylhexyl)phthalate (8.1 J µg/L at bedrock monitoring well TMW18); detected in samples from four
- 6 alluvial and five bedrock monitoring wells
- 7 ○ Dibenzofuran (0.39 J µg/L at alluvial monitoring well TMW23); detected in samples from one alluvial and one
- 8 bedrock monitoring wells
- 9 ○ Diethyl phthalate (0.55 J µg/L at bedrock monitoring well TMW31D); detected in samples from two alluvial
- 10 and one bedrock monitoring wells
- 11 ○ Fluoranthene (0.36 J µg/L at bedrock monitoring well TMW31D); detected in samples from two alluvial and
- 12 one bedrock monitoring wells
- 13 ○ Fluorene (0.37 J µg/L at bedrock monitoring well TMW31D); detected in samples from two alluvial and one
- 14 bedrock monitoring wells
- 15 ○ n-Nitrosodiphenylamine (0.73 J µg/L at bedrock monitoring well MW31D); detected in samples from two
- 16 alluvial and one bedrock monitoring wells
- 17 ○ Pyrene (0.38 J µg/L at bedrock monitoring well TMW31D)

18 Petroleum hydrocarbons were detected in several samples collected from wells in the Administration Area of the
 19 Northern Area. Overall, petroleum hydrocarbons were detected in samples from five alluvial monitoring wells,
 20 with no detections in bedrock monitoring wells. The highest concentrations occurred in samples from shallow
 21 wells adjacent to the former fueling facility (1,100 µg/L as DRO in monitoring well TMW18D). No screening levels
 22 were identified for petroleum hydrocarbons.

23 Detections of SVOCs are associated with historical releases of explosives compounds and with sampling and
 24 laboratory contaminants. Two SVOCs possibly associated with explosives breakdown or combustion products
 25 were detected at concentrations above RSLs, but at concentrations below 1 µg/L. The compounds
 26 1,2-diphenylhydrazine and benzo(a)anthracene were detected at Workshop Area bedrock monitoring well
 27 TMW31D in April 2015 samples, but not in recent historical samples. The SVOC bis(2-ethylhexyl)phthalate was
 28 detected at concentrations above the EPA MCL of 6 µg/L in one sample from bedrock monitoring well TMW18 at a
 29 concentration of 8.1 J µg/L. The common plastic additive bis(2-ethylhexyl)phthalate may be present in a variety of
 30 laboratory and sampling equipment (including sample tubing, pump, bailer, and laboratory equipment) and was
 31 detected in samples from eight monitoring wells. No other SVOCs were detected at concentrations above
 32 screening levels. Detections of other SVOCs were sporadic (with each compound occurring in two or fewer
 33 samples).

34 Results for the duplicate sample from alluvial monitoring well MW23 are anomalous and are not included in the
 35 discussion above. Analytical detections included 12 SVOCs that were not included in the normal sample or in any
 36 other sample during the April 2015 monitoring event. Results of the duplicate sample are not considered
 37 representative of aquifer conditions. The following anomalous SVOC detections were identified in the duplicate
 38 sample from MW23 and in no other sample from this event: 1,2,4-trichlorobenzene (0.35 J µg/L),
 39 1,2-dichlorobenzene (0.28 J µg/L), 1,4-dichlorobenzene (0.37 J µg/L), 2,4,6-trichlorophenol (0.33 J µg/L),
 40 2-chloronaphthelene (0.39 J µg/L), 2-methylnaphthelene (0.37 J µg/L), benzyl alcohol (0.31 J µg/L),
 41 bis(2-chloroisopropyl) ether (0.33 J µg/L), m,p-cresol (0.32 J µg/L), naphthalene (0.39 J µg/L),
 42 n-nitrosodimethylamine (0.33 J µg/L), and n-nitrosodiphenylamine (0.65 J µg/L). Results of the normal sample
 43 from MW23 are presented on Figure 5-5, and results of both normal and duplicate samples are included in
 44 Table 5-5 for comparison.

1 **5.1.7 Metals**

2 Samples were collected and analyzed as total and dissolved concentrations at FWDA. Groundwater samples were
3 analyzed for metals by EPA Methods SW6010C, SW6020A, and SW7470A. Total metals analysis has been shown in
4 studies to be affected by sediment and the method of well purging and does not produce representative
5 groundwater metals concentrations at many sites. A summary of detections for total metals is presented in
6 Table 5-8, but the results are not discussed in this GWMP. A summary of detections for dissolved metals is
7 presented in Table 5-7.

8 Dissolved aluminum, arsenic, iron, manganese, and selenium were detected in multiple groundwater samples
9 above regulatory screening levels. Because background groundwater concentrations have not yet been accepted
10 by the regulators for FWDA, it cannot clearly be demonstrated whether the detected concentrations are a result
11 of natural conditions or anthropogenic sources of contamination. Therefore, no contaminant plume maps were
12 created for the metals data. A background evaluation of FWDA groundwater was submitted to the NMED in
13 September 2014 and is currently in review.

14 **5.2 OB/OD Area Analytical Results**

15 No monitoring was performed in the OB/OD Area during this period. Historical analytical results are not available
16 since April 2013 and older data have been removed from tables.

17 **5.3 Sediment Sample Analytical Results**

18 Results of sediment sampling at the evaporation tanks indicate that the material is not hazardous and does not
19 require removal from FWDA. The results are presented in Appendix D.

20 **5.4 Field Variances from the Work Plan**

21 One sample bottle from well TMW03 was broken in transit and no analysis of SVOCs was performed for that
22 sample location. The laboratory was verbally advised to attempt analysis from the remaining unused sample
23 bottles. This direction was not logged in the laboratory sample acknowledgement and the analysis was not
24 performed. The lack of data for this sample location was detected subsequent to demobilization from the field
25 and a replacement sample was not collected.

26 A variance from the GWMP occurred during the laboratory analysis of samples for VOCs. The laboratory analyzed
27 all samples for VOCs using EPA Method SW8260B rather than the newer EPA Method SW8260C. There are a
28 number of differences between SW8260B and SW8260C; however, the overall impact from these differences to
29 data quality is considered negligible. In part, the differences are negligible because the updates to remove dated
30 practices would be superseded by the more conservative requirements of the DoD Quality Systems Manual
31 (QSM).

32 Overall, no changes to the EPA Method are of significant concern to data quality, especially when considering the
33 requirement to comply with the DoD QSM. A request has been submitted to the laboratory to obtain DoD
34 certification for Method SW8260C to enable compliance with the work plan.

35 **5.5 New Findings**

36 No new findings were identified from monitoring data. Monitoring data are generally consistent with historical
37 data.

5.0 Analytical Results

TABLE 5-1

Spring 2015 Stable Groundwater Parameters (Page 1 of 3)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Location	Groundwater Zone	Screen Interval (feet bgs)	Date	Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Eh (mV)	pH (pH Units)	Temperature (°C)	Turbidity (NTU)	Drawdown (feet)
BGMW01	North Alluvial	12.5 - 32.5	4/2/2015	3.21	4.1	-29	184	7.47	15.63	0.77	0.22
BGMW02	North Alluvial	13.5 - 33.5	4/2/2015	4.91	2.94	108	323	7.40	12.45	2.25	0.09
BGMW03	North Alluvial	8.5 - 28.5	3/31/2015	3.09	7.54	174	388	7.53	13.76	47.71	N/A
FW31	North Alluvial	10.0 - 50.0	3/31/2015	2.24	3.76	68	282	7.62	13.69	53.7	N/A
FW35	North Alluvial	10.0 - 30.0	3/31/2015	4.14	9.19 ^a	-187	28	6.78	11.78	656.8	N/A
MW01	North Alluvial	33.6 - 53.6	3/31/2015	3.39	7.80	132	344	7.62	17.1	697.5	N/A
MW02	North Alluvial	37.0 - 47.0	3/31/2015	1.1	8.50	53	266	7.08	14.68	383.8	N/A
MW03	North Alluvial	43.0 - 53.0	4/3/2015	4.44	0.00	3	217	6.87	13.61	0.58	0.43
MW18D	North Alluvial	47.0 - 57.0	4/8/2015	7.27	4.25 ^a	-149	63	7.12	16.3	188.00	N/A
MW20	North Alluvial	47.0 - 57.0	4/3/2015	9.89	2.95	208	422	6.66	13.05	0.01	0.36
MW22D	North Alluvial	47.0 - 57.0	4/4/2015	4.58	3.84	138	351	6.65	14.61	0.38	0.09
MW22S	North Alluvial	31.0 - 41.0	3/31/2015	3.48	7.40	188	400	7.20	16.95	>1100	N/A
MW23	North Alluvial	63.5 - 133.5	4/6/2015	1.44	0.0	-36	179	7.40	12.20	96.46	N/A
MW24	North Alluvial	16.0 - 66.0	4/6/2015	0.639	0.00	-172	43	7.30	11.99	0.08	N/A
SMW01	North Alluvial	29.9 - 49.9	4/8/2015	3.19	0.00	-159	55	7.45	13.03	1.03	0.39
TMW01	North Alluvial	44.0 - 59.0	4/7/2015	2.64	3.92	130	346	7.42	11.17	0.00	0.43
TMW03	North Alluvial	49.8 - 69.8	4/9/2015	4.1	0.00	144	359	7.15	12.79	0.00	0.06
TMW04	North Alluvial	50.0 - 70.0	4/9/2015	3.79	2.48	139	353	7.29	13.53	0.00	0.30
TMW06	North Alluvial	45.0 - 55.0	4/9/2015	3.66	2.19	88	302	7.67	13.69	0.23	0.30
TMW07	North Alluvial	65.0 - 75.0	4/1/2015	5.11	0.03	-50	163	7.39	14.87	17.89	N/A
TMW08	North Alluvial	30.0 - 60.0	4/8/2015	9.3	0.00	-3	212	6.84	12.60	4.75	0.33
TMW10	North Alluvial	28.0 - 58.0	4/7/2015	7.14	0.00	-13	201	7.41	14.18	0.42	0.31
TMW11	North Alluvial	55.0 - 80.0	4/8/2015	2.12	0.00	-84	130	8.7	13	10.09	0.19
TMW13	North Alluvial	60.7 - 70.7	4/9/2015	2.24	2.67 ^a	-118	97	7.52	11.55	0.00	0.13
TMW15	North Alluvial	56.0 - 71.0	4/8/2015	2.24	0.00	-10	203	8.55	15.2	0.40	0.12
TMW21	North Alluvial	48.0 - 58.0	4/3/2015	2.38	0.66	159	374	7.60	12.33	>1000	N/A
TMW22	North Alluvial	52.0 - 62.0	3/31/2015	3.40	0.00	18	231	7.52	15.41	502.2	N/A
TMW23	North Alluvial	42.5 - 52.5	3/31/2015	3.12	4.51	66	280	7.54	14.2	67	N/A
TMW24	North Alluvial	42.5 - 52.5	4/8/2015	3.61	0.00	-107	105	7.30	15.89	1.46	0.47
TMW25	North Alluvial	42.5 - 52.5	4/7/2015	3.46	0.00	-107	108	7.26	12.38	1.66	0.67
TMW26	North Alluvial	45.0 - 55.0	4/7/2015	3.00	0.00	-10	203	7.43	14.34	5.89	0.00
TMW27	North Alluvial	60.0 - 70.0	4/7/2015	1.23	0.00	-164	50	7.60	12.98	0.18	0.30
TMW28	North Alluvial	37.0 - 47.0	4/7/2015	0.89	0.73	-116	98	7.05	13.02	0.01	0.50
TMW29	North Alluvial	49.0 - 59.0	4/2/2015	2.37	9.41 ^a	87	301	7.14	13.80	132.8	N/A

5.0 Analytical Results

TABLE 5-1

Spring 2015 Stable Groundwater Parameters (Page 2 of 3)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Location	Groundwater Zone	Screen Interval (feet bgs)	Date	Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Eh (mV)	pH (pH Units)	Temperature (°C)	Turbidity (NTU)	Drawdown (feet)
TMW31S	North Alluvial	50.0 - 60.0	4/2/2015	2.86	0.00	41	255	7.07	13.57	657	N/A
TMW33	North Alluvial	37.0 - 57.0	3/31/2015	9.69	0.00	21	233	7.10	16.41	13.3	N/A
TMW34	North Alluvial	37.0 - 57.0	4/3/2015	5.59	3.13	207	420	6.87	14.97	0.83	0.08
TMW35	North Alluvial	35.0 - 55.0	4/3/2015	4.97	6.38	176	392	6.78	10.59	0.08	0.11
TMW39S	North Alluvial	32.5 - 52.5	3/31/2015	3.96	5.50	59	273	7.46	14.19	157.5	N/A
TMW40S	North Alluvial	50.0 - 60.0	3/31/2015	4.00	8.49	143	356	7.53	15.5	1040	N/A
TMW41	North Alluvial	55.5 - 65.5	3/31/2015	3.95	2.88	43	257	7.72	13.91	568.40	N/A
TMW43	North Alluvial	58.0 - 78.0	4/10/2015	2.34	0.00	131	346	7.11	11.55	0	0.04
TMW44	North Alluvial	43.5 - 63.5	3/31/2015	3.16	4.5	12	225	7.65	14.63	187.3	N/A
TMW45	North Alluvial	38.5 - 58.5	4/9/2015	3.60	3.60	-7	207	7.67	13.01	0.59	0.19
TMW46	North Alluvial	38.5 - 58.5	4/1/2015	5.00	1.9	26	240	7.26	14.06	96.25	N/A
TMW47	North Alluvial	82.5 - 102.5	4/10/2015	2.27	0.00	-188	26	8.40	12.88	0	0.95
TMW02	North Bedrock	67.9 - 81.9	4/9/2015	4.295	3.63	140	355	7.30	11.51	0.01	0.69
TMW14A	North Bedrock	94.25 - 109.25	4/8/2015	1.78	0.00	-219	-5	8.94	13.58	0.68	0.01
TMW16	North Bedrock	123.0 - 138.0	3/31/2015	1.77	0.00	-173	41	8.15	12.98	55.24	N/A
TMW17	North Bedrock	112.0 - 127.0	4/7/2015	1.64	0.00	-272	-59.4	8.11	15.59	1.37	0.04
TMW18	North Bedrock	150.0 - 160.0	3/31/2015	2.79	2.30	-76	139	9.05	12.82	5.77	N/A
TMW19	North Bedrock	169.0 - 184.0	3/31/2015	2.73	0.00	-247	-32	8.35	12.85	88.46	N/A
TMW30	North Bedrock	35.0 - 45.0	3/31/2015	2.18	1.66	48	262	7.31	13.41	29.63	N/A
TMW31D	North Bedrock	77.0 - 107.0	4/9/2015	2.63	1.43	61	275	7.49	13.39	0.00	0.40
TMW32	North Bedrock	117.0 - 137.0	4/7/2015	3.07	0.00	-164	51.0	8.05	12.09	20.66	0.21
TMW36	North Bedrock	132.0 - 152.0	3/31/2015	2.77	0.00	-260	-46	8.82	13.16	24.37	N/A
TMW37	North Bedrock	88.0 - 108.0	4/1/2015	2.22	2.56	-239	-24.6	7.96	13.04	15.91	N/A
TMW38	North Bedrock	118.9 - 158.9	4/8/2015	2.66	0.00	-111	104	7.92	12.1	96.56	3.27
TMW39D	North Bedrock	70.0 - 100.0	4/6/2015	3.29	2.72	-11	204	7.95	11.80	0.86	0.15
TMW40D	North Bedrock	135.0 - 155.0	4/9/2015	2.96	0.00	-159	55	7.87	13.82	0.00	0.00

TABLE 5-1

Spring 2015 Stable Groundwater Parameters (Page 3 of 3)*Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity*

Location	Groundwater Zone	Screen Interval (feet bgs)	Date	Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Eh (mV)	pH (pH Units)	Temperature (°C)	Turbidity (NTU)	Drawdown (feet)
TMW48	North Bedrock	71.0 - 91.0	4/6/2015	2.71	0.68	93	308	7.44	12.61	2.73	0.00
TMW49	North Bedrock	40.0 - 60.0	4/9/2015	3.22	1.07	81	296	7.42	11.84	0.00	0.33

Notes:

^a Anomalous dissolved oxygen readings occurred at some sample locations during purging, but are not expected to affect sampling results.

Drawdown is measured as the change in water level from initial measurement to final field reading on the day of well purging.

bgs = below ground surface

°C = degrees Celsius

DO = dissolved oxygen

mg/L = milligram(s) per liter

mS/cm = millisiemen(s) per centimeter

mV = millivolt(s)

N/A = not applicable; drawdown measurements are not applicable for casing volume purging method.

NTU = nephelometric turbidity unit

ORP = oxygen-reduction potential

pH = hydrogen (ion) concentration

Eh = redox potential

Eh is calculated from the ORP field reading and the water temperature using manufacturer specifications. The formula for conversion of ORP to Eh is as follows:

Sources: Horiba Instruments, 2014 and Matsushita et al., 1974

5.0 Analytical Results

TABLE 5-2

Summary of Nitrate-nitrogen and Nitrite-nitrogen Analytical Detections (Page 1 of 6)
 Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	Nitrate-N (mg/L)	Nitrite-N (mg/L)
					EPA Method 9056	EPA Method 9056
Regulatory Limits					10 ^a	1 ^b
BGMW01	BGMW01042015	Normal	North Alluvial	4/2/2015	0.10 U	0.10 U
	BGMW01102014	Normal	North Alluvial	10/24/2014	0.10 U	0.10 U
	BGMW01042014	Normal	North Alluvial	4/15/2014	0.20 U	0.20 U
	BGMW01102013	Normal	North Alluvial	11/8/2013	0.20 U	0.20 U
BGMW02	BGMW02042015	Normal	North Alluvial	4/2/2015	12 J	0.20 U
	BGMW02102014	Normal	North Alluvial	10/24/2014	13	0.20 U
	DBW02042014	Duplicate	North Alluvial	4/15/2014	13 J	0.20 U
	BGMW02042014	Normal	North Alluvial	4/15/2014	32 J	0.50 U
	BGMW02102013	Normal	North Alluvial	11/5/2013	13	0.20 U
BGMW03	BGMW03042015	Normal	North Alluvial	4/1/2015	5.0	0.10 U
	BGMW03102014	Normal	North Alluvial	10/22/2014	5.5	0.10 U
	BGMW03042014	Normal	North Alluvial	4/11/2014	4.4	0.78 J
	BGMW03102013	Normal	North Alluvial	11/5/2013	3.8	0.20 UJ
	DBW03102013	Duplicate	North Alluvial	11/5/2013	4.7	0.15 J
FW31	FW31042015	Normal	North Alluvial	4/1/2015	0.099 J	0.10 U
	FW31102014	Normal	North Alluvial	10/22/2014	0.060 J	0.10 U
	FW31042014	Normal	North Alluvial	4/10/2014	0.14 J	0.10 U
	FW31102013	Normal	North Alluvial	11/1/2013	0.098 J	0.10 U
FW35	FW35042015	Normal	North Alluvial	4/2/2015	0.099 J	0.10 U
	FW35102014	Normal	North Alluvial	10/24/2014	0.12 J	0.20 U
	FW35042014	Normal	North Alluvial	4/10/2014	0.32 J	0.20 U
	FW35102013	Normal	North Alluvial	10/29/2013	0.28 J	0.10 UJ
MW01	MW01042015	Normal	North Alluvial	4/1/2015	7.8	0.10 U
	MW01102014	Normal	North Alluvial	10/23/2014	7.0	0.10 U
	MW01042014	Normal	North Alluvial	4/9/2014	7.0	0.20 U
	MW01102013	Normal	North Alluvial	11/1/2013	7.3	0.10 U
MW02	MW02042015	Normal	North Alluvial	4/1/2015	4.7	0.10 U
	MW02102014	Normal	North Alluvial	10/24/2014	2.2	0.10 U
	MW02042014	Normal	North Alluvial	4/9/2014	1.3	0.10 U
	MW02102013	Normal	North Alluvial	11/1/2013	1.6	0.10 U
MW03	MW03042015	Normal	North Alluvial	4/3/2015	7.0	0.10 U
	MW03102014	Normal	North Alluvial	10/24/2014	7.7	0.10 U
	MW03042014	Normal	North Alluvial	4/14/2014	7.7	0.20 U
	MW03102013	Normal	North Alluvial	11/5/2013	9.6	0.20 U
MW18D	MW18D042015	Normal	North Alluvial	4/8/2015	0.11 U	0.20 U
	MW18D102014	Normal	North Alluvial	10/31/2014	0.12 J	0.20 U
	MW18D042014	Normal	North Alluvial	4/14/2014	0.50 U	0.50 U
	MW18D102013	Normal	North Alluvial	11/1/2013	0.20 U	0.20 U
MW20	MW20042015	Normal	North Alluvial	4/3/2015	6.9	0.50 U
	MW20102014	Normal	North Alluvial	10/28/2014	8.8	0.50 U
	DMW20102014	Duplicate	North Alluvial	10/28/2014	9.2	0.50 U
	MW20042014	Normal	North Alluvial	4/14/2014	9.1	0.50 U
	MW20102013	Normal	North Alluvial	11/8/2013	11	0.62 J
MW22D	MW22D042015	Normal	North Alluvial	4/6/2015	25	0.10 UJ
	MW22D102014	Normal	North Alluvial	10/29/2014	24	0.20 U
	MW22D042014	Normal	North Alluvial	4/14/2014	27 J	0.20 U
	DMW22D042014	Duplicate	North Alluvial	4/14/2014	27 J	0.20 U
	MW22D102013	Normal	North Alluvial	11/1/2013	26 J	0.20 U
	DMW22D102013	Duplicate	North Alluvial	11/1/2013	26 J	0.20 U

5.0 Analytical Results

TABLE 5-2

Summary of Nitrate-nitrogen and Nitrite-nitrogen Analytical Detections (Page 2 of 6)
 Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	Nitrate-N (mg/L)	Nitrite-N (mg/L)
					EPA Method 9056	EPA Method 9056
Regulatory Limits					10 ^a	1 ^b
MW22S	MW22S042015	Normal	North Alluvial	4/1/2015	17 J	0.10 U
	MW22S102014	Normal	North Alluvial	10/22/2014	16	0.10 U
	MW22S042014	Normal	North Alluvial	4/9/2014	19	0.20 U
	MW22S102013	Normal	North Alluvial	10/31/2013	19	0.20 U
MW23	MW23042015	Normal	North Alluvial	4/7/2015	0.10 U	0.10 U
	DMW23042015	Duplicate	North Alluvial	4/7/2015	0.10 U	0.10 UJ
	DMW23102014	Duplicate	North Alluvial	10/28/2014	0.10 U	0.10 U
	MW23102014	Normal	North Alluvial	10/28/2014	0.10 U	0.10 U
	DMW23042014	Duplicate	North Alluvial	4/11/2014	0.10 U	0.10 U
	MW23042014	Normal	North Alluvial	4/11/2014	0.10 U	0.10 U
	DMW23102013	Duplicate	North Alluvial	11/8/2013	0.10 U	0.10 U
MW24	MW24042015	Normal	North Alluvial	4/6/2015	0.10 U	0.10 UJ
	DMW24042015	Duplicate	North Alluvial	4/6/2015	0.10 U	0.10 UJ
	DMW24102014	Duplicate	North Alluvial	10/27/2014	0.10 U	0.10 U
	MW24102014	Normal	North Alluvial	10/27/2014	0.10 U	0.10 U
	DMW24042014	Duplicate	North Alluvial	4/11/2014	0.10 U	0.10 U
	MW24042014	Normal	North Alluvial	4/11/2014	0.10 U	0.10 U
	DMW24102013	Duplicate	North Alluvial	11/7/2013	0.10 U	0.10 U
	MW24102013	Normal	North Alluvial	11/7/2013	0.10 U	0.10 U
SMW01	SMW01042015	Normal	North Alluvial	4/8/2015	0.10 U	0.10 U
	SMW01102014	Normal	North Alluvial	10/27/2014	0.10 U	0.10 U
	SMW01042014	Normal	North Alluvial	4/15/2014	0.10 U	0.10 U
	SMW01102013	Normal	North Alluvial	11/8/2013	0.10 U	0.10 U
TMW01	TMW01042015	Normal	North Alluvial	4/7/2015	9.2	0.10 U
	TMW01102014	Normal	North Alluvial	10/30/2014	9.3	0.10 U
	TMW01042014	Normal	North Alluvial	4/16/2014	8.6	0.10 U
	TMW01102013	Normal	North Alluvial	11/6/2013	9.3	0.10 U
TMW03	TMW03042015	Normal	North Alluvial	4/9/2015	130	0.10 U
	TMW03102014	Normal	North Alluvial	10/30/2014	140	0.43 J
	TMW03042014	Normal	North Alluvial	4/16/2014	130	1.2 J
	TMW03102013	Normal	North Alluvial	11/4/2013	130	0.72 J
TMW04	TMW04042015	Normal	North Alluvial	4/9/2015	43	0.10 U
	TMW04102014	Normal	North Alluvial	10/30/2014	47	0.20 U
	TMW04042014	Normal	North Alluvial	4/16/2014	45	0.20 U
	TMW04102013	Normal	North Alluvial	11/4/2013	43	0.20 U
TMW06	TMW06042015	Normal	North Alluvial	4/9/2015	13	0.10 U
	TMW06102014	Normal	North Alluvial	10/29/2014	15	0.20 U
	TMW06042014	Normal	North Alluvial	4/16/2014	13	0.20 U
	TMW06102013	Normal	North Alluvial	11/7/2013	14	0.20 U
TMW07	TMW07042015	Normal	North Alluvial	4/1/2015	0.19 J	0.20 U
	TMW07102014	Normal	North Alluvial	10/23/2014	0.13 J	0.20 U
	TMW07042014	Normal	North Alluvial	4/10/2014	0.20 U	0.20 U
	TMW07102013	Normal	North Alluvial	10/29/2013	0.10 UJ	0.10 UJ
TMW08	TMW08042015	Normal	North Alluvial	4/8/2015	4.2	0.50 U
	TMW08102014	Normal	North Alluvial	10/29/2014	1.5 J	0.50 U
	TMW08042014	Normal	North Alluvial	4/15/2014	4.5	0.50 U
	DTW08042014	Duplicate	North Alluvial	4/15/2014	4.6	0.50 U
TMW10	TMW10042015	Normal	North Alluvial	4/7/2015	0.17 J	0.20 U
	TMW10102014	Normal	North Alluvial	10/28/2014	0.50 U	0.50 U
	TMW10042014	Normal	North Alluvial	4/14/2014	0.50 U	0.50 U
	TMW10102013	Normal	North Alluvial	11/1/2013	0.25 J	0.50 U

TABLE 5-2

Summary of Nitrate-nitrogen and Nitrite-nitrogen Analytical Detections (Page 3 of 6)
 Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	Nitrate-N (mg/L)	Nitrite-N (mg/L)
					EPA Method 9056	EPA Method 9056
Regulatory Limits					10^a	1^b
TMW11	TMW11042015	Normal	North Alluvial	4/8/2015	3.6	0.10 U
	TMW11102014	Normal	North Alluvial	10/29/2014	0.76	0.10 U
	TMW11042014	Normal	North Alluvial	4/17/2014	4.6	0.10 U
	TMW11102013	Normal	North Alluvial	11/5/2013	3.5	0.10 U
TMW13	TMW13042015	Normal	North Alluvial	4/9/2015	2.9	0.10 U
	TMW13102014	Normal	North Alluvial	10/27/2014	2.3	0.10 U
	TMW13042014	Normal	North Alluvial	4/17/2014	1.9	0.10 U
	TMW13102013	Normal	North Alluvial	11/5/2013	0.10 U	0.10 U
TMW15	TMW15042015	Normal	North Alluvial	4/8/2015	8.2 J	0.10 U
	DTW15042015	Duplicate	North Alluvial	4/8/2015	270 R	0.10 U
	TMW15102014	Normal	North Alluvial	10/29/2014	8.6	0.10 U
	TMW15042014	Normal	North Alluvial	4/17/2014	9.0	0.10 U
	TMW15102013	Normal	North Alluvial	11/6/2013	8.9	0.10 U
TMW21	TMW21042015	Normal	North Alluvial	4/3/2015	8.0	0.10 U
	TMW21102014	Normal	North Alluvial	10/31/2014	9.3	0.10 U
	TMW21042014	Normal	North Alluvial	4/14/2014	8.7	0.10 U
	TMW21102013	Normal	North Alluvial	11/7/2013	8.8	0.10 U
TMW22	TMW22042015	Normal	North Alluvial	4/1/2015	11 J	0.10 U
	TMW22102014	Normal	North Alluvial	10/23/2014	12	0.10 U
	TMW22042014	Normal	North Alluvial	4/10/2014	11 J	0.20 U
	TMW22102013	Normal	North Alluvial	10/29/2013	12 J	0.10 U
TMW23	TMW23042015	Normal	North Alluvial	4/1/2015	27 J	0.10 U
	TMW23102014	Normal	North Alluvial	10/22/2014	27	0.10 U
	TMW23042014	Normal	North Alluvial	4/10/2014	29 J	0.20 U
	TMW23102013	Normal	North Alluvial	10/29/2013	32	0.69 J
TMW24	TMW24042015	Normal	North Alluvial	4/8/2015	0.10 U	0.10 U
	TMW24102014	Normal	North Alluvial	10/31/2014	0.20 U	0.20 U
	TMW24042014	Normal	North Alluvial	4/17/2014	0.20 U	0.20 U
	TMW24102013	Normal	North Alluvial	11/8/2013	0.20 U	0.20 U
TMW25	TMW25042015	Normal	North Alluvial	4/7/2015	0.45 J	0.10 U
	TMW25102014	Normal	North Alluvial	10/31/2014	0.44 J	0.10 U
	TMW25042014	Normal	North Alluvial	4/15/2014	0.44 J	0.20 U
	TMW25102013	Normal	North Alluvial	11/4/2013	0.47 J	0.20 U
TMW26	TMW26042015	Normal	North Alluvial	4/7/2015	0.10 U	0.10 U
	DTW26042015	Duplicate	North Alluvial	4/7/2015	0.10 U	0.10 U
	TMW26102014	Normal	North Alluvial	10/27/2014	0.20 U	0.20 U
	DTW26102014	Duplicate	North Alluvial	10/27/2014	0.20 U	0.20 U
	TMW26042014	Normal	North Alluvial	4/15/2014	0.20 U	0.20 U
	TMW26102013	Normal	North Alluvial	11/4/2013	0.20 U	0.20 U
TMW29	TMW29042015	Normal	North Alluvial	4/3/2015	2.7	0.10 U
	TMW29102014	Normal	North Alluvial	10/23/2014	2.5	0.10 U
	TMW29042014	Normal	North Alluvial	4/10/2014	2.4 J	0.41 J
	TMW29102013	Normal	North Alluvial	10/31/2013	3.3	0.10 U
TMW31S	TMW31S042015	Normal	North Alluvial	4/2/2015	7.0	0.10 U
	TMW31S102014	Normal	North Alluvial	10/22/2014	7.6	0.10 U
	TMW31S042014	Normal	North Alluvial	4/10/2014	7.8 J	0.10 U
	TMW31S102013	Normal	North Alluvial	10/30/2013	7.7	0.10 U
TMW33	TMW33042015	Normal	North Alluvial	4/2/2015	0.22 J	0.20 U
	TMW33102014	Normal	North Alluvial	10/22/2014	0.59 J	0.20 U
	TMW33042014	Normal	North Alluvial	4/10/2014	1.1 J	0.50 U
	TMW33102013	Normal	North Alluvial	10/30/2013	0.27 U	0.50 U

5.0 Analytical Results

TABLE 5-2

Summary of Nitrate-nitrogen and Nitrite-nitrogen Analytical Detections (Page 4 of 6)
 Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	Nitrate-N (mg/L)	Nitrite-N (mg/L)
					EPA Method 9056	EPA Method 9056
Regulatory Limits					10^a	1^b
TMW34	TMW34042015	Normal	North Alluvial	4/3/2015	58	0.20 U
	DTW34042015	Duplicate	North Alluvial	4/3/2015	60	0.20 U
	TMW34102014	Normal	North Alluvial	10/28/2014	63	0.20 U
	DTW34102014	Duplicate	North Alluvial	10/28/2014	62	0.20 U
	TMW34042014	Normal	North Alluvial	4/15/2014	0.20 U	0.20 U
	TMW34102013	Normal	North Alluvial	11/1/2013	57 J	0.10 U
	DTW34102013	Duplicate	North Alluvial	11/1/2013	55 J	0.20 U
TMW35	TMW35042015	Normal	North Alluvial	4/3/2015	12	0.10 U
	TMW35102014	Normal	North Alluvial	10/31/2014	12	0.20 U
	TMW35042014	Normal	North Alluvial	4/14/2014	12	0.20 U
	TMW35102013	Normal	North Alluvial	11/4/2013	15	0.20 U
	TMW35042013	Normal	North Alluvial	4/9/2013	15	0.20 U
TMW39S	TMW39S042015	Normal	North Alluvial	4/1/2015	8.9	0.10 U
	TMW39S102014	Normal	North Alluvial	10/23/2014	8.8	0.10 U
	TMW39S042014	Normal	North Alluvial	4/11/2014	8.5	0.20 U
	TMW39S102013	Normal	North Alluvial	11/5/2013	8.4	0.20 U
TMW40S	TMW40S042015	Normal	North Alluvial	4/6/2015	110	2.2 J
	TMW40S102014	Normal	North Alluvial	10/22/2014	110	1.1
	TMW40S042014	Normal	North Alluvial	4/10/2014	120 J	1.5 J
	TMW40S102013	Normal	North Alluvial	10/31/2013	140	0.22 J
TMW41	TMW41042015	Normal	North Alluvial	4/1/2015	6.4	0.10 U
	TMW41102014	Normal	North Alluvial	10/23/2014	5.6	0.10 U
	TMW41042014	Normal	North Alluvial	4/10/2014	7.1 J	0.20 U
	TMW41102013	Normal	North Alluvial	10/30/2013	5.9	0.20 U
TMW43	TMW43042015	Normal	North Alluvial	4/10/2015	8.8	0.10 U
	DTW43042015	Duplicate	North Alluvial	4/10/2015	8.6	0.10 U
	TMW43102014	Normal	North Alluvial	10/31/2014	9.1	0.10 U
	DTW43102014	Duplicate	North Alluvial	10/31/2014	9.1	0.10 U
	TMW43042014	Normal	North Alluvial	4/15/2014	0.10 U	0.10 U
	TMW43102013	Normal	North Alluvial	10/30/2013	9.4	0.10 U
TMW44	TMW44042015	Normal	North Alluvial	4/1/2015	48 J	0.10 U
	TMW44102014	Normal	North Alluvial	10/23/2014	52	0.10 U
	TMW44042014	Normal	North Alluvial	4/10/2014	45 J	0.20 U
	TMW44102013	Normal	North Alluvial	10/29/2013	48	0.68 J
TMW45	TMW45042015	Normal	North Alluvial	4/9/2015	0.50	0.10 U
	TMW45102014	Normal	North Alluvial	10/29/2014	0.52 J	0.20 U
	TMW45042014	Normal	North Alluvial	4/11/2014	0.50 J	0.20 U
	TMW45102013	Normal	North Alluvial	11/7/2013	0.20 U	0.20 U
TMW46	TMW46042015	Normal	North Alluvial	4/2/2015	75	0.20 U
	TMW46102014	Normal	North Alluvial	10/23/2014	84	0.20 U
	TMW46042014	Normal	North Alluvial	4/11/2014	84 J	0.20 U
	TMW46102013	Normal	North Alluvial	10/30/2013	86	0.20 U
TMW47	TMW47042015	Normal	North Alluvial	4/10/2015	0.10 U	0.10 U
	TMW47102014	Normal	North Alluvial	10/31/2014	0.10 U	0.10 U
	TMW47042014	Normal	North Alluvial	4/16/2014	0.10 U	0.10 U
	TMW47102013	Normal	North Alluvial	11/7/2013	0.10 U	0.10 U

TABLE 5-2

Summary of Nitrate-nitrogen and Nitrite-nitrogen Analytical Detections (Page 5 of 6)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	Nitrate-N (mg/L)	Nitrite-N (mg/L)
					EPA Method 9056	EPA Method 9056
Regulatory Limits					10 ^a	1 ^b
TMW02	TMW02042015	Normal	North Bedrock	4/9/2015	88	0.10 U
	TMW02102014	Normal	North Bedrock	10/30/2014	95	0.20 U
	TMW02042014	Normal	North Bedrock	4/16/2014	90	0.20 U
	TMW02102013	Normal	North Bedrock	11/4/2013	88	0.20 U
TMW14A	TMW14A042015	Normal	North Bedrock	4/8/2015	0.10 U	0.10 U
	TMW14A102014	Normal	North Bedrock	10/29/2014	0.10 U	0.10 U
	TMW14A042014	Normal	North Bedrock	4/15/2014	0.069 J	0.10 U
	TMW14A102013	Normal	North Bedrock	11/6/2013	0.10 U	0.10 U
TMW17	TMW17042015	Normal	North Bedrock	4/7/2015	0.10 U	0.10 U
	TMW17102014	Normal	North Bedrock	10/29/2014	0.10 U	0.10 U
	TMW17042014	Normal	North Bedrock	4/17/2014	0.10 U	0.10 U
	TMW17102013	Normal	North Bedrock	11/6/2013	0.10 U	0.10 U
TMW18	TMW18042015	Normal	North Bedrock	4/1/2015	0.10 U	0.10 U
	TMW18102014	Normal	North Bedrock	10/24/2014	0.10 U	0.10 U
	TMW18042014	Normal	North Bedrock	4/11/2014	0.10 U	0.10 U
	TMW18102013	Normal	North Bedrock	10/31/2013	0.10 U	0.10 U
TMW30	TMW30042015	Normal	North Bedrock	4/1/2015	17	0.10 U
	TMW30102014	Normal	North Bedrock	10/22/2014	16	0.10 U
	TMW30042014	Normal	North Bedrock	4/11/2014	17 J	0.10 U
	TMW30102013	Normal	North Bedrock	10/30/2013	16	0.10 U
TMW31D	TMW31D042015	Normal	North Bedrock	4/6/2015	14	0.10 UJ
	TMW31D102014	Normal	North Bedrock	10/30/2014	15	0.10 U
	DTW31D102014	Duplicate	North Bedrock	10/30/2014	15	0.10 U
	TMW31D042014	Normal	North Bedrock	4/16/2014	14	0.10 U
	DTW31D042014	Duplicate	North Bedrock	4/16/2014	15	0.10 U
	TMW31D102013	Normal	North Bedrock	11/6/2013	15	0.10 U
	DTW31D102013	Duplicate	North Bedrock	11/6/2013	15	0.10 U
TMW32	TMW32042015	Normal	North Bedrock	4/9/2015	1.4	1.2
	TMW32102014	Normal	North Bedrock	10/30/2014	0.48 J	0.98
	TMW32042014	Normal	North Bedrock	4/16/2014	2.4	0.20 U
	TMW32102013	Normal	North Bedrock	11/7/2013	0.30 J	0.79 J
TMW36	TMW36042015	Normal	North Bedrock	4/1/2015	0.10 U	0.10 U
	TMW36102014	Normal	North Bedrock	10/24/2014	0.10 U	0.10 U
	TMW36042014	Normal	North Bedrock	4/9/2014	0.10 U	0.10 U
	TMW36102013	Normal	North Bedrock	11/5/2013	0.10 U	0.10 U
TMW37	TMW37042015	Normal	North Bedrock	4/1/2015	0.10 U	0.10 U
	TMW37102014	Normal	North Bedrock	10/24/2014	0.10 U	0.10 U
	TMW37042014	Normal	North Bedrock	4/9/2014	0.050 U	0.10 U
	TMW37102013	Normal	North Bedrock	10/31/2013	0.068 U	0.10 U
TMW38	TMW38042015	Normal	North Bedrock	4/8/2015	0.10 U	0.10 U
	TMW38102014	Normal	North Bedrock	10/28/2014	0.10 U	0.10 U
	TMW38042014	Normal	North Bedrock	4/17/2014	0.20 U	0.20 U
	TMW38102013	Normal	North Bedrock	10/31/2013	0.20 U	0.20 U
TMW39D	TMW39D042015	Normal	North Bedrock	4/6/2015	0.86	0.10 UJ
	DTW39D042015	Duplicate	North Bedrock	4/6/2015	0.87	0.10 UJ
	TMW39D102014	Normal	North Bedrock	10/30/2014	0.10 U	0.10 U
	TMW39D042014	Normal	North Bedrock	4/16/2014	0.20 J	0.20 U
	TMW39D102013	Normal	North Bedrock	11/6/2013	0.24 J	0.20 U
TMW40D	TMW40D042015	Normal	North Bedrock	4/9/2015	1.8	0.10 U
	TMW40D102014	Normal	North Bedrock	10/31/2014	1.9	0.50
	TMW40D042014	Normal	North Bedrock	4/17/2014	1.9	0.86 J
	TMW40D102013	Normal	North Bedrock	11/7/2013	0.10 U	0.38 J

5.0 Analytical Results

TABLE 5-2

Summary of Nitrate-nitrogen and Nitrite-nitrogen Analytical Detections (Page 6 of 6)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	Nitrate-N (mg/L)	Nitrite-N (mg/L)
					EPA Method 9056	EPA Method 9056
Regulatory Limits					10^a	1^b
TMW48	TMW48042015	Normal	North Bedrock	4/6/2015	13	0.10 UJ
	TMW48102014	Normal	North Bedrock	10/30/2014	15	0.10 U
	TMW48042014	Normal	North Bedrock	4/17/2014	14 J	0.10 U
	DTW48042014	Duplicate	North Bedrock	4/17/2014	15 J	0.10 U
	TMW48102013	Normal	North Bedrock	10/31/2013	16	0.10 U
	DTW48102013	Duplicate	North Bedrock	10/31/2013	16	0.10 U
TMW49	TMW49042015	Normal	North Bedrock	4/9/2015	4.9	0.10 U
	TMW49102014	Normal	North Bedrock	10/30/2014	6.6 J	0.10 U
	TMW49042014	Normal	North Bedrock	4/16/2014	6.6	0.10 U
	TMW49102013	Normal	North Bedrock	11/6/2013	7.2	0.10 U
	DTW49102013	Duplicate	North Bedrock	11/6/2013	7.3	0.10 U

Notes:

^a New Mexico Water Quality Control Commission regulatory limit is 10 mg/L.

^b EPA maximum contaminant level regulatory limit is 1.0 mg/L.

Bold indicates analyte was positively detected above regulatory limits.

EPA = U.S. Environmental Protection Agency

J = analyte was positively identified; reported value is estimated.

mg/L = milligram(s) per liter

N = nitrogen

R = result is unusable for any purpose.

U = non-detected result below the limit of detection.

UJ = analyte was not detected; however, the result is estimated because of discrepancies in meeting certain analyte-specific quality control criteria.

TABLE 5-3
Summary of Total Explosives Analytical Detections (Page 1 of 8)
 Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	EPA Method 8330B (µg/L)													
					1,3,5-Trinitrobenzene CAS 99-35-4	1,3-Dinitrobenzene CAS 99-65-0	2,4,6-Trinitrotoluene CAS 118-96-7	2,4-Dinitrotoluene CAS 121-14-2	2,6-Dinitrotoluene CAS 606-20-2	2-Amino-4,6-Dinitrotoluene CAS 35572-78-2	2-Nitrotoluene CAS 88-72-2	3-Nitrotoluene CAS 99-08-1	4-Amino-2,6-Dinitrotoluene CAS 19406-51-0	4-Nitrotoluene CAS 99-99-0	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) CAS 121-82-4	Methyl-2,4,6-trinitrophenylnitramine CAS 479-45-8	Nitrobenzene CAS 98-95-3	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) CAS 2691-41-0
					Regulatory Limit (EPA Region 6 Regional Screening Levels) ^a													
590	2.0	2.5	0.24	0.048	39	0.31	1.7	39	4.2	0.7	39	0.14	1000					
BGMW01	BGMW01042015	Normal	North Alluvial	4/2/2015	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
	BGMW01102014	Normal	North Alluvial	10/24/2014	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
	BGMW01042014	Normal	North Alluvial	4/15/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	BGMW01102013	Normal	North Alluvial	11/8/2013	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
BGMW02	BGMW02042015	Normal	North Alluvial	4/2/2015	0.41 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.41 U	0.16 U	0.16 U	0.16 U	0.16 U
	BGMW02102014	Normal	North Alluvial	10/24/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	DBW02042014	Duplicate	North Alluvial	4/15/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	BGMW02042014	Normal	North Alluvial	4/15/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	BGMW02102013	Normal	North Alluvial	11/5/2013	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U
BGMW03	BGMW03042015	Normal	North Alluvial	4/1/2015	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U
	BGMW03102014	Normal	North Alluvial	10/22/2014	0.41 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.41 U	0.16 U	0.16 U	0.16 U	0.16 U
	BGMW03042014	Normal	North Alluvial	4/11/2014	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U
	BGMW03102013	Normal	North Alluvial	11/5/2013	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
	DBW03102013	Duplicate	North Alluvial	11/5/2013	0.47 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.47 U	0.18 U	0.18 U	0.18 U	0.18 U
FW31	FW31042015	Normal	North Alluvial	4/1/2015	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	FW31102014	Normal	North Alluvial	10/22/2014	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U
	FW31042014	Normal	North Alluvial	4/10/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.069 U	0.16 U	0.16 U	0.16 U
	FW31102013	Normal	North Alluvial	11/1/2013	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
FW35	FW35042015	Normal	North Alluvial	4/1/2015	0.49 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.49 U	0.19 U	0.19 U	0.19 U	0.19 U
	FW35102014	Normal	North Alluvial	10/27/2014	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.16 J	0.17 U	0.17 U	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U
	FW35042014	Normal	North Alluvial	4/10/2014	0.41 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.41 U	0.16 U	0.16 U	0.16 U	0.16 U
	FW35102013	Normal	North Alluvial	10/29/2013	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
MW01	MW01042015	Normal	North Alluvial	4/1/2015	0.48 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.48 U	0.18 U	0.18 U	0.18 U	0.18 U
	MW01102014	Normal	North Alluvial	10/23/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	MW01042014	Normal	North Alluvial	4/9/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 J	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	MW01102013	Normal	North Alluvial	11/1/2013	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
MW02	MW02042015	Normal	North Alluvial	4/1/2015	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.33 J	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
	MW02102014	Normal	North Alluvial	10/24/2014	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
	MW02042014	Normal	North Alluvial	4/9/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.46 J	0.35 J	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	MW02102013	Normal	North Alluvial	11/1/2013	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U

5.0 Analytical Results

TABLE 5-3

Summary of Total Explosives Analytical Detections (Page 2 of 8)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	EPA Method 8330B (µg/L)													
					1,3,5-Trinitrobenzene CAS 99-35-4	1,3-Dinitrobenzene CAS 99-65-0	2,4,6-Trinitrotoluene CAS 118-96-7	2,4-Dinitrotoluene CAS 121-14-2	2,6-Dinitrotoluene CAS 606-20-2	2-Amino-4,6-Dinitrotoluene CAS 35572-78-2	2-Nitrotoluene CAS 88-72-2	3-Nitrotoluene CAS 99-08-1	4-Amino-2,6-Dinitrotoluene CAS 19406-51-0	4-Nitrotoluene CAS 99-99-0	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) CAS 121-82-4	Methyl-2,4,6-trinitrophenylnitramine CAS 479-45-8	Nitrobenzene CAS 98-95-3	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) CAS 2691-41-0
					Regulatory Limit (EPA Region 6 Tap Water Screening Levels) ⁹													
590	2.0	2.5	0.24	0.048	39	0.31	1.7	39	4.2	0.7	39	0.14	1000					
MW03	MW03042015	Normal	North Alluvial	4/3/2015	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	MW03102014	Normal	North Alluvial	10/24/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	MW03042014	Normal	North Alluvial	4/14/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	MW03102013	Normal	North Alluvial	11/5/2013	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
MW18D	MW18D042015	Normal	North Alluvial	4/8/2015	0.49 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.49 U	0.18 U	0.18 U	0.18 U	0.18 U
	MW18D102014	Normal	North Alluvial	10/31/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	MW18D042014	Normal	North Alluvial	4/14/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	MW18D102013	Normal	North Alluvial	11/1/2013	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U
MW20	MW20042015	Normal	North Alluvial	4/3/2015	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	DMW20102014	Duplicate	North Alluvial	10/28/2014	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U
	MW20102014	Normal	North Alluvial	10/28/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	MW20042014	Normal	North Alluvial	4/14/2014	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U
MW22S	MW22S042015	Normal	North Alluvial	4/1/2015	0.52 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.52 U	0.20 U	0.20 U	0.20 U	0.20 U
	MW22S102014	Normal	North Alluvial	10/23/2014	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
	MW22S042014	Normal	North Alluvial	4/9/2014	0.39 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.39 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
	MW22S102013	Normal	North Alluvial	10/31/2013	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
MW22D	MW22D042015	Normal	North Alluvial	4/6/2015	0.41 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.41 U	0.16 U	0.16 U	0.16 U	0.16 U
	MW22D102014	Normal	North Alluvial	10/29/2014	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U
	DMW22D042014	Duplicate	North Alluvial	4/14/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	MW22D042014	Normal	North Alluvial	4/14/2014	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U
	DMW22D102013	Duplicate	North Alluvial	11/1/2013	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
	MW22D102013	Normal	North Alluvial	11/1/2013	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
MW23	MW23042015	Normal	North Alluvial	4/7/2015	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	DMW23042015	Duplicate	North Alluvial	4/7/2015	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.13 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
	DMW23102014	Duplicate	North Alluvial	10/28/2014	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U
	MW23102014	Normal	North Alluvial	10/28/2014	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U
	DMW23042014	Duplicate	North Alluvial	4/11/2014	0.41 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.41 U	0.16 U	0.16 U	0.16 U	0.16 U
	MW23042014	Normal	North Alluvial	4/11/2014	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U
	DMW23102013	Duplicate	North Alluvial	11/8/2013	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	MW23102013	Normal	North Alluvial	11/8/2013	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U

TABLE 5-3
Summary of Total Explosives Analytical Detections (Page 3 of 8)
 Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	EPA Method 8330B (µg/L)													
					1,3,5-Trinitrobenzene CAS 99-35-4	1,3-Dinitrobenzene CAS 99-65-0	2,4,6-Trinitrotoluene CAS 118-96-7	2,4-Dinitrotoluene CAS 121-14-2	2,6-Dinitrotoluene CAS 606-20-2	2-Amino-4,6-Dinitrotoluene CAS 35572-78-2	2-Nitrotoluene CAS 88-72-2	3-Nitrotoluene CAS 99-08-1	4-Amino-2,6-Dinitrotoluene CAS 19406-51-0	4-Nitrotoluene CAS 99-99-0	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) CAS 121-82-4	Methyl-2,4,6-trinitrophenylnitramine CAS 479-45-8	Nitrobenzene CAS 98-95-3	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) CAS 2691-41-0
					Regulatory Limit (EPA Region 6 Tap Water Screening Levels) ^a													
590	2.0	2.5	0.24	0.048	39	0.31	1.7	39	4.2	0.7	39	0.14	1000					
MW24	MW24042015	Normal	North Alluvial	4/6/2015	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
	DMW24042015	Duplicate	North Alluvial	4/6/2015	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
	DMW24102014	Duplicate	North Alluvial	10/27/2014	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U
	MW24102014	Normal	North Alluvial	10/27/2014	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U
	DMW24042014	Duplicate	North Alluvial	4/11/2014	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U
	MW24042014	Normal	North Alluvial	4/11/2014	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U
	DMW24102013	Duplicate	North Alluvial	11/7/2013	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
SMW01	SMW01042015	Normal	North Alluvial	4/8/2015	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U
	SMW01102014	Normal	North Alluvial	10/27/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	SMW01042014	Normal	North Alluvial	4/15/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	SMW01102013	Normal	North Alluvial	11/8/2013	0.47 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.47 U	0.18 U	0.18 U	0.18 U	0.18 U
TMW01	TMW01042015	Normal	North Alluvial	4/7/2015	0.49 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.49 U	0.18 U	0.18 U	0.18 U	0.18 U
	TMW01102014	Normal	North Alluvial	10/30/2014	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW01042014	Normal	North Alluvial	4/16/2014	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW01102013	Normal	North Alluvial	11/6/2013	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW03	TMW03042015	Normal	North Alluvial	4/9/2015	0.41 U	0.15 U	0.15 U	0.44 J	0.15 U	2.4 J	0.15 U	0.15 U	2.2 J	0.41 U	420 J	0.15 U	0.15 U	4.0 J
	TMW03102014	Normal	North Alluvial	10/30/2014	0.42 U	0.16 U	0.16 U	0.50 U	0.16 R	2.8 J	0.16 U	0.16 U	2.4 J	0.42 R	530 J	0.16 U	0.16 U	0.16 U
	TMW03042014	Normal	North Alluvial	4/16/2014	0.42 U	0.16 U	0.16 U	0.48 J	0.16 U	0.90 J	0.16 U	0.16 U	0.16 U	0.42 U	480 J	0.16 U	0.16 U	10 J
TMW04	TMW03102013	Normal	North Alluvial	11/4/2013	1.6 J	0.17 R	0.17 R	0.45 J	0.17 U	1.6 J	0.17 R	0.17 U	3.4 J	0.45 U	450 J	0.17 R	0.17 U	28 J
	TMW04042015	Normal	North Alluvial	4/9/2015	3.1 J	0.15 U	0.15 U	0.39 J	0.15 U	2.9 J	1.5 J	0.15 U	2.6 J	40 J	16 J	0.49 J	0.15 U	5.1 J
	TMW04102014	Normal	North Alluvial	10/30/2014	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	3.2 J	0.17 U	0.17 U	3.4 J	0.45 U	4.2 U	0.17 U	0.17 U	0.17 U
	TMW04042014	Normal	North Alluvial	4/16/2014	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	1.3 J	0.17 U	0.17 U	0.17 U	0.45 U	5.2 J	0.17 U	8.8 J	0.17 U
TMW06	TMW04102013	Normal	North Alluvial	11/4/2013	2.5 J	0.11 J	0.16 U	0.16 U	0.16 U	3.4 J	0.16 U	0.16 U	0.16 U	0.43 U	5.9 J	0.16 U	0.16 U	22 J
	TMW06042015	Normal	North Alluvial	4/9/2015	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U
	TMW06102014	Normal	North Alluvial	10/29/2014	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW06042014	Normal	North Alluvial	4/16/2014	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW07	TMW06102013	Normal	North Alluvial	11/7/2013	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW07042015	Normal	North Alluvial	4/1/2015	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW07102014	Normal	North Alluvial	10/23/2014	0.41 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.41 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW07042014	Normal	North Alluvial	4/10/2014	0.41 U	0.15 U	0.15 U	0.092 J	0.15 U	0.15 U	0.90	0.15 U	0.15 U	0.93 J	0.15 U	0.15 U	0.15 U	0.15 U
TMW07102013 ^c	Normal	North Alluvial	10/29/2013	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	

5.0 Analytical Results

TABLE 5-3

Summary of Total Explosives Analytical Detections (Page 4 of 8)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	EPA Method 8330B (µg/L)													
					1,3,5-Trinitrobenzene CAS 99-35-4	1,3-Dinitrobenzene CAS 99-65-0	2,4,6-Trinitrotoluene CAS 118-96-7	2,4-Dinitrotoluene CAS 121-14-2	2,6-Dinitrotoluene CAS 606-20-2	2-Amino-4,6-Dinitrotoluene CAS 35572-78-2	2-Nitrotoluene CAS 88-72-2	3-Nitrotoluene CAS 99-08-1	4-Amino-2,6-Dinitrotoluene CAS 19406-51-0	4-Nitrotoluene CAS 99-99-0	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) CAS 121-82-4	Methyl-2,4,6-trinitrophenylamine CAS 479-45-8	Nitrobenzene CAS 98-95-3	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) CAS 2691-41-0
					Regulatory Limit (EPA Region 6 Tap Water Screening Levels) ^a													
590	2.0	2.5	0.24	0.048	39	0.31	1.7	39	4.2	0.7	39	0.14	1000					
TMW10	TMW10042015	Normal	North Alluvial	4/7/2015	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW10102014	Normal	North Alluvial	10/28/2014	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW10042014	Normal	North Alluvial	4/14/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW10102013	Normal	North Alluvial	11/1/2013	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW11	TMW11042015	Normal	North Alluvial	4/8/2015	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW11102014	Normal	North Alluvial	10/29/2014	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW11042014	Normal	North Alluvial	4/17/2014	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW11102013	Normal	North Alluvial	11/5/2013	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW15	TMW15042015	Normal	North Alluvial	4/8/2015	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U
	DTW15042015	Duplicate	North Alluvial	4/8/2015	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW15102014	Normal	North Alluvial	10/29/2014	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW15042014	Normal	North Alluvial	4/17/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW15102013	Normal	North Alluvial	11/6/2013	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW21	TMW21042015	Normal	North Alluvial	4/3/2015	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW21102014	Normal	North Alluvial	10/31/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW21042014	Normal	North Alluvial	4/14/2014	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.36 J	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW21102013	Normal	North Alluvial	11/7/2013	0.46 UJ	0.17 UJ	0.17 UJ	0.17 UJ	0.17 UJ	0.17 UJ	0.17 UJ	0.17 UJ	0.17 UJ	0.46 UJ	0.17 UJ	0.17 UJ	0.17 UJ	0.17 UJ
TMW22	TMW22042015	Normal	North Alluvial	4/1/2015	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW22102014	Normal	North Alluvial	10/23/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW22042014	Normal	North Alluvial	4/10/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW22102013	Normal	North Alluvial	10/29/2013	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.21 J	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW23	TMW23042015	Normal	North Alluvial	4/1/2015	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	0.55 J	0.17 U	0.17 U	0.17 U	0.45 U	57	0.17 U	0.17 U	0.17 U
	TMW23102014	Normal	North Alluvial	10/22/2014	0.42 U	7.2	0.16 U	0.16 U	0.16 U	0.16 U	0.47 J	0.16 U	0.16 U	0.35	42 U	0.16 U	0.16 U	1.8 J
	TMW23042014	Normal	North Alluvial	4/10/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	49	0.16 U	0.16 U	1.2 J
	TMW23102013 ^c	Normal	North Alluvial	10/29/2013	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U	0.71 J	0.15 U	0.15 U	0.34 J	0.40 U	56	0.15 U	0.15 U	0.15 U
TMW24	TMW24042015	Normal	North Alluvial	4/8/2015	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW24102014	Normal	North Alluvial	10/31/2014	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW24042014	Normal	North Alluvial	4/17/2014	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW24102013	Normal	North Alluvial	11/8/2013	0.43 UJ	0.16 UJ	0.16 UJ	0.16 UJ	0.16 UJ	0.16 UJ	0.16 UJ	0.16 UJ	0.16 UJ	0.43 UJ	0.16 UJ	0.16 UJ	0.16 UJ	0.16 UJ
TMW25	TMW25042015	Normal	North Alluvial	4/7/2015	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW25102014	Normal	North Alluvial	10/31/2014	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U
	TMW25042014	Normal	North Alluvial	4/15/2014	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW25102013	Normal	North Alluvial	11/4/2013	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U

TABLE 5-3

Summary of Total Explosives Analytical Detections (Page 5 of 8)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	EPA Method 8330B (µg/L)													
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					Regulatory Limit (EPA Region 6 Tap Water Screening Levels) ^a													
590	2.0	2.5	0.24	0.048	39	0.31	1.7	39	4.2	0.7	39	0.14	1000					
TMW26	TMW26042015	Normal	North Alluvial	4/7/2015	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
	DTW26042015	Duplicate	North Alluvial	4/7/2015	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
	DTW26102014	Duplicate	North Alluvial	10/27/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW26102014	Normal	North Alluvial	10/27/2014	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW26042014	Normal	North Alluvial	4/15/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW26102013	Normal	North Alluvial	11/4/2013	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW29	TMW29042015	Normal	North Alluvial	4/3/2015	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW29102014	Normal	North Alluvial	10/23/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW29042014	Normal	North Alluvial	4/10/2014	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
	TMW29102013	Normal	North Alluvial	10/31/2013	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
TMW31S	TMW31S042015	Normal	North Alluvial	4/2/2015	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.23 J	0.16 U
	TMW31S102014	Normal	North Alluvial	10/22/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.28 U
	TMW31S042014	Normal	North Alluvial	4/10/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW31S102013	Normal	North Alluvial	10/30/2013	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW39S	TMW39S042015	Normal	North Alluvial	4/1/2015	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.19 J	0.17 U	0.17 U	0.29 J	0.17 U	0.17 U	0.17 U	0.17 U
	TMW39S102014	Normal	North Alluvial	10/23/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW39S042014	Normal	North Alluvial	4/11/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW39S102013	Normal	North Alluvial	11/5/2013	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW40S	TMW40S042015	Normal	North Alluvial	4/2/2015	2.2 J	0.18 U	0.18 U	0.17 R	0.17 R	2.0 J	0.19 J	0.78 J	1.3 J	0.43 R	1200 J	0.17 R	2.6 J	22 J
	TMW40S102014	Normal	North Alluvial	10/22/2014	0.45 U	1.6 J	0.17 U	0.17 U	0.17 U	1.6 J	0.17 U	0.17 U	1.0 J	0.45 U	1200	0.17 U	0.17 U	5.4 J
	TMW40S042014	Normal	North Alluvial	4/10/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.36 J	0.16 U	0.16 U	0.16 U	3.0 J	1200	0.16 U	0.16 U	9.6 J
	TMW40S102013	Normal	North Alluvial	10/31/2013	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	1.5 J	0.16 U	0.16 U	0.16 U	0.43 U	1300	0.16 U	1.5 J	36
TMW41	TMW41042015	Normal	North Alluvial	4/1/2015	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW41102014	Normal	North Alluvial	10/23/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW41042014	Normal	North Alluvial	4/10/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW41102013	Normal	North Alluvial	10/30/2013	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW43	TMW43042015	Normal	North Alluvial	4/10/2015	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	3.5	0.17 U	0.17 U	0.17 U	0.17 U
	DTW43042015	Duplicate	North Alluvial	4/10/2015	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	4.4	0.17 U	0.17 U	0.17 U	0.27 J
	TMW43102014	Normal	North Alluvial	10/31/2014	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	4.9	0.17 U	0.17 U	0.17 U	0.11 J
	DTW43102014	Duplicate	North Alluvial	10/31/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	4.6	0.16 U	0.16 U	0.16 U	0.15 J
	TMW43042014	Normal	North Alluvial	4/15/2014	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.46 U	4.0	0.17 U	0.17 U	0.17 U	0.17 U
	TMW43102013	Normal	North Alluvial	10/30/2013	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	3.4	0.16 U	0.16 U	0.16 U	0.16 U

5.0 Analytical Results

TABLE 5-3

Summary of Total Explosives Analytical Detections (Page 6 of 8)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	EPA Method 8330B (µg/L)													
					1,3,5-Trinitrobenzene CAS 99-35-4	1,3-Dinitrobenzene CAS 99-65-0	2,4,6-Trinitrotoluene CAS 118-96-7	2,4-Dinitrotoluene CAS 121-14-2	2,6-Dinitrotoluene CAS 606-20-2	2-Amino-4,6-Dinitrotoluene CAS 35572-78-2	2-Nitrotoluene CAS 88-72-2	3-Nitrotoluene CAS 99-08-1	4-Amino-2,6-Dinitrotoluene CAS 19406-51-0	4-Nitrotoluene CAS 99-99-0	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) CAS 121-82-4	Methyl-2,4,6-trinitrophenylamine CAS 479-45-8	Nitrobenzene CAS 98-95-3	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) CAS 2691-41-0
					Regulatory Limit (EPA Region 6 Tap Water Screening Levels) ^a													
590	2.0	2.5	0.24	0.048	39	0.31	1.7	39	4.2	0.7	39	0.14	1000					
TMW44	TMW44042015	Normal	North Alluvial	4/1/2015	0.47 U	0.18 U	0.18 U	0.18 U	0.18 U	0.86 J	0.18 U	0.18 U	0.59	0.47 U	0.18 U	0.18 U	0.18 U	0.18 U
	TMW44102014	Normal	North Alluvial	10/23/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.80 J	0.16 U	0.16 U	0.60 J	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW44042014	Normal	North Alluvial	4/10/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.34 J	0.16 U	0.16 U	2.3 J
	TMW44102013	Normal	North Alluvial	10/29/2013	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U	0.93 J	0.15 U	0.15 U	0.42 J	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U
TMW45	TMW45042015	Normal	North Alluvial	4/9/2015	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW45102014	Normal	North Alluvial	10/29/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW45042014	Normal	North Alluvial	4/11/2014	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW45102013	Normal	North Alluvial	11/7/2013	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
TMW46	TMW46042015	Normal	North Alluvial	4/2/2015	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW46102014	Normal	North Alluvial	10/23/2014	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U
	TMW46042014	Normal	North Alluvial	4/11/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW46102013	Normal	North Alluvial	10/30/2013	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW47	TMW47042015	Normal	North Alluvial	4/10/2015	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW47102014	Normal	North Alluvial	10/31/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW47042014	Normal	North Alluvial	4/16/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW47102013	Normal	North Alluvial	11/7/2013	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.083 J	0.16 U	0.16 U	0.11 J	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW02	TMW02042015	Normal	North Bedrock	4/9/2015	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U	0.42 J	0.17 U	0.17 U	0.41 J	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW02102014	Normal	North Bedrock	10/30/2014	0.44 U	0.14 J	0.17 U	0.17 U	0.17 U	0.36 J	0.17 U	0.17 U	0.22 J	0.26 J	1.3 J	0.17 U	0.17 U	0.61 J
	TMW02042014	Normal	North Bedrock	4/16/2014	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U	0.10 J	0.17 U	0.17 U	0.14 J	0.46 U	0.17 U	0.17 U	0.17 U	1.2
	TMW02102013	Normal	North Bedrock	11/4/2013	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U	0.25 J	0.16 U	0.16 U	0.50 J	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW14A	TMW14A042015	Normal	North Bedrock	4/8/2015	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW14A102014	Normal	North Bedrock	10/29/2014	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW14A042014	Normal	North Bedrock	4/15/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW14A102013	Normal	North Bedrock	11/6/2013	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW16	TMW16042015	Normal	North Bedrock	4/1/2015	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW16102014	Normal	North Bedrock	10/24/2014	0.41 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.41 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW16042014	Normal	North Bedrock	4/9/2014	0.40 U	0.15 U	0.15 U	0.17 J	0.17 J	0.15 U	0.15 U	0.15 U	0.15 U	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U
	TMW16102013	Normal	North Bedrock	10/31/2013	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U

TABLE 5-3

Summary of Total Explosives Analytical Detections (Page 7 of 8)
Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	EPA Method 8330B (µg/L)													
					1,3,5-Trinitrobenzene CAS 99-35-4	1,3-Dinitrobenzene CAS 99-65-0	2,4,6-Trinitrotoluene CAS 118-96-7	2,4-Dinitrotoluene CAS 121-14-2	2,6-Dinitrotoluene CAS 606-20-2	2-Amino-4,6-Dinitrotoluene CAS 35572-78-2	2-Nitrotoluene CAS 88-72-2	3-Nitrotoluene CAS 99-08-1	4-Amino-2,6-Dinitrotoluene CAS 19406-51-0	4-Nitrotoluene CAS 99-99-0	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) CAS 121-82-4	Methyl-2,4,6-trinitrophenylhydrazine CAS 479-45-8	Nitrobenzene CAS 98-95-3	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) CAS 2691-41-0
					Regulatory Limit (EPA Region 6 Tap Water Screening Levels) ^a													
590	2.0	2.5	0.24	0.048	39	0.31	1.7	39	4.2	0.7	39	0.14	1000					
TMW18	TMW18042015	Normal	North Bedrock	4/1/2015	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U
	TMW18102014	Normal	North Bedrock	10/24/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U
	TMW18042014	Normal	North Bedrock	4/11/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U
	TMW18102013	Normal	North Bedrock	10/31/2013	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.45 J	0.16 U	0.16 U
TMW19	TMW19042015	Normal	North Bedrock	4/1/2015	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW19102014	Normal	North Bedrock	10/24/2014	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U
	TMW19042014	Normal	North Bedrock	4/9/2014	0.40 U	0.15 U	0.15 U	0.35 J	0.15 U	0.15 U	1.6	0.18 J	0.15 U	1.5	0.15 U	0.15 U	0.15 U	0.15 U
	TMW19102013	Normal	North Bedrock	10/31/2013	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.13 J	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW30	TMW30042015	Normal	North Bedrock	4/1/2015	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.15 J	0.16 U
	TMW30102014	Normal	North Bedrock	10/22/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW30042014	Normal	North Bedrock	4/11/2014	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW30102013	Normal	North Bedrock	10/30/2013	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.12 J	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW31D	TMW31D042015	Normal	North Bedrock	4/6/2015	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U
	TMW31D102014	Normal	North Bedrock	10/30/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	DTW31D102014	Duplicate	North Bedrock	10/30/2014	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW31D042014	Normal	North Bedrock	4/16/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 J	0.16 U	0.16 U	0.50 J	0.16 U	0.16 U	0.16 U	0.16 U
	DTW31D042014	Duplicate	North Bedrock	4/16/2014	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW31D102013	Normal	North Bedrock	11/6/2013	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U
	DTW31D102013	Duplicate	North Bedrock	11/6/2013	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
TMW32	TMW32042015	Normal	North Bedrock	4/9/2015	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW32102014	Normal	North Bedrock	10/30/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW32042014	Normal	North Bedrock	4/16/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW32102013	Normal	North Bedrock	11/7/2013	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW36	TMW36042015	Normal	North Bedrock	4/1/2015	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U
	TMW36102014	Normal	North Bedrock	10/24/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.11 J	0.16 U	0.16 U
	TMW36042014	Normal	North Bedrock	4/9/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW36102013	Normal	North Bedrock	11/5/2013	0.42 U	0.86 J	0.16 U	0.22 J	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	2.4 J	0.16 U	0.29 J	0.16 U
TMW37	TMW37042015	Normal	North Bedrock	4/1/2015	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U
	TMW37102014	Normal	North Bedrock	10/24/2014	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U
	TMW37042014	Normal	North Bedrock	4/9/2014	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.40 U	0.15 U	0.15 U	0.15 U	0.15 U
	TMW37102013	Normal	North Bedrock	10/31/2013	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U

5.0 Analytical Results

TABLE 5-3

Summary of Total Explosives Analytical Detections (Page 8 of 8)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	EPA Method 8330B (µg/L)													
					1,3,5-Trinitrobenzene CAS 99-35-4	1,3-Dinitrobenzene CAS 99-65-0	2,4,6-Trinitrotoluene CAS 118-96-7	2,4-Dinitrotoluene CAS 121-14-2	2,6-Dinitrotoluene CAS 606-20-2	2-Amino-4,6-Dinitrotoluene CAS 35572-78-2	2-Nitrotoluene CAS 88-72-2	3-Nitrotoluene CAS 99-08-1	4-Amino-2,6-Dinitrotoluene CAS 19406-51-0	4-Nitrotoluene CAS 99-99-0	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) CAS 121-82-4	Methyl-2,4,6-trinitrophenylnitramine CAS 479-45-8	Nitrobenzene CAS 98-95-3	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) CAS 2691-41-0
					Regulatory Limit (EPA Region 6 Tap Water Screening Levels) ^a													
590	2.0	2.5	0.24	0.048	39	0.31	1.7	39	4.2	0.7	39	0.14	1000					
TMW38	TMW38042015	Normal	North Bedrock	4/8/2015	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW38102014	Normal	North Bedrock	10/28/2014	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.45 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW38042014	Normal	North Bedrock	4/17/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.098 J	0.16 U	0.16 U	0.16 U	0.41 J	0.16 U	0.16 U	0.16 U	0.16 U
	TMW38102013	Normal	North Bedrock	10/31/2013	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW39D	TMW39D042015	Normal	North Bedrock	4/6/2015	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U
	DTW39D042015	Duplicate	North Bedrock	4/6/2015	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW39D102014	Normal	North Bedrock	10/30/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW39D042014	Normal	North Bedrock	4/16/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW39D102013	Normal	North Bedrock	11/6/2013	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW40D	TMW40D042015	Normal	North Bedrock	4/9/2015	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U
	TMW40D102014	Normal	North Bedrock	10/31/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW40D042014	Normal	North Bedrock	4/17/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW40D102013	Normal	North Bedrock	11/7/2013	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.44 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW48	TMW48042015	Normal	North Bedrock	4/6/2015	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.41 U	0.15 U	0.15 U	0.15 U	0.15 U
	TMW48102014	Normal	North Bedrock	10/30/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	DTW48042014	Duplicate	North Bedrock	4/17/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW48042014	Normal	North Bedrock	4/17/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	DTW48102013	Duplicate	North Bedrock	10/31/2013	0.41 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.41 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW48102013	Normal	North Bedrock	10/31/2013	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
TMW49	TMW49042015	Normal	North Bedrock	4/9/2015	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW49102014	Normal	North Bedrock	10/30/2014	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.42 U	0.16 U	0.16 U	0.16 U	0.16 U
	TMW49042014	Normal	North Bedrock	4/16/2014	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.43 U	0.16 U	0.16 U	0.16 U	0.16 U
	DTW49102013	Duplicate	North Bedrock	11/6/2013	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.46 U	0.17 U	0.17 U	0.17 U	0.17 U
	TMW49102013	Normal	North Bedrock	11/6/2013	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.44 U	0.17 U	0.17 U	0.17 U	0.17 U

Notes:

^a EPA Region 6, Regional Screening Levels, November (Formerly Human Health Medium Specific Screening Levels) (EPA, 2014).

Bold indicates analyte was positively detected above regulatory limits.

µg/L = microgram(s) per liter

CAS = Chemical Abstracts Service (registry number)

EPA = U.S. Environmental Protection Agency

J = analyte was positively identified; reported value is estimated.

R = rejected during validation. result is unusable for any purpose.

U = non-detected result reported at the limit of detection.

UJ = analyte was not detected; however, the result is estimated because of discrepancies in meeting certain analyte-specific quality control criteria.

TABLE 5-4

Summary of Perchlorate Analytical Detections (Page 1 of 6)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	Perchlorate ($\mu\text{g/L}$) CAS 14797-73-0
					EPA Method 6860
Regulatory Limits					6^a
BGMW01	BGMW01042015	Normal	North Alluvial	4/2/2015	0.020 U
	BGMW01102014	Normal	North Alluvial	10/24/2014	0.020 U
	BGMW01042014	Normal	North Alluvial	4/15/2014	0.020 U
	BGMW01102013	Normal	North Alluvial	11/8/2013	0.020 U
BGMW02	BGMW02042015	Normal	North Alluvial	4/2/2015	0.51
	BGMW02102014	Normal	North Alluvial	10/24/2014	0.41
	BGMW02042014	Normal	North Alluvial	4/15/2014	0.45
	DBW02042014	Duplicate	North Alluvial	4/15/2014	0.44
	BGMW02102013	Normal	North Alluvial	11/5/2013	0.49
BGMW03	BGMW03042015	Normal	North Alluvial	4/1/2015	0.14
	BGMW03102014	Normal	North Alluvial	10/22/2014	0.16
	BGMW03042014	Normal	North Alluvial	4/11/2014	0.24
	BGMW03102013	Normal	North Alluvial	11/5/2013	0.28
	DBW03102013	Duplicate	North Alluvial	11/5/2013	0.31
MW01	MW01042015	Normal	North Alluvial	4/1/2015	0.020 U
	MW01102014	Normal	North Alluvial	10/23/2014	0.013 J
	MW01042014	Normal	North Alluvial	4/9/2014	0.020 U
	MW01102013	Normal	North Alluvial	11/1/2013	0.022 J
MW02	MW02042015	Normal	North Alluvial	4/2/2015	0.096
	MW02102014	Normal	North Alluvial	10/24/2014	0.023 J
	MW02042014	Normal	North Alluvial	4/10/2014	0.015 J
	MW02102013	Normal	North Alluvial	11/1/2013	0.012 J
MW03	MW03042015	Normal	North Alluvial	4/3/2015	0.0073 J
	MW03102014	Normal	North Alluvial	10/24/2014	0.020 U
	MW03042014	Normal	North Alluvial	4/14/2014	0.018 J
	MW03102013	Normal	North Alluvial	11/5/2013	0.015 J
MW18D	MW18D042015	Normal	North Alluvial	4/8/2015	0.0092 J
	MW18D102014	Normal	North Alluvial	10/31/2014	0.020 U
	MW18D042014	Normal	North Alluvial	4/14/2014	0.020 U
	MW18D102013	Normal	North Alluvial	11/1/2013	0.039 J
MW20	MW20042015	Normal	North Alluvial	4/3/2015	0.31 J
	MW20102014	Normal	North Alluvial	10/28/2014	0.31
	DMW20102014	Duplicate	North Alluvial	10/28/2014	0.30
	MW20042014	Normal	North Alluvial	4/14/2014	0.33
	MW20102013	Normal	North Alluvial	11/8/2013	0.44 J
MW22D	MW22D042015	Normal	North Alluvial	4/6/2015	0.45 J
	MW22D102014	Normal	North Alluvial	10/29/2014	0.47
	MW22D042014	Normal	North Alluvial	4/14/2014	0.36
	DMW22D042014	Duplicate	North Alluvial	4/14/2014	0.36
	MW22D102013	Normal	North Alluvial	11/1/2013	0.73 J
	DMW22D102013	Duplicate	North Alluvial	11/1/2013	0.31 J
MW22S	MW22S042015	Normal	North Alluvial	4/2/2015	0.068
	MW22S102014	Normal	North Alluvial	10/22/2014	0.070
	MW22S042014	Normal	North Alluvial	4/10/2014	0.039 J
	MW22S102013	Normal	North Alluvial	11/1/2013	0.063

5.0 Analytical Results

TABLE 5-4

Summary of Perchlorate Analytical Detections (Page 2 of 6)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	Perchlorate (µg/L)
					CAS 14797-73-0 EPA Method 6860
Regulatory Limits					6^a
MW23	MW23042015	Normal	North Alluvial	4/7/2015	0.020 U
	DMW23042015	Duplicate	North Alluvial	4/7/2015	0.020 U
	MW23102014	Normal	North Alluvial	10/28/2014	0.020 U
	DMW23102014	Duplicate	North Alluvial	10/28/2014	0.020 U
	MW23042014	Normal	North Alluvial	4/11/2014	0.010 J
	DMW23042014	Duplicate	North Alluvial	4/11/2014	0.016 J
	MW23102013	Normal	North Alluvial	11/8/2013	0.020 U
	DMW23102013	Duplicate	North Alluvial	11/8/2013	0.020 U
MW24	MW24042015	Normal	North Alluvial	4/6/2015	0.020 U
	DMW24042015	Duplicate	North Alluvial	4/6/2015	0.020 U
	DMW24102014	Duplicate	North Alluvial	10/27/2014	0.020 U
	MW24102014	Normal	North Alluvial	10/27/2014	0.020 U
	DMW24042014	Duplicate	North Alluvial	4/11/2014	0.020 U
	MW24042014	Normal	North Alluvial	4/11/2014	0.020 U
	DMW24102013	Duplicate	North Alluvial	11/7/2013	0.020 U
	MW24102013	Normal	North Alluvial	11/7/2013	0.020 U
SMW01	SMW01042015	Normal	North Alluvial	4/8/2015	4.0 U
	SMW01102014	Normal	North Alluvial	10/27/2014	0.020 U
	SMW01042014	Normal	North Alluvial	4/15/2014	0.020 U
	SMW01102013	Normal	North Alluvial	11/8/2013	0.020 U
TMW01	TMW01042015	Normal	North Alluvial	4/7/2015	290
	TMW01102014	Normal	North Alluvial	10/30/2014	320
	TMW01042014	Normal	North Alluvial	4/16/2014	300
	TMW01102013	Normal	North Alluvial	11/6/2013	310
TMW03	TMW03042015	Normal	North Alluvial	4/9/2015	0.72
	TMW03102014	Normal	North Alluvial	10/30/2014	0.80
	TMW03042014	Normal	North Alluvial	4/16/2014	0.98
	TMW03102013	Normal	North Alluvial	11/4/2013	0.84
TMW04	TMW04042015	Normal	North Alluvial	4/9/2015	0.32
	TMW04102014	Normal	North Alluvial	10/30/2014	0.31
	TMW04042014	Normal	North Alluvial	4/16/2014	0.34
	TMW04102013	Normal	North Alluvial	11/4/2013	0.35
TMW08	TMW08042015	Normal	North Alluvial	4/8/2015	2.0 U
	TMW08102014	Normal	North Alluvial	10/29/2014	0.020 U
	DTW08042014	Duplicate	North Alluvial	4/15/2014	0.020 U
	TMW08042014	Normal	North Alluvial	4/15/2014	0.020 U
	TMW08102013	Normal	North Alluvial	11/8/2013	0.20 U
TMW10	TMW10042015	Normal	North Alluvial	4/7/2015	0.020 U
	TMW10102014	Normal	North Alluvial	10/28/2014	0.020 U
	TMW10042014	Normal	North Alluvial	4/14/2014	0.020 U
	TMW10102013	Normal	North Alluvial	11/1/2013	0.020 U
TMW11	TMW11042015	Normal	North Alluvial	4/8/2015	0.15
	TMW11102014	Normal	North Alluvial	10/29/2014	0.033 J
	TMW11042014	Normal	North Alluvial	4/17/2014	0.18
	TMW11102013	Normal	North Alluvial	11/5/2013	0.16
TMW13	TMW13042015	Normal	North Alluvial	4/9/2015	0.081
	TMW13102014	Normal	North Alluvial	10/27/2014	0.063
	TMW13042014	Normal	North Alluvial	4/17/2014	0.077 J
	TMW13102013	Normal	North Alluvial	11/5/2013	0.078

TABLE 5-4

Summary of Perchlorate Analytical Detections (Page 3 of 6)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	Perchlorate ($\mu\text{g/L}$)
					CAS 14797-73-0 EPA Method 6860
Regulatory Limits					6^a
TMW15	TMW15042015	Normal	North Alluvial	4/8/2015	0.14
	DTW15042015	Duplicate	North Alluvial	4/8/2015	0.14
	TMW15102014	Normal	North Alluvial	10/29/2014	0.16
	TMW15042014	Normal	North Alluvial	4/17/2014	0.16 J
	TMW15102013	Normal	North Alluvial	11/6/2013	0.24
TMW21	TMW21042015	Normal	North Alluvial	4/3/2015	0.0083 J
	TMW21102014	Normal	North Alluvial	10/31/2014	0.0051 J
	TMW21042014	Normal	North Alluvial	4/14/2014	0.020 U
	TMW21102013	Normal	North Alluvial	11/7/2013	0.020 U
TMW22	TMW22042015	Normal	North Alluvial	4/1/2015	0.021 J
	TMW22102014	Normal	North Alluvial	10/23/2014	0.020 U
	TMW22042014	Normal	North Alluvial	4/10/2014	0.010 J
	TMW22102013	Normal	North Alluvial	10/29/2013	0.0088 J
TMW23	TMW23042015	Normal	North Alluvial	4/1/2015	0.076
	TMW23102014	Normal	North Alluvial	10/22/2014	0.046 J
	TMW23042014	Normal	North Alluvial	4/10/2014	0.037 J
	TMW23102013	Normal	North Alluvial	10/29/2013	0.045 J
TMW24	TMW24042015	Normal	North Alluvial	4/8/2015	4.0 U
	TMW24102014	Normal	North Alluvial	10/31/2014	0.020 U
	TMW24042014	Normal	North Alluvial	4/17/2014	0.020 UJ
	TMW24102013	Normal	North Alluvial	11/8/2013	0.020 U
TMW26	TMW26042015	Normal	North Alluvial	4/7/2015	0.020 U
	DTW26042015	Duplicate	North Alluvial	4/7/2015	0.020 U
	TMW26102014	Normal	North Alluvial	10/27/2014	0.020 U
	DTW26102014	Duplicate	North Alluvial	10/27/2014	0.020 U
	TMW26042014	Normal	North Alluvial	4/15/2014	0.020 U
	TMW26102013	Normal	North Alluvial	11/4/2013	0.020 U
TMW27	TMW27042015	Normal	North Alluvial	4/7/2015	0.020 U
	TMW27102014	Normal	North Alluvial	10/27/2014	0.020 U
	TMW27042014	Normal	North Alluvial	4/15/2014	0.020 U
	TMW27102013	Normal	North Alluvial	11/5/2013	0.020 U
TMW29	TMW29042015	Normal	North Alluvial	4/3/2015	0.092 J
	TMW29102014	Normal	North Alluvial	10/23/2014	0.14
	TMW29042014	Normal	North Alluvial	4/10/2014	0.067
	TMW29102013	Normal	North Alluvial	10/31/2013	0.084 UJ
TMW31S	TMW31S042015	Normal	North Alluvial	4/2/2015	480
	TMW31S102014	Normal	North Alluvial	10/22/2014	460
	TMW31S042014	Normal	North Alluvial	4/10/2014	440
	TMW31S102013	Normal	North Alluvial	10/30/2013	430
TMW34	TMW34042015	Normal	North Alluvial	4/3/2015	0.30 J
	DTW34042015	Duplicate	North Alluvial	4/3/2015	0.30 J
	TMW34102014	Normal	North Alluvial	10/28/2014	0.30 J
	DTW34102014	Duplicate	North Alluvial	10/28/2014	0.020 UJ
	TMW34042014	Normal	North Alluvial	4/15/2014	0.26
	TMW34102013	Normal	North Alluvial	11/1/2013	0.30 J
	DTW34102013	Duplicate	North Alluvial	11/1/2013	0.029 J
TMW35	TMW35042015	Normal	North Alluvial	4/3/2015	0.061 J
	TMW35102014	Normal	North Alluvial	10/31/2014	0.094
	TMW35042014	Normal	North Alluvial	4/14/2014	0.076
	TMW35102013	Normal	North Alluvial	11/4/2013	0.10

5.0 Analytical Results

TABLE 5-4

Summary of Perchlorate Analytical Detections (Page 4 of 6)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	Perchlorate (µg/L)
					CAS 14797-73-0 EPA Method 6860
Regulatory Limits					6^a
TMW39S	TMW39S042015	Normal	North Alluvial	4/1/2015	670
	TMW39S102014	Normal	North Alluvial	10/23/2014	600
	TMW39S042014	Normal	North Alluvial	4/11/2014	880
	TMW39S102013	Normal	North Alluvial	11/5/2013	800
TMW40S	TMW40S042015	Normal	North Alluvial	4/2/2015	4.0
	TMW40S102014	Normal	North Alluvial	10/24/2014	3.4
	TMW40S042014	Normal	North Alluvial	4/11/2014	9.1
	TMW40S102013	Normal	North Alluvial	10/31/2013	20
TMW41	TMW41042015	Normal	North Alluvial	4/1/2015	4.3
	TMW41102014	Normal	North Alluvial	10/23/2014	3.6
	TMW41042014	Normal	North Alluvial	4/10/2014	2.5
	TMW41102013	Normal	North Alluvial	10/30/2013	2.5
TMW43	TMW43042015	Normal	North Alluvial	4/10/2015	0.020 U
	DTW43042015	Duplicate	North Alluvial	4/10/2015	0.020 U
	DTW43102014	Duplicate	North Alluvial	10/31/2014	0.020 U
	TMW43102014	Normal	North Alluvial	10/31/2014	0.020 U
	TMW43042014	Normal	North Alluvial	4/15/2014	0.020 U
	TMW43102013	Normal	North Alluvial	10/30/2013	0.020 U
TMW44	TMW44042015	Normal	North Alluvial	4/1/2015	0.037 U
	TMW44102014	Normal	North Alluvial	10/23/2014	0.022 J
	TMW44042014	Normal	North Alluvial	4/10/2014	0.032 J
	TMW44102013	Normal	North Alluvial	10/29/2013	0.010 J
TMW45	TMW45042015	Normal	North Alluvial	4/9/2015	0.020 U
	TMW45102014	Normal	North Alluvial	10/29/2014	0.0041 J
	TMW45042014	Normal	North Alluvial	4/11/2014	0.020 U
	TMW45102013	Normal	North Alluvial	11/7/2013	0.020 U
TMW46	TMW46042015	Normal	North Alluvial	4/2/2015	0.37
	TMW46102014	Normal	North Alluvial	10/23/2014	0.36
	TMW46042014	Normal	North Alluvial	4/11/2014	0.47
	TMW46102013	Normal	North Alluvial	10/30/2013	0.36
TMW47	TMW47042015	Normal	North Alluvial	4/10/2015	0.020 U
	TMW47102014	Normal	North Alluvial	10/31/2014	0.020 U
	TMW47042014	Normal	North Alluvial	4/16/2014	0.020 U
	TMW47102013	Normal	North Alluvial	11/7/2013	0.020 U
TMW02	TMW02042015	Normal	North Bedrock	4/9/2015	3.3
	TMW02102014	Normal	North Bedrock	10/30/2014	3.5
	TMW02042014	Normal	North Bedrock	4/16/2014	3.8
	TMW02102013	Normal	North Bedrock	11/4/2013	4.7
TMW16	TMW16042015	Normal	North Bedrock	4/1/2015	0.020 J
	TMW16102014	Normal	North Bedrock	10/24/2014	0.022 J
	TMW16042014	Normal	North Bedrock	4/9/2014	0.020 U
	TMW16102013	Normal	North Bedrock	10/31/2013	0.020 U
TMW17	TMW17042015	Normal	North Bedrock	4/7/2015	0.020 U
	TMW17102014	Normal	North Bedrock	10/29/2014	0.0060 J
	TMW17042014	Normal	North Bedrock	4/17/2014	0.020 U
	TMW17102013	Normal	North Bedrock	11/6/2013	0.020 U
TMW18	TMW18042015	Normal	North Bedrock	4/1/2015	0.061
	TMW18102014	Normal	North Bedrock	10/24/2014	0.13
	TMW18042014	Normal	North Bedrock	4/11/2014	0.084
	TMW18102013	Normal	North Bedrock	10/31/2013	0.024 UJ

TABLE 5-4

Summary of Perchlorate Analytical Detections (Page 5 of 6)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	Perchlorate ($\mu\text{g/L}$) CAS 14797-73-0
					EPA Method 6860
Regulatory Limits					6^a
TMW19	TMW19042015	Normal	North Bedrock	4/1/2015	0.020 U
	TMW19102014	Normal	North Bedrock	10/24/2014	0.020 U
	TMW19042014	Normal	North Bedrock	4/9/2014	0.020 U
	TMW19102013	Normal	North Bedrock	10/31/2013	0.0090 UJ
TMW30	TMW30042015	Normal	North Bedrock	4/1/2015	1400
	TMW30102014	Normal	North Bedrock	10/22/2014	1300
	TMW30042014	Normal	North Bedrock	4/11/2014	1400
	TMW30102013	Normal	North Bedrock	10/30/2013	1900
TMW31D	TMW31D042015	Normal	North Bedrock	4/6/2015	1300 J
	TMW31D102014	Normal	North Bedrock	10/30/2014	1400
	DTW31D102014	Duplicate	North Bedrock	10/30/2014	1400
	TMW31D042014	Normal	North Bedrock	4/16/2014	1400
	DTW31D042014	Duplicate	North Bedrock	4/16/2014	2000
	TMW31D102013	Normal	North Bedrock	11/6/2013	1500
TMW32	TMW32042015	Normal	North Bedrock	4/9/2015	320
	TMW32102014	Normal	North Bedrock	10/30/2014	500
	TMW32042014	Normal	North Bedrock	4/16/2014	370
	TMW32102013	Normal	North Bedrock	11/7/2013	290
TMW36	TMW36042015	Normal	North Bedrock	4/1/2015	0.020 U
	TMW36102014	Normal	North Bedrock	10/24/2014	0.020 U
	TMW36042014	Normal	North Bedrock	4/9/2014	0.020 U
	TMW36102013	Normal	North Bedrock	11/5/2013	0.020 U
TMW37	TMW37042015	Normal	North Bedrock	4/1/2015	0.020 U
	TMW37102014	Normal	North Bedrock	10/24/2014	0.020 U
	TMW37042014	Normal	North Bedrock	4/9/2014	0.020 U
	TMW37102013	Normal	North Bedrock	10/31/2013	0.020 U
TMW38	TMW38042015	Normal	North Bedrock	4/8/2015	0.0060 J
	TMW38102014	Normal	North Bedrock	10/28/2014	0.020 U
	TMW38042014	Normal	North Bedrock	4/17/2014	0.020 UJ
	TMW38102013	Normal	North Bedrock	10/31/2013	0.020 UJ
TMW39D	TMW39D042015	Normal	North Bedrock	4/6/2015	34 J
	DTW39D042015	Duplicate	North Bedrock	4/6/2015	32 J
	TMW39D102014	Normal	North Bedrock	10/30/2014	1.6
	TMW39D042014	Normal	North Bedrock	4/16/2014	4.2
	TMW39D102013	Normal	North Bedrock	11/6/2013	8.5
TMW40D	TMW40D042015	Normal	North Bedrock	4/9/2015	260
	TMW40D102014	Normal	North Bedrock	10/31/2014	320
	TMW40D042014	Normal	North Bedrock	4/17/2014	610 J
	TMW40D102013	Normal	North Bedrock	11/7/2013	260

5.0 Analytical Results

TABLE 5-4

Summary of Perchlorate Analytical Detections (Page 6 of 6)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	Perchlorate ($\mu\text{g/L}$)
					EPA Method 6860
Regulatory Limits					6^a
TMW48	TMW48042015	Normal	North Bedrock	4/6/2015	1200 J
	TMW48102014	Normal	North Bedrock	10/30/2014	1500
	TMW48042014	Normal	North Bedrock	4/17/2014	1500 J
	DTW48042014	Duplicate	North Bedrock	4/17/2014	1600 J
	TMW48102013	Normal	North Bedrock	10/31/2013	1500 J
	DTW48102013	Duplicate	North Bedrock	10/31/2013	4400 J
TMW49	TMW49042015	Normal	North Bedrock	4/9/2015	1100
	TMW49102014	Normal	North Bedrock	10/30/2014	1700
	TMW49102013	Normal	North Bedrock	11/6/2013	4100 J
	DTW49102013	Duplicate	North Bedrock	11/6/2013	1500 J

Notes:

^a Regulatory Limit is 6 $\mu\text{g/L}$ (*Resource Conservation and Recovery Act* Permit Screening Levels; NMED, 2005).

Bold indicates analyte was positively detected above regulatory limits.

If no detection occurred for perchlorate during the last four events, no non-detect or historical data are presented.

$\mu\text{g/L}$ = microgram(s) per liter

CAS = Chemical Abstracts Service (registry number)

EPA = U.S. Environmental Protection Agency

J = analyte was positively identified; reported value is estimated.

U = non-detected result reported at the limit of detection.

UJ = analyte was not detected; however, the result is estimated because of discrepancies in meeting certain analyte-specific quality control criteria.

5.0 Analytical Results

TABLE 5-5

Summary of Volatile Organic Compound Analytical Detections (Page 1 of 6)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	EPA Method 8260B (µg/L)										
					1,1,1-Trichloroethane CAS 71-55-6	1,1-Dichloroethane CAS 75-34-3	1,1-Dichloroethene CAS 75-35-4	1,2-Dichloroethane CAS 107-06-2	Acetone CAS 67-64-1	Carbon disulfide CAS 75-15-0	Chloroform CAS 67-66-3	Dichloromethane CAS 74-87-3	Methylene chloride CAS 75-09-2	Toluene CAS 108-88-3	Trichloroethene CAS 79-01-6
					Regulatory Limit										
					60 ^a	25 ^a	5 ^a	5 ^b	14000 ^c	810 ^c	100 ^a	190 ^c	5 ^b	750 ^a	5 ^b
BGMW01	BGMW01042015	Normal	North Alluvial	4/2/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	BGMW01102014	Normal	North Alluvial	10/24/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.68 J	0.40 U	0.20 U
	BGMW01042014	Normal	North Alluvial	4/15/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	BGMW01102013	Normal	North Alluvial	11/8/2013	0.20 U	0.40 U	0.40 U	0.40 U	2.5 J	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
BGMW02	BGMW02042015	Normal	North Alluvial	4/2/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	BGMW02102014	Normal	North Alluvial	10/24/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.64 J	0.40 U	0.20 U
	BGMW02042014	Normal	North Alluvial	4/15/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	DBW02042014	Duplicate	North Alluvial	4/15/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	BGMW02102013	Normal	North Alluvial	11/5/2013	0.20 U	0.40 U	0.40 U	0.40 U	13	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
FW35	FW35042015	Normal	North Alluvial	4/1/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	FW35102014	Normal	North Alluvial	10/24/2014	0.20 U	0.40 U	0.40 U	0.40 U	3.2 J	0.99 J	0.20 U	0.80 U	0.80 U	0.40 U	0.43 J
	FW35042014	Normal	North Alluvial	4/10/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	FW35102013	Normal	North Alluvial	10/29/2013	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
MW01	MW01042015	Normal	North Alluvial	4/1/2015	0.20 U	0.40 U	0.40 U	1.6	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	MW01102014	Normal	North Alluvial	10/23/2014	0.20 U	0.40 U	0.40 U	1.4	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	MW01042014	Normal	North Alluvial	4/9/2014	0.20 UJ	0.40 UJ	0.40 UJ	1.0 J	6.4 UJ	0.80 UJ	0.20 UJ	0.80 UJ	0.80 UJ	0.40 UJ	0.20 UJ
	MW01102013	Normal	North Alluvial	11/1/2013	0.20 U	0.40 U	0.40 U	1.3	6.4 U	0.80 U	0.20 U	0.80 U	0.53 U	0.40 U	0.20 U
MW18D	MW18D042015	Normal	North Alluvial	4/8/2015	0.20 U	0.40 U	0.40 U	100	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	MW18D102014	Normal	North Alluvial	10/31/2014	0.20 U	0.40 U	0.40 U	90	6.4 U	0.59 J	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	MW18D042014	Normal	North Alluvial	4/14/2014	0.20 UJ	0.40 UJ	0.40 UJ	78 J	6.4 UJ	0.80 UJ	0.20 UJ	0.80 UJ	0.80 UJ	0.40 UJ	0.20 UJ
	MW18D102013	Normal	North Alluvial	11/1/2013	0.20 U	0.40 U	0.40 U	80 J	6.4 U	0.53 J	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
MW20	MW20042015	Normal	North Alluvial	4/3/2015	0.20 U	0.40 U	0.40 U	5.3	1.9 J	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	MW20102014	Normal	North Alluvial	10/28/2014	0.20 U	0.40 U	0.40 U	5.8 J	3.2 J	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	DMW20102014	Duplicate	North Alluvial	10/28/2014	0.20 U	0.40 U	0.40 U	4.7	2.3 J	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	MW20042014	Normal	North Alluvial	4/14/2014	0.20 U	0.40 U	0.40 U	4.6	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	MW20102013	Normal	North Alluvial	11/8/2013	0.20 U	0.40 U	0.40 U	6.1	3.9 J	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U

5.0 Analytical Results

TABLE 5-5

Summary of Volatile Organic Compound Analytical Detections (Page 2 of 6)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	EPA Method 8260B (µg/L)										
					1,1,1-Trichloroethane CAS 71-55-6	1,1-Dichloroethane CAS 75-34-3	1,1-Dichloroethene CAS 75-35-4	1,2-Dichloroethane CAS 107-06-2	Acetone CAS 67-64-1	Carbon disulfide CAS 75-15-0	Chloroform CAS 67-66-3	Dihloromethane CAS 74-87-3	Methylene chloride CAS 75-09-2	Toluene CAS 108-88-3	Trichloroethene CAS 79-01-6
					Regulatory Limit										
					60 ^a	25 ^a	5 ^a	5 ^b	14000 ^c	810 ^c	100 ^a	190 ^c	5 ^b	750 ^a	5 ^b
MW22D	MW22D042015	Normal	North Alluvial	4/6/2015	0.20 U	0.40 U	0.40 U	1.1	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	MW22D102014	Normal	North Alluvial	10/29/2014	0.20 U	0.40 U	0.40 U	1.2	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	MW22D042014	Normal	North Alluvial	4/14/2014	0.20 U	0.40 U	0.40 U	1.1	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	DMW22D042014	Duplicate	North Alluvial	4/14/2014	0.20 U	0.40 U	0.40 U	1.0	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	MW22D102013	Normal	North Alluvial	11/1/2013	0.20 U	0.40 U	0.40 U	1.4	3.0 J	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	DMW22D102013	Duplicate	North Alluvial	11/1/2013	0.20 U	0.40 U	0.40 U	1.4	6.4 UJ	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
MW22S	MW22S042015	Normal	North Alluvial	4/2/2015	1.9	0.68 J	0.40 U	0.68 J	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	MW22S102014	Normal	North Alluvial	10/22/2014	2.4	0.80 J	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	MW22S042014	Normal	North Alluvial	4/9/2014	2.0	0.66 J	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	MW22S102013	Normal	North Alluvial	10/30/2013	2.7	0.76 J	0.27 J	0.40 U	6.4 U	0.80 UJ	0.20 U	0.80 U	0.80 UJ	0.40 U	0.20 U
MW23	MW23042015	Normal	North Alluvial	4/7/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	DMW23042015	Duplicate	North Alluvial	4/7/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	MW23102014	Normal	North Alluvial	10/28/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 UJ	0.80 U	0.20 U	0.80 U	0.43 J	0.20 J	0.20 U
	DMW23102014	Duplicate	North Alluvial	10/28/2014	0.20 U	0.40 U	0.40 U	0.40 U	2.0 J	0.80 U	0.20 U	0.80 U	0.80 UJ	0.40 UJ	0.20 U
	MW23042014	Normal	North Alluvial	4/11/2014	0.20 U	0.40 U	0.40 U	0.40 U	10 UJ	0.80 U	0.20 U	0.80 U	0.40 U	18	0.20 U
	DMW23042014	Duplicate	North Alluvial	4/11/2014	0.20 U	0.40 U	0.40 U	0.40 U	4.2 UJ	0.80 U	0.20 U	0.80 U	0.38 U	18	0.20 U
	MW23102013	Normal	North Alluvial	11/8/2013	0.20 U	0.40 U	0.40 U	0.40 U	4.7 J	0.80 U	0.20 U	0.80 U	0.80 U	20	0.20 U
	DMW23102013	Duplicate	North Alluvial	11/8/2013	0.20 U	0.40 U	0.40 U	0.40 U	3.3 J	0.80 U	0.20 U	0.80 U	0.80 U	20	0.20 U
MW24	MW24042015	Normal	North Alluvial	4/6/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	DMW24042015	Duplicate	North Alluvial	4/6/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	MW24102014	Normal	North Alluvial	10/27/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	DMW24102014	Duplicate	North Alluvial	10/27/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	MW24042014	Normal	North Alluvial	4/11/2014	0.20 U	0.40 U	0.40 U	0.40 U	2.1 UJ	0.80 U	0.20 U	0.80 U	0.80 UJ	0.33 J	0.20 U
	DMW24042014	Duplicate	North Alluvial	4/11/2014	0.20 U	0.40 U	0.40 U	0.40 U	10 UJ	0.80 U	0.20 U	0.80 U	0.65 UJ	0.40 UJ	0.20 U
	MW24102013	Normal	North Alluvial	11/7/2013	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.17 J	0.20 U
	DMW24102013	Duplicate	North Alluvial	11/7/2013	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.61 J	0.20 U

TABLE 5-5
Summary of Volatile Organic Compound Analytical Detections (Page 3 of 6)
 Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	EPA Method 8260B (µg/L)										
					1,1,1-Trichloroethane CAS 71-55-6	1,1-Dichloroethane CAS 75-34-3	1,1-Dichloroethene CAS 75-35-4	1,2-Dichloroethane CAS 107-06-2	Acetone CAS 67-64-1	Carbon disulfide CAS 75-15-0	Chloroform CAS 67-66-3	Dhloromethane CAS 74-87-3	Methylene chloride CAS 75-09-2	Toluene CAS 108-88-3	Trichloroethene CAS 79-01-6
					Regulatory Limit										
					60 ^a	25 ^a	5 ^a	5 ^b	14000 ^c	810 ^c	100 ^a	190 ^c	5 ^b	750 ^a	5 ^b
SMW01	SMW01042015	Normal	North Alluvial	4/8/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	SMW01102014	Normal	North Alluvial	10/27/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	SMW01042014	Normal	North Alluvial	4/15/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	SMW01102013	Normal	North Alluvial	11/8/2013	0.20 U	0.40 U	0.40 U	0.40 U	1.9 J	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
TMW01	TMW01042015	Normal	North Alluvial	4/7/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW01102014	Normal	North Alluvial	10/30/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW01042014	Normal	North Alluvial	4/16/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW01102013	Normal	North Alluvial	11/6/2013	0.20 U	0.40 U	0.40 U	0.40 U	8.9 J	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
TMW08	TMW08042015	Normal	North Alluvial	4/8/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW08102014	Normal	North Alluvial	10/29/2014	0.20 U	0.40 U	0.40 U	0.40 U	13	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW08042014	Normal	North Alluvial	4/15/2014	0.20 U	0.40 U	0.40 U	0.40 U	3.5 J	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	DTW08042014	Duplicate	North Alluvial	4/15/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 UJ	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW08102013	Normal	North Alluvial	11/8/2013	0.20 U	0.40 U	0.40 U	0.40 U	4.3 J	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
TMW10	TMW10042015	Normal	North Alluvial	4/7/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW10102014	Normal	North Alluvial	10/28/2014	0.20 U	0.40 U	0.40 U	0.40 U	1.9 J	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW10042014	Normal	North Alluvial	4/14/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW10102013	Normal	North Alluvial	11/1/2013	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
TMW24	TMW24042015	Normal	North Alluvial	4/8/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW24102014	Normal	North Alluvial	10/31/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW24042014	Normal	North Alluvial	4/17/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.61 J	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW24102013	Normal	North Alluvial	11/8/2013	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.72 J	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
TMW25	TMW25042015	Normal	North Alluvial	4/7/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW25102014	Normal	North Alluvial	10/31/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW25042014	Normal	North Alluvial	4/15/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW25102013	Normal	North Alluvial	11/4/2013	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 J	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U

5.0 Analytical Results

TABLE 5-5

Summary of Volatile Organic Compound Analytical Detections (Page 4 of 6)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	EPA Method 8260B (µg/L)										
					1,1,1-Trichloroethane CAS 71-55-6	1,1-Dichloroethane CAS 75-34-3	1,1-Dichloroethene CAS 75-35-4	1,2-Dichloroethane CAS 107-06-2	Acetone CAS 67-64-1	Carbon disulfide CAS 75-15-0	Chloroform CAS 67-66-3	Dihloromethane CAS 74-87-3	Methylene chloride CAS 75-09-2	Toluene CAS 108-88-3	Trichloroethene CAS 79-01-6
					Regulatory Limit										
					60 ^a	25 ^a	5 ^a	5 ^b	14000 ^c	810 ^c	100 ^a	190 ^c	5 ^b	750 ^a	5 ^b
TMW28	TMW28042015	Normal	North Alluvial	4/7/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW28102014	Normal	North Alluvial	10/29/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW28042014	Normal	North Alluvial	4/15/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW28102013	Normal	North Alluvial	11/5/2013	0.20 U	0.40 U	0.40 U	0.40 U	21	0.82 J	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
TMW33	TMW33042015	Normal	North Alluvial	4/2/2015	0.20 U	0.40 U	0.40 U	35	3.0 J	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW33102014	Normal	North Alluvial	10/22/2014	0.20 U	0.40 U	0.40 U	40	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW33042014	Normal	North Alluvial	4/10/2014	0.20 U	0.40 U	0.40 U	34	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW33102013	Normal	North Alluvial	10/30/2013	0.20 U	0.40 U	0.40 UJ	37	6.4 U	0.80 UJ	0.20 U	0.80 U	0.80 UJ	0.40 U	0.20 U
TMW34	TMW34042015	Normal	North Alluvial	4/3/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 UJ	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	DTW34042015	Duplicate	North Alluvial	4/3/2015	0.20 U	0.40 U	0.40 U	0.40 U	1.9 J	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW34102014	Normal	North Alluvial	10/28/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	DTW34102014	Duplicate	North Alluvial	10/28/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW34042014	Normal	North Alluvial	4/15/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW34102013	Normal	North Alluvial	11/1/2013	0.20 U	0.40 U	0.40 U	0.40 U	3.9 J	0.80 U	0.20 U	0.80 U	0.93 UJ	0.40 U	0.20 U
	DTW34102013	Duplicate	North Alluvial	11/1/2013	0.20 U	0.40 U	0.40 U	0.40 U	6.4 UJ	0.80 U	0.20 U	0.80 U	0.80 UJ	0.40 U	0.20 U
TMW35	TMW35042015	Normal	North Alluvial	4/3/2015	0.20 U	0.40 U	0.40 U	1.8	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW35102014	Normal	North Alluvial	10/31/2014	0.20 U	0.40 U	0.40 U	2.0	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW35042014	Normal	North Alluvial	4/14/2014	0.20 U	0.40 U	0.40 U	1.8	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW35102013	Normal	North Alluvial	11/4/2013	0.20 U	0.40 U	0.40 U	2.0	8.1 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
TMW40S	TMW40S042015	Normal	North Alluvial	4/2/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.66 J	0.80 U	0.72 U	0.40 U	0.20 U
	TMW40S102014	Normal	North Alluvial	10/22/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.94 J	0.80 U	0.53 J	0.40 U	0.20 U
	TMW40S042014	Normal	North Alluvial	4/10/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	2.0	0.80 U	0.80 U	0.40 U	0.20 U
	TMW40S102013	Normal	North Alluvial	10/31/2013	0.20 U	0.40 U	0.40 U	0.40 U	2.6 U	0.80 U	1.4 U	0.80 U	0.80 U	0.40 U	0.20 U
TMW47	TMW47042015	Normal	North Alluvial	4/10/2015	0.40 U	0.80 U	0.80 U	0.40 U	6.4 U	0.65 J	0.40 U	0.80 U	0.45 U	0.40 U	0.40 U
	TMW47102014	Normal	North Alluvial	10/31/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	1.9 J	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW47042014	Normal	North Alluvial	4/16/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	1.5 J	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW47102013	Normal	North Alluvial	11/7/2013	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	6.2	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U

TABLE 5-5

Summary of Volatile Organic Compound Analytical Detections (Page 5 of 6)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	EPA Method 8260B (µg/L)										
					1,1,1-Trichloroethane CAS 71-55-6	1,1-Dichloroethane CAS 75-34-3	1,1-Dichloroethene CAS 75-35-4	1,2-Dichloroethane CAS 107-06-2	Acetone CAS 67-64-1	Carbon disulfide CAS 75-15-0	Chloroform CAS 67-66-3	Dihloromethane CAS 74-87-3	Methylene chloride CAS 75-09-2	Toluene CAS 108-88-3	Trichloroethene CAS 79-01-6
					Regulatory Limit										
					60 ^a	25 ^a	5 ^a	5 ^b	14000 ^c	810 ^c	100 ^a	190 ^c	5 ^b	750 ^a	5 ^b
TMW14A	TMW14A042015	Normal	North Bedrock	4/8/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW14A102014	Normal	North Bedrock	10/29/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	1.0 J	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW14A042014	Normal	North Bedrock	4/15/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.78 J	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW14A102013	Normal	North Bedrock	11/6/2013	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.47 J	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
TMW16	TMW16042015	Normal	North Bedrock	4/1/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.20 J	0.20 U
	TMW16102014	Normal	North Bedrock	10/24/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.22 J	0.20 U
	TMW16042014	Normal	North Bedrock	4/9/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW16102013	Normal	North Bedrock	10/31/2013	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	3.7	0.20 U
TMW17	TMW17042015	Normal	North Bedrock	4/7/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	2.5	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW17102014	Normal	North Bedrock	10/29/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	4.7	0.20 U	0.38 J	0.80 U	0.40 U	0.20 U
	TMW17042014	Normal	North Bedrock	4/17/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	4.2	0.20 U	1.1 J	0.80 U	0.40 U	0.20 U
	TMW17102013	Normal	North Bedrock	11/6/2013	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	2.7	0.20 U	0.54 J	0.80 U	0.40 U	0.20 U
TMW18	TMW18042015	Normal	North Bedrock	4/1/2015	0.20 U	0.40 U	0.40 U	0.40 U	4.9 J	0.80 U	0.20 U	0.80 U	0.80 U	1.7	0.20 U
	TMW18102014	Normal	North Bedrock	10/24/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.82 J	0.20 U
	TMW18042014	Normal	North Bedrock	4/11/2014	0.20 U	0.40 U	0.40 U	0.40 U	3.1 U	0.80 U	0.20 U	0.80 U	0.43 U	0.62 J	0.20 U
	TMW18102013	Normal	North Bedrock	10/31/2013	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	120	0.20 U
TMW19	TMW19042015	Normal	North Bedrock	4/1/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.39 J	0.20 U
	TMW19102014	Normal	North Bedrock	10/24/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.36 J	0.20 U
	TMW19042014	Normal	North Bedrock	4/9/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.45 J	0.20 U
	TMW19102013	Normal	North Bedrock	10/31/2013	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.64 U	0.20 U
TMW36	TMW36042015	Normal	North Bedrock	4/1/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW36102014	Normal	North Bedrock	10/24/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.59 J	0.20 U
	TMW36042014	Normal	North Bedrock	4/9/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW36102013	Normal	North Bedrock	11/5/2013	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.47 J	0.20 U

5.0 Analytical Results

TABLE 5-5

Summary of Volatile Organic Compound Analytical Detections (Page 6 of 6)

Groundwater Periodic Monitoring Report January through June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	EPA Method 8260B (µg/L)										
					1,1,1-Trichloroethane CAS 71-55-6	1,1-Dichloroethane CAS 75-34-3	1,1-Dichloroethene CAS 75-35-4	1,2-Dichloroethane CAS 107-06-2	Acetone CAS 67-64-1	Carbon disulfide CAS 75-15-0	Chloroform CAS 67-66-3	Dhloromethane CAS 74-87-3	Methylene chloride CAS 75-09-2	Toluene CAS 108-88-3	Trichloroethene CAS 79-01-6
					Regulatory Limit										
					60 ^a	25 ^a	5 ^a	5 ^b	14000 ^c	810 ^c	100 ^a	190 ^c	5 ^b	750 ^a	5 ^b
TMW37	TMW37042015	Normal	North Bedrock	4/1/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.28 J	0.20 U
	TMW37102014	Normal	North Bedrock	10/24/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.52 J	0.20 U
	TMW37042014	Normal	North Bedrock	4/9/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.74 J	0.20 U
	TMW37102013	Normal	North Bedrock	10/31/2013	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.19 U	0.20 U
TMW38	TMW38042015	Normal	North Bedrock	4/8/2015	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW38102014	Normal	North Bedrock	10/28/2014	0.20 U	0.40 U	0.40 U	0.40 U	2.5 J	21 J	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW38042014	Normal	North Bedrock	4/17/2014	0.20 U	0.40 U	0.40 U	0.40 U	3.5 J	19	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW38102013	Normal	North Bedrock	10/31/2013	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	4.8	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
TMW49	TMW49042015	Normal	North Bedrock	4/9/2015	0.20 U	0.40 U	0.40 U	0.40 U	3.8 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW49102014	Normal	North Bedrock	10/30/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW49042014	Normal	North Bedrock	4/16/2014	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.20 U	0.80 U	0.80 U	0.40 U	0.20 U
	TMW49102013	Normal	North Bedrock	11/6/2013	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.18 J	0.80 U	0.80 U	0.40 U	0.20 U
	DTW49102013	Duplicate	North Bedrock	11/6/2013	0.20 U	0.40 U	0.40 U	0.40 U	6.4 U	0.80 U	0.17 J	0.80 U	0.80 U	0.40 U	0.20 U

Notes:

^a New Mexico Water Quality Control Commission Standard - New Mexico Administrative Code Title 20, Chapter 6, Part 2, Section 3103

^b EPA Maximum Contaminant Level - *Code of Federal Regulations* Title 40, Parts 141, 142, and 143

^c EPA Region 6, Regional Screening Levels, November (formerly Human Health Medium Specific Screening Levels) (EPA, 2014)

Bold indicates analyte was positively detected above regulatory limits.

If no detection occurred for volatile organic compounds during the last four events, no non-detect or historical data are presented.

µg/L = microgram(s) per liter

CAS = Chemical Abstracts Service (registry number)

EPA = U.S. Environmental Protection Agency

J = analyte was positively identified; reported value is estimated.

U = non-detected result reported at the limit of detection.

UJ = analyte was not detected; however, the result is estimated because of discrepancies in meeting certain analyte-specific quality control criteria.

TABLE 5-6

Summary of Semivolatile Organic Compounds and Total Petroleum Hydrocarbons Analytical Results (Page 5 of 5)*Groundwater Periodic Monitoring Report January to June 2015 Fort Wingate Depot Activity*

Notes:

^a New Mexico Water Quality Control Commission Standard - New Mexico Administrative Code Title 20, Chapter 6, Part 2, Section 3103^b EPA Maximum Contaminant Level - *Code of Federal Regulations* Title 40, Parts 141, 142, and 143^c EPA Region 6, Regional Screening Levels, November (formerly Human Health Medium Specific Screening Levels) (EPA, 2014)^d Well not sampled for semivolatile organic compound analysis due to insufficient volume of sample in well despite repeated attempts to collect sample.**Bold indicates analyte was positively detected above regulatory limits.**

If no detection occurred for total petroleum hydrocarbons or semivolatile organic compounds in the past four events, no non-detect or historical data are presented.

µg/L = microgram(s) per liter

CAS = Chemical Abstracts Service (registry number)

DRO = diesel range organic compounds

EPA = U.S. Environmental Protection Agency

GRO = gasoline range organic compounds

MCL = maximum contaminant level

NA = not analyzed

N/A = not applicable

SVOC = semivolatile organic compound

J = analyte was positively identified; reported value is estimated.

R = rejected during validation. result is unusable for any purpose.

U = non-detected result reported at the limit of detection.

UJ = analyte was not detected; however, the result is estimated because of discrepancies.

5.0 Analytical Results

TABLE 5-7

Summary of Dissolved Metals Analytical Detections (Page 6 of 6)

Groundwater Periodic Monitoring Report January to June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	EPA Method 6010/6020 (µg/L)																				EPA Method 7470 (µg/L)		
					Aluminum CAS 7429-90-5	Antimony CAS 7440-36-0	Arsenic CAS 7440-38-2	Barium CAS 7440-39-3	Beryllium CAS 7440-41-7	Cadmium CAS 7440-43-9	Calcium CAS 7440-70-2	Chromium CAS 7440-47-3	Cobalt CAS 7440-48-4	Copper CAS 7440-50-8	Iron CAS 7439-89-6	Lead CAS 7439-92-1	Magnesium CAS 7439-95-4	Manganese CAS 7439-96-5	Nickel CAS 7440-02-0	Potassium CAS 7440-09-7	Selenium CAS 7782-49-2	Silver CAS 7440-22-4	Sodium CAS 7440-23-5	Thallium CAS 7440-28-0		Zinc CAS 7440-66-6	Mercury CAS 7439-97-6
					Regulatory Limits																						
200 ^a	6 ^b	10 ^b	1000 ^a	4 ^b	5 ^b	N/A	50 ^a	50 ^a	1000 ^a	300 ^b	15 ^b	N/A	50 ^b	200 ^a	N/A	50 ^a	50 ^a	N/A	2 ^b	5,000 ^b	2 ^c						
TMW39D	TMW39D042015	Normal	North Bedrock	4/6/2015	31 UJ	0.62 J	0.33 J	11	0.24 U	0.40 U	55000	1.5 U	0.10 U	1.5 U	30 UJ	0.50 U	9400	11	0.90 U	1400 J	4.8 J	0.10 U	600000	0.20 U	6.0 UJ	0.080 U	
	DTW39D042015	Duplicate	North Bedrock	4/6/2015	19 J	0.60 UJ	1.0 UJ	11	0.24 U	0.40 U	53000	1.5 U	0.10 U	1.5 U	34 J	0.50 U	9300	12	0.90 U	1400 J	4.4 J	0.10 U	610000	0.20 U	2.1 J	0.080 U	
	TMW39D102014	Normal	North Bedrock	10/30/2014	31 U	0.60 U	0.36 J	7.9	0.24 U	0.12 U	18000	1.5 U	0.10 U	1.5 U	55 J	0.50 U	1700	57	0.90 U	1300 J	2.0 U	0.10 U	800000	0.062 J	6.0 U	0.080 U	
	TMW39D042014	Normal	North Bedrock	4/16/2014	31 U	0.60 U	1.0 U	7.9	0.24 U	0.12 U	20000	1.5 U	0.10 U	1.5 U	30 U	0.50 U	2200	57	0.90 U	1400 J	2.0 U	0.10 U	820000	0.20 U	6.0 U	0.080 U	
	TMW39D102013	Normal	North Bedrock	11/6/2013	31 U	0.60 U	1.0 U	9.4	0.24 U	0.12 U	19000	1.5 U	0.10 U	1.0 J	30 U	0.50 UJ	2000	56	0.90 U	1300 J	2.0 U	0.10 UJ	750000	0.20 U	6.0 U	0.080 U	
TMW40D	TMW40D042015	Normal	North Bedrock	4/9/2015	31 U	0.60 U	0.37 J	10	0.24 U	0.40 U	15000	1.5 U	0.075 J	1.5 U	30 U	0.50 U	2100	52	0.72 J	1300 J	3.1 J	0.10 U	680000	0.20 U	4.6 J	0.080 U	
	TMW40D102014	Normal	North Bedrock	10/31/2014	31 U	0.60 U	0.56 J	9.8	0.24 U	0.12 U	14000	1.5 U	0.10 U	1.5 U	30 UJ	0.50 U	1900	53	0.90 U	1000 J	3.1 J	0.10 U	810000	0.20 U	3.2 J	0.080 U	
	TMW40D042014	Normal	North Bedrock	4/17/2014	31 U	0.60 U	0.46 J	8.4	0.24 U	0.12 U	16000	1.5 U	0.10 U	0.93 J	30 U	0.50 U	2000	54	0.51 J	1400 J	3.4 J	0.10 UJ	750000	0.20 U	3.9 J	0.084 U	
	TMW40D102013	Normal	North Bedrock	11/7/2013	31 U	0.44 J	0.38 J	11	0.24 U	0.12 U	13000	1.5 U	0.10 U	1.5 J	30 U	0.50 U	1700	52	0.90 U	1300 J	3.7 J	0.10 U	760000	0.20 U	4.4 J	0.080 U	
TMW48	TMW48042015	Normal	North Bedrock	4/6/2015	31 U	0.60 U	0.72 J	11	0.24 U	0.40 U	79000	1.5 U	0.10 U	1.5 U	30 U	0.50 U	16000	24	0.64 J	1100 J	7.5	0.10 U	550000	0.20 U	11 J	0.080 U	
	TMW48102014	Normal	North Bedrock	10/30/2014	31 U	0.60 U	0.77 J	11	0.24 U	0.12 U	82000	1.5 U	0.10 U	0.72 J	30 U	0.50 U	15000	16	0.97 J	1300 J	7.5	0.10 U	570000	0.20 U	12 J	0.080 U	
	TMW48042014	Normal	North Bedrock	4/17/2014	31 U	0.60 UJ	0.63 J	11	0.24 U	0.12 U	80000	1.5 U	0.10 UJ	0.96 J	30 U	0.50 U	17000	7.9	0.39 J	1400 J	7.4	0.10 UJ	550000	0.071 J	9.7 J	0.081 U	
	DTW48042014	Duplicate	North Bedrock	4/17/2014	31 U	0.42 J	0.79 J	13	0.24 U	0.12 U	80000	1.5 U	0.061 UJ	0.60 J	30 U	0.50 U	17000	8.7	0.43 J	1500 J	8.3	0.10 UJ	550000	0.15 J	12 J	0.074 U	
	TMW48102013	Normal	North Bedrock	10/31/2013	31 U	0.60 U	0.55 J	11	0.24 U	0.12 U	78000	1.5 U	0.10 U	0.67 J	30 U	0.50 U	16000	5.0	0.33 J	1400 J	7.8	0.10 U	520000	0.078 U	11 U	0.080 U	
	DTW48102013	Duplicate	North Bedrock	10/31/2013	31 U	0.60 U	0.54 J	12	0.24 U	0.12 U	80000	1.5 U	0.10 U	0.88 J	30 U	0.50 U	16000	7.4	0.66 J	1400 J	7.5	0.10 U	550000	0.10 U	11 U	0.080 U	
TMW49	TMW49042015	Normal	North Bedrock	4/9/2015	31 U	0.60 U	0.57 J	14	0.24 U	0.40 U	81000	1.5 U	0.10 U	1.3 J	30 U	0.50 U	15000	0.90 U	0.31 J	1600 J	19	0.10 U	560000	0.20 U	6.8 J	0.080 U	
	TMW49102014	Normal	North Bedrock	10/30/2014	31 U	0.60 U	0.57 J	14	0.24 U	0.12 U	81000	0.59 J	0.10 U	1.2 J	30 U	0.50 U	13000	0.90 U	0.46 J	1300 J	21	0.10 U	590000	0.20 U	8.7 J	0.080 U	
	TMW49042014	Normal	North Bedrock	4/16/2014	31 U	0.60 U	0.52 J	13	0.24 U	0.12 U	79000	0.51 J	0.10 U	1.4 J	30 U	0.50 U	14000	0.90 U	1.7 J	1400 J	21	0.10 U	610000	0.20 U	10 J	0.080 U	
	TMW49102013	Normal	North Bedrock	11/6/2013	31 U	0.60 U	0.55 J	11	0.24 U	0.12 U	71000	1.5 UJ	0.10 U	0.99 J	30 U	0.50 UJ	12000	0.90 UJ	0.32 J	1400 J	19	0.10 UJ	610000	0.20 U	5.9 J	0.080 U	
	DTW49102013	Duplicate	North Bedrock	11/6/2013	31 U	0.60 U	0.57 J	11	0.24 U	0.12 U	75000	1.8 J	0.10 U	1.2 J	30 U	0.50 UJ	12000	0.33 J	0.45 J	1500 J	20	0.10 UJ	610000	0.20 U	6.5 J	0.080 U	

Notes:

^a New Mexico Water Quality Control Commission - New Mexico Administrative Code Title 20, Chapter 6, Part 2, Section 3103

^b EPA Maximum Contaminant Level - Code of Federal Regulations Title 40, Parts 141, 142, and 143

^c EPA Region 6, Regional Screening Levels, November (formerly Human Health Medium Specific Screening Levels) (EPA, 2014)

^d Well not sampled for dissolved metals analysis due to insufficient volume of sample in well despite repeated attempts to collect sample.

Bold indicates analyte was positively detected above regulatory limits.

µg/L = microgram per liter

CAS = Chemical Abstracts Service (registry number)

EPA = U.S. Environmental Protection Agency

N/A = not applicable

J = analyte was positively identified; reported value is estimated.

U = non-detected result reported at the limit of detection.

UJ = analyte was not detected; however the result is estimated because of discrepancies in meeting certain analyte-specific quality control criteria.

TABLE 5-8
Summary of Total Metals Analytical Detections (Page 7 of 7)
 Groundwater Periodic Monitoring Report January to June 2015 Fort Wingate Depot Activity

Well Identifier	Sample Identifier	Sample Type	Groundwater Zone	Sample Date	EPA Method 6010/6020 (µg/L)																						EPA Method 7470 (µg/L)
					Aluminum CAS 7429-90-5	Antimony CAS 7440-36-0	Arsenic CAS 7440-38-2	Barium CAS 7440-39-3	Beryllium CAS 7440-41-7	Cadmium CAS 7440-43-9	Calcium CAS 7440-70-2	Chromium CAS 7440-47-3	Cobalt CAS 7440-48-4	Copper CAS 7440-50-8	Iron CAS 7439-89-6	Lead CAS 7439-92-1	Magnesium CAS 7439-95-4	Manganese CAS 7439-96-5	Nickel CAS 7440-02-0	Potassium CAS 7440-09-7	Selenium CAS 7782-49-2	Silver CAS 7440-22-4	Sodium CAS 7440-23-5	Thallium CAS 7440-28-0	Zinc CAS 7440-66-6	Mercury CAS 7439-97-6	
					Regulatory Limits																						
200 ^a	6 ^b	10 ^b	3,800 ^c	4 ^b	5 ^b	N/A	50 ^a	50 ^a	1000 ^a	300 ^a	15 ^b	N/A	50 ^a	200 ^a	N/A	50 ^a	50 ^a	N/A	2 ^b	5,000 ^b	2 ^c						
TMW40D	TMW40D042015	Normal	North Bedrock	4/9/2015	28 J	0.60 U	0.41 J	12	0.24 U	0.40 U	15000	1.5 U	0.065 J	1.5 U	30 U	0.50 U	2000	55	0.90 U	1100 J	3.3 J	0.10 U	650000 J	0.20 U	4.1 J	0.080 U	
	TMW40D102014	Normal	North Bedrock	10/31/2014	31 U	0.60 U	0.56 J	11	0.24 U	0.12 U	15000	1.5 U	0.061 J	0.85 J	30 U	0.50 U	1900	56	0.90 U	1100 J	4.0 J	0.10 U	740000	0.20 U	6.8 J	0.049 J	
	TMW40D042014	Normal	North Bedrock	4/17/2014	18 J	0.60 U	0.40 J	11	0.24 U	0.12 U	15000	1.5 U	0.10 U	1.5 U	30 U	0.50 U	2000	53	0.90 U	1400 J	3.6 J	0.10 U	730000	0.20 U	4.5 J	0.080 U	
	TMW40D102013	Normal	North Bedrock	11/7/2013	31 U	0.60 U	0.48 J	11	0.24 U	0.12 U	15000	1.5 U	0.10 U	1.5 U	30 U	0.50 U	1900	49	0.90 U	1400 J	3.1 J	0.10 U	750000	0.062 J	4.1 J	0.080 U	
TMW48	TMW48042015	Normal	North Bedrock	4/6/2015	31 U	0.60 U	0.74 J	12	0.24 U	0.40 U	58000	1.5 U	0.10 U	0.96 J	30 U	0.50 U	11000	34	0.59 J	1300 J	6.5	0.10 U	590000	0.20 U	12 J	0.080 U	
	TMW48102014	Normal	North Bedrock	10/30/2014	31 U	0.60 U	0.75 J	13	0.24 U	0.12 U	83000	1.5 U	0.10 U	0.69 J	78 J	0.50 U	15000	19	0.42 J	1300 J	8.5	0.10 U	600000	0.20 U	11 J	0.080 U	
	TMW48042014	Normal	North Bedrock	4/17/2014	31 U	0.60 UJ	0.69 J	13	0.24 U	0.12 U	80000	1.5 UJ	0.10 U	0.62 J	30 U	0.50 U	16000	13	0.46 J	1300 J	7.8	0.10 UJ	540000	0.20 UJ	12 J	0.080 U	
	DTW48042014	Duplicate	North Bedrock	4/17/2014	31 U	0.57 J	0.66 J	13	0.24 U	0.12 U	78000	0.51 J	0.10 U	0.79 J	30 U	0.50 U	15000	12	0.53 J	1500 J	7.7	0.076 J	550000	0.12 UJ	11 J	0.080 U	
	TMW48102013	Normal	North Bedrock	10/31/2013	21 U	0.60 U	0.69 J	12	0.24 U	0.12 U	77000	1.5 U	0.10 U	0.77 J	30 U	0.50 U	16000	6.3	0.58 J	1400 J	8.6	0.10 U	540000	0.20 U	12 U	0.080 U	
DTW48102013	Duplicate	North Bedrock	10/31/2013	30 U	0.60 U	0.69 J	12	0.24 U	0.12 U	76000	1.5 U	0.10 U	0.82 J	30 U	0.50 U	15000	6.3	0.87 J	1500 J	8.6	0.10 U	540000	0.20 U	12 U	0.080 U		
TMW49	TMW49042015	Normal	North Bedrock	4/9/2015	31 U	0.60 U	0.78 J	11	0.24 U	0.40 U	64000	0.54 J	0.088 J	1.1 J	89 J	0.18 J	11000	0.55 J	1.5 J	1500 J	24	0.066 J	670000 J	0.084 U	4.5 J	0.080 U	
	TMW49102014	Normal	North Bedrock	10/30/2014	31 U	0.60 U	0.70 J	14	0.24 U	0.12 U	87000	0.62 J	0.10 U	1.3 J	30 U	0.50 U	14000	0.37 J	0.43 J	1400 J	24	0.10 U	600000	0.20 U	12 J	0.080 U	
	TMW49042014	Normal	North Bedrock	4/16/2014	25 J	0.60 U	0.67 J	16	0.24 U	0.12 U	81000	0.69 J	0.10 U	1.2 J	30 U	0.50 U	14000	0.56 J	1.9 J	1400 J	20	0.41 J	580000	0.20 U	9.4 J	0.080 U	
	TMW49102013	Normal	North Bedrock	11/6/2013	45 J	0.60 U	0.60 J	12	0.24 U	0.12 U	74000	0.60 J	0.10 U	1.2 J	52 J	0.50 U	12000	1.3 J	0.35 J	1400 J	19	0.10 U	590000	0.20 U	6.5 J	0.080 U	
DTW49102013	Duplicate	North Bedrock	11/6/2013	47 J	0.60 U	0.60 J	12	0.24 U	0.12 U	74000	0.51 J	0.10 U	1.1 J	24 J	0.50 U	12000	1.3 J	0.46 J	1400 J	19	0.10 U	610000	0.20 U	6.5 J	0.080 U		

Notes:

^a New Mexico Water Quality Control Commission - New Mexico Administrative Code Title 20, Chapter 6, Part 2, Section 3103

^b EPA Maximum Contaminant Level - Code of Federal Regulations Title 40, Parts 141, 142, and 143

^c EPA Region 6, Regional Screening Levels, November (Formerly Human Health Medium Specific Screening Levels) (EPA, 2014)

Bold indicates analyte was positively detected above regulatory limits.

µg/L = microgram(s) per liter

CAS = Chemical Abstracts Service (registry number)

EPA = U.S. Environmental Protection Agency

N/A = not applicable

J = analyte was positively identified; reported value is estimated.

U = non-detected result reported at the limit of detection.

UJ = analyte was not detected; however, the result is estimated because of discrepancies in meeting certain analyte-specific quality control criteria.

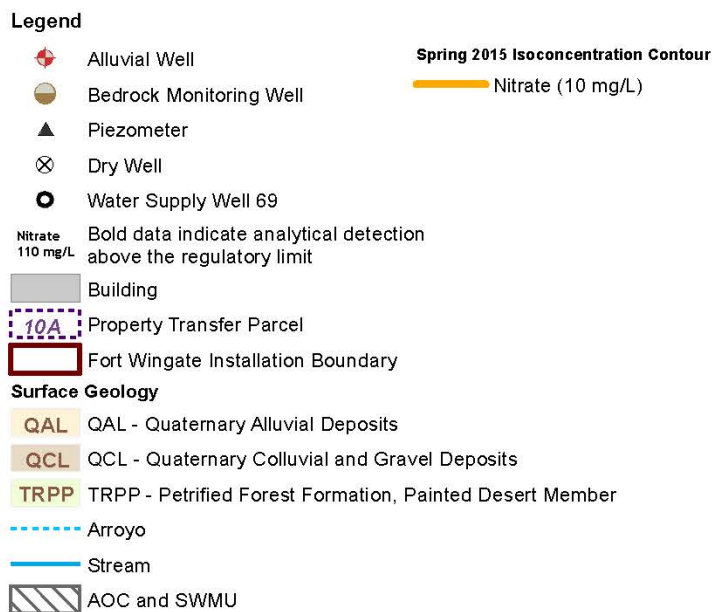
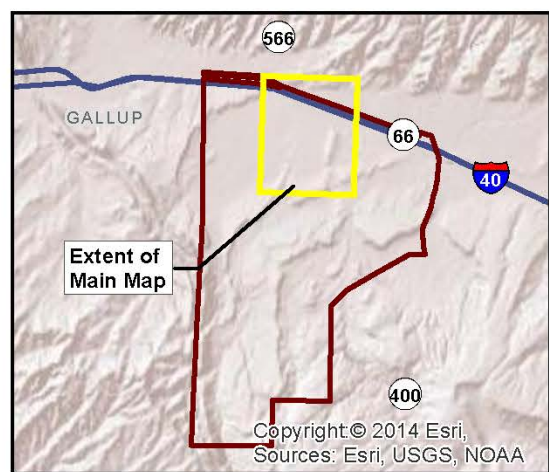
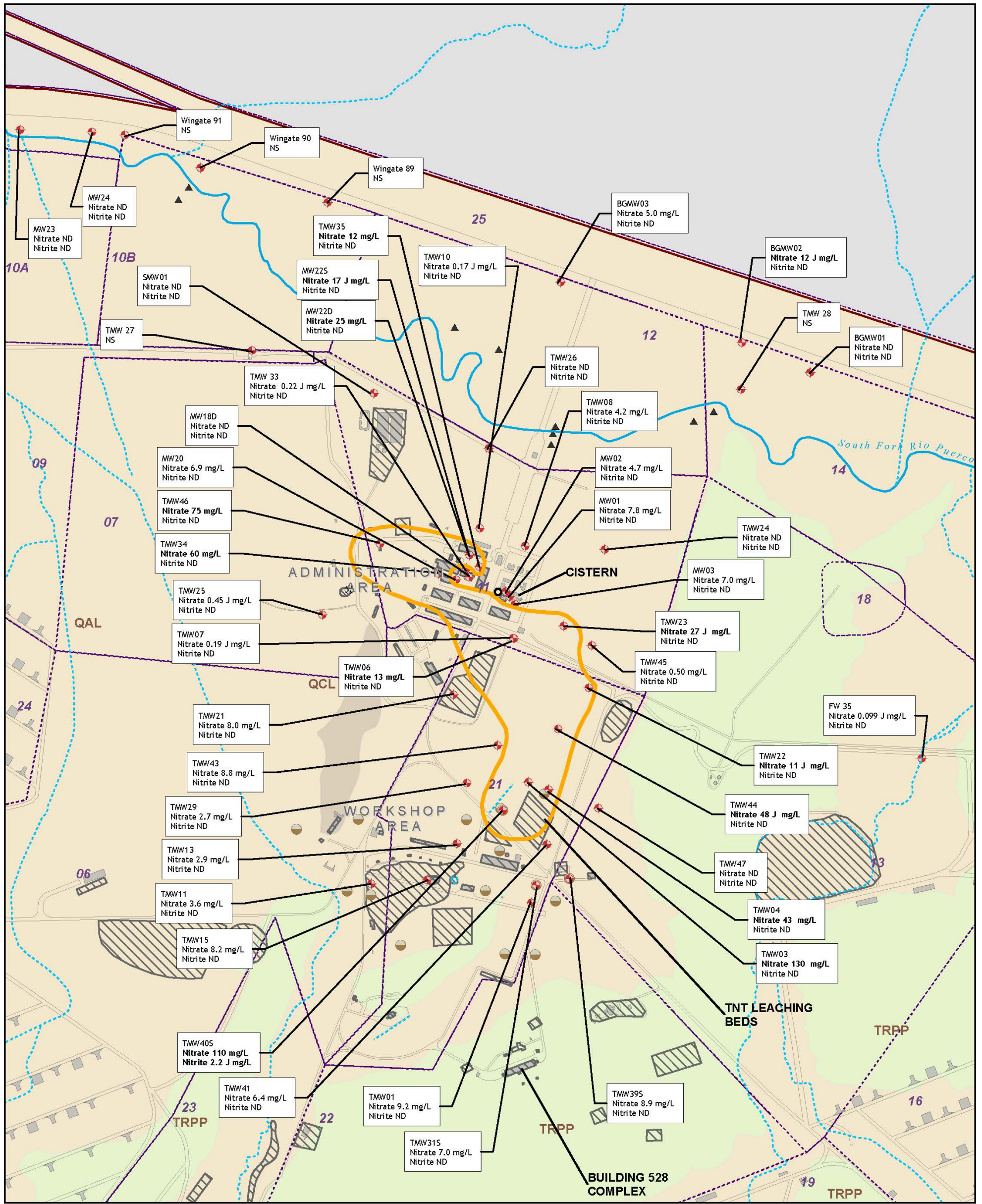
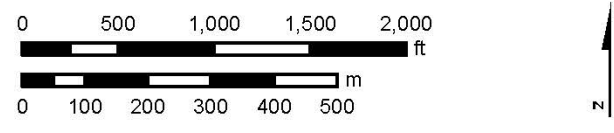
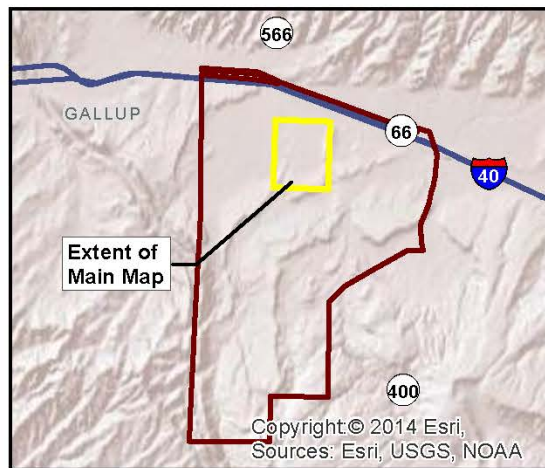
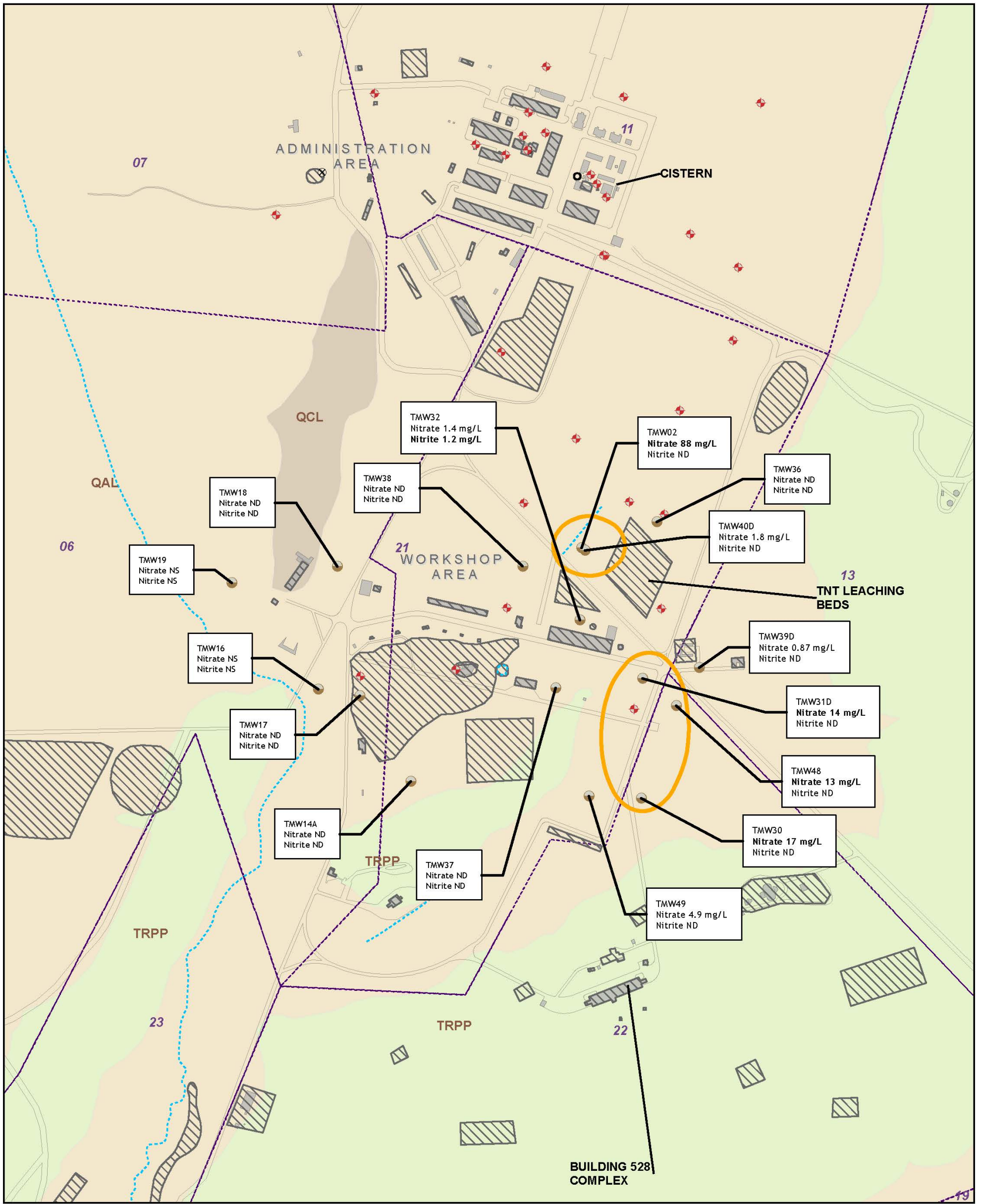


FIGURE 5-1
Spring 2015 Northern Area Nitrate and Nitrite Concentrations in Alluvial Groundwater
 Groundwater Periodic Monitoring Report for January to June 2015
 Fort Wingate Depot Activity, McKinley County, New Mexico

Notes:
 AOC = area of concern
 J = analyte was positively identified;
 reported value is estimated
 mg/L = milligram(s) per liter
 ND = not detected
 NS = not sampled
 SWMU = solid waste management unit
 TNT = 2,4,6-trinitrotoluene





Legend

- Alluvial Well
 - Bedrock Monitoring Well
 - Dry Well
 - Water Supply Well 69
 - Nitrate 16 mg/L**
 - Building
 - Property Transfer Parcel
 - Fort Wingate Installation Boundary
 - Surface Geology**
 - QAL - Quaternary Alluvial Deposits
 - QCL - Quaternary Colluvial and Gravel Deposits
 - TRPP - Petrified Forest Formation, Painted Desert Member
 - Arroyo
 - AOC and SWMU
- Spring 2015 Isoconcentration Contours**
- Nitrate (10 mg/L)

FIGURE 5-2
Spring 2015 Northern Area Nitrate and Nitrite Concentrations in Bedrock Groundwater
 Groundwater Periodic Monitoring Report for January to June 2015
 Fort Wingate Depot Activity, McKinley County, New Mexico

Notes:
 AOC = area of concern
 J = analyte was positively identified;
 reported value is estimated
 mg/L = milligram(s) per liter
 ND = not detected
 NS = not sampled
 SWMU = solid waste management unit
 TNT = 2,4,6-trinitrotoluene



State Plane Coordinate System, New Mexico West,
 North American Datum 1983, US Feet.

Data Sources:
 Roads, Railroad: Tele Atlas GDT-Dynamap, 2008;
 Populated Places: ESRI 2005;
 Fort Wingate Environmental Restoration Detail: USACE.

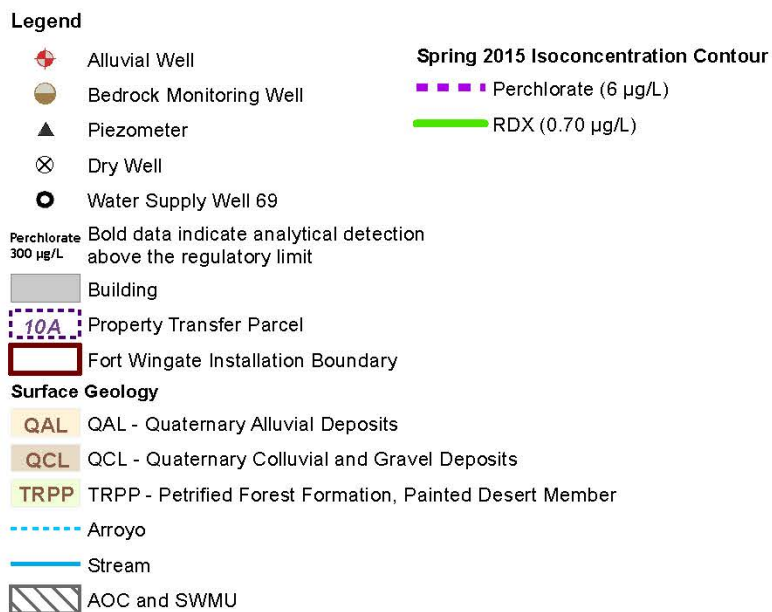
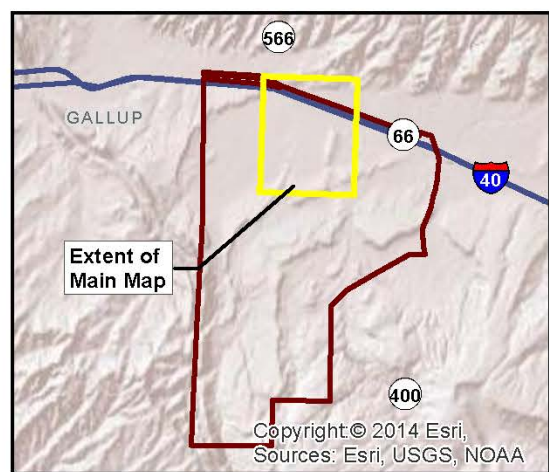
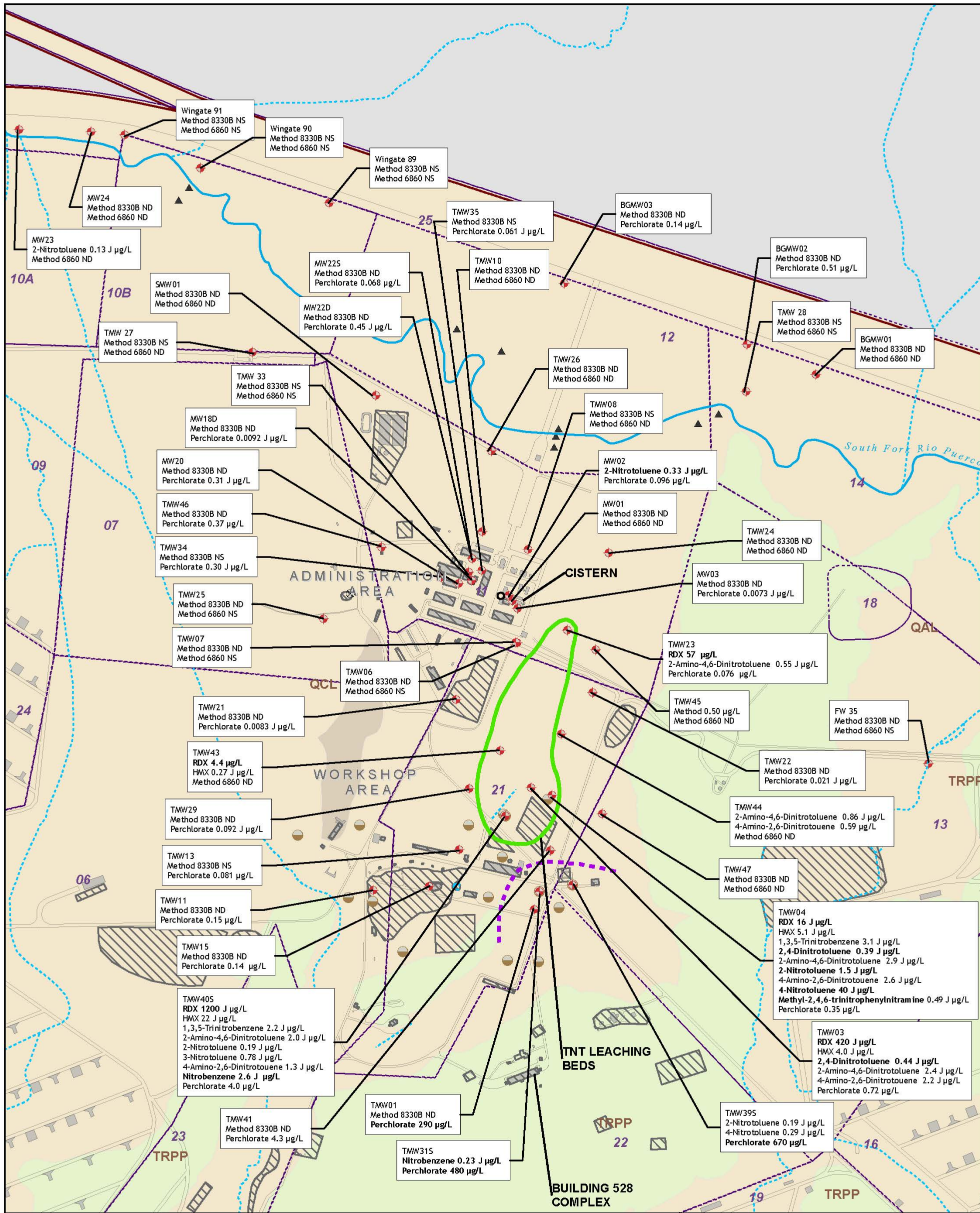


FIGURE 5-3
Spring 2015 Northern Area Explosives and Perchlorate Concentrations in Alluvial Groundwater
 Groundwater Periodic Monitoring Report for January to June 2015
 Fort Wingate Depot Activity, McKinley County, New Mexico

Notes:
 AOC = area of concern
 J = analyte was positively identified; reported value is estimated
 ND = not detected
 NS = not sampled
 SWMU = solid waste management unit
 TNT = 2,4,6-trinitrotoluene
 µg/L = microgram(s) per liter



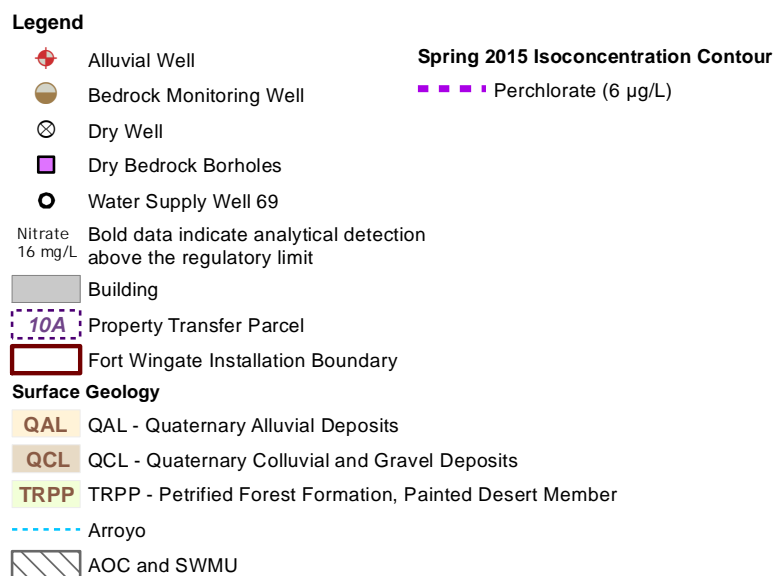
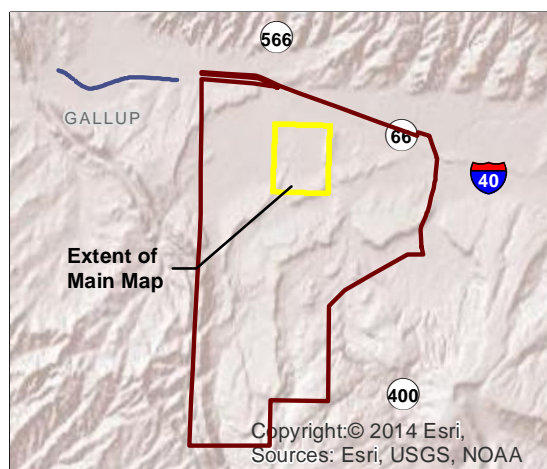
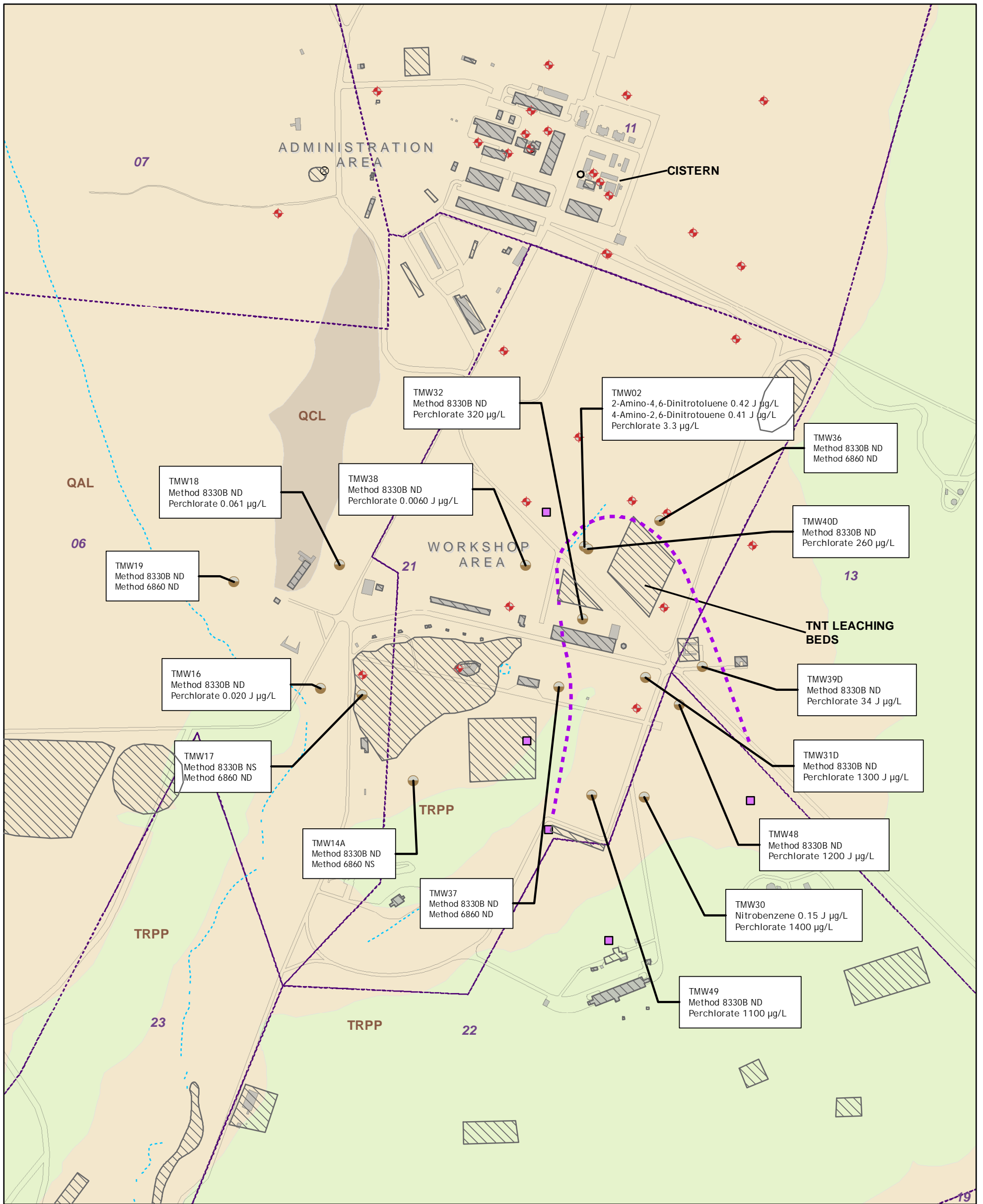
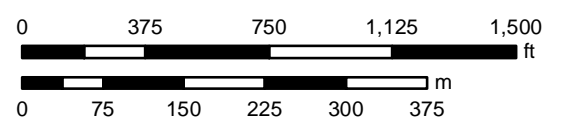


FIGURE 5-4
Spring 2015 Northern Area Explosives and Perchlorate Concentrations in Bedrock Groundwater
 Groundwater Periodic Monitoring Report for January to June 2015
Fort Wingate Depot Activity, McKinley County, New Mexico

Notes:
 AOC = area of concern
 J = analyte was positively identified; reported value is estimated
 ND = not detected
 NS = not sampled
 SWMU = solid waste management unit
 TNT = 2,4,6-trinitrotoluene
 µg/L = microgram(s) per liter



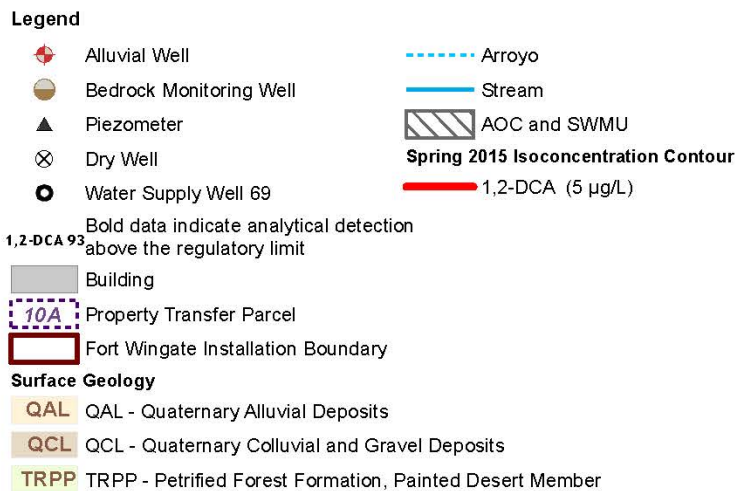
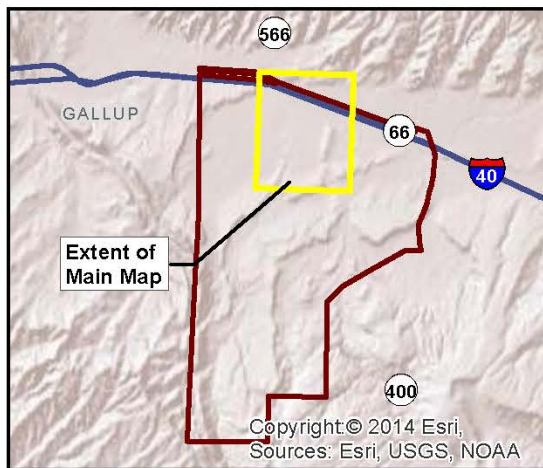
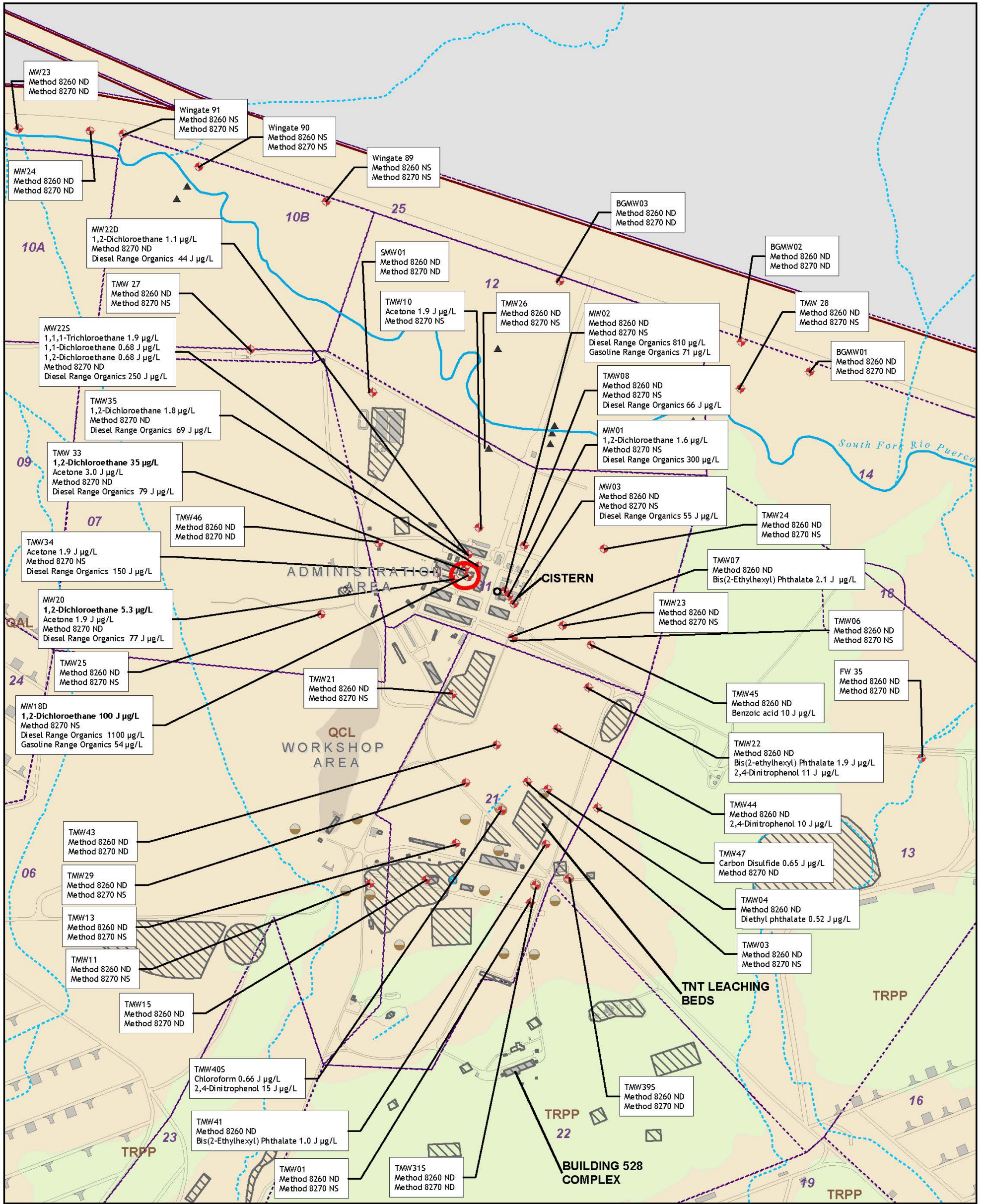
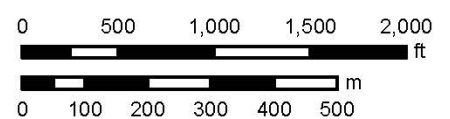


FIGURE 5-5
Spring 2015 Northern Area VOC, SVOC and TPH Concentrations in Alluvial Groundwater
 Groundwater Periodic Monitoring Report for January to June 2015
 Fort Wingate Depot Activity, McKinley County, New Mexico



State Plane Coordinate System, New Mexico West,
 North American Datum 1983, US Feet.

Data Sources:
 Roads, Railroad: Tele Atlas GDT-Dynamap, 2008;
 Populated Places: ESRI 2005;
 Fort Wingate Environmental Restoration Detail: USACE.

Abbreviations and Acronyms:

AOC = area of concern, ND = not detected, NS = not sampled, SVOC = semivolatile organic compound, SWMU = solid waste management unit, TNT = 2,4,6-trinitrotoluene, TPH = total petroleum hydrocarbons, VOC = volatile organic compound, µg/L = microgram(s) per liter

Notes:

- 1) Laboratory data flag J = analyte was positively identified; reported value is estimated
- 2) No VOCs or SVOCs were detected at Well FW31 (FW31 is located approximately 4,800 feet southeast of map view).
- 3) Organochlorine pesticides (by Method SW8081A) were not detected in any monitoring well.
- 4) Only wells adjacent to the former fueling facility and newly installed wells were analyzed for total petroleum hydrocarbons. For list of wells, see Table 2-1.
- 5) Duplicate sample for MW23 is anomalous and data are not used in this figure

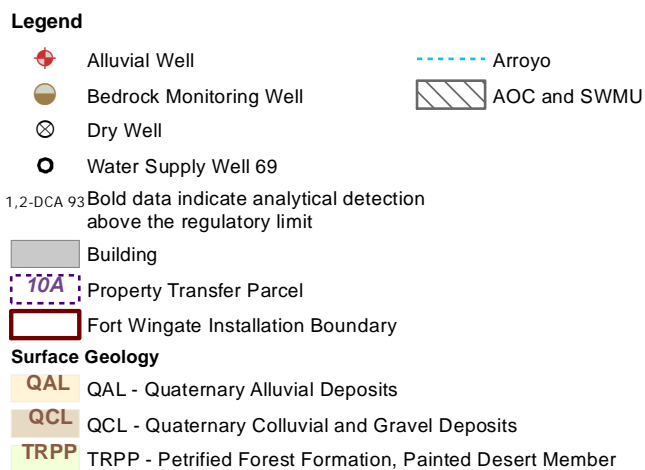
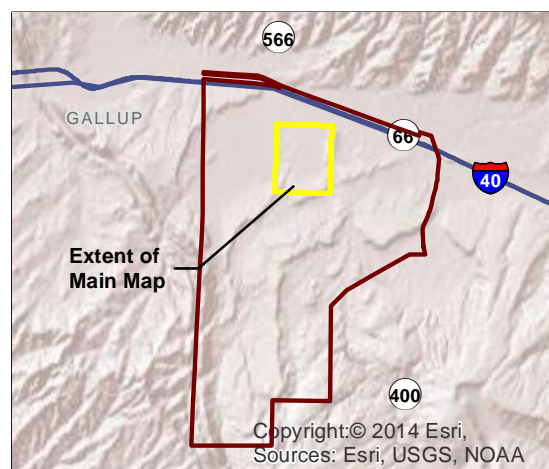
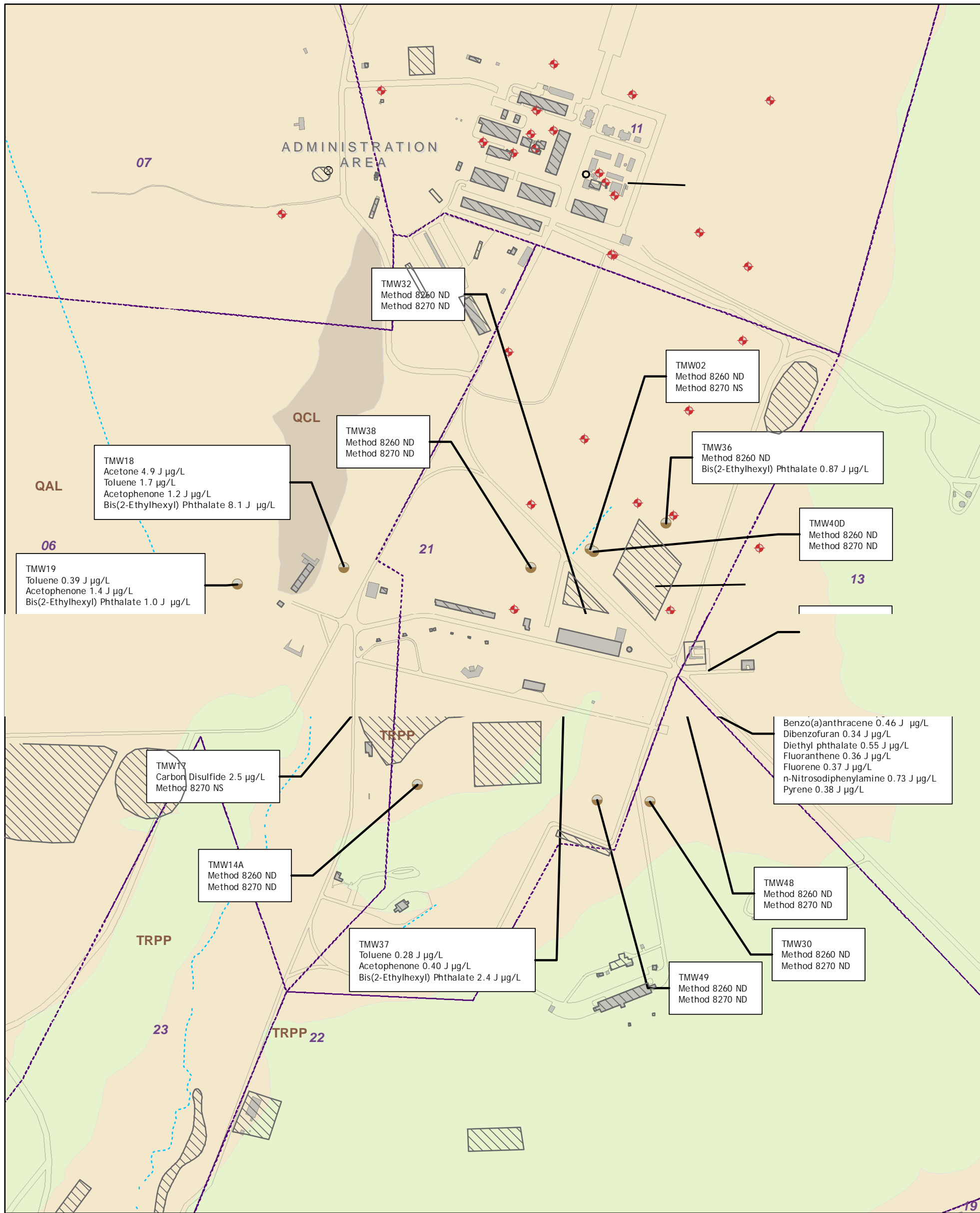
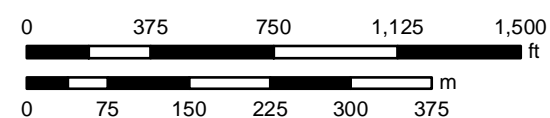


FIGURE 5-6
Spring 2015 Northern Area VOC, SVOC and TPH Concentrations in Bedrock Groundwater

Groundwater Periodic Monitoring Report for January to June 2015
Fort Wingate Depot Activity, McKinley County, New Mexico



State Plane Coordinate System, New Mexico West, North American Datum 1983, US Feet.

Data Sources:
Roads, Railroad: Tele Atlas GDT-Dynamap, 2008;
Populated Places: ESRI 2005;
Fort Wingate Environmental Restoration Detail: USACE.

Abbreviations and Acronyms:

AOC = area of concern, ND = not detected, NS = not sampled, SVOC = semivolatle organic compound, SWMU = solid waste management unit, TNT = 2,4,6-trinitrotoluene, TPH = total petroleum hydrocarbons, VOC = volatile organic compound, µg/L = microgram(s) per liter

Notes:

J = analyte was positively identified; reported value is estimated
Organochlorine pesticides (by Method SW8081A) were not detected in any monitoring well. For list of wells, see Table 2-1.

1 6.0 Summary and Recommendations

2 6.1 Summary

3 Two groundwater elevation surveys and one groundwater sampling event were performed during the monitoring
4 period from January through June 2015. Groundwater elevation surveys were conducted on January 20 and 21,
5 2015, and March 30, 2015. The groundwater sampling event was conducted from March 31 to April 10, 2015.

6 Shallow groundwater in the Northern Area of FWDA is present in both the unconsolidated alluvium and bedrock.
7 The groundwater flow direction in the alluvium is from potentiometric highs in the east, north, and south toward
8 a potentiometric low west of the Administration Area. A small groundwater mound is present in the
9 Administration Area near monitoring wells MW01, MW02, and MW03. This groundwater mound has been
10 previously attributed to a leaking water storage cistern in the Administration Area. The cistern is no longer in
11 service. Hydraulic gradients ranged from 0.003 ft/ft to 0.03 ft/ft in the alluvial groundwater unit. Groundwater in
12 the bedrock appears to flow radially to a potentiometric low south of monitoring well TMW32 in the eastern
13 portion of the Workshop Area and to the west in the western portion of the Workshop Area, with an interpreted
14 geologic structural feature impeding flow between the two areas. Hydraulic gradients in the bedrock unit were
15 approximately 0.005 ft/ft to 0.006 ft/ft in the Workshop Area. The groundwater elevation in the bedrock
16 groundwater unit is slightly higher than in the alluvial groundwater unit and exists under hydraulically confined
17 conditions under most of the Northern Area. The confining unit for the bedrock aquifer is missing in the vicinity of
18 monitoring wells TMW30 and TMW48.

19 Nitrate, perchlorate, explosives, one VOC, one SVOC, and metals were detected in groundwater samples at
20 concentrations above the cleanup or regulatory screening levels. Groundwater contaminant plumes at FWDA
21 appear to be limited to the Northern Area. Six groundwater contaminant plumes have been identified: two nitrate
22 plumes, one in the alluvial groundwater unit and one in the bedrock groundwater unit; two perchlorate plumes,
23 one in the alluvial groundwater unit and one in the bedrock groundwater unit; an explosives plume in the alluvial
24 groundwater unit; and a 1,2-dichloroethane plume in the alluvial groundwater unit.

25 The highest concentrations of nitrate contamination occur in alluvial groundwater units of the Northern Area. The
26 nitrate plume in the alluvial groundwater unit appears to originate from the TNT Leaching Beds (SWMU 1) and
27 extends downgradient to the Administration Area. The groundwater concentrations in the alluvial nitrate plume
28 decline in the vicinity of the former leaking water storage cistern and the installation water supply well
29 (monitoring wells MW01 and MW02). The extent of the alluvial nitrate plume is not defined west of the
30 Administration Area. The bedrock nitrate plume is also present at the TNT Leaching Beds (SWMU 1) but extends
31 upgradient to the south. A portion of the bedrock nitrate plume is collocated with the bedrock perchlorate plume.
32 The collocated perchlorate and nitrate plumes appear to have a common source at the Building 528 Complex
33 (SWMU 27). In addition, groundwater nitrate concentrations were detected above the screening level in the
34 sample from background monitoring well BGMW02. This well is located on the boundary of FWDA and upgradient
35 of any SWMUs or AOCs. Therefore, the source of nitrate in monitoring well BGMW02 does not appear to originate
36 from FWDA.

37 The highest perchlorate concentrations were detected in groundwater samples from the bedrock groundwater
38 unit in the Workshop Area. The northern boundary of the bedrock perchlorate plume has not been defined. The
39 alluvial perchlorate plume is located in the same vicinity as the bedrock plume. Historical releases of perchlorate-
40 containing materials at the Building 528 Complex (SWMU 27) are believed to be the common source of both
41 plumes in the alluvial and bedrock groundwater units.

42 RDX is the primary explosive compound of interest. This compound is consistently detected at concentrations
43 above screening levels in the Workshop and eastern Administration Areas. The explosives plume in the alluvial
44 groundwater unit appears to originate from the TNT Leaching Beds (SWMU 1) in the Workshop Area.

6.0 Summary and Recommendations

- 1 Groundwater concentrations of explosive compounds (primarily RDX) attenuate to levels below the screening
2 criteria within 2,500 feet downgradient of the TNT Leaching Beds.
- 3 One VOC was detected in groundwater samples at concentrations above regulatory cleanup standards. The
4 compound 1,2-dichloroethane was historically used as a gasoline additive and degreasing solvent. The
5 1,2-dichloroethane plume in the alluvial groundwater unit is limited to a group of wells near a former fueling
6 facility (SWMU 45, Building 6) in the Administration Area. Groundwater samples collected from three alluvial
7 monitoring wells had concentrations above the EPA MCL of 5 µg/L. No other VOCs were detected above cleanup
8 standards. The SVOCs 1,2-diphenylhydrazine and benzo(a)anthracene were detected at one bedrock monitoring
9 well at concentrations above RSLs. These detections were not consistent with historical data and are not
10 attributed to a groundwater plume. The SVOC bis(2-ethylhexyl) phthalate was detected at concentrations above
11 the regulatory cleanup standard. The detection of bis(2-ethylhexyl) phthalate is likely attributable to sampling and
12 laboratory contamination.
- 13 Dissolved aluminum, arsenic, iron, manganese, and selenium were detected above regulatory screening levels in
14 multiple groundwater samples. Because background groundwater concentrations have not been accepted for
15 FWDA, it cannot clearly be demonstrated whether the detected concentrations are a result of natural conditions
16 or anthropogenic sources of contamination. A background evaluation of FWDA groundwater was issued to NMED
17 in September 2014 and is in review.
- 18 Additional delineation and investigation for groundwater plumes at FWDA are planned. A Supplemental RCRA
19 Facility Investigation Work Plan was submitted to NMED in February 2015. This document proposes locations for
20 additional groundwater monitoring wells necessary to further delineate the alluvial and bedrock groundwater
21 contaminant plumes.

22 6.2 Recommendations

- 23 Based on a review of the monitoring activities and results, several recommendations were developed to address
24 data gaps and optimize the groundwater monitoring program at FWDA. The following recommendations are
25 made for field sampling procedures:
- 26 ○ Abandon alluvial aquifer monitoring wells MW18S and FW26. These two monitoring wells have been dry or
27 have had water levels below the bottom of the well screen for more than eight water level monitoring events.
 - 28 ○ Suspend groundwater sampling activities at monitoring wells containing less than 1 foot of saturated well
29 screen. The stagnant water present in the well sump cannot be effectively purged, and groundwater samples
30 collected from these wells are not believed to be representative of formation water. Two alluvial aquifer
31 monitoring wells, MW22S and TMW40S, currently included in the monitoring program meet this criterion and
32 monitoring well FW35 is approaching this limit. Alluvial monitoring well MW22S is collocated with MW22D in
33 the same borehole with a screen depth 16 feet above that of MW22D. It is recommended that sampling be
34 suspended from MW22S due to lack of saturated well screen. Monitoring well MW22D and the surrounding
35 monitoring wells TMW10, TMW33, and TMW35 provide sufficient monitoring coverage of the alluvial aquifer
36 in this area. It is recommended that sampling of TMW40S be suspended due to the lack of saturated well
37 screen. Well TMW40S will be replaced by one or more alluvial aquifer monitoring wells proposed in the
38 Supplemental RFI Work Plan.
- 39 The following recommendations are made for the analytical program, data analysis, and investigation:
- 40 ○ Obtain regulatory consensus on the results of the FWDA background study. Implementation of background
41 study findings is necessary to determine whether dissolved metals concentrations detected above regulatory
42 screening levels are naturally occurring or the result of waste management activities at FWDA. A background
43 evaluation of FWDA groundwater was issued to NMED in September 2014.
 - 44 ○ Perform additional investigation of the alluvial aquifer nitrate plume to define the western boundary of the
45 plume. The nitrate plume boundaries will be investigated as part of the upcoming Supplemental RFI.

- 1 ○ Perform additional investigation of the bedrock aquifer perchlorate plume to define the northern boundary of
2 the plume. The perchlorate plume boundaries will be investigated as part of the upcoming Supplemental RFI.
- 3 ○ Optimize groundwater monitoring and analysis using detailed data analysis of existing groundwater analytical
4 data using a proven tool such as Monitoring and Remediation Optimization System (MAROS). Groundwater
5 monitoring has been performed systematically at FWDA since 2008, and sufficient data are available to
6 characterize groundwater quality and optimize monitoring to meet specific data quality objectives. Large
7 analytical data sets are being generated by groundwater monitoring, but some of these data are not currently
8 pertinent to any FWDA groundwater contaminant plume.

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