



January 10, 2020

#1C28805

Mr. Paul Chamberlain, Geoscientist
New Mexico Environment Department, Ground Water Quality Bureau
Remediation Oversight Section, State Cleanup Program
1190 St. Francis Drive
P.O. Box 5469
Santa Fe, NM 87502
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RE: Stage 1 Abatement Plan Site Investigation Workplan – Former Ladshaw Explosives Site, Hobbs, Lea County, New Mexico

Dear Mr. Chamberlain:

Souder, Miller & Associates (SMA) is pleased to submit this Stage 1 Abatement Plan Site Investigation Workplan for the former Ladshaw Explosives Facility site, located in Hobbs, Lea County, New Mexico. It is submitted on behalf of Nova Mud, Inc. (Nova) and in response to requirements of the New Mexico Environment Department (NMED), Ground Water Quality Bureau (GWQB). This Stage I Abatement Plan Site Investigation Workplan is submitted in compliance with 20.6.2.4106.C NMAC. Please note per it's counsel, Nova is not admitting liability for any alleged contamination at the former Ladshaw Explosives site. It further asserts other prior owner(s) and identified parties are liable and/or responsible for costs associated with monitoring and/or cleanup of same, and reserves all rights related there to as to said parties.

Site Description and History

Site Description

SMA reviewed NMED-GWQB files related to the facility. Information summarized below is based on the file review.

The former Ladshaw Explosives, Inc. Facility (site) is located directly southeast of the Lea County Regional Airport in Hobbs, New Mexico, as shown on Figure 1. The site is located on the Ogallala Aquifer, at an elevation of approximately 3,700 feet above mean sea level (AMSL). The facility is bounded to the north by the Harry McAdams State Park, the northwest and west by the Lea County Regional Airport, the southeast by the Western Heritage Museum, and the east by commercial and industrial facilities.

The facility is underlain by the Tertiary Ogallala Formation, comprised of alluvial and eolian sedimentary deposits, and other Pliocene to middle Miocene southern High Plains soils. These soils are generally gravelly loam overlying cemented materials. Depth to groundwater in the area has historically been less as shallow as 48 feet, but now is at a depth of approximately 90 feet. Regional drawdown in the aquifer has caused somewhat consistent lowering of groundwater elevations in the Hobbs area. Data from the New Mexico Office of the State Engineer as well as historical data from the Ladshaw site show groundwater flow gradient to be eastward. Surface drainage on the site is generally southward toward the intersection of North A Street and Business Park Boulevard.

Operational History

Ladshaw Explosives, Inc., operated from 1966 to 1986 manufacturing explosives, with discharge of ammonium nitrate and diesel fuel oil (ANFO) into a dry sump located on the site. Beginning in 1987, the site has been under NMED remediation requirements, and the dry sump was connected to the sanitary sewer system located onsite in order to discontinue discharge of contaminants (nitrate and petroleum hydrocarbons) to soil and groundwater. Groundwater

monitoring wells were installed onsite beginning in 1986, and periodic groundwater monitoring from that time through 2007 indicate initially high nitrate concentrations (in excess of 900 milligrams per liter (mg/l), with a general decrease in nitrate concentrations through time.

A groundwater and soil vapor contamination reclamation plan was proposed in 1988 by Reed & Associates (*Reclamation Plan for Ground Water and Vadose Zone, Ladshaw Explosives, Inc.*, Reed & Associates, January 1988), but no systems appear to have been installed onsite. Diesel aboveground storage tanks (ASTs) were removed prior to 2005 and several areas of diesel-stained soil were noted by Cordilleran Compliance Services, Inc (*Results of Assessment Activities Completed at the Ladshaw Explosives, Inc. Property*, Cordilleran Compliance Services, Inc., May 2005), as well as the soil borings in 1987 (*Detailed Hydrologic Investigation, Ladshaw Explosives, Inc., Interim Report #1 and #2*, Reed & Associates, June and September 1987) that indicated nitrate and TKN soil contamination to or below a depth of 36.5 feet in locations adjacent to the original dry sump. A waste disposal pit was also discovered in 2005.

Hydrocarbons have been found in groundwater at low concentrations; however due to the groundwater flow direction and gradient, this is more likely due to the presence of former Hobbs Army Air Base underground storage tanks (USTs) upgradient than activities onsite.

Historical Groundwater Conditions

Historical groundwater analytical results and groundwater elevation data from 1986 to 2007 for monitoring wells installed on and proximal to the former Ladshaw Explosives, Inc., facility were reviewed and tabulated (Table 1, attached).

A hydrograph for site monitoring wells is attached as Figure 3. Groundwater elevation at the site indicates a generally declining trend from 1987 to 2007, the period of regular measurement. Between 2007 and SMA's site inspection in December 2019 (discussed below), groundwater elevation decreased markedly, likely due to regional pumping of the Ogallala Aquifer.

Analytical results indicate monitoring wells MW-1, 2, 3, 4, 5, 6, 7, 8, 10, 13, and 14 have historically exceeded the New Mexico Water Quality Control Commission Regulation (NMWQCCR) standard for nitrate (as N) of 10 milligrams per liter (mg/l) at some point during the monitoring period. Monitoring wells proximal to the discharge location have contained elevated nitrate concentration, up to 919 mg/l in MW-1. Nitrate concentration for select monitoring wells are shown through time on Figure 4. Concentrations varied during the monitoring period, and most monitoring wells indicate a general decreasing trend to near or below the nitrate standard through 2007, with the exception of monitoring wells MW-1 and MW-13 near the discharge point, which remain elevated well above the standard. Figure 2 summarizes groundwater nitrate concentrations for the most recent monitoring event for each well, and also an approximation of the area of the nitrate plume in 2007.

Site Inspection

On December 3, 2019, SMA staff conducted a walk-through inspection of the site (field notes attached). SMA attempted to locate each well and measure depth to water. SMA was only able to measure depth to water in monitoring well MW-1A, which is completed to a depth of approximately 200 feet. The following wells were not found, and are likely destroyed:

- MW-2
- MW-7
- MW-11
- MW-12

Several wells were found, but SMA field staff were unable to remove the cap on the wells. These wells included:

- MW-4
- MW-5

- MW-6
- MW-9
- MW-14
- MW-15

Other wells that were found and able to be uncapped were dry, including:

- MW-1
- MW-3
- MW-8
- MW-10
- MW-13

Wells are in various states of disrepair, some with cracked casing or appearing to have been run over by a vehicle.

Given the depth to water measured in monitoring well MW-1A, it is highly likely that all site monitoring wells are dry, with the exception of MW-6 (total depth 182 feet) and MW-15 (total depth 203 feet).

Conceptual Site Model

Contaminants of concern at the facility include nitrate, total Kjeldahl nitrogen (TKN) and hydrocarbons. These contaminants were present in wastewater generated by the facility. Hydrocarbons have only been detected groundwater during a single monitoring event, and analysis for hydrocarbons was not required by the NMED GWQB in the past for routine monitoring. The primary release mechanism was discharge to an unlined sump and infiltration to groundwater. Potential receptors are site workers and groundwater.

Site Investigation

Task 1 - Monitoring Well Installation

SMA proposes to install two monitoring wells as shown on Figure 2. Proposed monitoring well PMW-16 will be installed near MW-1 and MW-13, in order to determine current groundwater conditions in the area of highest historical nitrate contamination. Proposed monitoring well PMW-17 will be installed down-gradient of the area of highest historical nitrate contamination, in an area near the historical down-gradient edge of the nitrate plume. Existing deep monitoring wells MW-1A, MW-6, and MW-15 will be monitored and used to determine groundwater gradient. Groundwater is expected to be encountered at approximately 90 feet below ground surface.

Health & Safety Plan

SMA has prepared a site-specific Health and Safety Plan pursuant to 29 CFR Part 1910 for all investigation activities, which is attached. SMA will also contact New Mexico One Call to ensure all utilities, including the fiber-optic cable present at the site, are properly marked and located.

NMOSE Well Permits

SMA will obtain monitoring well permits from the New Mexico Office of the State Engineer (NM OSE). All work will be conducted in accordance with the permits.

Site Owner and NMED-GWQB Field Activities Notification

SMA will notify the site owners and representatives of the NMED-GWQB of field activities a minimum of four days (96 hours) prior to commencement of field activities.

Monitoring Well Installation

Monitoring well installation will be conducted in compliance with NMED GWQB *Monitoring Well Construction and Abandonment Guidelines* (March, 2011). SMA will utilize a NMOSE-licensed drilling subcontractor to complete the drilling and well construction activities. SMA will oversee all drilling and well construction activities.

The selected drilling subcontractor will utilize a CME-75 hollow-stem auger (HAS) drilling rig equipped with a CME continuous sampling system to advance 6-inch diameter borings. Soil samples will be collected at 5-foot intervals for field screening of hydrocarbon field headspace.

The monitoring wells will be constructed using 20 feet of two-inch diameter, Schedule 40 PVC, 0.010 slot screen from approximately 10 feet below the water table to approximately 10 feet above the water table. A 10-20 grade silica sand filter pack will be placed to fill the annular space from total depth of the boring to two feet above the top of screen. A minimum of two feet of bentonite chips will be placed above the sand filter pack followed by bentonite/cement grout to the surface. The wells will be completed using above-grade lockable steel well shrouds with two-foot stickup or flush-mount surface completions (depending on surrounding land use) surrounded by a 2-foot minimum radius concrete pad with a minimum 4-inch thickness and sloped so that stormwater flows away from the shroud or flush-mount completion. Each well will be capped with a locking, expandable well plug.

Soil Sampling and Field Analysis Procedures

All soil sampling, screening and preservation protocols will conform to the requirements of 20.6.2.3107B NMAC and SMA Standard Operating Procedures (SOP). Samples will be collected from each soil boring for lithologic description (ASTM D 2488-93, *Standard Practice for Description and Identification of Soils*), and placed in containers for field specific conductance analysis. Soil samples will be collected at five-foot intervals for analysis.

Soil samples collected for laboratory analysis will be analyzed by the following methods:

- **EPA Method 300.0** for nitrate
- **SM 4500-N Org C** for TKN

Monitoring Well Development Procedures

The installed monitoring wells will be developed pursuant to SMA SOP. Specifically, nine well-casing volumes of groundwater will be bailed or pumped from the well or until pH, specific conductance and turbidity stabilize. Wells will be developed within 48 hours of installation.

Decontamination Procedure

All down-hole drilling and sampling equipment will be decontaminated with a steam cleaner prior to arrival and use on site. This equipment will also be cleaned between each soil boring if soil contamination is encountered. All split spoon and continuous sampling devices will be decontaminated after each use with an Alconox detergent wash, a tap water rinse, and a final distilled water rinse.

Soil Disposal Procedure

Drill cuttings will be thin spread on site.

Monitoring Well Surveying

Monitoring well locations, including new wells and existing wells will be surveyed by SMA's NM Registered Land Survey group to the nearest 0.1 feet with a total station or GPS unit and referenced to a permanent control point or site benchmark, and latitude/longitude on the appropriate USGS 7 ½ minute Series Quadrangle map. The elevations of the top of each PVC well casing will be surveyed to determine its elevation to the nearest 0.01 feet relative to mean sea level. Depth to groundwater will be measured from this point, and the elevation of groundwater will be calculated.

Property Restoration

Any property damaged as a result of SMA or its subcontractors will be repaired to its original condition within 30 calendar days after the damage occurred.

Task 2 - Groundwater Monitoring

Following well installation and development, SMA will conduct a groundwater monitoring event of the newly installed wells and existing wells associated with the site that contain water (expected to be deep wells MW-1A, MW-6 and

MW-15). Depth to groundwater in the wells will be gauged to the nearest hundredth of a foot using an electronic well sounder and recorded. SMA will then collect groundwater samples from each of the newly installed wells and existing wells. All groundwater sampling, screening and preservation protocols will follow SMA's SOP.

Groundwater Sampling and Preservation Procedures

Pursuant to SMA's SOP, SMA will collect groundwater samples for analysis using a new, disposable bailer or with a Waterra inertial pump using new, dedicated tubing. Groundwater samples will be collected from the anticipated least contaminated well to the most contaminated well. Sample containers with appropriate preservative will be provided by Hall Environmental Analysis Laboratory (HEAL). All groundwater sample containers will be labeled with date and time, and stored on ice for delivery to HEAL using chain-of-custody procedures.

Waste Water Disposal Procedure

The small volume of purged water will be spread onsite and allowed to evaporate. Purged water will be contained on the property and will not be allowed to enter any surface water or tributary.

Groundwater Analytical Methods:

Groundwater samples will be analyzed for the following contaminants of concern:

- **EPA Method 300.0** for nitrate
- **SM 4500-N Org C** for TKN

Task 4 - Investigation Report

Following completion of monitoring well installation and groundwater monitoring, SMA will prepare an Investigation Report which will include all data gathered during site investigation activities. The report will include a discussion of monitoring well installation activities, groundwater monitoring activities, extent of contamination in groundwater, and groundwater gradient.

Figures submitted will include:

- Site map with monitoring well locations
- Potentiometric surface map
- Groundwater contaminant concentration map(s)
- Soil boring logs and monitoring well completion diagrams

Tables submitted will include:

- Summary of soil sample analyses
- Summary of groundwater contaminant concentrations
- Summary of groundwater depth and elevation

Appendices submitted will include:

- Sampling protocol
- Field notes
- As-Built Monitoring Well Survey Certification
- NMOSE Well Permits and Well Records
- Laboratory analytical reports
- Signed Site-Specific Health and Safety Plan
- Photographic log of field activities

SMA will provide both hard copy and electronic copy of the Investigation Report.

Schedule

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Work will be completed as soon as practicable and in accordance with requirements of the NMED-GWWQB. SMA estimates three days of field work will be required to complete field activities, and an additional 45 days to complete the Investigation Report.

If you have any questions concerning this Abatement Plan Site Investigation Workplan, please feel free to contact me at the number above, on my cell at 505.220.6542, or to email me at scott.mckitrick@soudermiller.com.

Sincerely,

Miller Engineers, Inc. dba
SOUDER, MILLER & ASSOCIATES



Scott A. McKitrick, P.G.
Senior Geoscientist / Environmental Services Manager

encl.: Table 1
Figures 1 – 4
Field Notes (12/3/19)
Health and Safety Plan

cc: Mr. Timothy Pridmore, McWhorter, Cobb and Johnson LLP, 1722 Broadway, Lubbock, TX 79401,
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Mr. Scott Bromley, Nova Mud, Inc., scottbromley@novaservices.com

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Table 1
Summary of Groundwater Sample Analyses and DTW/Elevation
Former Ladshaw Explosives Site

MW #	Date	Nitrate as N	TKN	TOC EI = 3686.10	GW Elevation
				TD = 87.97	
				DTW	
MW-1	Oct-86	919	NS	NM	
	May-87	72	132	NM	
	Aug-87	373	287	47.96	3638.14
	August-88	36	64	49.81	3636.29
	February-89	2.5	28	NM	
	May-89	5	11.7	49.08	3637.02
	July-89	47	25.7	53.65	3632.45
	November-89	5.6	6	56.55	3629.55
	September-98	161	5	55.20	3630.90
	March-99	13	<5.0	54.01	3632.09
	November-99	44	NS	NM	
	October-00	5.4	NS	58.03	3628.07
	June-01	9.32	NS	58.81	3627.29
	October-01	10.9	NS	60.73	3625.37
	March-02	4.86	NS	58.70	3627.40
	October-02	17.2	NS	60.52	3625.58
	March-03	19.5	NS	59.04	3627.06
	October-03	11.6	NS	60.43	3625.67
	March-04	4.37	NS	60.28	3625.82
	May-05	3.44	NS	61.02	3625.08
	October-05	245	NS	62.18	3623.92
	March-06	2.97	NS	NM	
	October-06	99.3	NS	62.25	3623.85
April-07	4.27	NS	60.60	3625.50	
November-07	99.3	NS	63.27	3622.83	
December-19		NS	Dry	<3606	
NMWQCCR Standard		10	NA		

MW #	Date	Nitrate as N	TKN	TOC EI = 3685.60	GW Elevation
				TD = 200.44	
				DTW	
MW-1A	Aug-87	1.8	1	47.56	3638.04
	August-88	NS	NS	NM	
	February-89	NS	NS	NM	
	May-89	NS	NS	NM	
	July-89	NS	NS	53.16	3632.44
	November-89	NS	NS	56.03	3629.57
	September-98	2.5	<0.05	54.71	3630.89
	March-99	5.4	<5.0	53.46	3632.14
	November-99	NS	NS	NM	
	October-00	3.2	NS	53.46	3632.14
	June-01	NS	NS	53.46	3632.14
	October-01	NS	NS	60.21	3625.39
	March-02	NS	NS	NM	
	October-02	NS	NS	60.52	3625.08
	March-03	NS	NS	58.35	3627.25
	October-03	NS	NS	59.58	3626.02
	March-04	NS	NS	59.70	3625.90
	May-05	NS	NS	60.51	3625.09
	October-05	NS	NS	61.47	3624.13
	March-06	NS	NS	NM	
	October-06	NS	NS	62.15	3623.45
	April-07	NS	NS	60.25	3625.35
	November-07	NS	NS	62.60	3623.00
December-19		NS	89.35	3596.25	
NMWQCCR Standard		10	NA		



Table 1
Summary of Groundwater Sample Analyses and DTW/Elevation
Former Ladshaw Explosives Site

MW #	Date	Nitrate as N	TKN	TOC EI = 3683.70	GW Elevation
				TD = 61.5	
				DTW	
MW-2	May-87	16.3	1.1	NM	
	Aug-87	22	<1.0	46.46	3637.24
	August-88	15.3	0.8	49.91	3633.79
	February-89	15.2	12.2	NM	
	May-89	25	<0.5	48.86	3634.84
	July-89	30	1.44	53.89	3629.81
	November-89	32	<0.5	53.86	3629.84
	September-98	2.8	0.5	52.11	3631.59
	March-99	5	<5.0	51.65	3632.05
	November-99	NS	NS	NM	
	October-00	3.2	NS	51.65	3632.05
	June-01	NS	NS	51.65	3632.05
	October-01	NS	NS	57.05	3626.65
	March-02	NS	NS	NM	
	October-02	NS	NS	57.19	3626.51
	March-03	NS	NS	56.01	3627.69
	October-03	NS	NS	57.03	3626.67
	March-04	NS	NS	57.08	3626.62
	May-05	NS	NS	59.90	3623.80
	October-05	NS	NS	57.79	3625.91
March-06	NS	NS	NM		
October-06	NS	NS	58.12	3625.58	
April-07	NS	NS	54.23	3629.47	
November-07	NS	NS	57.78	3625.92	
December-19	Destroyed				
NMWQCCR Standard		10	NA		

MW #	Date	Nitrate as N	TKN	TOC EI = 3683.70	GW Elevation
				TD = 71.03	
				DTW	
MW-3	May-87	7	1	NM	
	Aug-87	4.5	<1.0	50.79	3632.91
	August-88	6.4	0.5	54.90	3628.8
	February-89	3.9	16.2	NM	
	May-89	7.3	1.4	52.93	3630.77
	July-89	6.2	2.9	59.42	3624.28
	November-89	7	1.4	62.17	3621.53
	September-98	15.6	<0.05	54.38	3629.32
	March-99	15	<5.0	53.94	3629.76
	November-99	18	NS	NM	
	October-00	17	NS	57.04	3626.66
	June-01	36.6	NS	57.53	3626.17
	October-01	12	NS	59.15	3624.55
	March-02	17.6	NS	58.58	3625.12
	October-02	18.5	NS	59.72	3623.98
	March-03	14.9	NS	58.86	3624.84
	October-03	19.3	NS	59.78	3623.92
	March-04	15	NS	60.08	3623.62
	May-05	21.9	NS	60.91	3622.79
	October-05	20.1	NS	61.47	3622.23
March-06	19.4	NS	NM		
October-06	22.3	NS	62.10	3621.60	
April-07	14.1	NS	61.55	3622.15	
November-07	22.3	NS	59.90	3623.80	
December-19	NS	NS	Dry		
NMWQCCR Standard		10	NA		



Table 1
Summary of Groundwater Sample Analyses and DTW/Elevation
Former Ladshaw Explosives Site

MW #	Date	Nitrate as N	TKN	TOC EI = 3680.90		GW Elevation
				TD=	DTW	
				71.8		
MW-4	May-87	2.8	0.5	NM		
	Aug-87	2.8	1.6	46.35		3634.55
	August-88	NS	NS	50.04		3630.86
	February-89	NS	NS	NM		
	May-89	NS	NS	49.11		3631.79
	July-89	NS	NS	53.49		3627.41
	November-89	NS	NS	55.43		3625.47
	September-98	49.5	<0.05	52.09		3628.81
	March-99	47	<5.0	52.29		3628.61
	November-99	29	NS	NM		
	October-00	27	NS	55.45		3625.45
	June-01	33.5	NS	56.09		3624.81
	October-01	8.66	NS	57.70		3623.20
	March-02	16.4	NS	57.22		3623.68
	October-02	11.8	NS	58.44		3622.46
	March-03	3.86	NS	58.02		3622.88
	October-03	10.6	NS	58.88		3622.02
	March-04	6.44	NS	59.28		3621.62
	May-05	20.2	NS	60.03		3620.87
	October-05	15.1	NS	60.67		3620.23
March-06	16.4	NS	NM			
October-06	8.8	NS	61.49		3619.41	
April-07	5.02	NS	61.00		3619.90	
November-07	8.8	NS	60.75		3620.15	
December-19	Not Accessible					
NMWQCCR Standard		10	NA			

MW #	Date	Nitrate as N	TKN	TOC EI = 3682.90		GW Elevation
				TD=	DTW	
				70.54		
MW-5	May-87	2.6	0.5	NM		
	Aug-87	2.4	1.1	43.3		3639.60
	August-88	NS	NS	46.35		3636.55
	February-89	NS	NS	NM		
	May-89	NS	NS	46.83		3636.07
	July-89	NS	NS	49.35		3633.55
	November-89	NS	NS	51.50		3631.4
	September-98	2.3	<0.05	50.76		3632.14
	March-99	4.6	<5.0	50.49		3632.41
	November-99	NS	NS	NM		
	October-00	2.6	NS	50.49		3632.41
	June-01	11.8	NS	55.22		3627.68
	October-01	NS	NS	58.90		3624.00
	March-02	3	NS	55.41		3627.49
	October-02	NS	NS	56.90		3626.00
	March-03	3.27	NS	56.59		3626.31
	October-03	3.32	NS	57.79		3625.11
	March-04	NS	NS	57.72		3625.18
	May-05	NS	NS	58.52		3624.38
	October-05	2.63	NS	59.31		3623.59
March-06	NS	NS	NM			
October-06	4.4	NS	59.87		3623.03	
April-07	NS	NS	58.80		3624.10	
November-07	4.4	NS	61.83		3621.07	
December-19	Not Accessible					
NMWQCCR Standard		10	NA			



Table 1
Summary of Groundwater Sample Analyses and DTW/Elevation
Former Ladshaw Explosives Site

MW #	Date	Nitrate as N	TKN	TOC EI = 3689.00	GW Elevation
				TD= 182.07	
				DTW	
MW-6	May-87	2.4	0.7	NM	
	Aug-87	6.3	1.6	47.02	3641.98
	August-88	NS	NS	48.67	3640.33
	February-89	NS	NS	NM	
	May-89	NS	NS	46.58	3642.42
	July-89	NS	NS	52.07	3636.93
	November-89	NS	NS	54.54	3634.46
	September-98	4.76	<0.05	54.85	3634.15
	March-99	6.2	<5.0	51.91	3637.09
	November-99	5.9	NS	NM	
	October-00	4.3	NS	51.70	3637.30
	June-01	<0.2	NS	51.90	3637.10
	October-01	5.14	NS	59.60	3629.40
	March-02	NS	NS	NM	
	October-02	3.78	NS	50.40	3638.60
	March-03	NS	NS	55.66	3633.34
	October-03	NS	NS	58.58	3630.42
	March-04	4.51	NS	57.00	3632.00
	May-05	10.8	NS	58.13	3630.87
	October-05	NS	NS	59.52	3629.48
March-06	4.44	NS	NM		
October-06	NS	NS	59.31	3629.69	
April-07	10.5	NS	54.22	3634.78	
November-07	NS	NS	60.59	3628.41	
December-19	Not Accessible				
NMWQCCR Standard		10	NA		

MW #	Date	Nitrate as N	TKN	TOC EI = 3687.10	GW Elevation
				TD= 62.82	
				DTW	
MW-7	Aug-87	2	<1.0	49.1	3638.00
	August-88	34	0.4	52.33	3634.77
	February-89	24	8.5	NM	
	May-89	33	<0.5	50.18	3636.92
	July-89	39	1.11	56.52	3630.58
	November-89	43	<0.5	59.79	3627.31
	September-98	33.4	<0.05	56.46	3630.64
	March-99	22	9.4	53.90	3633.20
	November-99	24	NS	NM	
	October-00	<0.2	NS	53.75	3633.35
	June-01	17.2	NS	59.66	3627.44
	October-01	NS	NS	61.57	3625.53
	March-02	27.4	NS	57.90	3629.20
	October-02	28.8	NS	60.61	3626.49
	March-03	28.9	NS	57.84	3629.26
	October-03	22.4	NS	60.13	3626.97
	March-04	23.9	NS	59.08	3628.02
	May-05	21.8	NS	60.31	3626.79
	October-05	21	NS	61.57	3625.53
	March-06	15.8	NS	NM	
October-06	18.2	NS	61.30	3625.80	
April-07	9.4	NS	59.30	3627.80	
November-07	18.2	NS	61.55	3625.55	
December-19	Destroyed				
NMWQCCR Standard		10	NA		



Table 1
Summary of Groundwater Sample Analyses and DTW/Elevation
Former Ladshaw Explosives Site

MW #	Date	Nitrate as N	TKN	TOC EI = 3683.50		GW Elevation
				TD= 63.45	DTW	
MW-8	Aug-87	32	1.1		47.92	3635.58
	August-88	69	0.4		51.60	3631.90
	February-89	25	10		NM	
	May-89	53	0.6		50.42	3633.08
	July-89	19	1.64		55.71	3627.79
	November-89	7.2	0.6		58.43	3625.07
	September-98	62.2	<0.05		53.44	3630.06
	March-99	63	<5.0		52.90	3630.60
	November-99	41	NS		NM	
	October-00	<0.2	NS		52.80	3630.70
	June-01	28.8	NS		56.78	3626.72
	October-01	14.8	NS		58.52	3624.98
	March-02	14.1	NS		57.62	3625.88
	October-02	12.7	NS		58.98	3624.52
	March-03	38.7	NS		57.92	3625.58
	October-03	25	NS		58.90	3624.60
	March-04	32.7	NS		59.10	3624.40
	May-05	15.3	NS		59.77	3623.73
	October-05	18.7	NS		60.66	3622.84
	March-06	19.7	NS		NM	
October-06	18.5	NS		61.09	3622.41	
April-07	17.1	NS		60.30	3623.20	
November-07	18.5	NS		60.65	3622.85	
December-19	NS	NS		Dry		
NMWQCCR Standard		10	NA			

MW #	Date	Nitrate as N	TKN	TOC EI = 3682.70		GW Elevation
				TD= 61.84	DTW	
MW-10	Aug-87	4.2	1.3		41.91	3640.79
	August-88	5.2	0.5		45.10	3637.60
	February-89	5	17.4		NM	
	May-89	8.5	1.3		45.70	3637.00
	July-89	7.6	2.83		48.55	3634.15
	November-89	14	<0.5		51.27	3631.43
	September-98	0.6	<0.05		49.17	3633.53
	March-99	3	14		48.59	3634.11
	November-99	NS	NS		NM	
	October-00	1.8	NS		48.59	3634.11
	June-01	NS	NS		48.59	3634.11
	October-01	NS	NS		53.83	3628.87
	March-02	NS	NS		NM	
	October-02	NS	NS		53.81	3628.89
	March-03	NS	NS		52.48	3630.22
	October-03	NS	NS		53.62	3629.08
	March-04	NS	NS		53.48	3629.22
	May-05	NS	NS		53.90	3628.80
	October-05	NS	NS		54.78	3627.92
	March-06	NS	NS		NM	
October-06	NS	NS		55.08	3627.62	
April-07	NS	NS		54.42	3628.28	
November-07	NS	NS		54.80	3627.90	
December-19	NS	NS		Dry		
NMWQCCR Standard		10	NA			



Table 1
Summary of Groundwater Sample Analyses and DTW/Elevation
Former Ladshaw Explosives Site

MW #	Date	Nitrate as N	TKN	TOC EI = 3682.70		GW Elevation
				TD = 63.3	DTW	
MW-11	Aug-87	0.4	1.3	44.11		3638.59
	August-88	NS	NS	47.57		3635.13
	February-89	NS	NS	NM		
	May-89	NS	NS	47.58		3635.12
	July-89	NS	NS	51.28		3631.42
	November-89	NS	NS	54.08		3628.62
	September-98	1.61	0.17	50.38		3632.32
	March-99	4.1	<5.0	50.39		3632.31
	November-99	NS	NS	NM		
	October-00	1.8	NS	50.39		3632.31
	June-01	NS	NS	50.39		3632.31
	October-01	NS	NS	54.71		3627.99
	March-02	NS	NS	NM		
	October-02	NS	NS	54.68		3628.02
	March-03	NS	NS	54.49		3628.21
	October-03	NS	NS	55.28		3627.42
	March-04	NS	NS	55.52		3627.18
	May-05	NS	NS	55.98		3626.72
	October-05	NS	NS	56.63		3626.07
	March-06	NS	NS	NM		
October-06	NS	NS	57.10		3625.60	
April-07	NS	NS	56.20		3626.50	
November-07	NS	NS	56.78		3625.92	
December-19	Destroyed					
NMWQCCR Standard		10	NA			

MW #	Date	Nitrate as N	TKN	TOC EI = 3682.00		GW Elevation
				TD = 62.2	DTW	
MW-12	Aug-87	3.6	1.3	48.53		3633.47
	August-88	NS	NS	50.59		3631.41
	February-89	NS	NS	NM		
	May-89	NS	NS	48.66		3633.34
	July-89	NS	NS	55.40		3626.60
	November-89	NS	NS	58.11		3623.89
	September-98	0.92	0.21	51.06		3630.94
	March-99	3.9	<5.0	51.72		3630.28
	November-99	NS	NS	NM		
	October-00	1.6	NS	51.72		3630.28
	June-01	NS	NS	51.72		3630.28
	October-01	NS	NS	56.33		3625.67
	March-02	NS	NS	NM		
	October-02	NS	NS	56.35		3625.65
	March-03	NS	NS	56.15		3625.85
	October-03	NS	NS	57.02		3624.98
	March-04	NS	NS	57.30		3624.70
	May-05	NS	NS	57.98		3624.02
	October-05	NS	NS	58.70		3623.30
	March-06	NS	NS	NM		
October-06	NS	NS	59.40		3622.60	
April-07	NS	NS	58.82		3623.18	
November-07	NS	NS	59.72		3622.28	
December-19	Destroyed					
NMWQCCR Standard		10	NA			



Table 1
Summary of Groundwater Sample Analyses and DTW/Elevation
Former Ladshaw Explosives Site

MW #	Date	Nitrate as N	TKN	TOC EI = 3685.90	GW Elevation
				TD= 64.08	
				DTW	
MW-13	August-88	24	0.4	50.87	3635.03
	February-89	5.8	14.7	NM	
	May-89	5.4	<0.5	51.06	3634.84
	July-89	16	1.63	55.77	3630.13
	November-89	38	<0.5	58.70	3627.20
	September-98	50.5	<0.05	55.12	3630.78
	March-99	56	<5.0	54.17	3631.73
	November-99	46	NS	NM	
	October-00	20	NS	58.29	3627.61
	June-01	2.5	NS	58.60	3627.30
	October-01	20.8	NS	60.60	3625.30
	March-02	72.5	NS	58.85	3627.05
	October-02	11.9	NS	60.67	3625.23
	March-03	70.9	NS	59.16	3626.74
	October-03	18	NS	60.45	3625.45
	March-04	88.1	NS	60.36	3625.54
	May-05	99	NS	60.82	3625.08
	October-05	128	NS	62.14	3623.76
	March-06	95.7	NS	NM	
	October-06	120	NS	67.31	3618.59
April-07	48.7	<1.0	61.10	3624.80	
November-07	120	<1.0	62.67	3623.23	
December-19	NS	NS	Dry		
NMWQCCR Standard		10	NA		

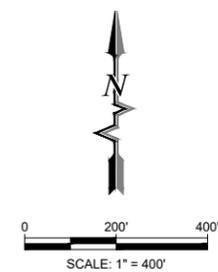
MW #	Date	Nitrate as N	TKN	TOC EI = 3686.30	GW Elevation
				TD= 62.64	
				DTW	
MW-14	August-88	7.8	0.4	51.55	3634.75
	February-89	5	17.7	NM	
	May-89	21	1	49.52	3636.78
	July-89	7.6	2.86	55.75	3630.55
	November-89	7.1	0.7	58.94	3627.36
	September-98	2.8	<0.05	55.91	3630.39
	March-99	5	<5.0	53.36	3632.94
	November-99	NS	NS	NM	
	October-00	3.6	NS	53.36	3632.94
	June-01	NS	NS	53.36	3632.94
	October-01	NS	NS	61.22	3625.08
	March-02	NS	NS	NM	
	October-02	NS	NS	61.24	3625.06
	March-03	NS	NS	57.66	3628.64
	October-03	NS	NS	59.58	3626.72
	March-04	NS	NS	58.97	3627.33
	May-05	NS	NS	60.10	3626.20
	October-05	NS	NS	61.09	3625.21
	March-06	NS	NS	NM	
	October-06	NS	NS	61.58	3624.72
April-07	NS	NS	59.32	3626.98	
November-07	NS	NS	62.60	3623.70	
December-19	Not Accessible				
NMWQCCR Standard		10	NA		



Table 1
Summary of Groundwater Sample Analyses and DTW/Elevation
Former Ladshaw Explosives Site

MW #	Date	Nitrate as N	TKN	TOC EI = 3684.90	GW Elevation
				TD= 203.55	
				DTW	
MW-15	August-88	NS	NS	51.14	3633.76
	February-89	NS	NS	NM	
	May-89	NS	NS	50.06	3634.84
	July-89	NS	NS	55.23	3629.67
	November-89	NS	NS	58.22	3626.68
	September-98	3.2	<0.05	54.23	3630.67
	March-99	5.3	<5.0	53.06	3631.84
	November-99	NS	NS	NM	
	October-00	3.9	NS	53.06	3631.84
	June-01	NS	NS	53.06	3631.84
	October-01	NS	NS	59.40	3625.50
	March-02	NS	NS	NM	
	October-02	NS	NS	59.25	3625.65
	March-03	NS	NS	57.82	3627.08
	October-03	NS	NS	59.14	3625.76
	March-04	NS	NS	59.00	3625.90
	May-05	NS	NS	59.72	3625.18
	October-05	NS	NS	60.95	3623.95
	March-06	NS	NS	NM	
	October-06	NS	NS	61.36	3623.54
April-07	NS	NS	59.80	3625.10	
November-07	NS	NS	61.23	3623.67	
December-19	Not Accessible				
NMWQCCR Standard		10	NA		





- LEGEND**
- APPROXIMATE PROPERTY BOUNDARY
 - MW-2 (89.35') MONITORING WELL LOCATION (DTW)
- DTW = DEPTH TO WATER 12/3/2019
- NM = NOT MEASURED

Rev#	Date	Description	By	Chkd

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NOVA MUD, INC. HOBBS, NM

SITE MAP

FOREVER LADSHAW EXPLOSIVES SITE

PRELIMINARY
 NOT FOR CONSTRUCTION
 1/2/20

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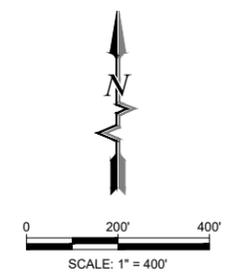
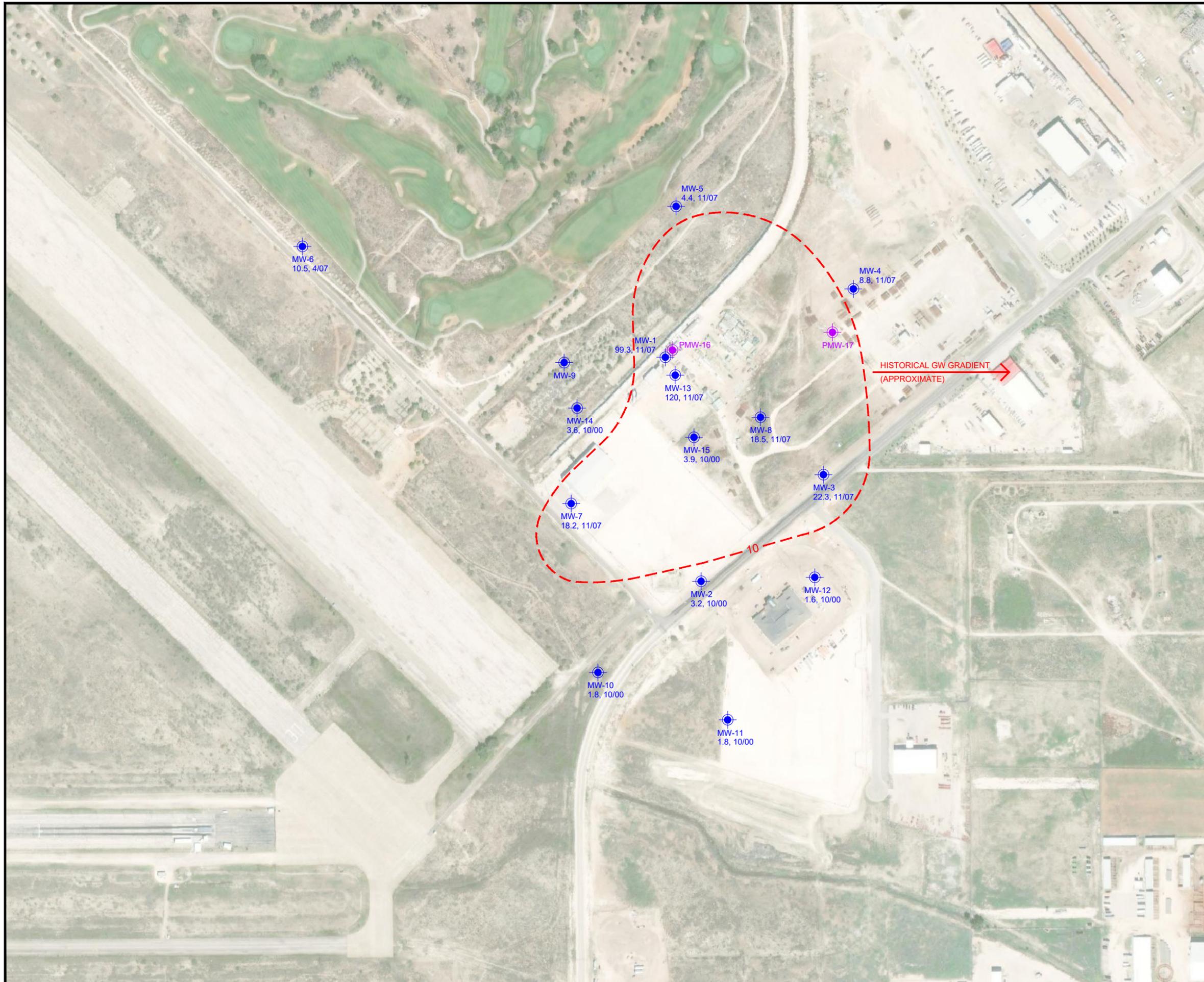
Designed SAM	Drawn AAV	Checked SAM
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Date: January 2020

Scale: Horiz: 1" = 400'
 Vert: 1" = 400'

Project No: 1C28805

Sheet: **FIG 1**



- LEGEND**
- HISTORICAL NITRATE PLUME (APPROXIMATE)
 - MW-2 (10.5, 4/07) MONITORING WELL LOCATION NITRATE (MG/L), DATE SAMPLED
 - PMW-16 PROPOSED MONITORING WELL LOCATION

HISTORICAL GW GRADIENT (APPROXIMATE) →

Rev#	Date	Description	By	Chkd

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NOVA MUD, INC. HOBBS, NM
HISTORICAL NITRATE CONCENTRATION MAP
FOREVER LADSHAW EXPLOSIVES SITE

PRELIMINARY
 NOT FOR CONSTRUCTION
 1/2020

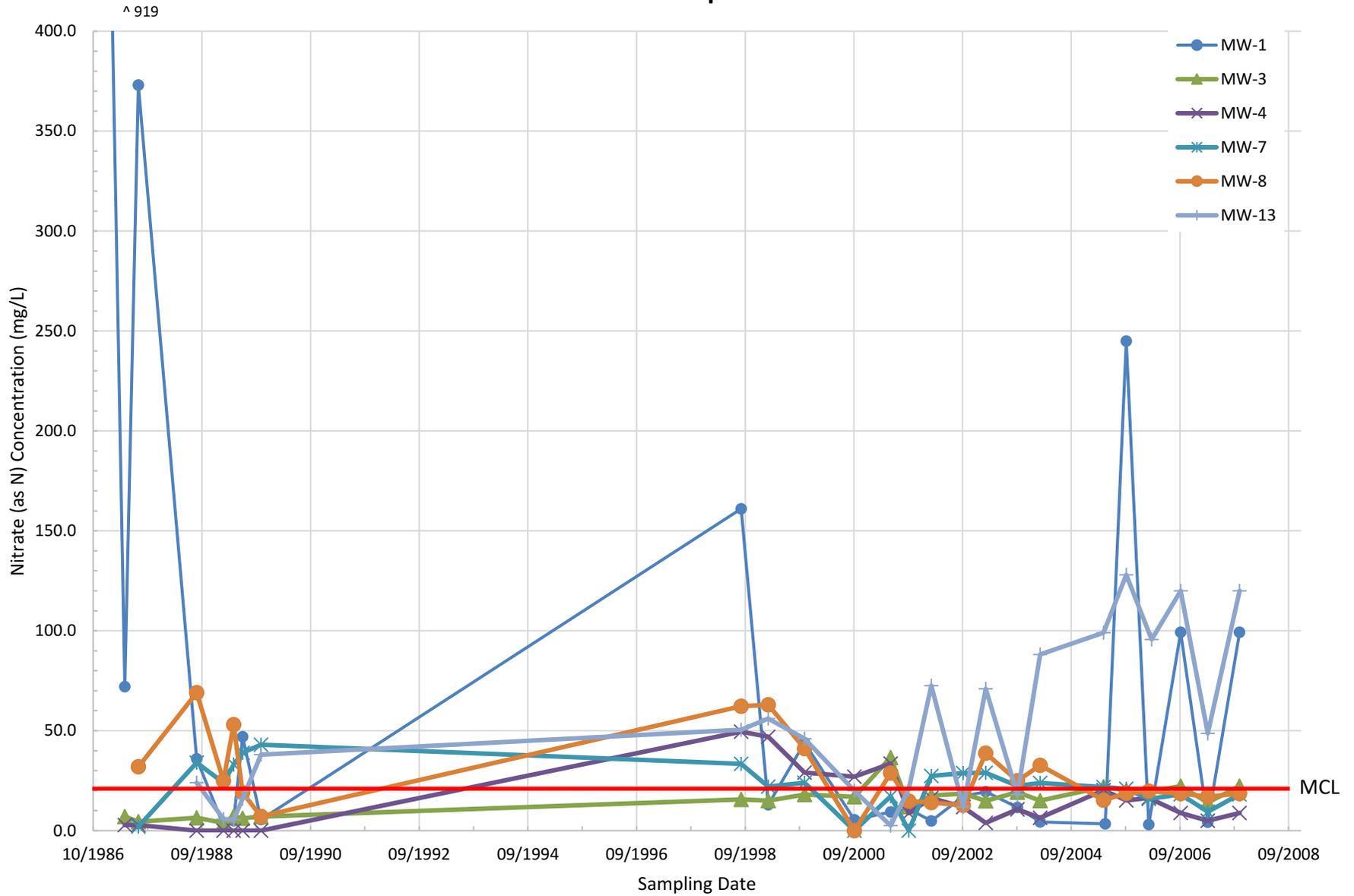
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Designed SAM	Drawn AAV	Checked SAM
-----------------	--------------	----------------

Date: January 2020
 Scale: Horiz: 1" = 400'
 Vert:

Project No: 1C28805
 Sheet: **FIG 2**

**Figure 4. Nitrate (as N) Concentration in Monitoring Wells
Former Ladshaw Explosives Site**



**Ladshaw Explosives
Hobbs, NM**

Date: 12/03/19 Time On-site: 0900 Time Off-site: _____ Sampled by: _____
 Weather conditions: Partly Cloudy
 Equipment Needed Well Sounder

Monitoring Well Data			
MW	Total Depth	DTW	Measured TD
MW-1	87.97	Dry	80
MW-1A	200.44	89.35	209
MW-2	61.5	Destroyed	-
MW-3	71.03	Dry	70.33
MW-4	71.8	Capped	-
MW-5	70.54	Capped	-
MW-6	182.07	Capped	-
MW-7	62.82	Destroyed	-
MW-8	63.45	Dry	61.85
MW-9	Blocked at 50'	Capped	-
MW-10	61.84	Dry	61.15
MW-11	63.3	Destroyed	-
MW-12	62.2	Destroyed	-
MW-13	64.08	Dry	62.86
MW-14	62.64	Capped	-
MW-15	203.35	Capped	-

Casing Cracked
Casing Cracked

Looks like it was backed into

Notes: Ray Herdina col belts on all found wells except for MW-1 + MW-1A

Supplies used (quantities):

Gloves: _____ Jars: _____ Bailers: _____ VOC samplers: _____
 Other: _____

**SITE SAFETY AND HEALTH PLAN
FORMER LADSHAW EXPLOSIVES SITE INVESTIGATION**

**Location:
Business Park Boulevard and N. A Street
Hobbs, New Mexico**

**PREPARED FOR:
New Mexico Environment Department, Ground Water Quality Bureau**

**PREPARED BY:
SOUDER, MILLER & ASSOCIATES
5454 Venice Avenue NE, Suite D
Albuquerque, NM 87113
505-299-0942
FAX 505-293-3430**

DATE: January 7, 2020

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I. Introduction:

The health and safety of **Souder, Miller & Associates** employees, subcontractors, and the general public is of the utmost importance, and is our primary concern. The inherent dangers involved in the handling of hazardous materials or waste, and hazards associated with any job site require that all participants in this project become familiar with the contents of this Health and Safety plan.

II. SITE DESCRIPTION

Date: January 7, 2020

Location: Business Park Boulevard and N. A Street
(Address)
Hobbs, NM
(City, State)

Hazards: Potential hazards may include; heavy equipment, exposure to asbestos, overhead hazards, and falling tripping hazards, underground lines, flammable liquids and vapors, and nitrogen-related contaminated soil.

Area affected: Former Ladshaw Explosives Site

(Site Description)

The specific areas of interest includes an area of approximately 25 acres.

Surrounding population: The surrounding area will consist of one or more of the following: Commercial and industrial facilities.

ENTRY OBJECTIVES

- A. Task 1 Install 2 monitoring wells on property, sample monitoring wells
- B. Task 2
- C. Task 3
- D. Task 4

III. ON-SITE ORGANIZATION & COORDINATION

The following personnel are designated to carry out the stated job functions on site. (Note: one person may carry out more than one job function.)

Souder, Miller & Associates:

HEALTH & SAFETY PLAN:

PROJECT TEAM LEADER: Scott McKitrick, P.G.
FIELD TEAM LEADER: Cassie Parker
ALTERNATES: Emme Mayle

Subcontractors:

SITE CREW CHIEF: To Be Determined

Owner: Nova Mud

FEDERAL AGENCIES: N/A

STATE AGENCIES: NMED-GWQB

Other Agencies: Lea County

ON-SITE CONTROL

The occupancy of the area will be minimal. Only key personnel will be in attendance.

Representatives of ***Souder, Miller & Associates*** may include the following: Scott McKitrick, Alan Eschenbacher, Cassie Parker, Emme Mayle, or others as required, including survey crew. EPA or State Agency personnel will be varied with the contact person being Scott McKitrick.

Control boundaries will be established and prior to Task 1 and 2, and the Exclusion Zone (the contaminated area), Contamination Reduction (decontamination) Zone, and Support Zone (clean area) will be identified as noted.

All personnel involved in the project will be required to adhere to all boundaries and rules regarding the project. All personnel will be required to show proof of 40 Hour HAZWOPER and other applicable training.

Boundaries to be marked:

Containment:	Orange temp fencing & yellow caution tape.
Traffic/Hotline:	Orange Cones.
Decontamination:	Orange Cones & White Tape.
Support/Staging area:	Vehicles & As needed.

IV. HAZARDS EVALUATION

Table 1 and 2 list several potential hazards that might be associated with execution of this project. This list is by no means all inclusive and other unforeseen hazards may be contingent upon conditions.

**Table 1
Possible Chemicals**

Substances Involved	Concentration	Fire	Eyes	Skin	Respiratory
Anti-Freeze	Ethylene Glycol Variable				
Used Oil	Petroleum Hydrocarbons Variable				
Gasoline	Variable				
Diesel	Variable	Sl.	Hi.	Mod.	Sl.
Grease	Variable				
Solvent/Cleaners pH Approximate Range 3.5 To 11 (Irritating Liquids) and possible Chlorinated Hydrocarbons	Variable				
Off-Spec Paint (Liquid/Solid)	Lead And Chromium Variable 8% - 15%	Mod	Hi.	Mod.	Sl.
Tar & MC 250 & MC-70	Variable				
Polychlorinated Biphenyl (PCB)	Variable, Halogens				
Organic Solvents	Variable				
Acids	Variable				
Bases	Variable				
Organic Peroxides	Variable				
Nitrogen-contaminant related soil	Variable		Sl.	Sl.	Sl.

Legend :

Sl. Slight Mod Moderate
 Hi. High IDLH Immediately Dangerous to Life and Health
 NA Not Applicable

Table 2
Potential Health And Safety Hazards

Hazard	Task 1:	Task 2:	Task 3	Task 4
Inhalation Hazard	X	X		
Contaminated Soil/Liquid Contact	X	X		
Noise	X	X		
Heat/Cold Stress	X	X		
Electrical (Transformers And Buried Powerlines)				
Potential Fire/Explosion	X	X		
High Pressure Liquids				
Collapsing Of Sidewalls				
Confined Spaces				
Physical Injury	X	X		
Overhead Powerlines	X	X		
Buried Piping/Tanks	X	X		
Skin Hazards	X	X		
Ventilation Problems				
Vandalism				
Heavy Equipment/Trucking/ Traffic	X	X		
Level Of Protection	D	D		
Air Monitoring	NA	NA		
Buried Line Detection	One-Call 48 hr Notice	One-Call 48 hr Notice		

V. PERSONAL PROTECTIVE EQUIPMENT

Based on the OVM (PID) readings in the breathing zone, the criteria for levels of protection are as follows:

Background-25 (PPM)	Level D
25-50(PPM)	Level C
50-100(PPM)	Level B
>100 (PPM)	Level A

NOTE: Deviations from these levels will be based on the types of products and constituents. No changes to the specified levels given in table 1 and the above table shall be made without the approval of the site safety officer and the project team leader.

A. Personal Protective Equipment Matrix:

	COVERALL	HARDHAT	GLOVES	SAFETY BOOTS	NOMEX	HEARING PROTECTION	SAFETY GLASSES W/SIDE	LEVEL C	LEVEL B	LEVEL A	OTHER
DAILY ROUTINE		X	X	X		X	X				
SAMPLING (OIL FIELD)											1
SAMPLING (NON-OIL FIELD)		X	X	X		X	X				
EXCAVATION (OIL FIELD)											1
EXCAVATION (NON OIL FIELD)											
DRILLING (INVESTIGATION)		X	X	X		X	X				
FACILITY INVENTORY											
CHEMICAL INVENTORY											2
UNDERGROUND STORAGE TANK REMOVAL											
EMERGENCY RESPONSE											2

1. Minimum required will be determined by Client’s current policy
2. MSDS will be consulted to determine proper Personal Protective Equipment.

VI. PROTOCOL

The following briefly describes the protocol to be followed for any soil and water samples to be taken at a site. A working knowledge of applicable EPA SW-846, sampling and analytical procedures and proper use of field testing equipment is necessary. New disposable Nitrile gloves shall be worn for all water and soil sampling activities.

A. Water samples:

Volatile Organic Analysis (VOA)- Use of a 40 mL VOA glass vial with Teflon closure, leave no airspace present, and preserve as required; keep cool with ice in cooler, use chain-of-custody sample handling procedures, and transport to Laboratory.

Other analytes – use appropriate laboratory-supplied, preserved sample containers; keep cool with ice in cooler, use chain-of-custody sample handling procedures, and transport to Laboratory.

B. Soil samples for assessment/verification:

Field vapor headspace - 475 mL wide mouth glass container, fill 1/2 full, seal with aluminum foil, or use heavy zip-locking plastic bags.

Laboratory analysis for hydrocarbons (standard) - Use laboratory supplied sterile glass container, with Teflon closure. Fill completely, keep cool with ice in cooler, use chain-of custody sample handling procedures, transport to Laboratory. For NMED USTB Methanol Extraction, see detailed procedure.

Other soil assessment: see investigation workplan for specific conductance method for soil screening.

C. Air Monitoring:

As necessary, air monitoring for the site will be accomplished with an MSHA approved LEL continuous meter, calibrated to pentane, and with an alarm at 10% LEL. An OVM (PID) calibrated to isobutylene can be substituted to an LEL. All air monitoring for exposure is to be in breathing area. (for frequencies, see Section VI, Table 2).

VII. SITE WORK PLAN

This project will be completed in the Tasks outlined in the Investigation Workplan. The following outlines the key personnel and their responsibilities:

Field Team Leader:

Cassie Parker
Souder, Miller & Associates
Albuquerque, NM (505) 299-0942

Alternates:

Alan Eschenbacher, Emme Mayle

The Field Team Leader will function as the Site Health & Safety Officer, Site Supervisor, and sampler for this Project.

Tailgate safety meetings will be held and all personnel will be briefed on the contents of this plan prior to initiating any efforts. Tailgates will also cover any safety and/or

health issues not anticipated or addressed in this plan. The Field Team Leader will be responsible for briefing and record keeping.

VIII. COMMUNICATION PROCEDURES

Radio communication is not anticipated to be essential for this project. Personnel in the Exclusion Zone should be in visual contact of the FieldTeam Leader.

The following standard hand signals will be used:

Hand gripping throat	Out of air, can't breathe
Grip partner's wrist or both hands around waist	Leave area immediately
Hands on top of head	Need assistance
Thumbs up	OK, I'm all right, I understand
Thumbs down	NO, Negative

Others as needed while handling, moving, or loading materials, are acceptable provided that all personnel involved agree to their meaning.

Telephone communication will be available in the Staging Area by mobile phone.

IX. DECONTAMINATION PROCEDURES

The following are a brief summary of decontamination procedures. Common sense should be used at all times.

A. Personal Decontamination:

The following procedure assumes level "D" Personal Protective Equipment (PPE). Prior to entering a vehicle and leaving the site, coveralls (if used) are to be doffed and placed in appropriate laundry/duffel bags in the reduction zone, and hands and face are to be washed.

For all other levels of PPE, PPE to be doffed in the reduction zone, Tyvek and other disposables will be placed with the waste for off-site disposal, and all other reusable PPE will be washed with brushes or soapy rags and rinsed by hand sprayers. All exposed skin to be washed in reduction zone also.

B. Excavation/Exploratory Equipment:

All equipment will be decontaminated by high pressure wash, and/or steam cleaned as necessary, initially in the exclusion zone and final rinsed in the reduction zone. Rinse and wash media to be disposed of with contaminated soil/groundwater.

C. Sampling Equipment:

Reusable sampling equipment is to be triple rinsed withalconox soap, tap water and deionized water. Disposable sampling equipment is to be consolidated with waste for off-site disposal.

X. CONTINGENCIES

A. FIRST AID MEASURES/MEDICAL EMERGENCIES

The nearest hospital is located at:

Lea Regional Medical Center
5419 N. Lovington Highway, Hobbs, NM 8240

See map below.

In the event that personnel exposure symptoms occur, the following procedures will be used:

B. PETROLEUM PRODUCTS / IRRITATING LIQUIDS:

1. Eye contact:

Flush eye immediately with copious amounts of water and repeat until irritation is eliminated. If prolonged irritation occurs for more than 15 minutes, seek medical attention.

2. Skin contact:

Wash exposed area with soap and water. If dermatitis or severe reddening occurs, seek medical attention.

3. Inhalation:

Remove person into fresh air. If symptom occurs for more than 15 minutes, seek medical attention.

4. Ingestion:

Do not induce vomiting, seek medical attention.

C. PHONE LIST:

AMBULANCE	<u>911</u>
POLICE, FIRE & RESCUE	<u>911</u>
STATE POLICE	<u>505-841-9256</u>
POISON CONTROL	1-800-362-0101
CHEMTREC	1-800-424-8802

First aid and emergency fire equipment will be available in **Souder, Miller & Associates** vehicles.

D. ENVIRONMENTAL MONITORING

The following environmental monitoring instruments will be used on site: pH meter

The following instruments will be used continuously to monitor air quality: none

pH meter. The pH meter will be used to indicate the pH of each separate sample.

E. EMERGENCY PROCEDURES (to be modified as required for project or incident)

The following standard emergency procedures will be used by on site personnel. The Site Safety Officer shall be notified of any on site emergencies and be responsible for ensuring that the appropriate procedures are followed.

1. Personal Injury in the Exclusion Zone:

Upon notification of an injury in the Exclusion Zone, all site personnel shall assemble in the Reduction Zone. The rescue team will enter the Exclusion Zone (if required) to remove the injured person to the hotline. The Site Safety Officer and Field Team Leader shall evaluate the nature of the injury, prior to movement to the Support Zone. Appropriate first aid will be initiated, and contact should be made for an ambulance and with the designated medical facility (if required). No persons shall reenter the Exclusion Zone until the cause of the injury or symptoms is determined.

2. Personal Injury in the Support Zone:

Upon notification of an injury in the Support Zone, the Field Team Leader and Site Safety Officer will assess the nature of the injury. If the cause of the injury or loss of the injured person does not affect the performance of remaining personnel, operations may continue. If the injury increases the risk to others, the designated emergency signal horn shall be sounded and all site personnel shall move to the Reduction Zone for further instructions.

In any case, the appropriate first aid will be initiated and necessary follow-up as stated above.

3. Fire / Explosion:

Upon notification of a fire or explosion on site, the designated emergency signal horn shall be sounded and all site personnel assembled at the Reduction Zone. The fire department shall be alerted and all personnel moved to a safe distance from the involved area. *Fire extinguishers shall be used with discretion to minimize the risk of fire and explosion that would result in injuries.*

4. Personal Protective Equipment Failure:

If any site worker experiences a failure or alteration of protective equipment that affects the protection factor, that person and his/her buddy shall immediately leave the Exclusive Zone. Reentry shall not be permitted until the equipment has been repaired or replaced.

5. Other Equipment Failure:

If any other equipment on site fails to operate properly, the Field Team Leader and Site Safety Officer shall be notified and then determine the effect of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of the Work Plan tasks, all personnel shall leave the Exclusion Zone until the situation is evaluated and appropriate actions taken.

HEALTH & SAFETY PLAN:

In all situations, when an on site emergency results in evacuation of the Exclusion Zone, personnel shall not reenter until:

- 1. The hazards have been reassessed.***
- 2. The conditions resulting in the emergency have been corrected.***
- 3. The Site Safety Plan has been reviewed.***
- 4. Site personnel have been briefed on any changes in the Site Safety Plan.***

HEALTH & SAFETY PLAN:

**Directions to Lea Regional Medical Center, 5419 N. Lovington Hwy, Hobbs, NM
575.492.5000**

