Souder, Miller & Associates ♦ 201 S. Halagueno ♦ Carlsbad, NM 88221
(575) 689-7040

PROPOSED SCOPE OF WORK FOR ASSESSMENT OF THE USE OF PRESCRIBED FIRE AS MITIGATION OF HYDROCARBON AFFECTED VEGETATION IN AND AROUND RED BLUFF DRAW EDDY COUNTY, NEW MEXICO

FEBRUARY 4, 2015

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INTRODUCTION

This proposed scope of work has been prepared by Souder, Miller & Associates (SMA) at the request of Concho Operating LLC (COG), Mewbourne Oil Company (MOC) and Yates Petroleum Corporation (YPC), with guidance from New Mexico Oil Conservation Division (NMOCD). The goal of the assessment is to evaluate the feasibility of the use of prescribed fire as a mitigation technique, with respect to three adjacent incidents of petroleum releases in Red Bluff Draw. Further, the scope includes performing the requisite coordination and preparation of necessary notifications and permits for later use. As proposed, the scope of work involves review of Federal, State and County records and guidelines, as well as consultation from the involved agencies.

All three incidents of flood damage to the production and gathering infrastructure of the Operators noted above were the result of torrential rains in September 2014. Each incident resulted in a release into Red Bluff Draw, and has been reported to the NMOCD Division 2 in accordance with NMOCD 19.15.1.19 NMAC.

Table #1 – Incident Information

Company	NMOCD Environmental Order #	Surface Ownership	Estimated Acres
COG	2RP-2560	State	0.027
MOC	2RP-2532	State/Private	82
YPC	2RP-2580	State	8

Incident Summary: COG (2RP-2560)

Volume of Release: 280 bbls, Volume of Recovery: 0 bbls

The excerpt below is from the Release Notification and Corrective Action, C-141 Initial, (Appendix A-1).

> *"Describe Area Affected and Cleanup Action Taken.**
> *The impacted area shows no signs of hydrocarbon or brine impact. Once the area dries out and is accessible to heavy equipment we will conduct a more thorough search of the area for hydrocarbon impact. Equipment will be removed from the draw and disposed of at an NMOCD approved facility."*

Depth to ground water	<50'
Wellhead Protection Area	>1000'
Distance to surface water body	<1000'

COG was unable to conduct initial sampling operations and to remove their production equipment from the draw due to inclement weather events until 1/26/15

Analytical Report- H5003–15	Sample Date	Depth (ft)	BTEX mg/Kg	GRO mg/Kg	DRO mg/Kg
S1-1'	1/28/15	1	2.89	405	1940
S1-2'	1/28/15	2	<0.30	14	32.7
S1-3'	1/28/15	3	<0.30	<10.0	<10.0
S2-1'	1/28/15	1	<0.30	<10.0	50.5
S2-2'	1/28/15	2	<0.30	<10.0	<10.0
S3-1'	1/28/15	1	<0.30	11.9	42.4

All sample locations are shown in Figure 1

Sample Location 1 noted above was excavated by hand under the supervision COG environmental personnel on February 3 2015.

Incident Summary: MOC (2RP-2532)

Volume of Release: 253 bbls, Volume of Recovery: 253 bbls

The excerpt below is from the Remediation and Sampling report, Talon LPE (Appendix A-5)

"Incident Description

"On September 26, 2014, the SWD line running along the west side of Highway 285 from the San Lorenzo SWD to the Delaware Ranch SWD was damaged in the draw between mile marker 6 and 7 by debris and rising flood waters causing a release of 1726 barrels mixed fluids. Upon discovery, approximately 253 barrels of oil and 267 barrels of water were immediately recovered utilizing vac trucks. The area affected was approximately 6,000 feet in length from the bridge south down the draw." The Initial C-141 is presented in Appendix A.

"The ranking for this site is 20 based on the following:"

Depth to ground water	<50'
Wellhead Protection Area	>1000'
Distance to surface water body	<1000'

TABLE 2 SUMMARY OF ANALYTICAL RESULTS - SOIL ASSESSMENT

Analytical Report- H403437, H403673	Sample Date	Depth	BTEX mg/Kg	GRO mg/Kg	DRO mg/Kg
W-1	11-12-14	N/A	<0.006	<1.00	<1.00
W-2	11-12-14	N/A	<0.006	<1.00	<1.00
W-3	11-12-14	N/A	<0.006	<1.00	<1.00
S-1	11-12-14	0, 0.5	<0.300	<10	<10
S-2	11-12-14	0, 0.5	<0.300	<10	<10
S-3	11-12-14	0, 0.5	<0.300	<10	<10
BG-1	11-12-14	0	<0.300	<10	<10
BG-2	11-12-14	0	<0.300	<10	<10
BG-3	11-12-14	0	<0.300	<10	<10

All sample locations are shown in Figure 1

Incident Summary: YPC (2RP-2580)

Volume of Release: 20 bbls, Volume of Recovery: 15 bbls

The excerpt below is from the Release Notification and Corrective Action, C-141 Initial, (Appendix A-6).

> *"Describe Cause of Problem and Remedial Action Taken.**
> *Buried flow line ruptured; vacuum truck(s) arid roustabout crew called.*
>
> *Describe Area Affected and Cleanup Action Taken.**
> *An approximate area of 1500 X 300', on embankment and draw area. Vacuum trucks were called to recover remaining oil and produced water, roustabout crews fenced off impacted area. Impacted soils being excavated and will be hauled to a NMOCD approved facility. Vertical and horizontal delineation samples will be taken and analysis ran for TPH & BTEX (chlorides for documentation). Depth to Ground Water: >100' (approximately 228', per ChevronTexaco Trend Map), Wellhead Protection Area: No, Distance to Surface Water Body: >1000', SITE RANKING IS 0. "*
>
> *The ranking for this site is 0 based on the following provided in C-141 Initial:*

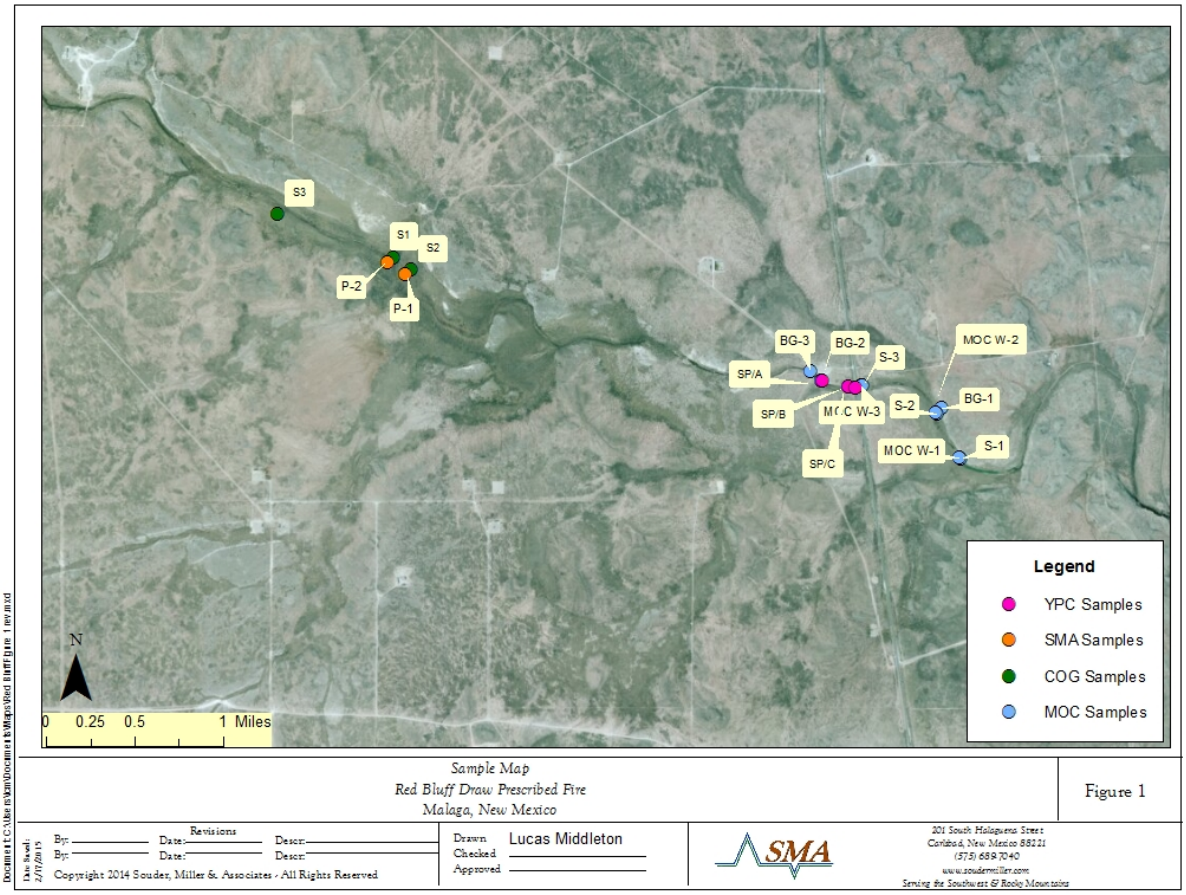
Depth to ground water	>100''
Wellhead Protection Area	>1000'
Distance to surface water body	>1000'

TABLE 3 SUMMARY OF ANALYTICAL RESULTS - SOIL ASSESSMENT

Analytical Report- H500353	Sample Date	Depth(ft)	BTEX mg/Kg	GRO mg/Kg	DRO mg/Kg
SP/A-01.0	2/5/15	1	<0.30	<10.0	29.6
SP/A-02.0	2/5/15	2	<0.30	<10.0	<10.0
SP/A-03.0	2/5/15	3	<0.30	<10.0	<10.0
SP/B-01.0	2/5/15	1	<0.30	<10.0	<10.0
SP/C-01.0	2/5/15	1	<0.30	<10.0	<10.0

All sample locations are shown in Figure 1

YPC Environmental conducted their initial soil assessments 2/4/15. Due to winter weather and unsafe driving conditions, the draw has only recently become accessible.



EXECUTIVE SUMMARY "PROPOSED IN-SITU BURN / PRESCRIBED FIRE

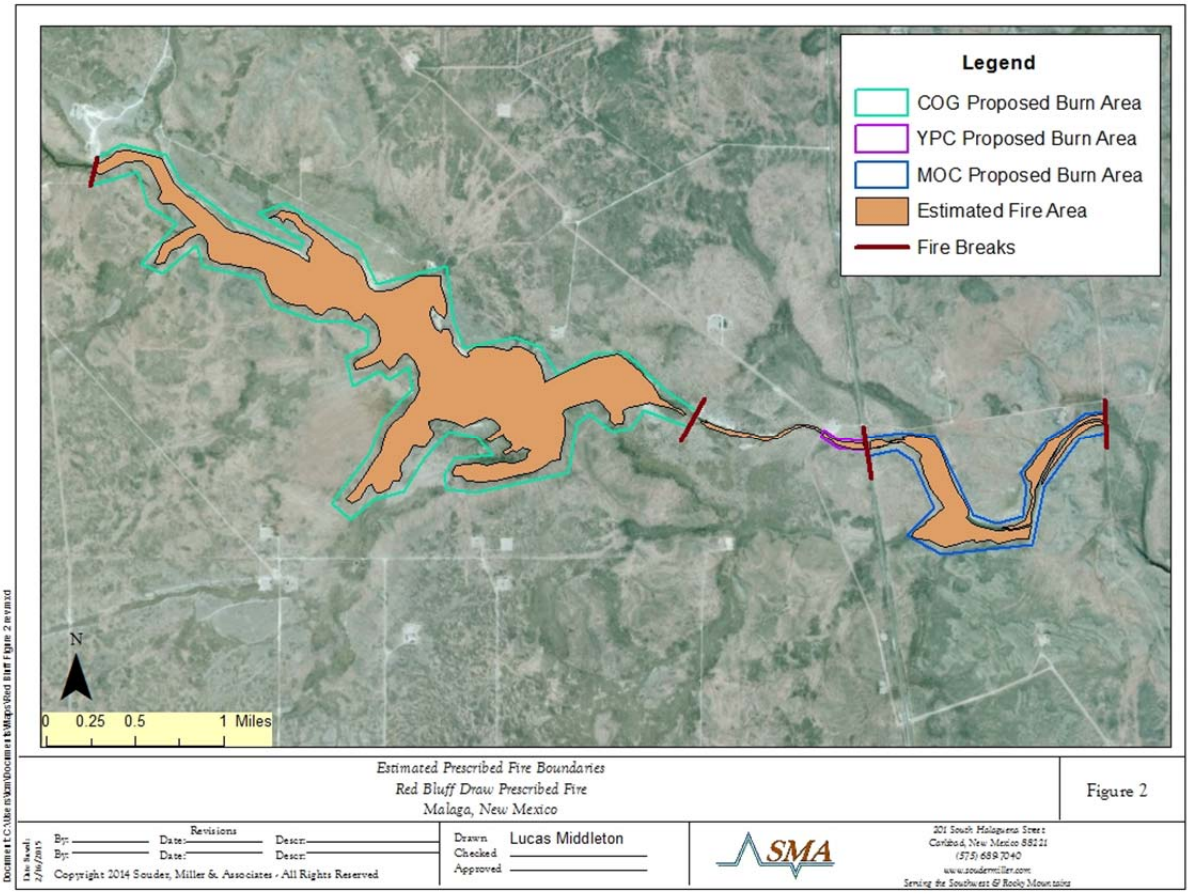
The goal of the report was to evaluate the feasibility of the use of prescribed fire as a mitigation technique, with respect to three adjacent incidents of petroleum releases in Red Bluff Draw as summarized above. SMA has found that the use of prescribed fire in Red Bluff Draw to be a plausible mitigation technique for the remaining RCRA exempt hydrocarbons found in and around Red Bluff Draw.

The prescribed burn needs to effectively address the mitigation of the three hydrocarbon releases which constitute less than half of the proposed burn area. To meet the land management needs for the burn, i.e. the reduction of wildfire hazard and increasing range efficiencies, the total burn needs to be greater than 1000 acres. If the burn is conducted with the primary focus as the restoration of vegetation in Red Bluff Draw, it increases cooperation between the landowners and decreases the overall cost and liability. If the burn was only conducted in the areas of the draw affected by hydrocarbons, the project would be too complex to complete within the time allotted.

SCOPE OF WORK

ESTABLISH THE PRESCRIBED FIRE BOUNDARIES

Previous to the start of the assessment, SMA determined the approximate acreage for which the remedial prescribed burn is proposed. This task necessitated several site visits to Red Bluff Draw with each Operator's environmental and operating personnel, as well as close coordination with the NMOCD, Bureau of Land Management's Wildland Firefighting (BLMWF) Department and the Eddy County Emergency Coordinator's Office (ECO). The BLMWF team has conducted successful prescribed fire operations in the western portion of Red Bluff Draw as recently as 2011, and contained a wildfire in the proposed area in 2006. The map provided in Figure #2 is an estimate of the burn area only and is the combination of historical wildfire data and the real world experience of the Carlsbad Field Office (BLMWF) Firefighting Professionals.



All historical wildfire data comes directly from the Bureau of Land Management. "No warranty is made by BLM as to the accuracy, reliability or completeness of the aggregate data used."

LAND MANAGEMENT CONSIDERATION

The excerpt below is from the BLMWF Burn Plan, Pecos District (Appendix B-1)

> *"The primary objective of this burn is to reduce the existing wildland fire hazard and enhance wildlife habitat and watershed values. This objective will be met by reducing the dead and decadent alkali sacaton and shrub species, rejuvenating browse species, and eliminating piled salt cedar."*

The spill mitigation aspect of the proposed burn is secondary to the improvement of vegetative. The burn's efficacy has been evaluated as a tool to thermally remove higher order hydrocarbons from the draw's vegetation, not the area soils or surface water. The levels of hydrocarbons remaining in Red Bluff Draw's soil from the three incidents are below the NMOCD recommendations for closure. The main concerns to be addressed by the thermal treatment are the removal of affected vegetation and the rejuvenation of the draw's feeding value for area livestock and wildlife.

ESTABLISH PRECEDENTS AND EVALUATION OF POTENTIAL EFFICACY

SMA researched and documented existing evidence that supports the anticipated effectiveness of a prescribed fire as a remediation approach for hydrocarbon-impacted vegetation. SMA also collected representative paraffin samples from the draw for laboratory analysis to help characterize the hydrocarbons that need to be consumed and understand their behavior with fire. The laboratory analytical results are:

TABLE 4 SUMMARY OF ANALYTICAL RESULTS – PRODUCT ASSESSMENT

Analytical Report- H403437, H403673	Sample Date	Depth	BTEX mg/Kg	MRO mg/Kg	DRO mg/Kg	GRO mg/Kg
P-1	1-19-15	N/A	3.14	120000	140000	291
P-2	1-19-15	N/A	17.6	150000	260000	1346

All sample locations are shown in Figure 2

The excerpt below is from the BLMWF Burn Plan Pecos District (Appendix B-1)

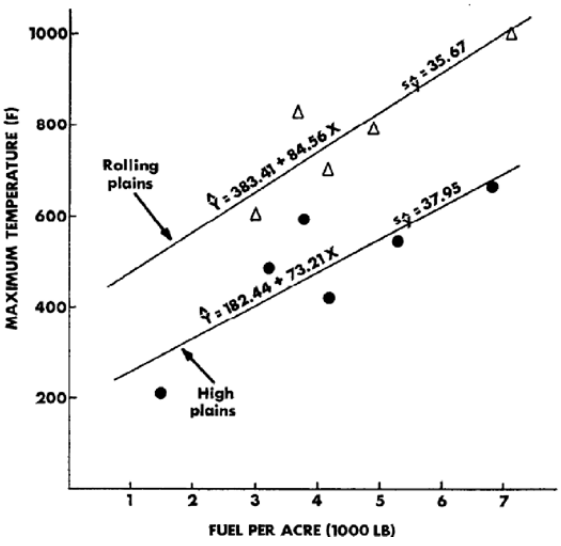
> *"Vegetation within the burn units consists of alkali sacaton, tobosagrass, and plains bristlegrass. Mesquite and creosote are common throughout the burn unit. Salt cedar has been excavated and piled thoughout some drainages. The uplands consist of plains bristlegrass, tobosagrass, muhly grass, and a mixed overstory of desert shrubs and succulents. The primary fire carrier will be cured grass, with fire expected to carry through some shrubs and most salt cedar piles. Fuel Model #3 will be used for fire modeling predictions as it most closely resembles the predominant fuel composition and structure*

found in drainages. The grass fuels in the uplands are generally neither uniform nor continuous and are broken up by barren areas. Fire modeling runs produced using fuel model 1 indicate higher rates of spread and flame lengths than what will be observed in the uplands. See Appendix E for fire modeling runs."

Vegetation Type	Fuel Model	Estimated tons/acre	Fuel Bed Depth (ft.)	Moisture of Extinction (%)
Tall Grass	3	3.0	2.5	25
Short Grass	1	1	1	12

(Aids to Determining Fuel Models for Estimating Fire Behavior; April 1982, Hal E Anderson)

Using the Hal E Anderson Model #3 as an estimation of vegetative fuel, we can correlate the expected temperatures of a vegetative-only fire using the Kenneth J. Stinson, Henry A. Wright Model of "Soil and Surface Temperatures of Headfires". There is not a large body of empirical evidence available to estimate the temperature effects of the residual hydrocarbons when calculating the predicted fire temperatures. Thus, only vegetative fuel can be assumed in the calculations. The maximum temperatures estimated in this report assume moisture content of the vegetation, i.e. the fuel, to be no greater than the 25% estimated in the BLMWF Burn Plan. The Stinson/Wright model used by SMA in this report also assumes several weather conditions common to the area including wind speed, air temperature, relative humidity and fire duration.



Average maximum temperatures in relation to total yield of forage. Each point represents an average of 6 thermocouples.
(Temperatures of Headfires in the Southern Mixed Prairie of Texas; Texas Tech, Lubbock Stinson, Wright)

The graph shows the Stinson/Wright resulting model based on vegetative load per acre. Using the BLMWF estimated fuel of 3 tons/acre or 6000 lbs/acre and the maximum temperature trend equation for high plains, Stinson/Wright yields an estimated maximum wildfire temperature of 620 ˚F. Using historical weather data from the nearest National Weather Service weather station "Carlsbad Cavern City Air Terminal", we can see that the average weather conditions for Red Bluff Draw are within the limits of the Stinson/Wright trends (Appendix B-3). Since both temperature and duration of exposure are greatly influenced by wind (Hare, 1961) an overall average fire temperature cannot be estimated within a reasonable level of confidence.

Because of the heavy rain events, the long duration of time since the release occurrences, and the recommended February-March prescribed burn season, it is likely that the majority of the hydrocarbons found in Red Bluff Draw have volatilized or degraded months before the issuance of this report. Most light and medium weight components of crude oil generally break down or volatilize within the first month of a release, depending on spill composition, volume and ambient temperature. With this in mind, SMA has concentrated on the mitigation of higher molecular weight components of crude oil, those comprised of 23 carbon atoms or greater. These larger chain hydrocarbons typically take years to break down and volatilize.

Through several field visits, sample collection and operator field notes, SMA has reached the conclusion that the majority of the residual hydrocarbon found in and around the vegetation in Red Bluff Draw is "slack wax" or raw unrefined petroleum paraffin wax. Paraffin wax is a complex combination of hydrocarbons, most being chains of greater than or equal to 23 carbon atoms, from raw or crude petroleum fractions. Slack wax or unrefined paraffin has an estimated melting point between 94 ˚F and 150 ˚F and a flash point between 400 ˚F and 440 ˚F. With the estimated temperatures of the prescribed burn in Red Bluff Draw ranging from 380 ˚F to 620 ˚F, a large portion of the residual paraffin should be consumed by the fire.

SAFETY AND LOGISTICS OF THE PRESCRIBED FIRE

The Draft Health and Safety Plan prepared by SMA covers all field operations except the actual burn (Appendix B-3). Any proposed fire on New Mexico State Land must be overseen by a licensed Firefighting Professional. In the case of this project, the required fire safety planning and documentation will be provided by the Licensed Firefighting Professionals conducting the burn. In accordance with all Federal, State, and local ordinances, both a Smoke Management Plan and a Burn Plan will be submitted two weeks prior to any prescribed fire action. The attached Smoke Management and Burn Plans are drafts prepared by both BLMWF and the Eddy County Emergency Coordinator Office (Appendix B-1). Both the Smoke Management Plan and Burn Plan must be prepared and signed by the onsite "Burn Boss" or the Firefighting Professional directly responsible for the management and safety of the burn.

Below is an excerpt from the BLMWF Burn Plan Pecos District (Appendix B-1)

> *The Burn Boss is responsible for public and personnel safety during the burn. All standard Wildland fire safety rules will be strictly enforced. Burn personnel will use all required personal protective equipment (PPE) during all phases of the burn. No person will be allowed along fire control lines or within the burn unit without the proper PPE*

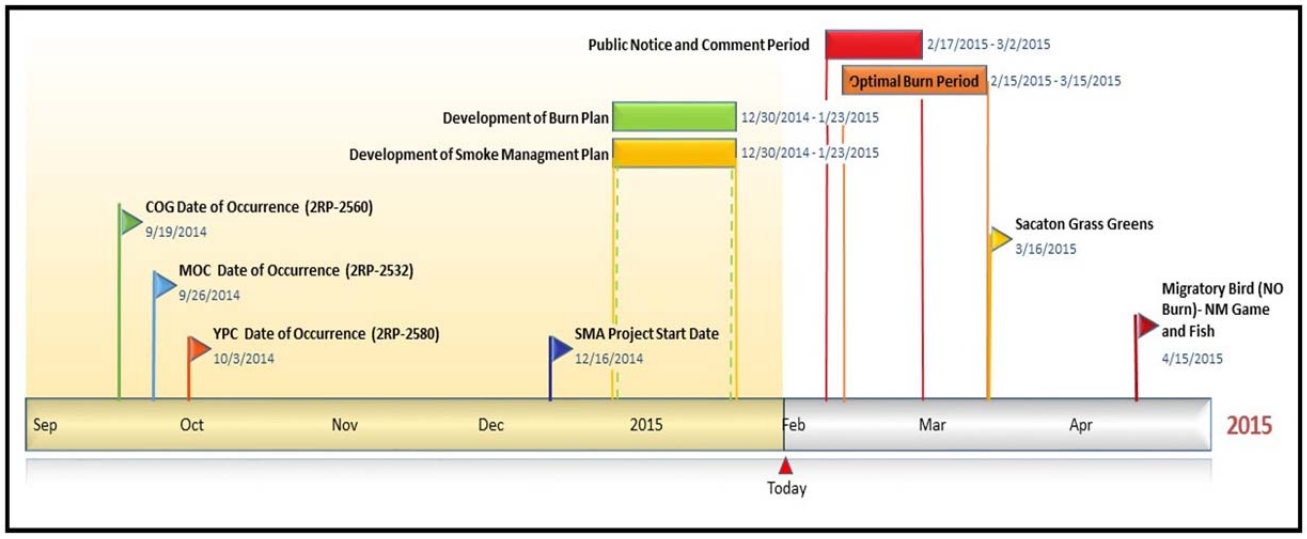
Although SMA, COG, YPC and MOC employees and their contractors are needed to conduct several pre and post burn activities, there is no need for any involvement in the actual prescribed fire action. Required and/or requested pre burn activities are listed below.

PRE-BURN

- Initial sampling of affected soils and vegetation, to establish a pre burn baseline.
- NMOCD Workplan submitted and approved in compliance with New Mexico Administration Code (19.15.1.19 NMAC, Subsection B, Paragraphs 1 and 2).
- Submittal of both the Smoke Management Plan and proof of public notice to the New Mexico Environment Department Air Quality Bureau to comply with New Mexico Administrative Code (20.2.65 NMAC, Smoke Management).
- Notification of Albuquerque District, U.S. Army Corps of Engineers to comply with Nationwide Permit 20 and (40 CFR part 300)
- Moving all poly flowlines to lease roads, steel pipeline Right of Ways (ROW) or established fire breaks by all Area Oil and Gas Operators
- Receipt of signed CONSENT FOR ACCESS TO PROPERTY from each landowner within the radius of impact (ROI)
- Confirmation that all area lease holders and landowners have removed livestock from the burn area.

In 2011, BLMWF conducted a prescribed burn west of the proposed fire area. The area they burned was in the southeastern part of China Draw shown in Appendix B-1. The BLMWF has experience in this area, successfully conducting several prescribed burns in the Carlsbad District. The 2011 China Draw Fire burned hydraulically upstream from Red Bluff Draw with similar vegetation and topography, according to discussions with Matias Telles from BLMWF. Since the old fire had similar conditions and was three miles west of the proposed burn, SMA has referenced this historical data to build the proposed timeline. See Figure 4.

PROPOSED TIMELINE FOR PRESCRIBED FIRE IN RED BLUFF DRAW (FIGURE # 3)



The BLMWF is the area expert when it comes to prescribed fire operations in the surrounding area. Unfortunately, the BLMWF can only operate as the "Burn Boss" i.e. responsible party for public and personnel safety during the burn because the area is not on federal lands. Fortunately for this project the BLMWF, New Mexico State Forestry and Eddy County have a long history of incident and project cooperation. Because the majority of the proposed burn area is on State and Private land, the prescribed fire project must be conducted under the authority of Eddy County Emergency Coordinator with BLMWF acting as support.

The Eddy County Emergency Coordinator, with the approval of the Eddy County Commissioners, will conduct the Red Bluff Draw Prescribed Fire as a training exercise. The Red Bluff Draw Prescribed Fire will be used as a joint response training event for local volunteer fire professionals and the BLMWF firefighters.

NOTIFICATION, ACCESS, & PERMITS REQUIRED
REGULATORY CONSIDERATIONS

NEW MEXICO STATE REGULATIONS

NEW MEXICO OIL CONSERVATION DIVISION
DISTRICT 2 – ARTESIA
811 FIRST ST.
ARTESIA, NM 88210
CONTACT: MIKE BRATCHER & HEATHER PATTERSON

The In-Situ remediation of hydrocarbon impacts caused by the incidents in Red Bluff Draw is conducted under the regulatory jurisdiction of the NMOCD, which requires the vadose zone shall be abated so that water-borne contaminants in the vadose zone will not, with reasonable probability, contaminate groundwater or surface water (toxic pollutants as defined in 20.6.2.7 New Mexico Administration Code shall not be present) through leaching, percolation, or other transport mechanisms (19.15.1.19 NMAC, Subsection B, Paragraphs 1 and 2).

The NMOCD hydrocarbon soil remediation levels are determined by ranking criteria on a site-by-site basis, as outlined in the NMOCD Guidelines for Remediation of Spills, Leaks, and Releases, dated August 13, 1993. The ranking criteria are based on three site characteristics: depth to groundwater, wellhead protection, and distance to surface water. Because all three releases were at different elevations and locations across six miles of Red Bluff Draw, SMA is using each operator's determination of their own site characteristics. This means SMA will use the NMOCD site ranking score reflected by the individual operating companies in their initial reporting to NMOCD (Appendix A).

According to NMOCD Guidelines for Remediation of Spills, Leaks, and Releases and discussions with the District 2 Staff Environmental Specialist, the prescribed fire will be viewed by the department as a "Thermal Treatment". A work plan must be submitted and the alternative method of prescribed fire approved before the start of any remedial action. This feasibility study report prepared by SMA contains the majority of the requirements set forth in NMOCD Guidelines for Remediation of Spills for a Workplan and could be submitted to the NMOCD District 2 for alternative method approval.

NEW MEXICO STATE LAND OFFICE
CARLSBAD DISTRICT
602 NORTH CANAL STREET
CARLSBAD, NM 88220
CONTACT: IAN DOLLY & MARK MEYERS

The State Land Office (NMSLO) not only has regulatory authority over portions of the prescribed fire but is also the largest landowner in the burn area. Refer to Figure 5. The State Land Office views the fire as the preferred method of remediation because it also serves their need for vegetation management within the draw.

The State Land Office, Carlsbad District, has requested notification along with the other area landowners and has requested NMSLO review of both the Burn Plan and Smoke Management Plan prior to the issuance of access permission. The NMSLO has also requested copies of all public notices and acquired land access permissions. All written correspondence with the NMSLO is located in Appendix C-2.

NEW MEXICO STATE ENVIRONMENT DEPARTMENT AIR QUALITY BUREAU
(NMED AIR QUALITY BUREAU)
525 CAMINO DE LOS MARQUEZ, SUITE 1
SANTA FE, NM 87505
CONTACT: TED SCHOOLEY & CLAUDIA STANDISH "SMOKE DESK"

The New Mexico State Environment Department's Air Quality Bureau has regulatory authority over the burn through NMAC 20.2.60 Open Burn and NMAC 20.2.65 Smoke Management (Appendix C). Typically these regulations only cover vegetative burning and must be partnered with a solid waste determination for any additional constituents. The Red Bluff Draw Prescribed Fire is overwhelmingly vegetative but does contain some RCRA exempt hydrocarbons (Appendix A).

The proposed burn requires a Smoke Management Plan because of the size of the burn, > 10 acres, according to the open burn checklist (Appendix C-5). NMAC 20.2.65 requires a determination of the potential vegetative area to be burned. This determination must include an evaluation of the burn project, alternative methods of treatment, whether any Class 1 areas will be affected by the burn project, and the potential particulate matter emissions of the burn.

In addition to the Smoke Management Plan, NMED Air Quality Bureau has also requested the following information. Refer to SMA's correspondence in Appendix C-4

"1) Please provide as much information as possible as to the nature of the oil that was spilt (diesel, unrefined oil, mixture, unknown, etc.)

2) Please provide the original quantity of oil spilt and supporting documents, if available. If the exact quantity is not known, provide a best estimate using known facts, indicating the level of confidence for each assumption in making the calculation. If the spill was from overflowing waste water tanks, estimate the percentage of oil to water typically found in the tanks before the spill.

3) Please provide a map of the entire prospective burn area with the area of the spill indicated along with your level of confidence in the accuracy of the spill area.

4) Please provide your best estimate of the affected spill area, your confidence level in the figure and any supporting documentation

5) If the oil had a volatile fraction, provide any supporting data

6) If there is any evidence of oil seepage into the ground, provide any estimate and supporting data

7) What is the purpose of the burn?

8) The date of the spill"

NEW MEXICO DEPARTMENT OF GAME AND FISH
DIVISION OF ECOLOGICAL AND ENVIRONMENTAL PLANNING
P.O. BOX 25112
SANTA FE, NM 87504
CONTACT: MARK L. WATSON

The New Mexico Department of Game and Fish has some regulatory authority over portions of the prescribed fire area with respect to the migratory birds expected in this area. Due to the nature of this burn, nesting habits and/or mortality for migratory birds could potentially be affected. The Game and Fish supports the prescribed fire to mitigate the spilled hydrocarbons that may affect nesting in the shrubs and grasses.

The Department of Game and Fish is regulating under authority of The Migratory Bird Treaty Act to protect migratory birds. The only request they have is the conduct the fire outside of the nesting periods for migratory birds. The nesting period for the birds is April 15 to September 15 shown in Figure 4. They advise conducting the burn in early March as planned.

DEPARTMENT OF CULTURAL AFFAIRS
407 Galisteo Street, Suite 236
Santa Fe, NM 87501
CONTACT: Gerry Raymond

The New Mexico Historic Preservation division was requested to review the project area by SMA. The department found no areas of concern in the draw but recommended a current record search be done by a third party company familiar with the area. The record review and all correspondence are located in Appendix C-8.

The project area was also reviewed by SMA's area partner, Advanced Archaeological Solutions.

U.S. FEDERAL REGULATIONS

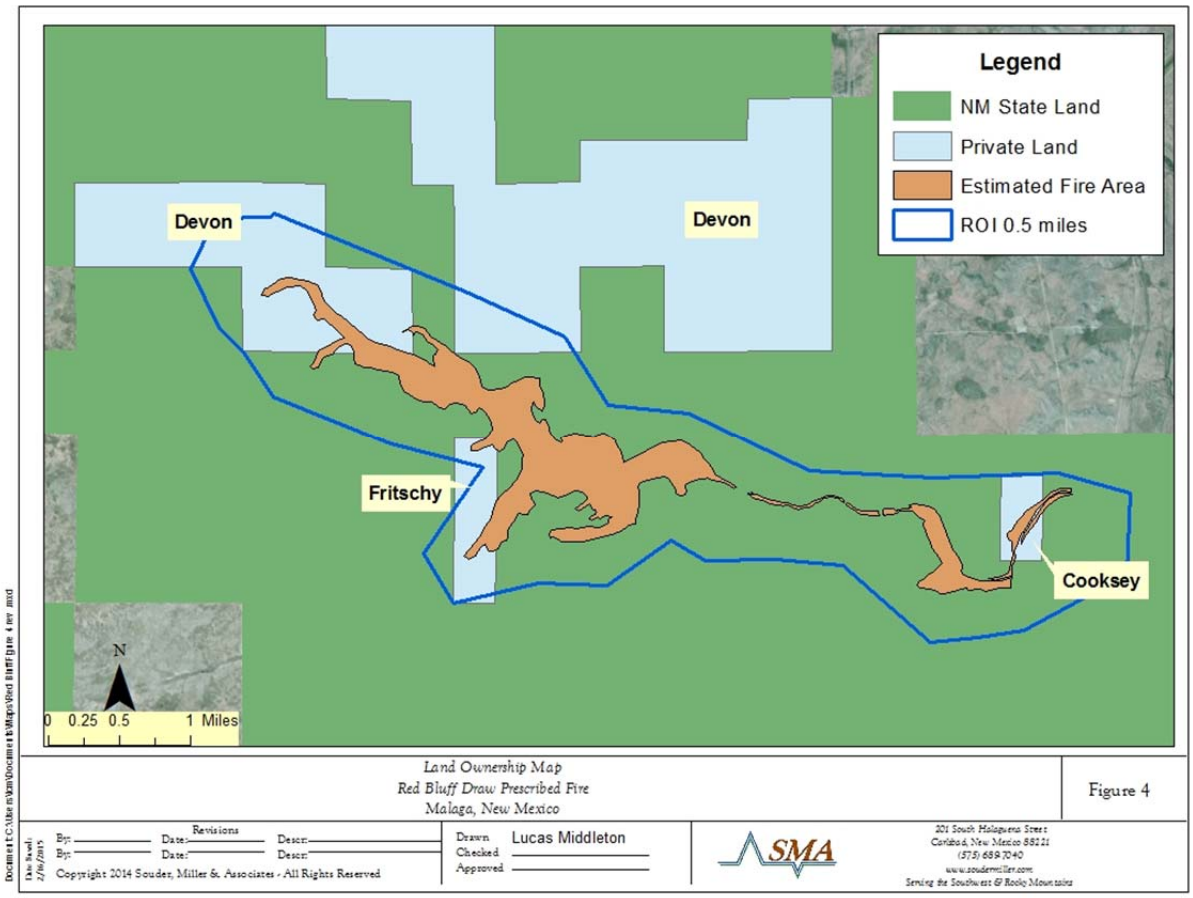
ARMY CORP OF ENGINEERS
ALBUQUERQUE DISTRICT
LAS CRUCES REGULATORY OFFICE
505 South Main St., Suite 142
Las Cruces, NM 88001
CONTACT: JUSTIN RIGGS

The Army Corp of Engineers (ACE) has regulatory authority over the draw that is within the prescribed fire boundary. ACE regulates and oversees the "Waters of the United States" under which Red Bluff Draw falls. They agree that the mitigation by in-situ burn can be conducted under Nationwide Permit 20, Response Operations for Oil and Hazardous Substances. Only notification to ACE is required prior to the burn. After the burn has been conducted, further investigation will be done by ACE to see if an additional permit is required.

RADIUS OF IMPACT AND LOCAL LANDOWNERS AND LEASE HOLDERS

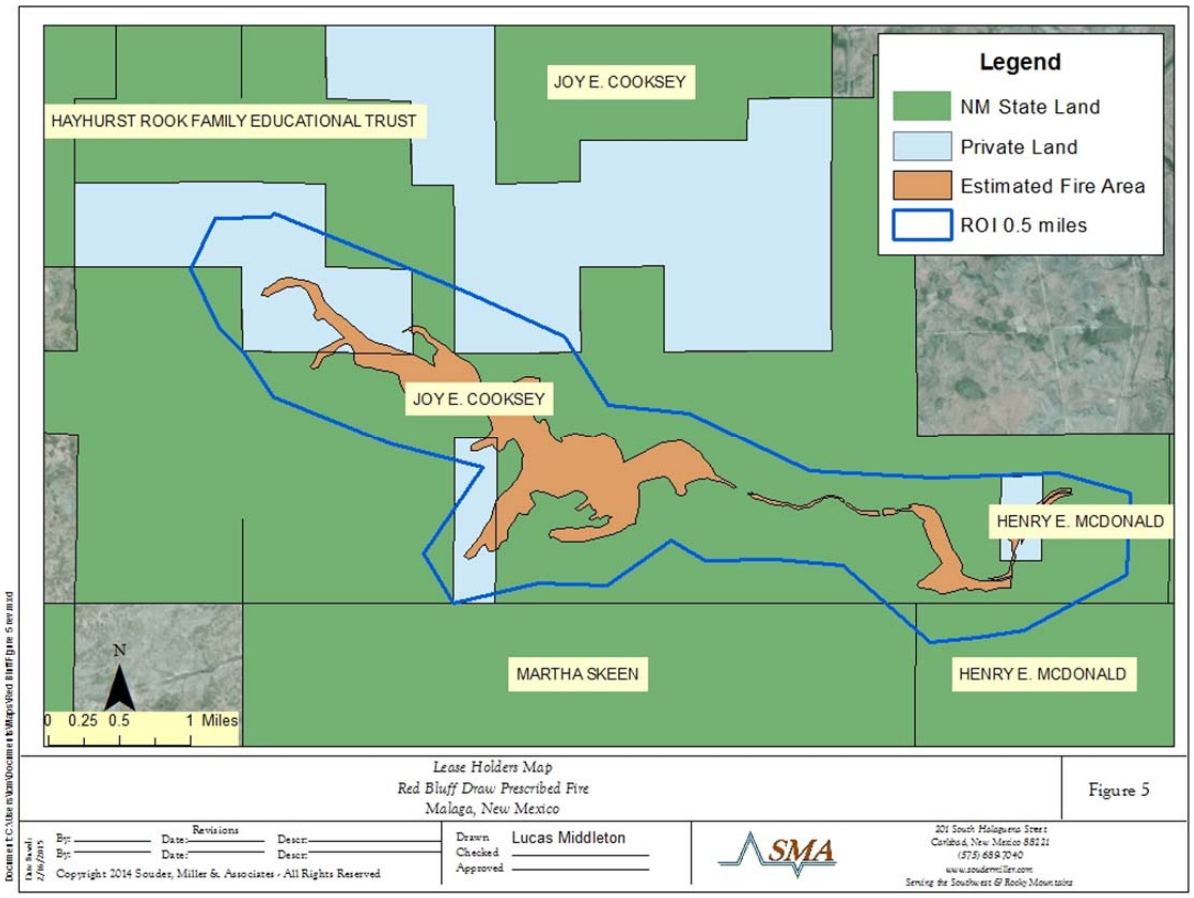
The Radius of Impact (ROI) is the required one quarter mile radius of notification for a Smoke Management Plan plus an additional quarter-mile for a safety factor. The closest city to the ROI is Malaga, NM which is 9 miles north of the burn, shown in Figure 7.

In the ROI, there are three types of stakeholders who will be contacted: the landowners, lease holders, and oil and gas lease holders. See Figure 4. They will be notified and have a period to comment on the matter. All of the data was acquired from New Mexico State Land Office and the Eddy County Tax Assessors.

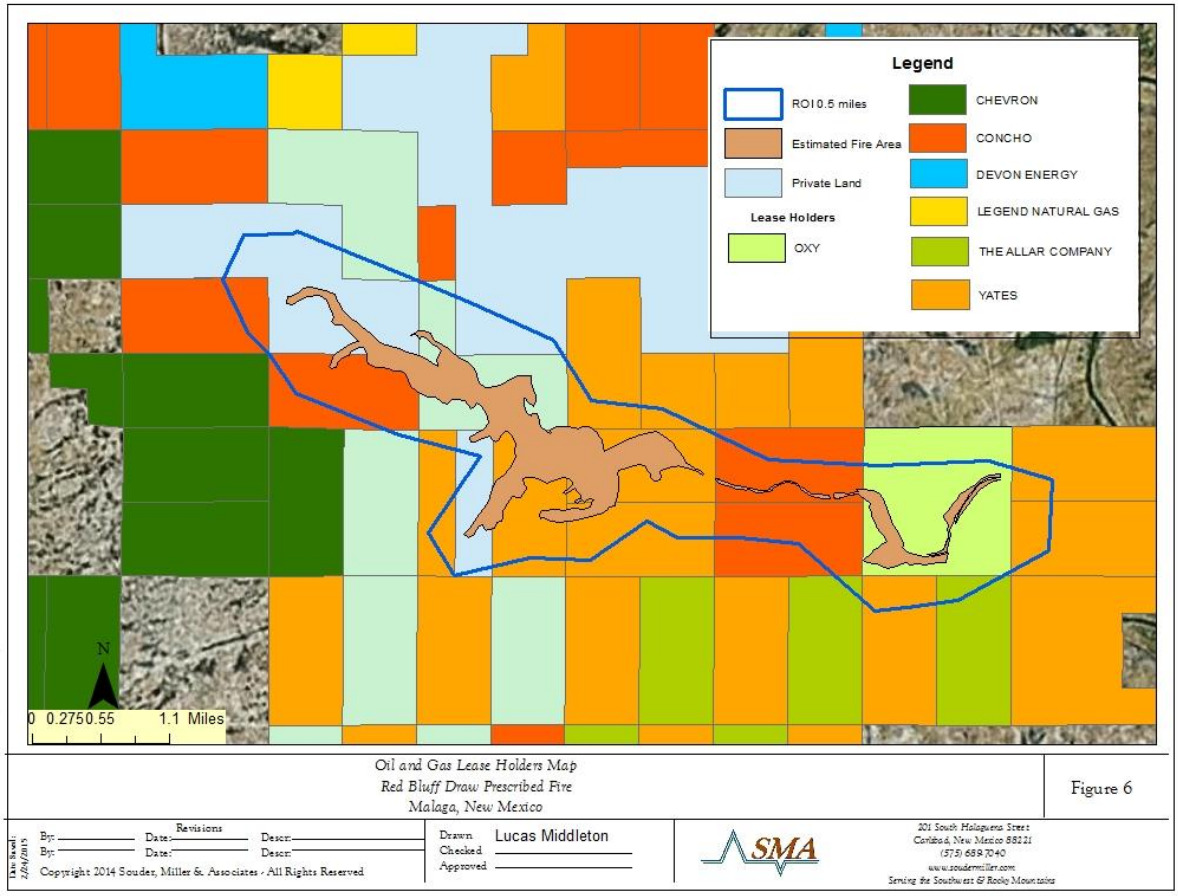


In the ROI, there are four private landowners from whom we will request permission to access their property and who will be specifically notified prior to the prescribed burn. Their properties are depicted in Figure 4 above.

Lease holders and the oil and gas lease holders within the RIO will also be notified prior to the prescribed burn. Figure 5 and Figure 6 are maps showing such leaseholders with respect to the ROI.



SMA has included several draft notifications and property access consent forms in Appendix C-11. All forms are drafts only and need review by each operator to ensure they meet each company's own internal standards. The notification drafts have been designed within the requirements set forth by NMED Air Quality Bureau. The Property Access Consent forms are modeled after SMA's internal form.



Oil and Gas Lease Holders Map
Red Bluff Draw Prescribed Fire
Malaga, New Mexico

Figure 6

Revisions
By: Date: Descr:
By: Date: Descr:

Drawn Lucas Middleton
Checked
Approved

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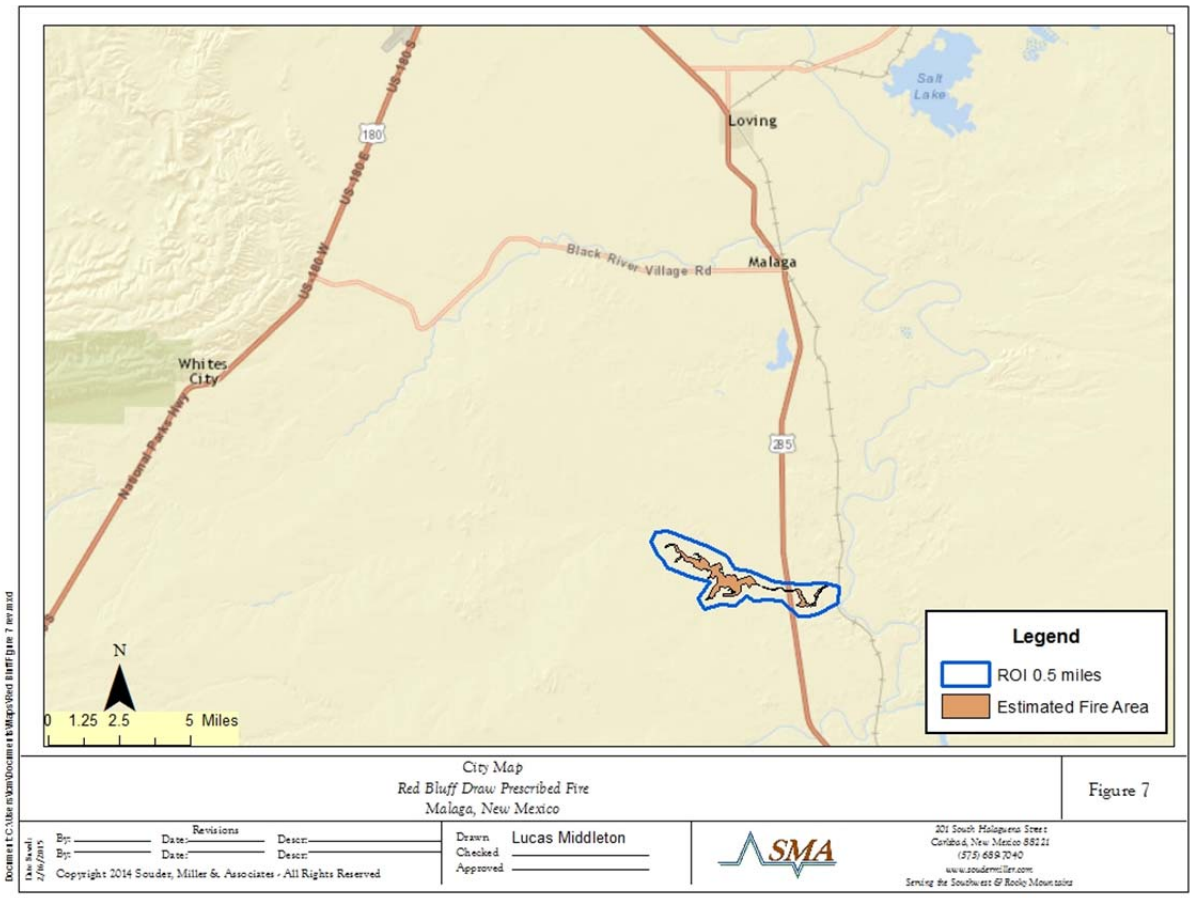
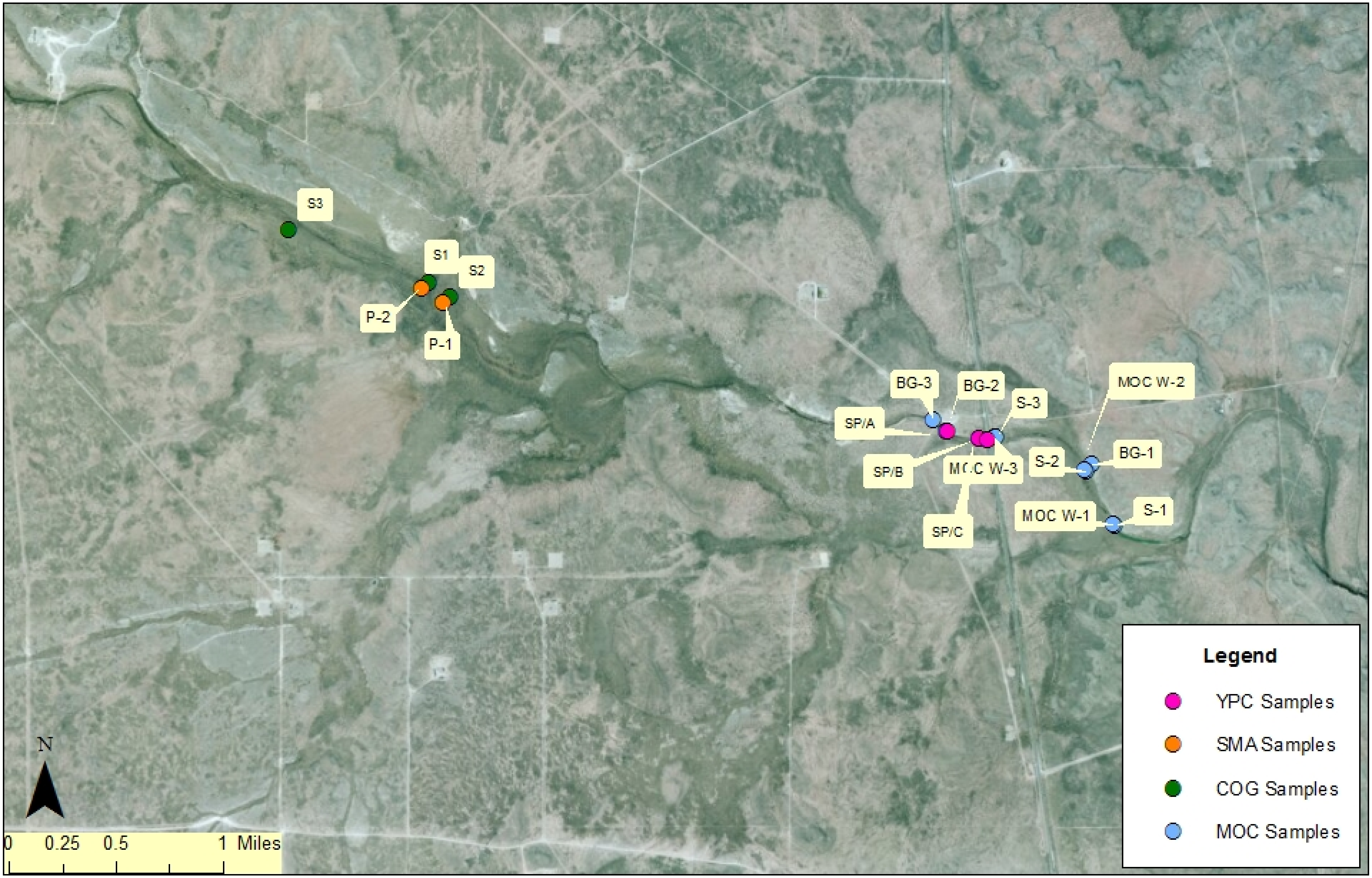


A list of landowners, leaseholders, and oil and gas leaseholders requiring general notification under State requirements is located in Appendix C-12. The table below includes those whose interests may potentially be affected by the prescribed fire project and whose holdings are within or in close proximity to the ROI.

Type	Company	Contact	Address	City	State	Zip Code	Phone
Land Owner		Joy and James Cooksey	PO BOX 45	Carlsbad	NM	88220	(575) 706-3712
Land Owner		Myrtle and David Fritschy	603 Elora DR.	Carlsbad	NM	88220	
Land Owner	Devon Energy	Stacie Singleton	6488 Seven Rivers Highway	Artesia	NM	88210	(575) 748-1844
Land Owner	New Mexico State Land Office	IAN DOLLY	602 N. Canal, Suite B	Carlsbad	NM	88220	(575) 885-1323
Land Lease	HAYHURST ROOK FAMILY EDUCATIONAL TRUST		518 E Orchard Ln	Carlsbad	NM	88220	(575) 887-6313
Land Lease	HENRY E. MCDONALD		P.O. BOX 597	Loving	NM	88256	(575) 745-2161
Land Lease	MARTHA SKEEN		P. O. BOX 696	Loving	NM	88256	(505) 236-6148
Land Lease	Joy E. Cooksey	Joy and James Cooksey	PO BOX 45	Carlsbad	NM	88220	(575) 706-3712
Oil and Gas Lease	Chevron		500 West Taylor Street	Hobbs	NM	88240	(575) 393-4106
Oil and Gas Lease	COG	Robert McNeill	1 Concho Center	Midland	TX	79701	(432)685-4304
Oil and Gas Lease	Legend Natural Gas		15021 Katy Freeway Suite 200	Houston	TX	77094	(281) 664-5900
Oil and Gas Lease	OXY USA INC.		420 Goins Ln	Hobbs	NM	88240	(575) 393-7810
Oil and Gas Lease	The Allar Company		735 Elm Street	Graham	TX	76450	(940) 549-0077
Oil and Gas Lease	YPC	Leory Richards	105 S 4th St	Artesia	NM	88210	(575) 748-4311

FIGURES



Sample Map
Red Bluff Draw Prescribed Fire
Malaga, New Mexico

Figure 1

Revisions

By: ______ Date: ______ Descr: ______
By: ______ Date: ______ Descr: ______

Drawn Lucas Middleton
Checked ______
Approved ______

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Carlsbad, New Mexico 88221
(575) 689-7040
www.soudermiller.com
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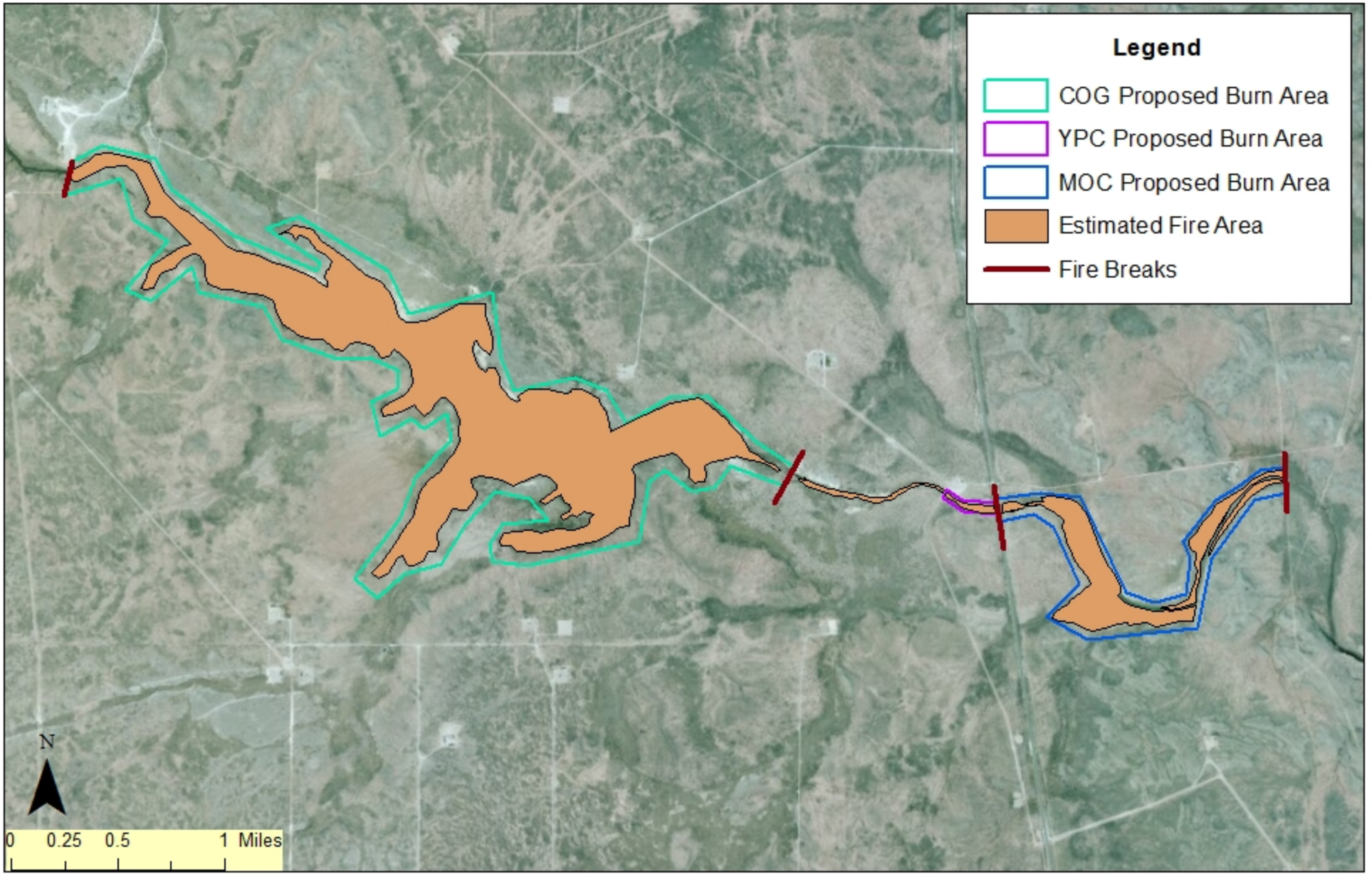
Date Saved: 2/17/2015



Estimated Prescribed Fire Boundaries
Red Bluff Draw Prescribed Fire
Malaga, New Mexico

Figure 2

Revisions
By: Date: Descr:
By: Date: Descr:

Drawn Lucas Middleton
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Approved

Date Saved: 2/16/2015

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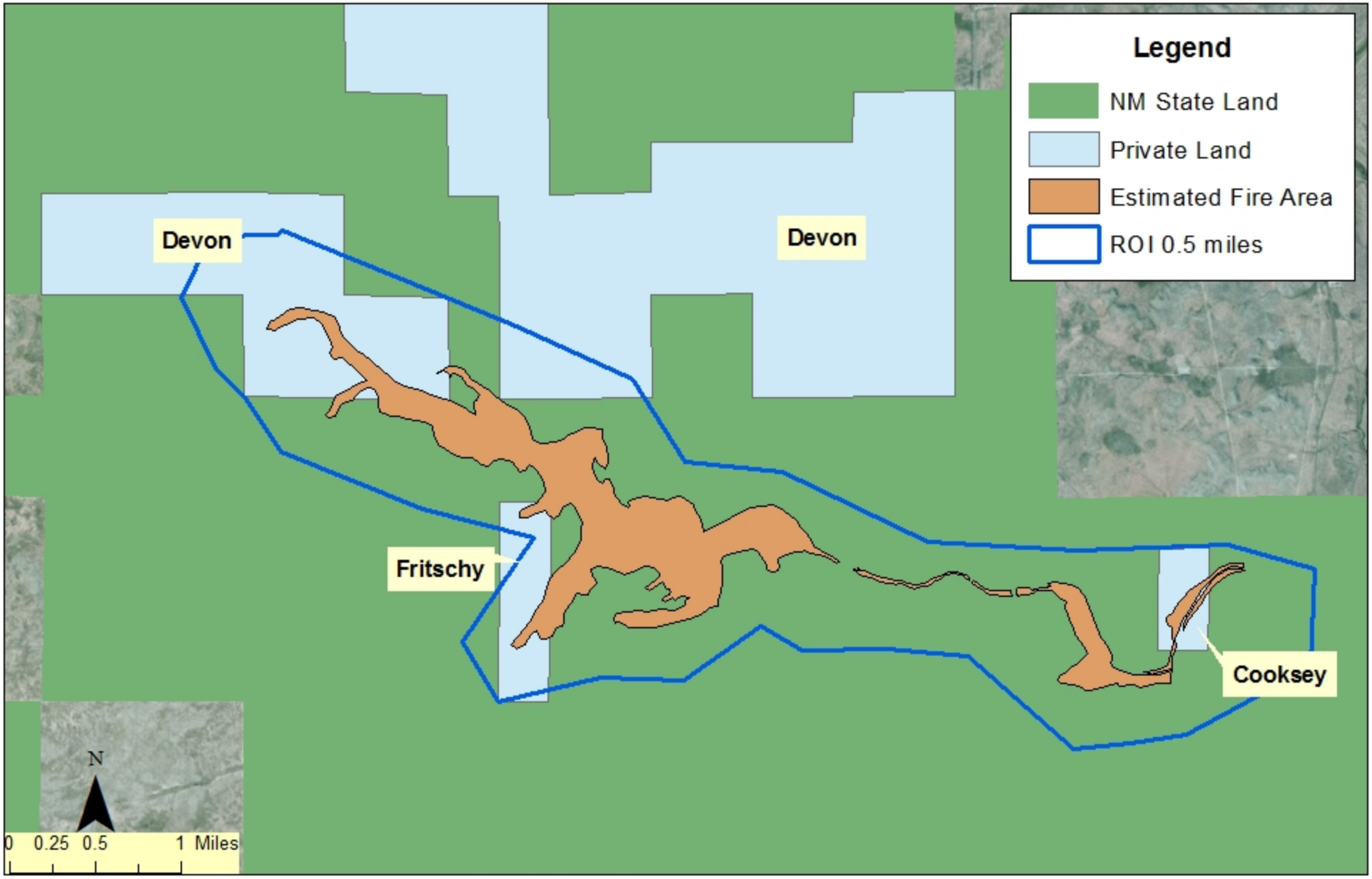
Document1:C:\Alberto\Documents\Maps\Red Bluff Figure 2 rev.mxd



Land Ownership Map
Red Bluff Draw Prescribed Fire
Malaga, New Mexico

Figure 4

Revisions
By: Date: Descr:
By: Date: Descr:

Date Saved: 2/16/2015

Drawn Lucas Middleton
Checked
Approved

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Carlsbad, New Mexico 88221
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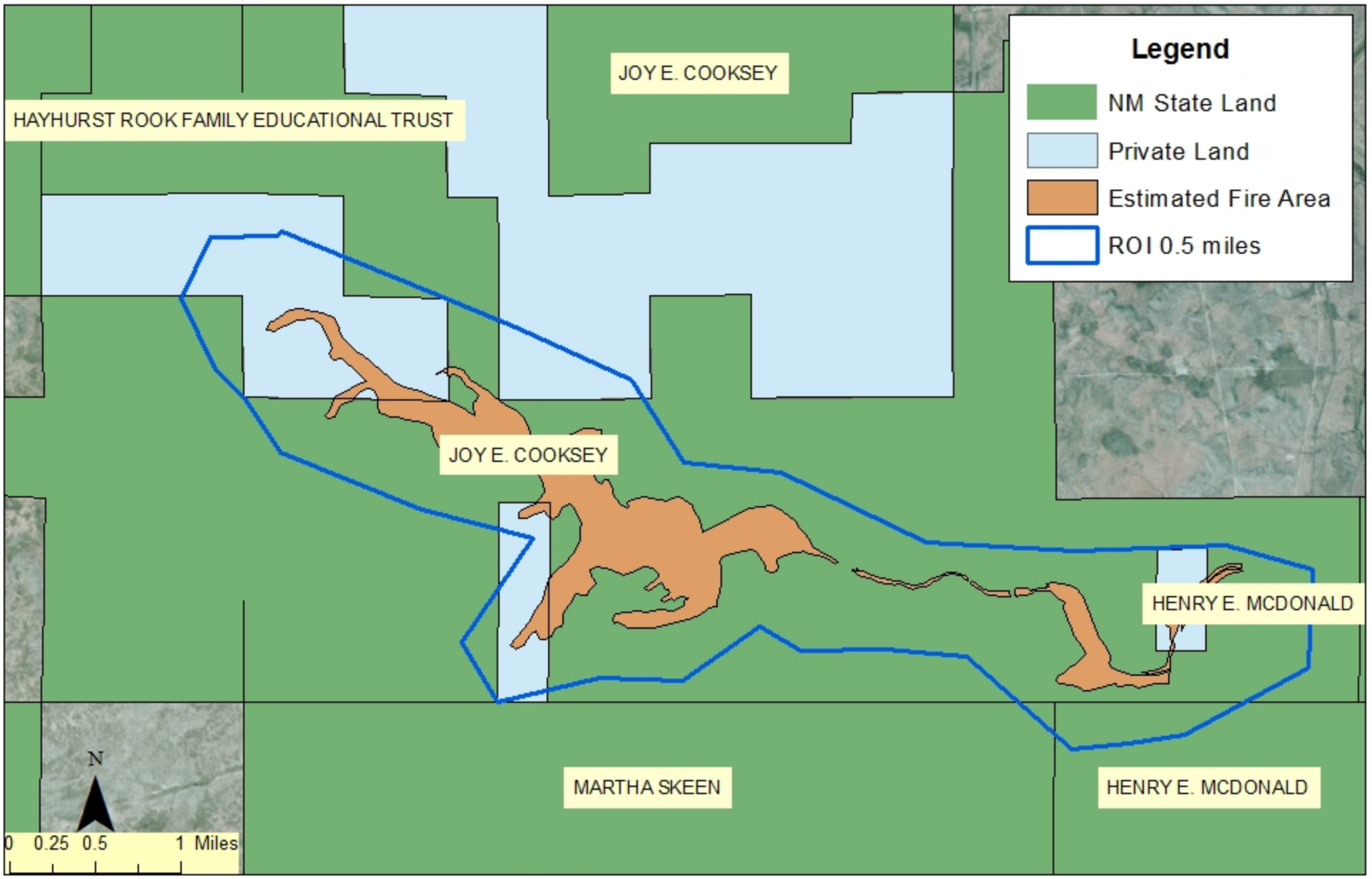
Document1:C:\Users\lucas\Documents\Maps\Red Bluff Figure 4 rev .mxd



Lease Holders Map
Red Bluff Draw Prescribed Fire
Malaga, New Mexico

Figure 5

Revisions
By: Date: Descr:
By: Date: Descr:

Date Saved: 2/16/2015

Drawn: Lucas Middleton
Checked:
Approved:

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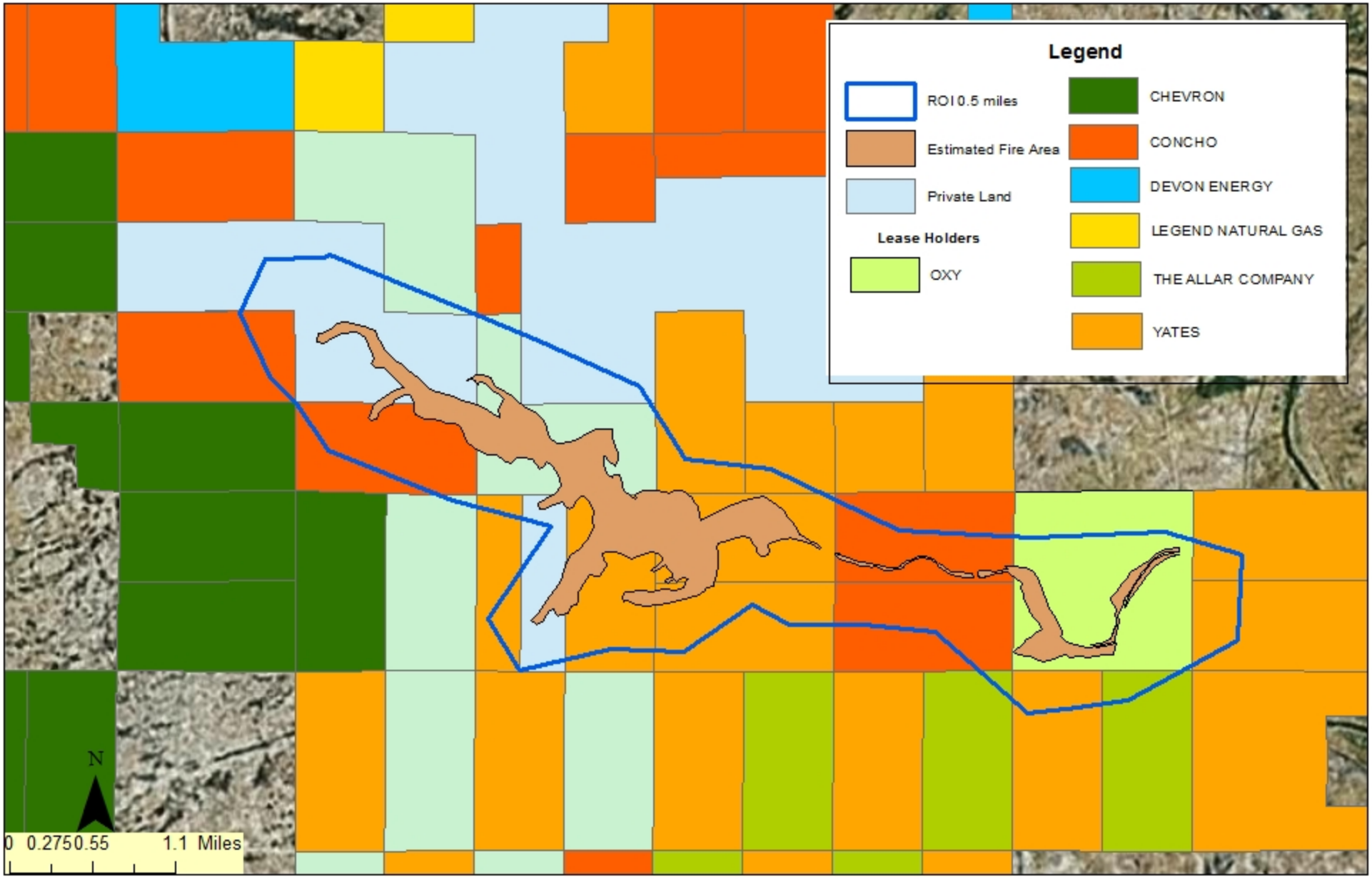
Document1:C:\Alberto\Documents\Maps\Red Bluff\Figure 5 rev.mxd



Oil and Gas Lease Holders Map
Red Bluff Draw Prescribed Fire
Malaga, New Mexico

Figure 6

Revisions
By: Date: Descr:
By: Date: Descr:

Date Saved: 2/24/2015

Drawn Lucas Middleton
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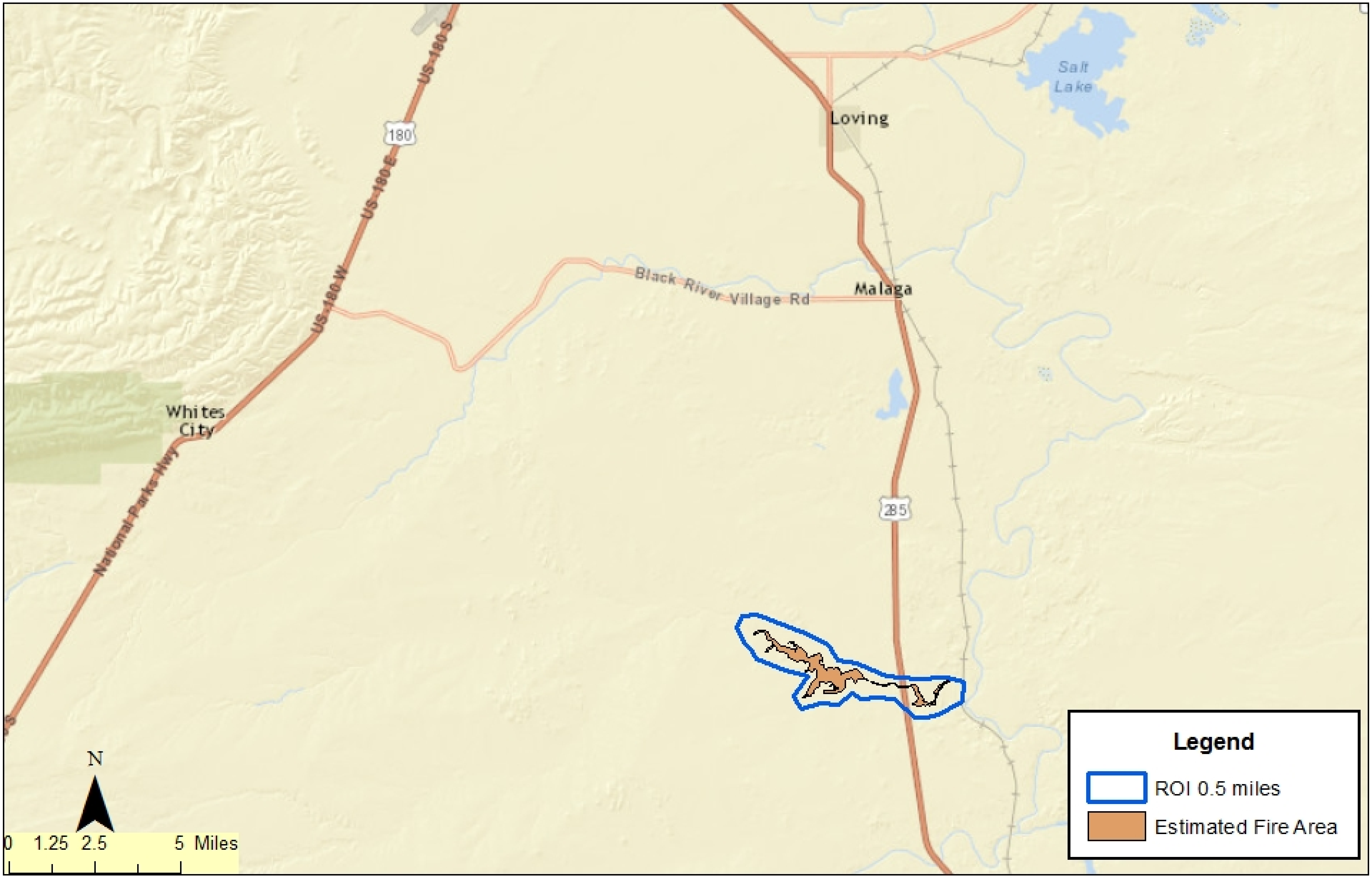
Document: C:\Users\lucas\Documents\Maps\Red Bluff\Figure 6 rev.mxd



City Map
Red Bluff Draw Prescribed Fire
Malaga, New Mexico

Figure 7

Revisions

By: ______ Date: ______ Descr: ______

By: ______ Date: ______ Descr: ______

Drawn: Lucas Middleton

Checked: ______

Approved: ______

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Date Saved: 2/16/2015

Document: C:\Users\...\Documents\Maps\Red Bluff Figure 7 rev.mxd

APPENDIX A
ANALYTICAL REPORTS

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

NM OIL CONSERVATION
ARTESIA DISTRICT
OCT 20 2014
RECEIVED

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1429432526

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC 229137	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-230-0077
Facility Name: Crossman 25 State #1H	Facility Type: Battery

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-015-38948

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	25	25S	27E	330'	North	330'	East	Eddy

Latitude 32.1073265861973 **Longitude** -104.136404581729

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release: 280 bbls Oil ; 100 bbls PW	Volume Recovered: 0 bbls Oil ; 0 bbls PW
Source of Release: Flood waters washed battery away.	Date and Hour of Occurrence: 9/19/2014 11:00 am	Date and Hour of Discovery: 9/19/2014 11:00 am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher – OCD	
By Whom? Robert McNeill	Date and Hour: 9/22/2014 8:00 am (phone call)	
Was a Watercourse Reached? ☒ Yes ☐ No	If YES, Volume Impacting the Watercourse. Unknown	

If a Watercourse was Impacted, Describe Fully.*
Torrential rains caused flood waters to rise. Waters over ran the location, taking tanks and equipment away with the water. Most of the pad was taken away with the flood waters as well. Tanks and equipment was located approximately 2 miles further down the arroyo. The steel tanks were empty and the fiberglass tanks were torn apart.

Describe Cause of Problem and Remedial Action Taken.*

Describe Area Affected and Cleanup Action Taken.*

The impacted area shows no signs of hydrocarbon or brine impact. Once the area dries out and is accessible to heavy equipment we will conduct a more thorough search of the area for hydrocarbon impact. Equipment will be removed from the draw and disposed of at an NMOCD approved facility.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:

Printed Name: Amanda Trujillo

Title: Senior Environmental Coordinator

E-mail Address: atrujillo@concho.com

Date: October 20, 2014 Phone: 575-748-6940

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Approval Date: 10/21/14 Expiration Date: NA

Conditions of Approval: Attached ☐

Remediation per O.C.D. Rules & Guidelines
SUBMIT REMEDIATION PROPOSAL NO
ATER THAN: 11/21/14

2RP-2560

* Attach Additional Sheets If Necessary

Bratcher, Mike, EMNRD

From: Amanda Trujillo <ATrujillo@concho.com>
Sent: Monday, October 20, 2014 4:13 PM
To: Bratcher, Mike, EMNRD; Patterson, Heather, EMNRD
Subject: RE: (Initial-Final C-141) Crossman25 State #1H (30-015-38948)
Attachments: 09-19-2014 Crossman 25 State #1H (TB) Initial-Final (Amended).pdf

Mr. Bratcher,

Attached is an amended C-141 for the Crossman 25 State #1H. Please feel free to contact me if you have any questions.

Thank you,

Amanda Trujillo
Senior Environmental Coordinator
COG Operating LLC
Cell: 505.350.1336
Office: 575.748.6930
atrujillo@concho.com

2407 Pecos Ave.
Artesia , NM 88210

From: Amanda Trujillo
Sent: Thursday, October 02, 2014 3:17 PM
To: 'Bratcher, Mike, EMNRD'; 'Patterson, Heather, EMNRD'
Subject: (Initial-Final C-141) Crossman25 State #1H (30-015-38948)

Mr. Bratcher,

COG Operating LLC is reported the release at the **Crossman25 State #1H (30-015-38948)** on 9/22/2014 by phone.
Unit A Section 25 Township 25S Range 27E
The release occurred at 11:00 pm on 09/19/2014.
Released: Unknown Volume of Oil and Produced Water
Recovered: 0 bbls
This release was caused by torrential rains. Waters over ran the location, taking tanks and equipment away with the water. Attached is a C-141 Initial for your consideration. If you have any additional questions please feel free to contact me.

Thank you,

Amanda Trujillo
Senior Environmental Coordinator
COG Operating LLC
Cell: 505.350.1336
Office: 575.748.6930
atrujillo@concho.com

2208 W. Main St.
Artesia , NM 88210

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CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

February 05, 2015

GARRETT MERKET

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: CROSSMAN

Enclosed are the results of analyses for samples received by the laboratory on 02/04/15 12:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

COG OPERATING
GARRETT MERKET
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	02/04/2015	Sampling Date:	01/28/2015
Reported:	02/05/2015	Sampling Type:	Soil
Project Name:	CROSSMAN	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: S1- 1' (H500315-01)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/04/2015	ND	1.72	85.8	2.00	11.5	
Toluene*	**0.561**	0.050	02/04/2015	ND	1.62	81.2	2.00	12.8	
Ethylbenzene*	**0.105**	0.050	02/04/2015	ND	1.57	78.7	2.00	12.1	
Total Xylenes*	**2.23**	0.150	02/04/2015	ND	4.69	78.1	6.00	12.5	
Total BTEX	**2.89**	0.300	02/04/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *61-154*

Chloride, SM4500Cl-B mg/kg Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	02/05/2015	ND	432	108	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**405**	10.0	02/04/2015	ND	206	103	200	8.01	
DRO >C10-C28	**1940**	10.0	02/04/2015	ND	222	111	200	14.3	

Surrogate: 1-Chlorooctane *135 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *108 %* *52.1-176*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

COG OPERATING
GARRETT MERKET
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	02/04/2015	Sampling Date:	01/28/2015
Reported:	02/05/2015	Sampling Type:	Soil
Project Name:	CROSSMAN	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: S1- 2' (H500315-02)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/04/2015	ND	1.72	85.8	2.00	11.5	
Toluene*	**0.051**	0.050	02/04/2015	ND	1.62	81.2	2.00	12.8	
Ethylbenzene*	<0.050	0.050	02/04/2015	ND	1.57	78.7	2.00	12.1	
Total Xylenes*	<0.150	0.150	02/04/2015	ND	4.69	78.1	6.00	12.5	
Total BTEX	<0.300	0.300	02/04/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *98.3 %* *61-154*

Chloride, SM4500Cl-B mg/kg Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	02/05/2015	ND	432	108	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**14.0**	10.0	02/04/2015	ND	206	103	200	8.01	
DRO >C10-C28	**32.7**	10.0	02/04/2015	ND	222	111	200	14.3	

Surrogate: 1-Chlorooctane *113 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *116 %* *52.1-176*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

COG OPERATING
GARRETT MERKET
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	02/04/2015	Sampling Date:	01/28/2015
Reported:	02/05/2015	Sampling Type:	Soil
Project Name:	CROSSMAN	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: S1- 3' (H500315-03)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/04/2015	ND	1.72	85.8	2.00	11.5	
Toluene*	<0.050	0.050	02/04/2015	ND	1.62	81.2	2.00	12.8	
Ethylbenzene*	<0.050	0.050	02/04/2015	ND	1.57	78.7	2.00	12.1	
Total Xylenes*	<0.150	0.150	02/04/2015	ND	4.69	78.1	6.00	12.5	
Total BTEX	<0.300	0.300	02/04/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *61-154*

Chloride, SM4500Cl-B mg/kg Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	02/05/2015	ND	432	108	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/04/2015	ND	206	103	200	8.01	
DRO >C10-C28	<10.0	10.0	02/04/2015	ND	222	111	200	14.3	

Surrogate: 1-Chlorooctane *96.9 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *95.3 %* *52.1-176*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

COG OPERATING
GARRETT MERKET
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	02/04/2015	Sampling Date:	01/28/2015
Reported:	02/05/2015	Sampling Type:	Soil
Project Name:	CROSSMAN	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: S2- 1' (H500315-04)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/04/2015	ND	1.72	85.8	2.00	11.5	
Toluene*	<0.050	0.050	02/04/2015	ND	1.62	81.2	2.00	12.8	
Ethylbenzene*	<0.050	0.050	02/04/2015	ND	1.57	78.7	2.00	12.1	
Total Xylenes*	<0.150	0.150	02/04/2015	ND	4.69	78.1	6.00	12.5	
Total BTEX	<0.300	0.300	02/04/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *103 %* *61-154*

Chloride, SM4500Cl-B mg/kg Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	02/05/2015	ND	432	108	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/04/2015	ND	206	103	200	8.01	
DRO >C10-C28	**50.5**	10.0	02/04/2015	ND	222	111	200	14.3	

Surrogate: 1-Chlorooctane *99.8 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *86.7 %* *52.1-176*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

COG OPERATING
GARRETT MERKET
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	02/04/2015	Sampling Date:	01/28/2015
Reported:	02/05/2015	Sampling Type:	Soil
Project Name:	CROSSMAN	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: S2- 2' (H500315-05)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/04/2015	ND	1.72	85.8	2.00	11.5	
Toluene*	<0.050	0.050	02/04/2015	ND	1.62	81.2	2.00	12.8	
Ethylbenzene*	<0.050	0.050	02/04/2015	ND	1.57	78.7	2.00	12.1	
Total Xylenes*	<0.150	0.150	02/04/2015	ND	4.69	78.1	6.00	12.5	
Total BTEX	<0.300	0.300	02/04/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *102 %* *61-154*

Chloride, SM4500Cl-B mg/kg Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	02/05/2015	ND	432	108	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/04/2015	ND	206	103	200	8.01	
DRO >C10-C28	<10.0	10.0	02/04/2015	ND	222	111	200	14.3	

Surrogate: 1-Chlorooctane *107 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *120 %* *52.1-176*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

COG OPERATING
GARRETT MERKET
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	02/04/2015	Sampling Date:	01/28/2015
Reported:	02/05/2015	Sampling Type:	Soil
Project Name:	CROSSMAN	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: S3- 1' (H500315-06)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/04/2015	ND	1.72	85.8	2.00	11.5	
Toluene*	<0.050	0.050	02/04/2015	ND	1.62	81.2	2.00	12.8	
Ethylbenzene*	<0.050	0.050	02/04/2015	ND	1.57	78.7	2.00	12.1	
Total Xylenes*	<0.150	0.150	02/04/2015	ND	4.69	78.1	6.00	12.5	
Total BTEX	<0.300	0.300	02/04/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *61-154*

Chloride, SM4500Cl-B mg/kg Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**64.0**	16.0	02/05/2015	ND	432	108	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**11.9**	10.0	02/04/2015	ND	206	103	200	8.01	
DRO >C10-C28	**42.4**	10.0	02/04/2015	ND	222	111	200	14.3	

Surrogate: 1-Chlorooctane *107 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *92.1 %* *52.1-176*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: Concho Resources	BILL TO
Project Manager: Garrett Mallet	P.O. #:
Address:	Company:
City: State: Zip:	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name: Grossman	State: Zip:
Project Location:	Phone #:
Sampler Name:	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST		
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	BTEX	TPH	CHLORIDE
H500315																	
1	S1-1'	G				X					X		1/28/15		X	X	X
2	S1-2'	G				X					X		1/28/15		X	X	X
3	S1-3'	G				X					X		1/28/15		X	X	X
4	S2-1'	G				X					X		1/28/15		X	X	X
5	S2-2'	G				X					X		1/28/15		X	X	X
6	S3-1'	G				X					X		1/28/15		X	X	X

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Garrett B Mallet	Date: 3/4/15	Received By: Jodi Henson	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Time: 12:30 pm	Received By:	Fax Result: ☐ Yes ☐ No Add'l Fax #:
	Date:		REMARKS: RUSH!!
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 4.4°c

Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No
CHECKED BY: (Initials)

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

#94

NM OIL CONSERVATION
ARTESIA DISTRICT
OCT 06 2014
RECEIVED

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 2 copies to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1428148585

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Mewbourne Oil Company 14744	Contact: Zack Thomas
Address: PO Box 5270 Hobbs NM 88241	Telephone No. 575-393-5905
Facility Name: San Lorenzo SWD #001	Facility Type: SWD

Surface Owner: State	Mineral Owner:	API No. 30-015-23067

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	34	25S	28E	2450'	North	1140'	East	Eddy

Latitude 32.08707 **Longitude** -104.06766

NATURE OF RELEASE

Type of Release: Produced water/Oil	Volume of Release: estimated 1726 bbls total fluid (1473 bbls PW) (253 bbls. Oil)	Volume Recovered: Oil (253 bbls) PW/rain water (267 bbls)
Source of Release: Damaged 4" SDR7 poly line	Date and Hour of Occurrence 9-26-14	Date and Hour of Discovery 9-28-14 5:00 pm
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher	
By Whom?	Date and Hour 9-28-14 6:50 pm	
Was a Watercourse Reached? ☒ Yes ☐ No	If YES, Volume Impacting the Watercourse. 1726 bbls	

If a Watercourse was Impacted, Describe Fully.*

SWD line ran alongside west side highway 285 from the San Lorenzo SWD to the Delaware Ranch SWD was damaged in the draw between mile marker 6 and mile marker 7 under bridge while draw was flowing.

Describe Cause of Problem and Remedial Action Taken.*
Debris and flood waters caused damage to poly line underneath bridge. The line was capped off on the 9-28-2014 stopping the release.

Describe Area Affected and Cleanup Action Taken.*

Affected area- The draw was affected from the bridge at highway 285 to approximately six thousand feet east down the draw, small remnants of oil believed to be from the same release were found an additional six thousand feet down the draw. Mewbourne Oil Company has recovered 253 bbls of oil from the area with vacuum trucks and skimmers, and is continuing cleanup efforts via hydrocarbon absorbing pads and booms across the flowing draw.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Z. Thomas

Printed Name: Zack Thomas

Title: Environmental Rep.

E-mail Address: zthomas@mewbourne.com

Date: 10-3-14 Phone: 575-602-2188

OIL CONSERVATION DIVISION

Signed By Mike Bratcher

Approved by Environmental Specialist:

Approval Date: 10/8/14 Expiration Date: N/A

Conditions of Approval: Attached ☐

Remediation per O.C.D. Rules & Guidelines
SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 11/8/14

2RP-2532

* Attach Additional Sheets If Necessary

Bratcher, Mike, EMNRD

From: Zack Thomas <zthomas@mewbourne.com>
Sent: Monday, October 06, 2014 11:29 AM
To: Patterson, Heather, EMNRD; Bratcher, Mike, EMNRD
Subject: San Lorenzo SWD Release
Attachments: C141- San Lorenzo SWD #001 (9-26-14) initial.pdf

Please sign and send back. Thank you

Z. Thomas

Zack Thomas
Mewbourne Oil Company
PO Box 5270
Hobbs, NM 88241 US

Phone: (575) 393-5905 | Fax: (575) 397-6252
(575) 602-2188
Email: zthomas@Mewbourne.com

waiting on response
ie oil vs. PW Amounts

253 bbls
oil

2RP-2532

AMARILLO
921 North Bivins
Amarillo, Texas 79107
Phone 806.467.0607
Fax 806.467.0622

ARTESIA
408 West Texas Ave.
Artesia, New Mexico 88210
Phone 575.746.8768
Fax 575.746.8905

HOBBS
318 East Taylor Street
Hobbs, New Mexico 88240
Phone 575.393.4261
Fax 575.393.4658

MIDLAND
2901 State Hwy 349
Midland, Texas 79706
Phone 432.522.2133
Fax 432.522.2180

OKLAHOMA CITY
7700 North Hudson Avenue
Suite 10
Oklahoma City, Oklahoma 73116
Phone 405.486.7030
Fax 806.467.0622

SAN ANTONIO
13111 Lookout Way
San Antonio, Texas 78233
Phone 210.265.8025
Fax 210.568.2191

ENVIRONMENTAL CONSULTING
ENGINEERING
DRILLING
CONSTRUCTION
SPILL MANAGEMENT
GENERAL CONTRACTING

Toll Free: 866.742.0742
www.talonlpe.com

December 16, 2014

Mr. Mike Bratcher
NMOCD District 2
811 S. 1st Street
Artesia, NM 88210

Subject: **Remediation and Sampling Report**
Mewbourne Oil Company
San Lorenzo SWD No. 1
API: 30-015-23067, 2RP-2532

Dear Mr. Bratcher,

Mewbourne Oil Company (MOC) contracted Talon/LPE (Talon) to perform remediation and sampling services at the above referenced location. The results of our completed remedial actions, soil and surface water sampling program and closure request for this phase of the project are submitted herein.

Background Information

The San Lorenzo SWD No.1 is located approximately 12 miles southeast of Loving, New Mexico. The legal location for this release is Unit Letter H, Section 34, Township 25 South, and Range 28 East in Eddy County, New Mexico. More specifically the latitude and longitude for the release are 32.086841 North and -104.069744 West. A site plan is presented in Appendix I.

According to the soil survey provided by the United States Department of Agriculture National Resources Conservation Services, the soil in this area is made up of Karro fine sandy loam with 0 to 3 percent slopes. Per the New Mexico Bureau of Geology and Mineral Resources, the local surface and shallow geology is made up of the Rustler Formation, upper Permian Age, comprised of siltstone, gypsum, sandstone, dolomite. Groundwater in the project vicinity is approximately 0-5 feet below ground surface (bgs).

The ranking for this site is 20 based on the following:

Depth to ground water	<50’
Wellhead Protection Area	>1000’
Distance to surface water body	<1000’

Incident Description

On September 26, 2014, the SWD line running along the west side of Highway 285 from the San Lorenzo SWD to the Delaware Ranch SWD was damaged in the draw between mile marker 6 and 7 by debris and rising flood waters causing a release of 1726 barrels mixed fluids. Upon discovery, approximately 253 barrels of oil and 267 barrels of water were immediately recovered utilizing vac trucks. The area affected was approximately 6,000-feet in length from the bridge south down the draw. The Initial C-141 is presented in Appendix II.

Remedial Actions Taken

Between September 30 and October 16, 2014, Talon mobilized personnel to the release location. Absorbent pads and booms were used for hand-recovery of free phase oil. The impact soil was hand-excavated and stockpiled on plastic sheeting and construction bags were used to dispose of the oily pads and booms. One truck load of contaminated soil and sorbent media was disposed of at Lea Land, LLC, an approved NMOCD disposal faculty. See Appendix III for the disposal manifest.

On November 6, 2014 Talon/LPE mobilized personnel to obtain surface water samples and on November 26, 2014 soil sampling from bank sediments was completed. See Table 1 below for resulting lab data analysis. A site map presenting surface water (W-1), soil/sediment (S-1) and background (BG-1) soil sampling is attached hereto in Appendix I.

All soil samples were collected by Talon personnel wearing clean nitrile gloves. The soil samples were placed in laboratory provided sample containers, iced and transported to Cardinal Laboratories in Hobbs, New Mexico for analysis. The samples were tested for volatile organics (BTEX) via EPA Method 8021B (soil) and EPA Method 8026B (water), TPH (Total Petroleum Hydrocarbons) using EPA Method 8015M and Total Chlorides by Method SM 4500Cl-B.

Laboratory Results

See Appendix IV for complete laboratory reports.

November 12, 2014 Table 1

Sample ID	BTEX (mg/kg)	Chlorides (mg/kg)	TPH (mg/kg) GRO	TPH (mg/kg) DRO	TPH (mg/kg) EXT DRO
W-1	<0.006	840	<1.00	<1.00	<1.00
W-2	<0.006	600	<1.00	<1.00	<1.00
W-3	<0.006	630	<1.00	<1.00	<1.00

Table 1, cont.

Sample ID	Depth (feet)	BTEX (mg/kg)	Chlorides (mg/kg)	TPH (mg/kg) GRO	TPH (mg/kg) DRO
S-1	0	<0.300	1300	<10	<10
	0.5	<0.300	1700	<10	<10
S-2	0	<0.300	112	<10	<10
	0.5	<0.300	48	<10	<10
S-3	0	<0.300	112	<10	<10
	0.5	<0.300	96	<10	<10
BG-1	0	<0.300	32	<10	<10
BG-2	0	<0.300	9060	<10	<10
BG-3	0	<0.300	9200	<10	<10

Based upon the site ranking of **20**, the NMOCD Recommended Remedial Action Levels (RRAL's) are 50 mg/kg for BTEX, 10 mg/kg for Benzene and 100 mg/kg for TPH.

Closure

On behalf of the Mewbourne Oil Company, we respectfully request that no further actions be required and that closure with respect to this portion of this project be granted.

If we can provide additional information or be of further assistance please contact our office at 575.746.8768.

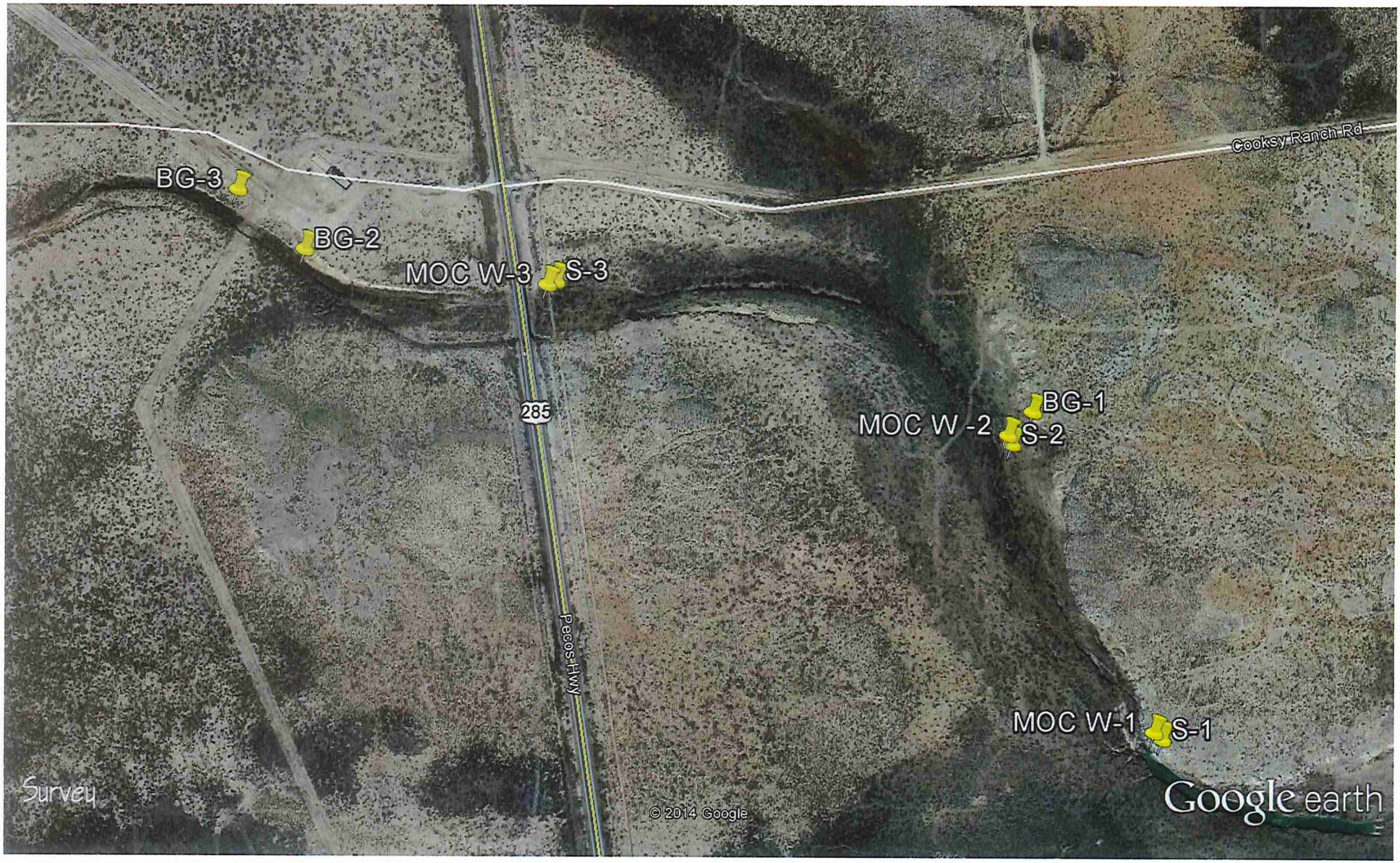
Respectfully submitted,

TALON/LPE

David J. Adkins
District Manager

APPENDIX I

SITE PLAN



Google earth

feet 3000
km 1

APPENDIX II

INITIAL C-141

NM OIL CONSERVATION
ARTESIA DISTRICT
OCT 06 2014
RECEIVED

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1428148585

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Mewbourne Oil Company 14744	Contact: Zack Thomas
Address: PO Box 5270 Hobbs NM 88241	Telephone No. 575-393-5905
Facility Name: San Lorenzo SWD #001	Facility Type: SWD

Surface Owner: State	Mineral Owner:	API No. 30-015-23067

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	34	25S	28E	2450'	North	1140'	East	Eddy

Latitude 32.08707 **Longitude** -104.06766

NATURE OF RELEASE

Type of Release: Produced water/Oil	Volume of Release: estimated 1726 bbls total fluid (1473 bbls PW) (253 bbls. Oil)	Volume Recovered: Oil (253 bbls) PW/rain water (267 bbls)
Source of Release: Damaged 4" SDR7 poly line	Date and Hour of Occurrence 9-26-14	Date and Hour of Discovery 9-28-14 5:00 pm
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher	
By Whom?	Date and Hour 9-28-14 6:50 pm	
Was a Watercourse Reached? ☒ Yes ☐ No	If YES, Volume Impacting the Watercourse. 1726 bbls	

If a Watercourse was Impacted, Describe Fully.*

SWD line ran alongside west side highway 285 from the San Lorenzo SWD to the Delaware Ranch SWD was damaged in the draw between mile marker 6 and mile marker 7 under bridge while draw was flowing.

Describe Cause of Problem and Remedial Action Taken.*

Debris and flood waters caused damage to poly line underneath bridge. The line was capped off on the 9-28-2014 stopping the release.

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Affected area- The draw was affected from the bridge at highway 285 to approximately six thousand feet east down the draw, small remnants of oil believed to be from the same release were found an additional six thousand feet down the draw. Mewbourne Oil Company has recovered 253 bbls of oil from the area with vacuum trucks and skimmers, and is continuing cleanup efforts via hydrocarbon absorbing pads and booms across the flowing draw.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Z. Thomas

Printed Name: Zack Thomas

Title: Environmental Rep.

E-mail Address: zthomas@mewbourne.com

Date: 10-3-14 Phone: 575-602-2188

OIL CONSERVATION DIVISION

Signed By Mike Bratcher

Approved by Environmental Specialist:

Approval Date: 10/8/14 Expiration Date: N/A

Conditions of Approval: Attached ☐

Remediation per O.C.D. Rules & Guidelines
SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 11/8/14

2RP-2532

* Attach Additional Sheets If Necessary

APPENDIX III

DISPOSAL MANIFESTS

LEA LAND DISPOSAL SITE NEW MEXICO

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257 Talon

NON-HAZARDOUS WASTE MANIFEST NO 103340 | 1. PAGE ___ OF ___ | 2. TRAILER NO. 1142

GENERATOR

3. COMPANY NAME	4. ADDRESS			5. PICK-UP DATE
Mewbourne Oil	701 S. Cecil St.			10/16//201
PHONE NO.	CITY	STATE	ZIP	6. TNRCC I.D. NO.
(575) 393-5905	Hobbs	NM	88240	

7. NAME OR DESCRIPTION OF WASTE SHIPPED:	8. CONTAINERS No.	Type	9. TOTAL QUANTITY	10. UNIT Wt/Vol.	11. TEXAS WASTE ID #
a. Non-Regulated, Non Hazardous Waste	1	CM			
b.					
c.					
WT: 8,140 2340					

12. COMMENTS OR SPECIAL INSTRUCTIONS:	13. WASTE PROFILE NO.
SAN LORENZO SWD TOTAL 10980	708592

14. IN CASE OF EMERGENCY OR SPILL, CONTACT		
NAME	PHONE NO	24-HOUR EMERGENCY NO.
Kin Slaughter	575-887-4048	

15. GENERATOR'S CERTIFICATION: I Hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations, and are the same materials previously approved by LEA LAND, LLC

PRINTED/TYPED NAME	SIGNATURE	DATE

TRANSPORTERS

16. TRANSPORTER (1)	17. TRANSPORTER (2)
NAME: TALON LPE	NAME:
TEXAS I.D. NO.	TEXAS I.D. NO.
IN CASE OF EMERGENCY CONTACT: KEN	IN CASE OF EMERGENCY CONTACT:
EMERGENCY PHONE: (575) 602-1311	EMERGENCY PHONE:
18. **TRANSPORTER (1):** Acknowledgment of receipt of material	19. **TRANSPORTER (2):** Acknowledgment of receipt of material
PRINTED/TYPED NAME: BILLY STITES	PRINTED/TYPED NAME:
SIGNATURE: Billy Stites DATE: 10/16//2014	SIGNATURE: DATE:

DISPOSAL FACILITY

Lea Land, LLC	ADDRESS: Mile Marker 64, U.S. Hwy 62/180, 30 Miles East of Carlsbad, NM	PHONE: 575-887-4048
PERMIT NO. WM-01-035 - New Mexico	20. COMMENTS	

21. DISPOSAL FACILITY'S CERTIFICATION: I Hereby certify that the above described wastes were delivered to this facility, that the facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE	CELL NO.	DATE	TIME
Santos Gonzalez		10/16//2014	12:25

GENERATOR: COPIES 1 & 6 DISPOSAL SITE: COPIES 2 & 3 TRANSPORTERS: COPIES 4 & 5

COPY 1

APPENDIX IV

LABORATORY REPORTS

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

November 12, 2014

DAVID ADKINS

TALON LPE

408 W. TEXAS AVE.

ARTESIA, NM 88210

RE: SAN LORENZO SWD

Enclosed are the results of analyses for samples received by the laboratory on 11/07/14 16:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TALON LPE
DAVID ADKINS
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received:	11/07/2014	Sampling Date:	11/06/2014
Reported:	11/12/2014	Sampling Type:	Water
Project Name:	SAN LORENZO SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: W-1 (H403437-01)

BTEX 8260B mg/L **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	11/11/2014	ND	0.020	102	0.0200	5.71	
Toluene*	<0.001	0.001	11/11/2014	ND	0.017	86.4	0.0200	7.57	
Ethylbenzene*	<0.001	0.001	11/11/2014	ND	0.017	85.3	0.0200	9.17	
Total Xylenes*	<0.003	0.003	11/11/2014	ND	0.054	90.2	0.0600	8.64	
Total BTEX	<0.006	0.006	11/11/2014	ND					

Surrogate: Dibromofluoromethane	*107 %*	*88.3-113*
Surrogate: Toluene-d8	*94.4 %*	*90.3-115*
Surrogate: 4-Bromofluorobenzene	*96.4 %*	*87.2-114*

Chloride, SM4500Cl-B mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**840**	4.00	11/11/2014	ND	104	104	100	3.92	

TPH 8015M mg/L **Analyzed By: ms**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<1.00	1.00	11/11/2014	ND	41.8	83.6	50.0	22.3	
DRO >C10-C28	<1.00	1.00	11/11/2014	ND	47.3	94.7	50.0	25.3	
EXT DRO >C28-C35	<1.00	1.00	11/11/2014	ND	ND		0.00		

Surrogate: 1-Chlorooctane	*81.7 %*	*36.1-161*
Surrogate: 1-Chlorooctadecane	*96.2 %*	*36-171*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TALON LPE
DAVID ADKINS
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received:	11/07/2014	Sampling Date:	11/06/2014
Reported:	11/12/2014	Sampling Type:	Water
Project Name:	SAN LORENZO SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: W-2 (H403437-02)

BTEX 8260B mg/L **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	11/11/2014	ND	0.020	102	0.0200	5.71	
Toluene*	<0.001	0.001	11/11/2014	ND	0.017	86.4	0.0200	7.57	
Ethylbenzene*	<0.001	0.001	11/11/2014	ND	0.017	85.3	0.0200	9.17	
Total Xylenes*	<0.003	0.003	11/11/2014	ND	0.054	90.2	0.0600	8.64	
Total BTEX	<0.006	0.006	11/11/2014	ND					

Surrogate: Dibromofluoromethane	*106 %*	*88.3-113*
Surrogate: Toluene-d8	*96.6 %*	*90.3-115*
Surrogate: 4-Bromofluorobenzene	*99.2 %*	*87.2-114*

Chloride, SM4500Cl-B mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**600**	4.00	11/11/2014	ND	104	104	100	3.92	

TPH 8015M mg/L **Analyzed By: ms**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<1.00	1.00	11/11/2014	ND	41.8	83.6	50.0	22.3	
DRO >C10-C28	<1.00	1.00	11/11/2014	ND	47.3	94.7	50.0	25.3	
EXT DRO >C28-C35	<1.00	1.00	11/11/2014	ND	ND		0.00		

Surrogate: 1-Chlorooctane	*76.8 %*	*36.1-161*
Surrogate: 1-Chlorooctadecane	*97.3 %*	*36-171*

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*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TALON LPE
DAVID ADKINS
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received:	11/07/2014	Sampling Date:	11/06/2014
Reported:	11/12/2014	Sampling Type:	Water
Project Name:	SAN LORENZO SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: W-3 (H403437-03)

BTEX 8260B mg/L Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	11/11/2014	ND	0.020	102	0.0200	5.71	
Toluene*	<0.001	0.001	11/11/2014	ND	0.017	86.4	0.0200	7.57	
Ethylbenzene*	<0.001	0.001	11/11/2014	ND	0.017	85.3	0.0200	9.17	
Total Xylenes*	<0.003	0.003	11/11/2014	ND	0.054	90.2	0.0600	8.64	
Total BTEX	<0.006	0.006	11/11/2014	ND					

Surrogate: Dibromofluoromethane	*111 %*	*88.3-113*
Surrogate: Toluene-d8	*95.1 %*	*90.3-115*
Surrogate: 4-Bromofluorobenzene	*93.5 %*	*87.2-114*

Chloride, SM4500Cl-B mg/L Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**630**	4.00	11/11/2014	ND	104	104	100	3.92	

TPH 8015M mg/L Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<1.00	1.00	11/11/2014	ND	41.8	83.6	50.0	22.3	
DRO >C10-C28	<1.00	1.00	11/11/2014	ND	47.3	94.7	50.0	25.3	
EXT DRO >C28-C35	<1.00	1.00	11/11/2014	ND	ND		0.00		

Surrogate: 1-Chlorooctane	*81.1 %*	*36.1-161*
Surrogate: 1-Chlorooctadecane	*98.6 %*	*36-171*

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Notes and Definitions

QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	Talon/LPE	BILL TO	
Project Manager:	DAVID ADKINS	P.O. #:	Newbourne
Address:	408 W. Texas Ave.	Company:	Oil Company
City:	Artesia	Attn:	Zach Thomas
State:	NM	Zip:	88210
Phone #:	575-746-8768	Fax #:	575-746-8905
Project #:		Project Owner:	MOC
Project Name:	San Lorenzo SWD	Address:	
Project Location:		City:	
Sampler Name:	D. ADKINS	State: / Zip:	
		Phone #:	
		Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	TOTAL chlorides	BTEX	TPH
H403437-1	W-1	G	5						✓		✓		11/6/14	1125	✓	✓	✓
2	W-2	G	5						✓		✓		11/6	1150	✓	✓	✓
3	W-3	G	5						✓		✓		11/6	1215	✓	✓	✓

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:	Date:	Received By:		Phone Result: ☐ Yes ☐ No	Add'l Phone #:
	Time:			Fax Result: ☐ Yes ☐ No	Add'l Fax #:
Relinquished By:	Date: 11/7/14	Received By: Jodi Henson		REMARKS:	
	Time: 4:00				
Delivered By: (Circle One)	4:00	Sample Condition: Cool ☐ Yes ☐ No; Intact ☑ Yes ☐ No	CHECKED BY: (Initials)		
Sampler - UPS - Bus - Other:					

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

December 05, 2014

DAVID ADKINS

TALON LPE

408 W. TEXAS AVE.

ARTESIA, NM 88210

RE: SAN LORENZO SWD

Enclosed are the results of analyses for samples received by the laboratory on 12/02/14 13:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TALON LPE
DAVID ADKINS
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received:	12/02/2014	Sampling Date:	11/26/2014
Reported:	12/05/2014	Sampling Type:	Soil
Project Name:	SAN LORENZO SWD	Sampling Condition:	Cool & Intact
Project Number:	70073802501	Sample Received By:	Kathy Perez
Project Location:	EDDY		

Sample ID: S - 1 0' (H403673-01)

BTEX 8021B mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/03/2014	ND	1.93	96.7	2.00	3.49	
Toluene*	<0.050	0.050	12/03/2014	ND	1.90	95.2	2.00	2.81	
Ethylbenzene*	<0.050	0.050	12/03/2014	ND	1.79	89.6	2.00	3.02	
Total Xylenes*	<0.150	0.150	12/03/2014	ND	5.42	90.4	6.00	3.67	
Total BTEX	<0.300	0.300	12/03/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID *98.0 %* *61-154*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1300**	16.0	12/03/2014	ND	416	104	400	3.77	

TPH 8015M mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/03/2014	ND	199	99.7	200	0.672	
DRO >C10-C28	<10.0	10.0	12/03/2014	ND	205	102	200	1.18	

Surrogate: 1-Chlorooctane *121 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *139 %* *52.1-176*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TALON LPE
DAVID ADKINS
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received:	12/02/2014	Sampling Date:	11/26/2014
Reported:	12/05/2014	Sampling Type:	Soil
Project Name:	SAN LORENZO SWD	Sampling Condition:	Cool & Intact
Project Number:	70073802501	Sample Received By:	Kathy Perez
Project Location:	EDDY		

Sample ID: S - 1 .5' (H403673-02)

BTEX 8021B mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/03/2014	ND	1.93	96.7	2.00	3.49	
Toluene*	<0.050	0.050	12/03/2014	ND	1.90	95.2	2.00	2.81	
Ethylbenzene*	<0.050	0.050	12/03/2014	ND	1.79	89.6	2.00	3.02	
Total Xylenes*	<0.150	0.150	12/03/2014	ND	5.42	90.4	6.00	3.67	
Total BTEX	<0.300	0.300	12/03/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID *98.0 %* *61-154*

Chloride, SM4500Cl-B mg/kg Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1700**	16.0	12/03/2014	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/03/2014	ND	199	99.7	200	0.672	
DRO >C10-C28	<10.0	10.0	12/03/2014	ND	205	102	200	1.18	

Surrogate: 1-Chlorooctane *122 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *137 %* *52.1-176*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

TALON LPE
DAVID ADKINS
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received:	12/02/2014	Sampling Date:	11/26/2014
Reported:	12/05/2014	Sampling Type:	Soil
Project Name:	SAN LORENZO SWD	Sampling Condition:	Cool & Intact
Project Number:	70073802501	Sample Received By:	Kathy Perez
Project Location:	EDDY		

Sample ID: S - 2 0' (H403673-03)

BTEX 8021B mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/03/2014	ND	1.93	96.7	2.00	3.49	
Toluene*	<0.050	0.050	12/03/2014	ND	1.90	95.2	2.00	2.81	
Ethylbenzene*	<0.050	0.050	12/03/2014	ND	1.79	89.6	2.00	3.02	
Total Xylenes*	<0.150	0.150	12/03/2014	ND	5.42	90.4	6.00	3.67	
Total BTEX	<0.300	0.300	12/03/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.1 %* *61-154*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**112**	16.0	12/03/2014	ND	416	104	400	3.77	

TPH 8015M mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/03/2014	ND	199	99.7	200	0.672	
DRO >C10-C28	<10.0	10.0	12/03/2014	ND	205	102	200	1.18	

Surrogate: 1-Chlorooctane *123 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *139 %* *52.1-176*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TALON LPE
DAVID ADKINS
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received:	12/02/2014	Sampling Date:	11/26/2014
Reported:	12/05/2014	Sampling Type:	Soil
Project Name:	SAN LORENZO SWD	Sampling Condition:	Cool & Intact
Project Number:	70073802501	Sample Received By:	Kathy Perez
Project Location:	EDDY		

Sample ID: S - 2 .5' (H403673-04)

BTEX 8021B mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/03/2014	ND	1.93	96.7	2.00	3.49	
Toluene*	<0.050	0.050	12/03/2014	ND	1.90	95.2	2.00	2.81	
Ethylbenzene*	<0.050	0.050	12/03/2014	ND	1.79	89.6	2.00	3.02	
Total Xylenes*	<0.150	0.150	12/03/2014	ND	5.42	90.4	6.00	3.67	
Total BTEX	<0.300	0.300	12/03/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID *100 %* *61-154*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	12/03/2014	ND	416	104	400	3.77	

TPH 8015M mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/03/2014	ND	199	99.7	200	0.672	
DRO >C10-C28	<10.0	10.0	12/03/2014	ND	205	102	200	1.18	

Surrogate: 1-Chlorooctane *123 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *140 %* *52.1-176*

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Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

TALON LPE
DAVID ADKINS
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received:	12/02/2014	Sampling Date:	11/26/2014
Reported:	12/05/2014	Sampling Type:	Soil
Project Name:	SAN LORENZO SWD	Sampling Condition:	Cool & Intact
Project Number:	70073802501	Sample Received By:	Kathy Perez
Project Location:	EDDY		

Sample ID: S - 3 0' (H403673-05)

BTEX 8021B mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/03/2014	ND	1.93	96.7	2.00	3.49	
Toluene*	<0.050	0.050	12/03/2014	ND	1.90	95.2	2.00	2.81	
Ethylbenzene*	<0.050	0.050	12/03/2014	ND	1.79	89.6	2.00	3.02	
Total Xylenes*	<0.150	0.150	12/03/2014	ND	5.42	90.4	6.00	3.67	
Total BTEX	<0.300	0.300	12/03/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.4 %* *61-154*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**112**	16.0	12/03/2014	ND	416	104	400	3.77	

TPH 8015M mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/03/2014	ND	199	99.7	200	0.672	
DRO >C10-C28	<10.0	10.0	12/03/2014	ND	205	102	200	1.18	

Surrogate: 1-Chlorooctane *121 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *138 %* *52.1-176*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TALON LPE
DAVID ADKINS
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received:	12/02/2014	Sampling Date:	11/26/2014
Reported:	12/05/2014	Sampling Type:	Soil
Project Name:	SAN LORENZO SWD	Sampling Condition:	Cool & Intact
Project Number:	70073802501	Sample Received By:	Kathy Perez
Project Location:	EDDY		

Sample ID: S - 3 .5' (H403673-06)

BTEX 8021B mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/03/2014	ND	1.93	96.7	2.00	3.49	
Toluene*	<0.050	0.050	12/03/2014	ND	1.90	95.2	2.00	2.81	
Ethylbenzene*	<0.050	0.050	12/03/2014	ND	1.79	89.6	2.00	3.02	
Total Xylenes*	<0.150	0.150	12/03/2014	ND	5.42	90.4	6.00	3.67	
Total BTEX	<0.300	0.300	12/03/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *61-154*

Chloride, SM4500Cl-B mg/kg Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**96.0**	16.0	12/03/2014	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/03/2014	ND	199	99.7	200	0.672	
DRO >C10-C28	<10.0	10.0	12/03/2014	ND	205	102	200	1.18	

Surrogate: 1-Chlorooctane *120 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *137 %* *52.1-176*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TALON LPE
DAVID ADKINS
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received:	12/02/2014	Sampling Date:	11/26/2014
Reported:	12/05/2014	Sampling Type:	Soil
Project Name:	SAN LORENZO SWD	Sampling Condition:	Cool & Intact
Project Number:	70073802501	Sample Received By:	Kathy Perez
Project Location:	EDDY		

Sample ID: BG - 1 0' (H403673-07)

BTEX 8021B mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/03/2014	ND	1.93	96.7	2.00	3.49	
Toluene*	<0.050	0.050	12/03/2014	ND	1.90	95.2	2.00	2.81	
Ethylbenzene*	<0.050	0.050	12/03/2014	ND	1.79	89.6	2.00	3.02	
Total Xylenes*	<0.150	0.150	12/03/2014	ND	5.42	90.4	6.00	3.67	
Total BTEX	<0.300	0.300	12/03/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.4 %* *61-154*

Chloride, SM4500Cl-B mg/kg Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	12/03/2014	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/03/2014	ND	199	99.7	200	0.672	
DRO >C10-C28	<10.0	10.0	12/03/2014	ND	205	102	200	1.18	

Surrogate: 1-Chlorooctane *114 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *131 %* *52.1-176*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TALON LPE
DAVID ADKINS
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received:	12/02/2014	Sampling Date:	11/26/2014
Reported:	12/05/2014	Sampling Type:	Soil
Project Name:	SAN LORENZO SWD	Sampling Condition:	Cool & Intact
Project Number:	70073802501	Sample Received By:	Kathy Perez
Project Location:	EDDY		

Sample ID: BG - 2 0' (H403673-08)

BTEX 8021B mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/03/2014	ND	1.93	96.7	2.00	3.49	
Toluene*	<0.050	0.050	12/03/2014	ND	1.90	95.2	2.00	2.81	
Ethylbenzene*	<0.050	0.050	12/03/2014	ND	1.79	89.6	2.00	3.02	
Total Xylenes*	<0.150	0.150	12/03/2014	ND	5.42	90.4	6.00	3.67	
Total BTEX	<0.300	0.300	12/03/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *61-154*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**9060**	16.0	12/03/2014	ND	416	104	400	3.77	

TPH 8015M mg/kg **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/03/2014	ND	199	99.7	200	0.672	
DRO >C10-C28	<10.0	10.0	12/03/2014	ND	205	102	200	1.18	

Surrogate: 1-Chlorooctane *122 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *141 %* *52.1-176*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

TALON LPE
DAVID ADKINS
408 W. TEXAS AVE.
ARTESIA NM, 88210
Fax To: (575) 745-8905

Received:	12/02/2014	Sampling Date:	11/26/2014
Reported:	12/05/2014	Sampling Type:	Soil
Project Name:	SAN LORENZO SWD	Sampling Condition:	Cool & Intact
Project Number:	70073802501	Sample Received By:	Kathy Perez
Project Location:	EDDY		

Sample ID: BG - 3 0' (H403673-09)

BTEX 8021B mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/03/2014	ND	1.93	96.7	2.00	3.49	
Toluene*	<0.050	0.050	12/03/2014	ND	1.90	95.2	2.00	2.81	
Ethylbenzene*	<0.050	0.050	12/03/2014	ND	1.79	89.6	2.00	3.02	
Total Xylenes*	<0.150	0.150	12/03/2014	ND	5.42	90.4	6.00	3.67	
Total BTEX	<0.300	0.300	12/03/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *61-154*

Chloride, SM4500Cl-B mg/kg Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**9200**	16.0	12/03/2014	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: CK

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/03/2014	ND	199	99.7	200	0.672	
DRO >C10-C28	<10.0	10.0	12/03/2014	ND	205	102	200	1.18	

Surrogate: 1-Chlorooctane *126 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *145 %* *52.1-176*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: Talon/LPE	BILL TO
Project Manager: D Adkins	P.O. #: Newbourne
Address: 408 W. Texas Ave.	Company: ~~Talon/LPE~~
City: Artesia State: NM Zip: 88210	Attn: Zack Thomas
Phone #: 575-746-8768 Fax #: 575-746-8905	Address:
Project #: 7058738075 01 Project Owner: Newbourne	City:
Project Name: Sanborn 20 SWD	State: Zip:
Project Location: Eddy D Adkins	Phone #:
Sampler Name:	Fax #:

FOR LAB USE ONLY				MATRIX							PRESERV.			SAMPLING		ANALYSIS REQUEST			
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	Oil Cl.			
H403673															Total Chlorides	BTEX	TPH	
1	S-1 0-	C	1			X					X		11-26-14	1030	X	X	X	
2	S-1 .5-	C	1			X					X			1035	X	X	X	
3	S-2 0-	C	1			X					X			1050	X	X	X	
4	S-2 .5-	C	1			X					X			1055	X	X	X	
5	S-3 0-	C	1			X					X			1110	X	X	X	
6	S-3 .5	C	1			X					X			1115	X	X	X	
7	BG-1 0-	C	1			X					X			1100	X	X	X	
8	BG-2 0-	C	1			X					X			1130	X	X	X	
9	BG-3 0-	C	1			X					X			1145	X	X	X	

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:	Date: 12/1/14	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 1630		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date: 12/2/14	Received By:	REMARKS:
	Time: 1:45		
Delivered By: (Circle One)	Sample Condition: Cool ☐ Yes ☐ No; Intact ☐ Yes ☐ No	CHECKED BY: (Initials)	
Sampler - UPS - Bus - Other:	2.6°	KP	

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

#31

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

NM OIL CONSERVATION
ARTESIA DISTRICT
NOV 04 2014
RECEIVED

Form C-141
Revised August 8, 2011
Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1430948520

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Yates Petroleum Corporation 25575	Contact Robert Asher
Address 104 S. 4th Street	Telephone No. 575-748-4171
Facility Name Cigarillo SWD System (BonBon BNN St. Com 1H)	Facility Type Buried Flow Line

Surface Owner State	Mineral Owner State	API No. 30-015-36913

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	27	25S	28E					Eddy

Latitude 32.60096 **Longitude** -104.56909

NATURE OF RELEASE

Type of Release Produced Water and Oil	Volume of Release 20 B/O & 500 B/PW	Volume Recovered 15 B/O & 375 B/PW
Source of Release Buried flow line	Date and Hour of Occurrence 10/10/2014; AM	Date and Hour of Discovery 10/10/2014; AM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher/NMOCD II	
By Whom? Robert Asher/Yates Petroleum Corporation	Date and Hour 10/10/2014; AM (Email)	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
Buried flow line ruptured; vacuum truck(s) and roustabout crew called.

Describe Area Affected and Cleanup Action Taken.*
An approximate area of 1500 X 300', on embankment and draw area. Vacuum trucks were called to recover remaining oil and produced water, roustabout crews fenced off impacted area. Impacted soils being excavated and will be hauled to a NMOCD approved facility. Vertical and horizontal delineation samples will be taken and analysis ran for TPH & BTEX (chlorides for documentation). **Depth to Ground Water: >100' (approximately 228', per ChevronTexaco Trend Map), Wellhead Protection Area: No, Distance to Surface Water Body: >1000', SITE RANKING IS 0.**

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:

Printed Name: Robert Asher

Title: NM Environmental Regulatory Supervisor

E-mail Address: boba@yatespetroleum.com

Date: November 4, 2014 Phone: 575-748-4217

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Approval Date: 11/5/14 Expiration Date: NA

Conditions of Approval: Attached ☐

2RP-
Remediation per O.C.D. Rules & Guidelines
SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 12/5/14

2RP-2580

* Attach Additional Sheets If Necessary

Patterson, Heather, EMNRD

From: Bob Asher <BobA@yatespetroleum.com>
Sent: Tuesday, November 04, 2014 9:39 AM
To: Bratcher, Mike, EMNRD; Patterson, Heather, EMNRD
Subject: Form C-141 Initial Report (Cigarillo SWD System)
Attachments: Cigarillo SWD System.pdf

Attached is the Initial C-141.

Thank you.

Robert Asher
NM Environmental Regulatory Supervisor
Yates Petroleum Corporation
105 S. 4th Street
Artesia, NM 88210
575-748-4217 (Office)
575-365-4021 (Cell)

Patterson, Heather, EMNRD

From:	Bob Asher <BobA@yatespetroleum.com>
Sent:	Thursday, October 16, 2014 8:47 AM
To:	Bratcher, Mike, EMNRD; Patterson, Heather, EMNRD; Dade, Randy, EMNRD
Cc:	Amber Cannon; Chase Settle; Katie Parker; Manuel Gonzalez; Tanna Adams
Subject:	Release Notification (Cigarillo Water System, south of the Bonbon BNN State Com. #1-H)

Yates Petroleum Corporation is reporting a release at the following location (10/15/2014; 3:30 PM).

Cigarillo Water System (south of the Bonbon BNN State Com. #1-H)
Section 34, T25S-R28E
Eddy County, New Mexico

Released: Unknown B/PW; Recovered: In progress

Cause of release was unknown at this time. Vacuum truck(s) called and in process of recovering release produced water. A Form C-141 with full detailed information will be submitted.

Thank you.

Robert Asher
NM Environmental Regulatory Supervisor
Yates Petroleum Corporation
105 S. 4th Street
Artesia, NM 88210
575-748-4217 (Office)
575-365-4021 (Cell)

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

February 09, 2015

ROBERT ASHER

YATES PETROLEUM CORPORATION

105 S 4th Street

Artesia, NM 88210

RE: CIGARILLO SWD SYSTEM

Enclosed are the results of analyses for samples received by the laboratory on 02/06/15 10:07.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

YATES PETROLEUM CORPORATION
ROBERT ASHER
105 S 4th Street
Artesia NM, 88210
Fax To: (505) 748-4635

Received:	02/06/2015	Sampling Date:	02/05/2015
Reported:	02/09/2015	Sampling Type:	Soil
Project Name:	CIGARILLO SWD SYSTEM	Sampling Condition:	Cool & Intact
Project Number:	30-015-36913	Sample Received By:	Celey D. Keene
Project Location:	EDDY COUNTY, NM		

Sample ID: SP/A-01.0 (H500353-01)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/07/2015	ND	1.73	86.7	2.00	10.8	
Toluene*	<0.050	0.050	02/07/2015	ND	1.66	83.2	2.00	11.2	
Ethylbenzene*	<0.050	0.050	02/07/2015	ND	1.59	79.6	2.00	11.4	
Total Xylenes*	<0.150	0.150	02/07/2015	ND	4.74	79.0	6.00	12.6	
Total BTEX	<0.300	0.300	02/07/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *61-154*

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/06/2015	ND	195	97.3	200	2.01	
DRO >C10-C28	**29.6**	10.0	02/06/2015	ND	193	96.3	200	9.21	

Surrogate: 1-Chlorooctane *100 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *99.1 %* *52.1-176*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

YATES PETROLEUM CORPORATION
ROBERT ASHER
105 S 4th Street
Artesia NM, 88210
Fax To: (505) 748-4635

Received:	02/06/2015	Sampling Date:	02/05/2015
Reported:	02/09/2015	Sampling Type:	Soil
Project Name:	CIGARILLO SWD SYSTEM	Sampling Condition:	Cool & Intact
Project Number:	30-015-36913	Sample Received By:	Celey D. Keene
Project Location:	EDDY COUNTY, NM		

Sample ID: SP/A-02.0 (H500353-02)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/07/2015	ND	1.73	86.7	2.00	10.8	
Toluene*	<0.050	0.050	02/07/2015	ND	1.66	83.2	2.00	11.2	
Ethylbenzene*	<0.050	0.050	02/07/2015	ND	1.59	79.6	2.00	11.4	
Total Xylenes*	<0.150	0.150	02/07/2015	ND	4.74	79.0	6.00	12.6	
Total BTEX	<0.300	0.300	02/07/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *102 %* *61-154*

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/06/2015	ND	195	97.3	200	2.01	
DRO >C10-C28	<10.0	10.0	02/06/2015	ND	193	96.3	200	9.21	

Surrogate: 1-Chlorooctane *99.3 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *96.4 %* *52.1-176*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

YATES PETROLEUM CORPORATION
ROBERT ASHER
105 S 4th Street
Artesia NM, 88210
Fax To: (505) 748-4635

Received:	02/06/2015	Sampling Date:	02/05/2015
Reported:	02/09/2015	Sampling Type:	Soil
Project Name:	CIGARILLO SWD SYSTEM	Sampling Condition:	Cool & Intact
Project Number:	30-015-36913	Sample Received By:	Celey D. Keene
Project Location:	EDDY COUNTY, NM		

Sample ID: SP/A-03.0 (H500353-03)

BTEX 8021B mg/kg **Analyzed By: ms**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/07/2015	ND	1.73	86.7	2.00	10.8	
Toluene*	<0.050	0.050	02/07/2015	ND	1.66	83.2	2.00	11.2	
Ethylbenzene*	<0.050	0.050	02/07/2015	ND	1.59	79.6	2.00	11.4	
Total Xylenes*	<0.150	0.150	02/07/2015	ND	4.74	79.0	6.00	12.6	
Total BTEX	<0.300	0.300	02/07/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.5 %* *61-154*

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/06/2015	ND	195	97.3	200	2.01	
DRO >C10-C28	<10.0	10.0	02/06/2015	ND	193	96.3	200	9.21	

Surrogate: 1-Chlorooctane *99.2 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *76.6 %* *52.1-176*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

YATES PETROLEUM CORPORATION
ROBERT ASHER
105 S 4th Street
Artesia NM, 88210
Fax To: (505) 748-4635

Received:	02/06/2015	Sampling Date:	02/05/2015
Reported:	02/09/2015	Sampling Type:	Soil
Project Name:	CIGARILLO SWD SYSTEM	Sampling Condition:	Cool & Intact
Project Number:	30-015-36913	Sample Received By:	Celey D. Keene
Project Location:	EDDY COUNTY, NM		

Sample ID: SP/B-01.0 (H500353-04)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/07/2015	ND	1.73	86.7	2.00	10.8	
Toluene*	<0.050	0.050	02/07/2015	ND	1.66	83.2	2.00	11.2	
Ethylbenzene*	<0.050	0.050	02/07/2015	ND	1.59	79.6	2.00	11.4	
Total Xylenes*	<0.150	0.150	02/07/2015	ND	4.74	79.0	6.00	12.6	
Total BTEX	<0.300	0.300	02/07/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *61-154*

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/06/2015	ND	195	97.3	200	2.01	
DRO >C10-C28	<10.0	10.0	02/06/2015	ND	193	96.3	200	9.21	

Surrogate: 1-Chlorooctane *91.1 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *71.2 %* *52.1-176*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

YATES PETROLEUM CORPORATION
ROBERT ASHER
105 S 4th Street
Artesia NM, 88210
Fax To: (505) 748-4635

Received:	02/06/2015	Sampling Date:	02/05/2015
Reported:	02/09/2015	Sampling Type:	Soil
Project Name:	CIGARILLO SWD SYSTEM	Sampling Condition:	Cool & Intact
Project Number:	30-015-36913	Sample Received By:	Celey D. Keene
Project Location:	EDDY COUNTY, NM		

Sample ID: SP/C-01.0 (H500353-05)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/07/2015	ND	1.73	86.7	2.00	10.8	
Toluene*	<0.050	0.050	02/07/2015	ND	1.66	83.2	2.00	11.2	
Ethylbenzene*	<0.050	0.050	02/07/2015	ND	1.59	79.6	2.00	11.4	
Total Xylenes*	<0.150	0.150	02/07/2015	ND	4.74	79.0	6.00	12.6	
Total BTEX	<0.300	0.300	02/07/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.9 %* *61-154*

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	02/06/2015	ND	195	97.3	200	2.01	
DRO >C10-C28	<10.0	10.0	02/06/2015	ND	193	96.3	200	9.21	

Surrogate: 1-Chlorooctane *93.3 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *74.5 %* *52.1-176*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

ARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240 (505) 393-2326 FAX (505) 393-2476

Project Manager: Robert Asher
Compa (505) 393-2326 Yates Petroleum Corporation
Company Address: 105 South 4th Street
City/State/Zip: Artesia, NM 88210
Telephone No: 575-748-4217 Fax No:
Sampler Signature:

Project Name: Cigarillo SWD System
Project #: 30-015-36913
Project Loc: Eddy County
PO #: 205632
Report Format: [x] Standard [ ] TRRP [ ] NPDES
e-mail: boba@yatespetroleum.com

(lab use only)
ORDER #: H500353

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Preservation & # of Containers: Ice	HNO3	HCl	H2SO4	NaOH	Na2S2O3	None	Other (Specify)	Matrix: DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	Analyze For: TCLP: TOTAL: TPH: 418.1 8015M 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.				RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
01	SP/A-01.0	1'	1'	2/5/2015	10:40 AM		1							X		S	X			X				X						X	
02	SP/A-02.0	2'	2'	2/5/2015	10:52 AM		1							X		S	X			X				X						X	
03	SP/A-03.0	3'	3'	2/5/2015	11:05 AM		1							X		S	X			X				X						X	
04	SP/B-01.0	1'	1'	2/5/2015	11:29 AM		1							X		S	X			X				X						X	
05	SP/C-01.0	1'	1'	2/5/2015	11:52 AM		1							X		S	X			X				X						X	
	24HR TAT PLEASE																														

Special Instructions: Chlorides on separate report please. ALL results in mg/kg. Thank you.

Relinquished by:	Date	Time	Received by:	Date	Time
Boba Yates	02/06/15	8:16 AM	Cindy Keene	2/6/15	10:07
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by ELOT:	Date	Time

Laboratory Comments:

Sample Containers Intact?	Y	N
VOCs Free of Headspace?	Y	N
Labels on container(s)	Y	N
Custody seals on container(s)	Y	N
Custody seals on cooler(s)	Y	N
Sample Hand Delivered	Y	N
by Sampler/Client Rep. ?	Y	N

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt: 4.2 °C

#54

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 22, 2015

Austin Weyant
Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL: (575) 689-7040
FAX

RE: Red Bluff Draw Mitigation OrderNo.: 1501586

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/19/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: P-1
Project: Red Bluff Draw Mitigation
Collection Date: 1/15/2015 11:00:00 AM
Lab ID: 1501586-001 **Matrix:** SOLID **Received Date:** 1/19/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: **WL**	
Diesel Range Organics (DRO)	140000	9200	17000		mg/Kg	1000	1/20/2015 12:35:40 PM	17269
Motor Oil Range Organics (MRO)	120000	83000	83000		mg/Kg	1000	1/20/2015 12:35:40 PM	17269
Surr: DNOP	0	0	63.5-128	S	%REC	1000	1/20/2015 12:35:40 PM	17269
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	170	31	98		mg/Kg	20	1/20/2015 7:52:11 PM	17283
Surr: BFB	121	0	80-120	S	%REC	20	1/20/2015 7:52:11 PM	17283
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	240	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Acenaphthylene	ND	200	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Aniline	ND	170	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Anthracene	ND	170	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Azobenzene	ND	220	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Benz(a)anthracene	ND	160	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Benzo(a)pyrene	ND	220	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Benzo(b)fluoranthene	ND	190	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Benzo(g,h,i)perylene	ND	220	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Benzo(k)fluoranthene	ND	220	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Benzoic acid	ND	110	990		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Benzyl alcohol	ND	180	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Bis(2-chloroethoxy)methane	ND	190	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Bis(2-chloroethyl)ether	ND	200	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Bis(2-chloroisopropyl)ether	ND	150	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Bis(2-ethylhexyl)phthalate	ND	220	990		mg/Kg	100	1/21/2015 12:52:32 PM	17312
4-Bromophenyl phenyl ether	ND	210	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Butyl benzyl phthalate	ND	240	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Carbazole	ND	180	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
4-Chloro-3-methylphenol	ND	200	990		mg/Kg	100	1/21/2015 12:52:32 PM	17312
4-Chloroaniline	ND	180	990		mg/Kg	100	1/21/2015 12:52:32 PM	17312
2-Chloronaphthalene	ND	210	500		mg/Kg	100	1/21/2015 12:52:32 PM	17312
2-Chlorophenol	ND	180	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
4-Chlorophenyl phenyl ether	ND	290	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Chrysene	ND	200	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Di-n-butyl phthalate	ND	220	790		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Di-n-octyl phthalate	ND	220	790		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Dibenz(a,h)anthracene	ND	210	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Dibenzofuran	ND	210	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
1,2-Dichlorobenzene	ND	190	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
1,3-Dichlorobenzene	ND	180	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: P-1
Project: Red Bluff Draw Mitigation
Collection Date: 1/15/2015 11:00:00 AM
Lab ID: 1501586-001 **Matrix:** SOLID **Received Date:** 1/19/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,4-Dichlorobenzene	ND	210	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
3,3´-Dichlorobenzidine	ND	150	500		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Diethyl phthalate	ND	220	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Dimethyl phthalate	ND	180	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
2,4-Dichlorophenol	ND	200	790		mg/Kg	100	1/21/2015 12:52:32 PM	17312
2,4-Dimethylphenol	ND	160	590		mg/Kg	100	1/21/2015 12:52:32 PM	17312
4,6-Dinitro-2-methylphenol	ND	110	790		mg/Kg	100	1/21/2015 12:52:32 PM	17312
2,4-Dinitrophenol	ND	82	990		mg/Kg	100	1/21/2015 12:52:32 PM	17312
2,4-Dinitrotoluene	ND	180	990		mg/Kg	100	1/21/2015 12:52:32 PM	17312
2,6-Dinitrotoluene	ND	220	990		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Fluoranthene	ND	240	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Fluorene	ND	270	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Hexachlorobenzene	ND	190	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Hexachlorobutadiene	ND	200	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Hexachlorocyclopentadiene	ND	140	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Hexachloroethane	ND	180	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Indeno(1,2,3-cd)pyrene	ND	220	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Isophorone	ND	210	790		mg/Kg	100	1/21/2015 12:52:32 PM	17312
1-Methylnaphthalene	ND	180	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
2-Methylnaphthalene	ND	180	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
2-Methylphenol	ND	200	790		mg/Kg	100	1/21/2015 12:52:32 PM	17312
3+4-Methylphenol	ND	200	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
N-Nitrosodi-n-propylamine	ND	200	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
N-Nitrosodiphenylamine	ND	180	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Naphthalene	ND	190	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
2-Nitroaniline	ND	220	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
3-Nitroaniline	ND	190	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
4-Nitroaniline	ND	180	790		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Nitrobenzene	ND	200	790		mg/Kg	100	1/21/2015 12:52:32 PM	17312
2-Nitrophenol	ND	180	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
4-Nitrophenol	ND	170	500		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Pentachlorophenol	ND	120	790		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Phenanthrene	ND	210	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Phenol	ND	180	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Pyrene	ND	260	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
Pyridine	ND	170	790		mg/Kg	100	1/21/2015 12:52:32 PM	17312
1,2,4-Trichlorobenzene	ND	200	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
2,4,5-Trichlorophenol	ND	230	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312
2,4,6-Trichlorophenol	ND	230	400		mg/Kg	100	1/21/2015 12:52:32 PM	17312

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: P-1
Project: Red Bluff Draw Mitigation
Collection Date: 1/15/2015 11:00:00 AM
Lab ID: 1501586-001
Matrix: SOLID
Received Date: 1/19/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Surr: 2-Fluorophenol	0		26.4-129	S	%REC	100	1/21/2015 12:52:32 PM	17312
Surr: Phenol-d5	0		34.8-118	S	%REC	100	1/21/2015 12:52:32 PM	17312
Surr: 2,4,6-Tribromophenol	0		26.8-128	S	%REC	100	1/21/2015 12:52:32 PM	17312
Surr: Nitrobenzene-d5	0		35.8-124	S	%REC	100	1/21/2015 12:52:32 PM	17312
Surr: 2-Fluorobiphenyl	0		24.5-139	S	%REC	100	1/21/2015 12:52:32 PM	17312
Surr: 4-Terphenyl-d14	0		29.4-129	S	%REC	100	1/21/2015 12:52:32 PM	17312
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	0.33	0.27	2.4	J	mg/Kg	50	1/20/2015 1:15:36 PM	17283
Toluene	2.0	0.27	2.4	J	mg/Kg	50	1/20/2015 1:15:36 PM	17283
Ethylbenzene	0.81	0.26	2.4	J	mg/Kg	50	1/20/2015 1:15:36 PM	17283
Methyl tert-butyl ether (MTBE)	ND	0.91	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,2,4-Trimethylbenzene	6.2	0.30	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,3,5-Trimethylbenzene	1.7	0.26	2.4	J	mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,2-Dichloroethane (EDC)	ND	0.40	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,2-Dibromoethane (EDB)	ND	0.28	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Naphthalene	2.8	0.20	4.9	J	mg/Kg	50	1/20/2015 1:15:36 PM	17283
1-Methylnaphthalene	20	0.23	9.8		mg/Kg	50	1/20/2015 1:15:36 PM	17283
2-Methylnaphthalene	25	0.18	9.8		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Acetone	ND	2.4	37		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Bromobenzene	ND	0.38	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Bromodichloromethane	ND	0.31	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Bromoform	ND	0.23	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Bromomethane	ND	0.35	7.3		mg/Kg	50	1/20/2015 1:15:36 PM	17283
2-Butanone	ND	1.1	24		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Carbon disulfide	ND	0.65	24		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Carbon tetrachloride	ND	0.34	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Chlorobenzene	ND	0.27	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Chloroethane	ND	0.40	4.9		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Chloroform	ND	0.85	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Chloromethane	ND	0.22	7.3		mg/Kg	50	1/20/2015 1:15:36 PM	17283
2-Chlorotoluene	ND	0.22	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
4-Chlorotoluene	ND	0.71	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
cis-1,2-DCE	ND	0.22	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
cis-1,3-Dichloropropene	ND	0.30	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,2-Dibromo-3-chloropropane	ND	0.33	4.9		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Dibromochloromethane	ND	0.24	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Dibromomethane	ND	0.28	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,2-Dichlorobenzene	ND	0.29	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,3-Dichlorobenzene	ND	0.29	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: P-1
Project: Red Bluff Draw Mitigation
Collection Date: 1/15/2015 11:00:00 AM
Lab ID: 1501586-001 **Matrix:** SOLID **Received Date:** 1/19/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,4-Dichlorobenzene	ND	0.29	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Dichlorodifluoromethane	ND	0.59	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,1-Dichloroethane	ND	0.17	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,1-Dichloroethene	ND	0.20	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,2-Dichloropropane	ND	0.22	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,3-Dichloropropane	ND	0.46	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
2,2-Dichloropropane	ND	0.26	4.9		mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,1-Dichloropropene	ND	0.38	4.9		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Hexachlorobutadiene	ND	0.36	4.9		mg/Kg	50	1/20/2015 1:15:36 PM	17283
2-Hexanone	ND	1.2	24		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Isopropylbenzene	0.31	0.19	2.4	J	mg/Kg	50	1/20/2015 1:15:36 PM	17283
4-Isopropyltoluene	ND	0.22	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
4-Methyl-2-pentanone	ND	0.95	24		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Methylene chloride	0.40	0.23	7.3	J	mg/Kg	50	1/20/2015 1:15:36 PM	17283
n-Butylbenzene	1.0	0.22	7.3	J	mg/Kg	50	1/20/2015 1:15:36 PM	17283
n-Propylbenzene	0.51	0.25	2.4	J	mg/Kg	50	1/20/2015 1:15:36 PM	17283
sec-Butylbenzene	0.72	0.24	2.4	J	mg/Kg	50	1/20/2015 1:15:36 PM	17283
Styrene	ND	0.19	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
tert-Butylbenzene	ND	0.27	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,1,1,2-Tetrachloroethane	ND	0.29	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,1,2,2-Tetrachloroethane	ND	0.41	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Tetrachloroethene (PCE)	ND	0.30	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
trans-1,2-DCE	ND	0.27	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
trans-1,3-Dichloropropene	ND	0.34	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,2,3-Trichlorobenzene	ND	0.27	4.9		mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,2,4-Trichlorobenzene	ND	0.27	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,1,1-Trichloroethane	ND	0.25	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,1,2-Trichloroethane	ND	0.30	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Trichloroethene (TCE)	ND	0.34	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Trichlorofluoromethane	ND	0.25	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
1,2,3-Trichloropropane	ND	0.37	4.9		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Vinyl chloride	ND	0.20	2.4		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Xylenes, Total	6.4	0.72	4.9		mg/Kg	50	1/20/2015 1:15:36 PM	17283
Surr: Dibromofluoromethane	94.6	0	70-130		%REC	50	1/20/2015 1:15:36 PM	17283
Surr: 1,2-Dichloroethane-d4	75.9	0	70-130		%REC	50	1/20/2015 1:15:36 PM	17283
Surr: Toluene-d8	93.5	0	70-130		%REC	50	1/20/2015 1:15:36 PM	17283
Surr: 4-Bromofluorobenzene	74.3	0	70-130		%REC	50	1/20/2015 1:15:36 PM	17283

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Qualifiers:

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S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: P-2
Project: Red Bluff Draw Mitigation
Collection Date: 1/15/2015 11:00:00 AM
Lab ID: 1501586-002 **Matrix:** SOLID **Received Date:** 1/19/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: **WL**	
Diesel Range Organics (DRO)	260000	8100	15000		mg/Kg	1000	1/20/2015 1:40:38 PM	17269
Motor Oil Range Organics (MRO)	150000	74000	74000		mg/Kg	1000	1/20/2015 1:40:38 PM	17269
Surr: DNOP	0	0	63.5-128	S	%REC	1000	1/20/2015 1:40:38 PM	17269
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	1200	150	460		mg/Kg	100	1/20/2015 2:36:24 PM	17283
Surr: BFB	146	0	80-120	S	%REC	100	1/20/2015 2:36:24 PM	17283
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	600	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Acenaphthylene	ND	500	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Aniline	ND	430	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Anthracene	ND	420	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Azobenzene	ND	550	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Benz(a)anthracene	ND	390	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Benzo(a)pyrene	ND	550	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Benzo(b)fluoranthene	ND	470	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Benzo(g,h,i)perylene	ND	560	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Benzo(k)fluoranthene	ND	560	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Benzoic acid	ND	280	2500		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Benzyl alcohol	ND	440	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Bis(2-chloroethoxy)methane	ND	470	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Bis(2-chloroethyl)ether	ND	490	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Bis(2-chloroisopropyl)ether	ND	380	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Bis(2-ethylhexyl)phthalate	ND	560	2500		mg/Kg	100	1/21/2015 1:20:34 PM	17312
4-Bromophenyl phenyl ether	ND	520	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Butyl benzyl phthalate	ND	600	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Carbazole	ND	460	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
4-Chloro-3-methylphenol	ND	490	2500		mg/Kg	100	1/21/2015 1:20:34 PM	17312
4-Chloroaniline	ND	460	2500		mg/Kg	100	1/21/2015 1:20:34 PM	17312
2-Chloronaphthalene	ND	530	1200		mg/Kg	100	1/21/2015 1:20:34 PM	17312
2-Chlorophenol	ND	460	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
4-Chlorophenyl phenyl ether	ND	740	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Chrysene	ND	500	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Di-n-butyl phthalate	ND	560	2000		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Di-n-octyl phthalate	ND	550	2000		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Dibenz(a,h)anthracene	ND	540	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Dibenzofuran	ND	530	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
1,2-Dichlorobenzene	ND	470	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
1,3-Dichlorobenzene	ND	440	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: P-2
Project: Red Bluff Draw Mitigation
Collection Date: 1/15/2015 11:00:00 AM
Lab ID: 1501586-002
Matrix: SOLID
Received Date: 1/19/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,4-Dichlorobenzene	ND	520	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
3,3´-Dichlorobenzidine	ND	380	1200		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Diethyl phthalate	ND	560	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Dimethyl phthalate	ND	460	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
2,4-Dichlorophenol	ND	490	2000		mg/Kg	100	1/21/2015 1:20:34 PM	17312
2,4-Dimethylphenol	ND	390	1500		mg/Kg	100	1/21/2015 1:20:34 PM	17312
4,6-Dinitro-2-methylphenol	ND	270	2000		mg/Kg	100	1/21/2015 1:20:34 PM	17312
2,4-Dinitrophenol	ND	210	2500		mg/Kg	100	1/21/2015 1:20:34 PM	17312
2,4-Dinitrotoluene	ND	440	2500		mg/Kg	100	1/21/2015 1:20:34 PM	17312
2,6-Dinitrotoluene	ND	550	2500		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Fluoranthene	ND	600	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Fluorene	ND	670	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Hexachlorobenzene	ND	470	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Hexachlorobutadiene	ND	490	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Hexachlorocyclopentadiene	ND	340	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Hexachloroethane	ND	440	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Indeno(1,2,3-cd)pyrene	ND	560	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Isophorone	ND	530	2000		mg/Kg	100	1/21/2015 1:20:34 PM	17312
1-Methylnaphthalene	ND	460	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
2-Methylnaphthalene	ND	450	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
2-Methylphenol	ND	500	2000		mg/Kg	100	1/21/2015 1:20:34 PM	17312
3+4-Methylphenol	ND	510	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
N-Nitrosodi-n-propylamine	ND	510	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
N-Nitrosodiphenylamine	ND	440	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Naphthalene	ND	470	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
2-Nitroaniline	ND	560	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
3-Nitroaniline	ND	480	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
4-Nitroaniline	ND	440	2000		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Nitrobenzene	ND	510	2000		mg/Kg	100	1/21/2015 1:20:34 PM	17312
2-Nitrophenol	ND	440	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
4-Nitrophenol	ND	430	1200		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Pentachlorophenol	ND	310	2000		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Phenanthrene	ND	520	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Phenol	ND	440	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Pyrene	ND	640	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
Pyridine	ND	420	2000		mg/Kg	100	1/21/2015 1:20:34 PM	17312
1,2,4-Trichlorobenzene	ND	510	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
2,4,5-Trichlorophenol	ND	580	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312
2,4,6-Trichlorophenol	ND	570	990		mg/Kg	100	1/21/2015 1:20:34 PM	17312

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: P-2
Project: Red Bluff Draw Mitigation
Collection Date: 1/15/2015 11:00:00 AM
Lab ID: 1501586-002
Matrix: SOLID
Received Date: 1/19/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Surr: 2-Fluorophenol	0		26.4-129	S	%REC	100	1/21/2015 1:20:34 PM	17312
Surr: Phenol-d5	0		34.8-118	S	%REC	100	1/21/2015 1:20:34 PM	17312
Surr: 2,4,6-Tribromophenol	0		26.8-128	S	%REC	100	1/21/2015 1:20:34 PM	17312
Surr: Nitrobenzene-d5	0		35.8-124	S	%REC	100	1/21/2015 1:20:34 PM	17312
Surr: 2-Fluorobiphenyl	0		24.5-139	S	%REC	100	1/21/2015 1:20:34 PM	17312
Surr: 4-Terphenyl-d14	0		29.4-129	S	%REC	100	1/21/2015 1:20:34 PM	17312
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	1.8	1.0	9.3	J	mg/Kg	200	1/20/2015 1:42:59 PM	17283
Toluene	9.6	1.0	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Ethylbenzene	6.0	0.99	9.3	J	mg/Kg	200	1/20/2015 1:42:59 PM	17283
Methyl tert-butyl ether (MTBE)	ND	3.5	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,2,4-Trimethylbenzene	40	1.1	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,3,5-Trimethylbenzene	11	0.99	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,2-Dichloroethane (EDC)	ND	1.5	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,2-Dibromoethane (EDB)	ND	1.1	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Naphthalene	9.3	0.77	19	J	mg/Kg	200	1/20/2015 1:42:59 PM	17283
1-Methylnaphthalene	53	0.88	37		mg/Kg	200	1/20/2015 1:42:59 PM	17283
2-Methylnaphthalene	70	0.66	37		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Acetone	ND	9.1	140		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Bromobenzene	ND	1.4	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Bromodichloromethane	ND	1.2	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Bromoform	ND	0.87	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Bromomethane	ND	1.3	28		mg/Kg	200	1/20/2015 1:42:59 PM	17283
2-Butanone	ND	4.2	93		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Carbon disulfide	ND	2.5	93		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Carbon tetrachloride	ND	1.3	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Chlorobenzene	ND	1.0	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Chloroethane	ND	1.5	19		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Chloroform	ND	3.2	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Chloromethane	ND	0.85	28		mg/Kg	200	1/20/2015 1:42:59 PM	17283
2-Chlorotoluene	ND	0.82	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
4-Chlorotoluene	ND	2.7	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
cis-1,2-DCE	ND	0.85	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
cis-1,3-Dichloropropene	ND	1.2	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,2-Dibromo-3-chloropropane	ND	1.3	19		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Dibromochloromethane	ND	0.91	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Dibromomethane	ND	1.1	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,2-Dichlorobenzene	ND	1.1	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,3-Dichlorobenzene	ND	1.1	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: P-2
Project: Red Bluff Draw Mitigation
Collection Date: 1/15/2015 11:00:00 AM
Lab ID: 1501586-002
Matrix: SOLID
Received Date: 1/19/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,4-Dichlorobenzene	ND	1.1	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Dichlorodifluoromethane	ND	2.2	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,1-Dichloroethane	ND	0.64	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,1-Dichloroethene	ND	0.74	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,2-Dichloropropane	ND	0.82	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,3-Dichloropropane	ND	1.7	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
2,2-Dichloropropane	ND	1.0	19		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,1-Dichloropropene	ND	1.4	19		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Hexachlorobutadiene	ND	1.4	19		mg/Kg	200	1/20/2015 1:42:59 PM	17283
2-Hexanone	ND	4.4	93		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Isopropylbenzene	2.9	0.73	9.3	J	mg/Kg	200	1/20/2015 1:42:59 PM	17283
4-Isopropyltoluene	ND	0.84	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
4-Methyl-2-pentanone	ND	3.6	93		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Methylene chloride	1.6	0.87	28	J	mg/Kg	200	1/20/2015 1:42:59 PM	17283
n-Butylbenzene	4.9	0.82	28	J	mg/Kg	200	1/20/2015 1:42:59 PM	17283
n-Propylbenzene	4.0	0.93	9.3	J	mg/Kg	200	1/20/2015 1:42:59 PM	17283
sec-Butylbenzene	4.4	0.90	9.3	J	mg/Kg	200	1/20/2015 1:42:59 PM	17283
Styrene	ND	0.72	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
tert-Butylbenzene	ND	1.0	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,1,1,2-Tetrachloroethane	ND	1.1	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,1,2,2-Tetrachloroethane	ND	1.5	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Tetrachloroethene (PCE)	ND	1.1	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
trans-1,2-DCE	ND	1.0	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
trans-1,3-Dichloropropene	ND	1.3	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,2,3-Trichlorobenzene	ND	1.0	19		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,2,4-Trichlorobenzene	ND	1.0	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,1,1-Trichloroethane	ND	0.93	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,1,2-Trichloroethane	ND	1.1	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Trichloroethene (TCE)	ND	1.3	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Trichlorofluoromethane	ND	0.97	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
1,2,3-Trichloropropane	ND	1.4	19		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Vinyl chloride	ND	0.76	9.3		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Xylenes, Total	43	2.7	19		mg/Kg	200	1/20/2015 1:42:59 PM	17283
Surr: Dibromofluoromethane	89.6	0	70-130		%REC	200	1/20/2015 1:42:59 PM	17283
Surr: 1,2-Dichloroethane-d4	81.4	0	70-130		%REC	200	1/20/2015 1:42:59 PM	17283
Surr: Toluene-d8	93.0	0	70-130		%REC	200	1/20/2015 1:42:59 PM	17283
Surr: 4-Bromofluorobenzene	71.4	0	70-130		%REC	200	1/20/2015 1:42:59 PM	17283

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Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1501586**

22-Jan-15

Client: Souder, Miller & Associates

Project: Red Bluff Draw Mitigation

Sample ID	**MB-17269**	SampType:	**MBLK**		TestCode:	**EPA Method 8015D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**17269**		RunNo:	**23764**				
Prep Date:	**1/16/2015**	Analysis Date:	**1/20/2015**		SeqNo:	**701499**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	7.2		10.00		71.6	63.5	128			

Sample ID	**LCS-17269**	SampType:	**LCS**		TestCode:	**EPA Method 8015D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**17269**		RunNo:	**23764**				
Prep Date:	**1/16/2015**	Analysis Date:	**1/20/2015**		SeqNo:	**701516**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	90.1	67.8	130			
Surr: DNOP	4.1		5.000		82.8	63.5	128			

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- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1501586**

22-Jan-15

Client: Souder, Miller & Associates

Project: Red Bluff Draw Mitigation

Sample ID	**MB-17283**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**
Client ID:	**PBS**	Batch ID:	**17283**	RunNo:	**23772**
Prep Date:	**1/19/2015**	Analysis Date:	**1/20/2015**	SeqNo:	**701619** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	910		1000		91.2	80	120			

Sample ID	**LCS-17283**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**
Client ID:	**LCSS**	Batch ID:	**17283**	RunNo:	**23772**
Prep Date:	**1/19/2015**	Analysis Date:	**1/20/2015**	SeqNo:	**701620** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	100	65.8	139			
Surr: BFB	990		1000		99.5	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1501586**

22-Jan-15

Client: Souder, Miller & Associates

Project: Red Bluff Draw Mitigation

Sample ID **mb-17283**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **17283**	RunNo: **23785**
Prep Date: **1/19/2015**	Analysis Date: **1/20/2015**	SeqNo: **701720** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	0.073	0.75								J
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	0.044	0.15								J
2-Butanone	0.061	0.50								J
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1501586**

22-Jan-15

Client: Souder, Miller & Associates

Project: Red Bluff Draw Mitigation

Sample ID **mb-17283**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **17283**	RunNo: **23785**
Prep Date: **1/19/2015**	Analysis Date: **1/20/2015**	SeqNo: **701720** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.50		0.5000		99.8	70	130			
Surr: 1,2-Dichloroethane-d4	0.39		0.5000		77.2	70	130			
Surr: Toluene-d8	0.45		0.5000		90.4	70	130			
Surr: 4-Bromofluorobenzene	0.39		0.5000		78.8	70	130			

Sample ID **lcs-17283**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **17283**	RunNo: **23785**
Prep Date: **1/19/2015**	Analysis Date: **1/20/2015**	SeqNo: **701721** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.050	1.000	0	89.9	70	130			
Toluene	1.1	0.050	1.000	0	106	70	130			
Chlorobenzene	1.1	0.050	1.000	0	106	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1501586**

22-Jan-15

Client: Souder, Miller & Associates

Project: Red Bluff Draw Mitigation

Sample ID	**lcs-17283**	SampType:	**LCS**	TestCode:	**EPA Method 8260B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**17283**	RunNo:	**23785**					
Prep Date:	**1/19/2015**	Analysis Date:	**1/20/2015**	SeqNo:	**701721**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	1.0	0.050	1.000	0	100	60.5	160			
Trichloroethene (TCE)	0.86	0.050	1.000	0	86.0	58.8	139			
Surr: Dibromofluoromethane	0.49		0.5000		97.5	70	130			
Surr: 1,2-Dichloroethane-d4	0.37		0.5000		75.0	70	130			
Surr: Toluene-d8	0.46		0.5000		92.6	70	130			
Surr: 4-Bromofluorobenzene	0.41		0.5000		81.2	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1501586**

22-Jan-15

Client: Souder, Miller & Associates

Project: Red Bluff Draw Mitigation

Sample ID **mb-17312**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **17312**	RunNo: **23810**
Prep Date: **1/20/2015**	Analysis Date: **1/21/2015**	SeqNo: **702708** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	0.12	0.20								J
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	ND	0.40								
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.20								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	0.12	0.40								J
2,4-Dinitrophenol	0.28	0.50								J

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1501586**

22-Jan-15

Client: Souder, Miller & Associates

Project: Red Bluff Draw Mitigation

Sample ID **mb-17312**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **17312**	RunNo: **23810**
Prep Date: **1/20/2015**	Analysis Date: **1/21/2015**	SeqNo: **702708** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	2.7		3.330		79.8	26.4	129			
Surr: Phenol-d5	2.4		3.330		73.4	34.8	118			
Surr: 2,4,6-Tribromophenol	2.5		3.330		76.1	26.8	128			
Surr: Nitrobenzene-d5	1.3		1.670		80.2	35.8	124			
Surr: 2-Fluorobiphenyl	1.3		1.670		76.2	24.5	139			
Surr: 4-Terphenyl-d14	1.1		1.670		67.7	29.4	129			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1501586**

22-Jan-15

Client: Souder, Miller & Associates

Project: Red Bluff Draw Mitigation

Sample ID **LCS-17312**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS**	Batch ID: **17312**	RunNo: **23810**
Prep Date: **1/20/2015**	Analysis Date: **1/21/2015**	SeqNo: **702709** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.4	0.20	1.670	0	86.0	45.8	114			
4-Chloro-3-methylphenol	2.8	0.50	3.330	0	84.7	52.3	122			
2-Chlorophenol	2.9	0.20	3.330	0	86.9	49.9	115			
1,4-Dichlorobenzene	1.3	0.20	1.670	0	78.8	43.7	107			
2,4-Dinitrotoluene	1.2	0.50	1.670	0	74.2	36	106			
N-Nitrosodi-n-propylamine	1.4	0.20	1.670	0	83.3	39.5	110			
4-Nitrophenol	2.4	0.25	3.330	0	72.7	45.1	121			
Pentachlorophenol	2.2	0.40	3.330	0	65.7	23.7	111			
Phenol	2.9	0.20	3.330	0	88.2	52.7	119			
Pyrene	1.3	0.20	1.670	0	75.8	50.4	116			
1,2,4-Trichlorobenzene	1.4	0.20	1.670	0	83.5	40.1	114			
Surr: 2-Fluorophenol	2.8		3.330		85.0	26.4	129			
Surr: Phenol-d5	2.7		3.330		82.2	34.8	118			
Surr: 2,4,6-Tribromophenol	2.6		3.330		77.9	26.8	128			
Surr: Nitrobenzene-d5	1.4		1.670		86.3	35.8	124			
Surr: 2-Fluorobiphenyl	1.4		1.670		85.4	24.5	139			
Surr: 4-Terphenyl-d14	1.2		1.670		69.1	29.4	129			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: SMA-CARLSBAD Work Order Number: 1501586 RcptNo: 1

Received by/date: AT 1/19/15 01/19/15

Logged By: Anne Thorne 1/19/2015 8:55:00 AM Anne Thorne

Completed By: Anne Thorne 1/19/2015 Anne Thorne

Reviewed By: AG 01/19/15

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
9. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	12.1	Good	Yes			

Chain-of-Custody Record

Client: Souder Miller and Associates

Mailing Address:

201 S Halagueno Carlsbad,NM 88220

email or Fax#: lucas.middleton@soudermiller.com

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation:

☐ NELAP ☐ Other_____

☐ EDD (Type) _____

Turn-Around Time:

☐ Standard ☑ Rush_____

Project Name: Red Bluff Draw Mitigation

Project #:

Project Manager: Austin Weyant

Sampler:

On Ice: ☑ Yes ☐ No

Sample Temperature: 12.1°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021	BTEX + MTBE + TPH (Gas on	TPH Method 8015B (Gas/Di	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	8081 Pesticides / 8082 PCB'	8260B (VOA)	8270 (Semi-VOA)	PAH	8015 (Gas, Diesel, Motor Oi			Air Bubbles (Y or N)
1/15/15	11:00	wax	P-1	4 oz Jar	1501586-001		X									X	X			
1/15/15	11:00	wax	P-2	4 oz Jar	-002-															

Date:	Time:	Relinquished by:	Received by:	Date
Date:	Time:	Relinquished by:	Received by:	Date

Remarks: Andy- Do you think this will cover it for paraffin wax study we spoke about?

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the an

Per Austin add 8260, 8270 and remove 8021, 8310.

1/19/15

APPENDIX B
FIRE DETAILS

Bureau of Land Management
Pecos District
Carlsbad Field Office

Tecolote Grassland Restoration Prescribed Fire Plan

PREPARED BY: **/s/ Matias Telles RXB2** **DATE: 1/12/2012**
Engine Modular Leader

TECHNICAL REVIEW BY: **/s/ Lisa Bye** **DATE: 1/18/2012**
New Mexico State Fuels Specialist

REVIEWED BY: **/s/ Ty Bryson RXB2** **DATE: 1/12/2012**
Pecos District Fire Management Officer

COMPLEXITY RATING: **MODERATE**

MINIMUM RXB REQUIREMENT: **RXB2**

APPROVED BY : **/s/ Jim Stoval** **DATE: 2/29/2012**
Carlsbad Field Office Manager

The approved prescribed fire plan constitutes a delegation of authority to burn. No one has the authority to burn without an approved plan or in a manner not in compliance with the approved plan. Actions taken in compliance with the approved prescribed fire plan will be fully supported. Personnel will be held accountable for actions taken that are not in compliance with elements of the approved plan regarding the execution in a safe and cost-effective manner.

Copies of the approved plan will be sent to: Alamogordo Interagency Dispatch Center

EXECUTIVE SUMMARY

The Tecolote Prescribed Burn Project is part of a fuels reduction and ecosystem restoration plan and is located in Southern Eddy County, 7 miles south of Carlsbad, NM. It is the ongoing prescribed fire project in the area with the first occurring in the early 1990s. The primary objective of this burn is to reduce the existing wildland fire hazard and enhance wildlife habitat and watershed values. This objective will be met by reducing the dead and decadent alkali sacaton and shrub species, rejuvenating browse species, and eliminating piled salt cedar.

Land managers have identified 195,573 acres in 21 allotments for prescribed fire treatment. This plan proposes treatment of 1 to 2 pastures per year per allotment or as deemed necessary by fire managers and permitees. Additional treatments may be addressed if resources and funds are available.

Cooperators include Carlsbad Soil and Water Conservation District (CSWD), 21 grazing permitees, and oil and gas operators. CSWD provided a contractor to mechanically excavate and pile salt cedar on BLM and private land in the drainages.

Most of the allotments have or will be treated with the aerial application of the herbicides Clopyralid (*i.e. Reclaim*®) and Picloram (*i.e. Remedy*®) for the treatment of mesquite and with Tebithiron (*Spike 20 P*®) for catclaw and creosote. Prescribed fire is the second phase of these ecosystem restoration treatments.

The project consists of three ecological sites. Fuel model 3 is used to establish the fire behavior prescription as grass (*Draws ecological site*) is the primary fire carrier. Fuel model 1 occurs in the adjacent uplands (*Loamy and Gyp upland ecological sites*). The upland areas lack the fuel continuity to sustain fire intensity other than in side drainages. Behave runs are included in the folder for contingency and holding planning; however, observed values will be used for on ground decisions.

During all firing and holding actions, LCES will be strictly adhered to. Safety zones will be either into the black or in gyp hills that are barren of fuel. Safety zones will be established in appropriate locations to mitigate concerns for continuous fuels. Only appropriately red carded personnel or trainees will be used. Daily briefings will be conducted. The Go/No Go Checklist will be completed and approved daily prior to ignition operations taking place.

Values are primarily related to range improvements (e.g. corrals, fences, and wells). Replacement/repair of damaged fences will be coordinated with the livestock operator through the range staff. Wells and corrals will be pre-treated to mitigate potential impacts from fire. Other values include oil and gas infrastructure in the general area. Primary risks will be to surface flow lines that may exist in a treat unit. Identify flow lines and other infrastructure will be coordinated with the oil and gas operators and Carlsbad Field Office Petroleum Engineer Technicians (PETs).

A detailed Incident Action Plan will be prepared for each individual prescribed fire treatment wherein site specific prescribed fire operational details will be identified. Additionally, this plan will be reviewed by a qualified burn boss annually to ensure its applicability and document any required amendments. Any modifications which could result in a change of complexity will require a full revision, review and approval.

Any changes or amendments to the approved Prescribed Fire Burn Plan require approval at the same or a higher level of authority as the line officer that approved the initial plan except for revisions to the allowable area.

ELEMENT 1: AGENCY ADMINISTRATOR PRE-IGNITION APPROVAL CHECKLIST

The Agency Administrator's Pre-Ignition Approval is the intermediate planning review process (i.e. between the Prescribed Fire Complexity Rating System Guide and Go/No-Go Checklist) that should be completed before a prescribed fire can be implemented. The Agency Administrator's Pre-Ignition Approval evaluates whether compliance requirements, Prescribed Fire Plan elements, and internal and external notifications have been or will be completed and expresses the Agency Administrator's intent to implement the Prescribed Fire Plan. If ignition of the prescribed fire is not initiated prior to expiration date determined by the Agency Administrator, a new approval will be required.

YES	NO	KEY ELEMENT QUESTIONS
		Is the Prescribed Fire Plan up to date? *Hints: amendments, seasonality.*
		Will all compliance requirements be completed? *Hints: cultural, threatened and endangered species, smoke management, NEPA.*
		Is risk management in place and the residual risk acceptable? *Hints: Prescribed Fire Complexity Rating Guide completed with rational and mitigation measures identified and documented?*
		Will all elements of the Prescribed Fire Plan be met? *Hints: Preparation work, mitigation, weather, organization, prescription, contingency resources*
		Will all internal and external notifications and media releases be completed? *Hints: Preparedness level restrictions*
		Will key agency staff be fully briefed and understand prescribed fire implementation?
		Are there any other extenuating circumstances that would preclude the successful implementation of the plan?
		Have you determined if and when you are to be notified that contingency actions are being taken? Will this be communicated to the Burn Boss?
		Other:

Recommended by: _____ Date: _____
Prescribed Fire Burn Boss

Approved by: _____ Date: _____
Agency Administrator

Approval Expires Date: _____

ELEMENT 2: PRESCRIBED FIRE GO/NO-GO CHECKLIST

	YES	NO
A. Has the burn unit experienced unusual drought conditions or contain above normal fuel loadings which were not considered in the prescription development? If NO proceed with checklist., if YES go to item B.		
B. Has the prescribed fire plan been reviewed and an amendment and technical review been completed; or has it been determined that no amendment is necessary? If YES to any, proceed with checklist below, if NO, STOP.		

YES	NO	QUESTIONS
		Are ALL pre burn prescription elements met?
		Are ALL smoke management specifications met?
		Has ALL required current and projected fire weather forecasts been obtained and are they favorable?
		Are ALL planned operations personnel and equipment on-site, available, and operational?
		Has the availability of ALL contingency resources been checked, and are they available?
		Have ALL personnel been briefed on the project objectives, their assignment, safety hazards, escape routes, and safety zones?
		Have all the pre-burn considerations identified in the Prescribed Fire Plan been completed or addressed?
		Have ALL the required notifications been made?
		Are ALL permits and clearances obtained?
		In your opinion, can the burn be carried out according to the Prescribed Fire Plan and will it meet the planned objective?

If all the questions were answered "YES" proceed with a test fire. Document the current conditions, location, and results.

_____ _____

Burn Boss Date

ELEMENT 3: COMPLEXITY ANALYSIS SUMMARY

Project Name: Tecolote Prescribed Fire Plan			
ELEMENT	**RISK**	**POTENTIAL CONSEQUENCE**	**TECHNICAL DIFFICULTY**
1. Potential for Escape	Moderate	Low	Moderate
2. The Number and Dependence of Activities	Moderate	Moderate	Moderate
3. Off-Site Values	Moderate	Moderate	Low
4 On-Site Values	Moderate	Moderate	Moderate
5. Fire Behavior	Moderate	Moderate	Moderate
6. Management Organization	Moderate	Low	Low
7. Public and Political Interest	Low	Moderate	Low
8. Fire Treatment Objectives	Low	Low	Moderate
9 Constraints	Low	Low	Low
10 Safety	Moderate	Moderate	Moderate
11. Ignition Procedures/ Methods	Moderate	Moderate	Moderate
12. Interagency Coordination	Low	Low	Low
13. Project Logistics	Low	Low	Low
14 Smoke Management	Moderate	Moderate	Low

COMPLEXITY RATING SUMMARY	
	OVERALL RATING
RISK	Moderate
CONSEQUENCES	Moderate
TECHNICAL DIFFICULTY	Moderate
SUMMARY COMPLEXITY DETERMINATION	Moderate
RATIONALE This burn is rated as moderate due to the potential for high fire behavior and the coordination required during burn operations. This is a straight forward project with little prep work necessary. The objective is to reduce the decadent grass, shrub and piled salt cedar and is expected to be moderately difficult to achieve. Escape routes may be compromised somewhat by hummocks in the alkali stands. Additionally, this burn is rated as moderate due to the inherent risk involved in prescribed fire operations and due to the proximity of public roads and oil and gas infrastructure.	

ELEMENT 4: DESCRIPTION OF PRESCRIBED FIRE AREA

A. Physical Description (also refer to maps)

1. Location

B. Vegetation/Fuels Description

1. On-site fuels data

Vegetation within the burn units consists of alkali sacaton, tobosagrass, and plains bristlegrass. Mesquite and creosote are common throughout the burn unit. Salt cedar has been excavated and piled thoughout some drainages. The uplands consist of plains bristlegrass, tobosagrass, muhly grass, and a mixed overstory of desert shrubs and succulents. The primary fire carrier will be cured grass, with fire expected to carry through some shrubs and most salt cedar piles. Fuel model 3 will be used for fire modeling predictions as it most closely resembles the predominant fuel composition and structure found in drainages. The grass fuels in the uplands are generally neither uniform nor continuous and are broken up by barren areas. Fire modeling runs produced using fuel model 1 indicate higher rates of spread and flame lengths than what will be observed in the uplands. See Appendix E for fire modeling runs.

Vegetation Type	Fuel Model	Estimated tons/acre	Fuel Bed Depth (ft.)	Moisture of Extinction (%)
Tall Grass	3	3.0	2.5	25
Short Grass	1	1	1	12

(Aids to Determining Fuel Models for Estimating Fire Behavior; April 1982, Hal E Anderson)

2. Adjacent fuels data

Vegetation Type	Fuel Model	Estimated tons/acre	Fuel Bed Depth (ft.)	Moisture of Extinction (%)
Short Grass	1	1	1.0	12

3. Description of Unique Features:

Range

A variety of range improvements such as structures, water lines, fences, tanks, windmills and corrals exist within the burn units.

Oil and Gas Development

The Tecolote Unit is located in an area of active oil and gas production and exploration. Actively producing oil and gas wells are located in many of the burn units. Due to the cyclical nature of oil and gas production, the exact locations of oil and gas wells and infrastructure within each burn unit cannot be accurately listed in this burn plan. Therefore, prior to each prescribed burn, the burn boss or their designee, should review an updated list of all oil and gas wells in the treatment area. The location of all oil and gas wells should be confirmed during a site visit of the burn unit and the name, location and operator of each well should be recorded. All operators potentially affected by the prescribed fire should be notified of the burn before the burn is implemented and again the day before or day of burn implementation. The decision to shut in a well and or remove sensitive equipment will be made by the operator. A BLM CFO Petroleum Engineer/Engineering Technician may be helpful in identifying the well locations and contacting oil and gas operators. Additionally, the BLM CFO PET may perform an on-site inspection of all burn unit wells to ensure that the well is operating safely and identify any deficiencies in need of correction.

ELEMENT 5: OBJECTIVES

Prescribed Fire Objectives

Objective 1: Provide for the safety of fire personnel and the public

Objective 2: Reduce the existing wildland fire hazard

Objective 3: Restore the fire adaptive ecosystem

Resource Objectives

Objective 1: Reduce piled salt cedar by 70%-100% as measured post burn

Objective 2: Reduce density and distribution of herbicide treated mesquite, creosote and catclaw by 20-50% as measured immediately post burn.

Objective 3: Increase the distribution and diversity of native grasses by 20% as measured in range study plots 1 year post burn

ELEMENT 6: FUNDING

Accounting codes and project numbers will be established yearly for each planned project. All new project accounting codes must be submitted to the NMSO Fire Business Specialist for activation and approval prior to use. Funding for the burns will be provided though WUI funds, LF3100000. On average burn projects should be within 10 to 15 dollars per acre to plan, prep, and implement. Each project will need to be evaluated yearly for exact dollar amount needed.

ELEMENT 7: PRESCRIPTION

A. Environmental Prescription

The following prescription represents the range of environmental conditions that may be forecasted on the day of the burn. Each of these parameters should be reviewed individually and in combination to ensure that the forecasted conditions will produce fire behavior that is favorable for meeting burn objectives and is within the capabilities of on-site holding resources. It is the responsibility of the Burn Boss to obtain daily spot weather forecasts for the day of the burn to ensure that the predicted fire behavior will not exceed the prescription parameters outlined below and that adequate holding forces are assigned. If the prescription limits are exceeded, the Prescribed Fire Burn Boss must evaluate fire controllability and whether fire effects will meet objectives. The Prescribed Fire Burn Boss must take action to ensure objectives are being met, or take appropriate actions to maintain control of or secure the fire.

Seasonality: Any time of the year will be acceptable with the January through July timeframe preferred.		
Element	**Acceptable Range**	**Preferred**
Temperature (°F)	40 to 95	60 to 80
Relative Humidity (%)	5 to 65	15 to 30
Wind Direction	Any	S, SW
Mid-Flame Wind Speed (mph)	2-12	6-10
1 Hr. Fuel Moisture (%)	1 to 12	6-8

B. Fire Behavior Prescription:

Element	Acceptable Range	Preferred
Flame Length (feet)	1 to 20	3 to 7
Rate of Spread (chains/hour)	1 to 219	30 to 50
Probability of Ignition (%)	20 to 100	50 to 70

ELEMENT 8: SCHEDULING

A. Ignition Time Frames/Season(s)

Prescribed burning may be implemented on any date when prescription parameters are met and unit goals and objectives are expected to be achieved. It is anticipated that these burns will be implemented between January and July.

B. Projected Duration

Most projects require one to three days for ignition. Some smoldering in mesquite may persist for 1 to 2 days following ignition. The salt cedar piles are clean and consumption is expected to be rapid; however some heavies may smolder for up to 5 days. Prep work is expected to be no more than 3 days per treatment unit.

C. Constraints

Wind direction parameters have been listed in an effort to minimize the potential for smoke impacts on Class I air sheds located west (Carlsbad Caverns) and southwest (Guadalupe Mountains) of the project area. General wind direction is from the Southwest in this area, and also is the preferred wind direction for the burn to minimize smoke on the town of Carlsbad, local roads and residences.

ELEMENT 9: PRE-BURN CONSIDERATIONS AND WEATHER

A. Considerations

1. On Site Considerations:

   To be completed by Burn Boss or designee at least one business day prior to burn:

   - Verify designated containment lines are adequate for expected conditions.
   - Notify NM Environment Department Air Quality Bureau by 10:00 am and complete online notifications at http://smoke.state.nm.us/

   To be completed by Burn Boss or designee on the day of burn:

   - Place smoke warning signs along roads as required.

2. Off Site Considerations:

   To be completed by Burn Boss at least one day prior to burn:

   - Notify adjacent land owners and BLM staff of pending prescribed fire operations.

   To be completed on the day of burn by Burn Boss or designee:

   - Obtain a spot weather forecast from the National Weather Service office in Midland, TX at (432) 563-5901, or via the internet at: http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=maf
   - Determine potential smoke impacts and place warning signs as required.

- Complete Notification List Items (see below).
- Prepare maps and IAPs.

B. Method and Frequency for Obtaining Weather and Smoke Management Forecast(s)

Local weather forecasts and site conditions will be monitored by fire staff to determine when the burn unit will be in prescription. The local weather forecast will be checked on the day prior to the burn to verify that conditions will be favorable for ignition and for the duration of the burn period. A spot weather forecast will be obtained on the morning of the burn and will include the burn period, overnight conditions, and conditions for the following day. Additional spot requests should be submitted for any operational periods where continued fire activity warrants. Spot forecasts may be obtained via the internet at:

http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=maf

C. Notifications

Information regarding the planned prescribed fire should be provided to the public well in advance of burn implementation. This will include press releases to local media. All appropriate personnel will be notified when ignition begins and when it is completed. The notifications will be completed the Burn Boss assigned to the burn, or their designee.

Name	Phone Number	Date/Time of Contact	Contacts Name	Comments	Callers Initials
Jim Stovall Carlsbad BLM Field Office Manager	575.234.5981 office 575.706.7896 cell				

George MacDonell Carlsbad BLM Associate Field Manager	575.234.5901 office 575.420.0400 cell				
Lisa Bye BLM NM State Fuels Specialist	505.954.2191 office 505.690.2438 cell				
Joel Arnwine Eddy County Emergency Management Coordinator OR Robert Brader Eddy County Fire Service Coordinator	575.361.3404 cell 575.200.9393 cell				
Alamogordo Dispatch	1.877.695.1663				
Carlsbad Police/Fire Dispatch Carlsbad	575.885.2111 ext 0 575.885.8769 fax				
Eddy County Sheriff Dispatch Carlsbad/Artesia	575.616.7155 or 575.628.5417 1.888.820.5311 Fax				
US Forest Service Fire Staff Art Arias FMO	575.361.7760 cell				
Air Quality Bureau	http://smoke.state.nm.us/				
National Park Service Fire Staff John Montoya FMO	432.940.1641 cell				

ELEMENT 10: BRIEFINGS

A pre-burn briefing will be conducted with all assigned resources prior to initiating the test burn and at the start of each subsequent operational period. The standard prescribed fire briefing format shall be followed. The following briefing checklist may be utilized to facilitate the briefing:

Briefing Checklist

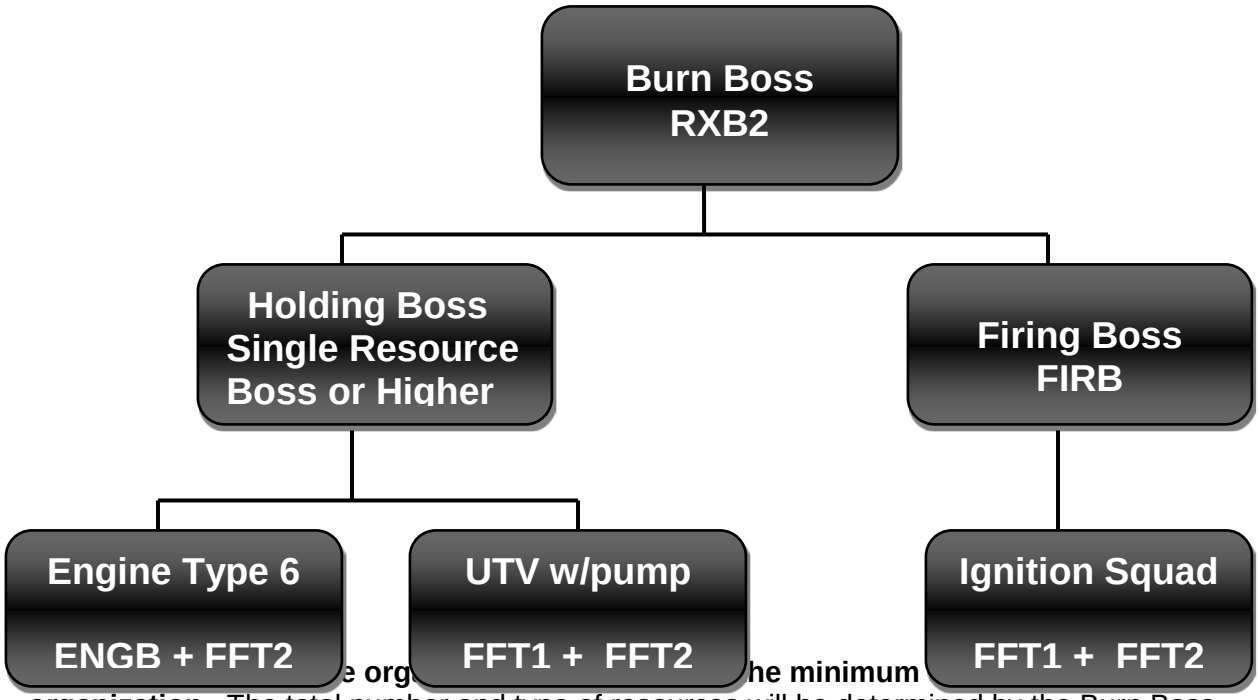
- ○ Burn Organization
- ○ Burn Objectives
- ○ Description of Burn Area
- ○ Expected Weather & Fire Behavior
- ○ Ignition plan
- ○ Holding Plan
- ○ Contingency Plan
- ○ Wildfire Conversion

○ Communications ○ Safety

A debriefing will be conducted with all available assigned resources at the end of each operational period. This briefing will be in the form of an After Action Review, the structure of which is spelled out in the Incident Response Packet Guide (IRPG, NFES #1077). The burn boss or their designee is responsible for facilitating the AAR.

ELEMENT 11: ORGANIZATION AND EQUIPMENT

The organizational chart provided below represents the basic command structure and the **minimum** type and number of resources that will be used during the prescribed fire treatments. The minimum organization only applies to periods involving ignition operations. The organization may be reduced during mop-up or monitoring. The Burn Boss is ultimately responsible for evaluating the burn unit and determining the resources required to safely implement the fuels treatment. Resource production rates must be adequate for the expected conditions as outlined in the Holding Resources Worksheet (Appendix F). The use of trainees in any position is encouraged as long as individuals meet the minimum qualifications for the position as outlined in the Wildland Fire Qualifications Guide (PMS310-1). Each trainee must have a qualified trainer assigned to that position.



e org he minimum organization. The total number and type of resources will be determined by the Burn Boss based on the fuel conditions, values at risk in the treatment unit, and forecasted weather for the day of the burn.

B. Equipment

UTVs with pump packages and a type VI engine will be used for patrolling and holding. A UTV with a drip torch may be used for ignition. A terra torch may be used for training purposes but is not required for successful completion of this project. The burn boss or holding boss may utilize UTVs or ATVs to facilitate moving drip torch fuel and to recon the treatment unit.

ELEMENT 12: COMMUNICATION

A. Radio Frequencies

Channel Function	Channel Name	Receive Frequency	NAC / CTCS	Transmit Frequency	NAC	BW
Tactical	Scene of Action	168.2250		168.2250	192.8	N
Tactical	Scene of Action 2	172.500		172.500	192.8	N
Command	Queen	172.5875		165.1750	136.5	N
LNZ Air to Ground	A/G	166.6875		166.6875		N
Commo w/ VFDs Command	Eddy County Fire C Hill	154.3400	179.9	155.7975	179.9	W
Commo w/VFDs Tactical	EC Tac 1	155.0325	241.8	155.0325	241.8	W

B. Telephone Numbers

Name	Position	Phone Number
Ty Bryson	BLM Pecos District Fire Management Officer	575.361.5960 cell
Shelsey Jensen	BLM Pecos District Fire Program Assistant	575.361.3568 cell
Beau Cartwright	BLM Carlsbad Engine Module Leader E5471	575-361-3572 cell
Matias Telles	BLM Carlsbad Fire Management Specialist	575.644-4431 cell
Jimmy Faust	BLM Carlsbad Engine Module Leader E5670	575.361.3573 cell
Jim Stovall	BLM Carlsbad Field Office Manager	575.706.7896 office 575.234.5981 cell
George MacDonell	BLM Carlsbad Associate Field Office Manager	575.234.5901 office 575.420-0400 cell
Jim Amos	BLM Carlsbad Lead Environmental Protection Specialist	575.234.5909 office 575.361.2648 cell
Jerry Blakely	BLM Carlsbad Petroleum Engineering Technician	575.234.5994 office 575.361.0112 cell

ELEMENT 13: PUBLIC AND PERSONNEL SAFETY, MEDICAL

A & B. Safety Hazards

The Burn Boss is responsible for public and personnel safety during the burn. All standard wildland fire safety rules will be strictly enforced. Burn personnel will use all required personal protective equipment (PPE) during all phases of the burn. No person will be allowed along fire control lines or within the burn unit without the proper PPE.

An IAP will be completed prior to each operation period and will address the burn objectives, fire weather/behavior, assignments, communications, and safety. A daily safety and project briefing will be held prior to work on the project during each phase of the project. All personnel involved

with the burn will attend the briefing. See Element 10 for a list of topics that will be covered during the briefing.

A Risk Analysis for prescribed fire operations is included in Appendix D.

The Burn Boss will work with burn personnel to correct any deficiencies or safety concerns observed during all phases of this project. If a critical safety issue cannot be resolved prior to ignition, the burn will be postponed or terminated. If an issue occurs during burn operations, the project will be terminated until mitigation efforts are successful.

C & D. Emergency Medical and Evacuation Procedures
A Medical Plan will be included in the IAP and discussed with all burn personnel at the pre-burn briefing. Individuals with medical qualifications will be identified and will serve as the immediate contacts in the event of an injury. If an injury occurs that exceeds the medical qualifications of burn personnel, transportation to advanced medical care will be arranged. Contact information for area ambulance services and hospitals will be included in the Medical Plan and will be reviewed during the briefing.

E. Emergency Facilities
Nearest Hospital –

Carlsbad Medical Center- 20 Minutes
2430 West Pierce Street Carlsbad, NM
Main Phone: 575.887.4100 Emergency Phone Number: 575.887.4121

Artesia General Hospital- 1 Hour
702 North 13th Street
Artesia, New Mexico 88210
Main Phone: 575.748.3333

Nearest Burn Centers – 3.5 hours
University Medical Center
602 Indiana Avenue Lubbock, TX
Main Phone: 915.544.1200

ELEMENT 14: TEST FIRE

A. Planned location:
A test fire will be conducted within the burn unit as part of the go / no-go burn decision process. The test fire will be ignited in an area that is representative of the fuels and topography being targeted within the treatment unit. The test fire will be used to determine whether the observed fire behavior will meet management objectives for the burn. Results of the test fire will be documented by the burn boss and firing boss and retained as part of the Prescribed Fire Record (Fire Report).

B. Test Fire Documentation

Test Fire Results		
	Yes	**No**
Are all prescription parameters favorable for implementing the burn?		
Narrative Comments:		
Is the observed fire behavior within prescription?		
Narrative Comments:		
Is the test fire successful, will it meet the plan objectives?		
Narrative Comments:		
If three items above are all "Yes", proceed with the prescribed fire.		

Signatures	
Burn Boss / Date / Time	Firing Boss / Date / Time

ELEMENT 15: IGNITION PLAN

The burn boss and/or the firing boss are responsible for assessing physical and environmental conditions and developing a comprehensive ignition plan prior to implementing any hazard fuel treatment. The firing boss, burn boss and holding specialist will review the proposed ignition plan to verify that objectives will be met and that adequate resources are available to implement the chosen strategy and tactics. The firing boss will brief the ignition plan to all burn personnel at the pre-burn briefing and is responsible for implementing the plan.

A. Methods

Hand ignition will utilize strip and spot firing to produce a combination of head, backing, and flanking fires. These tactics will be continually adjusted to produce the desired fire behavior. Ignition will typically begin on the downwind boundary of the unit. Blacklining of downwind boundaries and/or critical holding areas may be accomplished prior to interior ignition. The Burn Boss will determine the specifications for the blackline. The Firing Boss will confirm that ignition personnel know the planned tactics and that all ignition personnel have adequate escape routes to safety zones.

B. Devices

Any common ignition device may be used to implement this burn including drip torches, fusees, very pistols and a terra torch. Firing operations may employ any combination of these tools to achieve resource management objectives. Established safety practices for the use of these ignition devices will be observed at all times and all necessary PPE will be used when working with this equipment.

C. Ignition Staffing

The Firing Boss will recommend ignition strategies and tactics to the Burn Boss who is ultimately responsible for determining which resources and techniques will be used based on conditions on the day of the burn. The Firing Boss will be responsible for communication and coordination between ignition and holding resources. If the observed conditions are not meeting burn objectives, the Burn Boss will notify the Firing Boss so ignition tactics can be adjusted. If adjustments are unsuccessful in producing the desired fire effects, the Burn Boss will make the decision to postpone or terminate the burn as outlined in Element 17.

ELEMENT 16: HOLDING PLAN

A. General Holding Procedures

The firing boss (FIRB) will coordinate ignition actions with the holding resources to ensure that objectives are met safely and efficiently. The Burn Boss, FIRB, and holding resources will discuss the ignition plan and determine holding needs and strategies.

B. Critical Holding Points and Actions

All known values at risk will be identified on the project map.

C. Minimum Holding Organization

Holding resources may include engines, water tenders, hand crews (squads) and specialized equipment such as UTVs with water tanks. Holding resources will focus on containing the prescribed burn within the unit boundaries and protecting structures, improvements, and other values at risk within and adjacent to the burn unit.

Mop-up may begin once ignition is completed and will continue until the Burn Boss determines that the unit is secure. Mop-up may include heavy fuels in order to reduce smoke emissions. The mop-up phase of operations may last multiple operational periods.

The Burn Boss will schedule periodic patrols of the fire perimeter, which will continue until any visible threat to the containment lines is eliminated. Monitoring of the unit may be required for several operational periods, as long as smokes are visible.

ELEMENT 17: CONTINGENCY PLAN

This contingency plan identifies actions required if resource management objectives are not met, prescription elements are exceeded, or spotting or an escaped fire occurs during ignition. Treatment unit specific contingency plans shall be developed and briefed prior to implementing prescribed fire treatments.

A. & B. Trigger Points and Actions Needed

1. Objectives Not Met

The Burn Boss is responsible for observing fire behavior and documenting first order fire effects as the burn progresses. The Firing Boss may attempt to modify firing methods in order to achieve objectives. Should it become apparent that despite modification of firing techniques, objectives are not being met, the Burn Boss will relay to the Firing Boss to terminate the prescribed fire. Operations will concentrate on holding and / or mop-up until such time as conditions become more favorable to continue ignition operations.

2. Prescription Elements Exceeded

Should prescription elements be exceeded during the course of ignition operations, the Burn Boss shall notify the Firing Boss to terminate ignition at the first available opportunity as described above. Operations will concentrate on holding and / or mop-up until such time as conditions return to acceptable levels. If it is anticipated that conditions will improve, operations may hold in place until weather / fire behavior observations indicate it is acceptable to continue. If conditions are unfavorable to continue ignition operations, efforts shall be directed towards improving holding lines and mopping up fire to preclude the possibility of escape. Weather and fuels conditions shall be monitored by designated on site personnel to determine when conditions are favorable to resume burn operations.

3. Spotting and / or Escaped Fire

In the event of spot fires or slop-overs, holding forces shall immediately notify the Burn Boss with a size-up and assessment as to additional resource needs at the scene. The nearest ICT5 to the spot shall be responsible for suppression efforts until relieved by either the Burn Boss or a more qualified IC. The Burn Boss and Firing Boss shall evaluate spotting activity to determine whether ignition techniques can be adjusted or if environmental conditions are becoming unfavorable to proceed. If mitigation efforts are less than effective and spotting and or slop-overs begin to become problematic, ignition operations shall be terminated at the first available opportunity and operations will concentrate on holding and improving lines and mopping up perimeters.

There are several roads and cow trails that may be used as contingency lines for containing spot fires and slop overs. In the event that spot fires or slop-overs cannot be controlled within the first operational period by on site resources, the capabilities of on-site resources are exceeded; there is an imminent threat to life and property; or, when the Burn Boss determines that the contingency actions have failed or are likely to fail and cannot be mitigated by the end of the next burning period, the Burn Boss will convert the prescribed fire to wildfire status as outlined under Element 18 below.

C. Additional Resources and Maximum Response Time(s)

The following resources are typically available as contingency resources. The availability of contingency resources will be identified prior to initiation of operations and be identified in the IAP for that operational period. These resources will be ordered via Alamogordo Dispatch. Notification information can also be found in Element 9C.

Carlsbad Caverns Engine 861 Type 6	30 min
US Forest Service Engine 631 Type 6	1 hour
Additional squad of BLM militia fire fighters	30 min
BLM Roswell-1 Type 6 Engine 5661, 2 Type 4 Engines	

5462, 5461 1.5 hours

ELEMENT 18: WILDFIRE CONVERSION

A. Wildfire Declared By

Holding actions will be undertaken as needed to contain the fire within the unit boundaries. Any spot fires or slop-overs will be immediately suppressed by holding resources. An IC will be designated by the Burn Boss to lead suppression efforts on the spot fire. If spot fires and/or slop-overs cannot be controlled within one burning period with on-site resources; the capabilities of on-site resources are exceeded; there is an imminent threat to life and property; or, when the Burn Boss determines that the contingency actions have failed or are likely to fail and cannot be mitigated by the end of the next burning period, the Burn Boss will convert the fire to a wildfire. A prescribed fire must be declared a wildfire by the Burn Boss.

B. IC Assignment

The Burn Boss will assume the role of Incident Commander until relieved by another Incident Commander (ICT3 or ICT4) as appropriate. The incident will be entered into WFDSS (Wildland Fire Decision Support System) by the IC and the FMO to determine the appropriate fire strategy and management response. When a prescribed fire is declared a wildland fire, managers still have the full range of fire management options available based on Land Use Plan (LUP) and Fire Management Plan (FMP) objectives. If a prescribed fire is declared a wildland fire, a wildfire number will be assigned and all wildfire management costs will be charged to that number. Once declared a wildfire, the fire may not be returned to prescribe fire status.

All escaped fires will be reviewed per BLM policy.

C. Notifications

When a prescribed fire is converted to a wildfire the following people will be notified:

Contact		Cell Phone	Office Phone
Ty Bryson	BLM Pecos District FMO	575.361.5960	575.234.5960
Jim Stovall	CFO Manager	575.706.7896	575.234.5981
Carl Gossard	BLM NM State FMO	505.660.0449	505.954.2186
Lisa Bye	BLM NM State Fuels Specialist	505.690.2438	505.954.2191
Dave Bott	BLM NM Fire Ops Specialist	505.660.4869	505.954.2187

D. Extended Attack Actions and Opportunities to Aid in Fire Suppression

Additional resources needed to suppress the wildfire will be ordered through Alamogordo Interagency Dispatch.

ELEMENT 19: SMOKE MANAGEMENT AND AIR QUALITY

A. Compliance and Permits

All prescribed burns will be registered with the New Mexico Environment Department (NMED), Air Quality Division using the following guidelines:

a. Prescribed fires must be pre-registered with NMED AQD at least two weeks prior to the planned burn dates.
b. Prescribed fires must be registered with NMED AQD no later than 10:00 one business day prior to the planned ignition of the burn. The registration form is available on-line at:

http://smoke.state.nm.us/

c. A completed burn project tracking form must be submitted to NMED AQD no later than two weeks following completion of the burn and can be accessed using the above link.
d. Public notifications of populations within a one-mile radius must be completed no later than two days prior to, and no earlier than thirty days in advance of the burn project.

B. Smoke Sensitive Areas/Receptors
Smoke sensitive areas include Class I airsheds over the Carlsbad Caverns and Guadalupe Mountains National Parks, Whites City, Malaga, Loving. Smoke sensitive receptors (roads) are in close proximity to the treatment units. Preferred wind directions have been identified in the environmental prescription in order to minimize impacts to these potential receptors.

C. Impacted Areas
It is anticipated that the most likely smoke impacts will affect adjacent roads for a short duration.

D. & E. Mitigation Strategies and Techniques to Reduce Smoke Impacts
The wind direction parameters listed in Element 7: Prescription should minimize smoke impacts. Mop-up of smoking stumps and other debris may be implemented if deemed necessary once ignition operations are complete. The burn boss will make this decision based on observed fire activity and smoke production.

Smoke signs will be placed along roadways prior to the burns and will remain posted as long as smoke presents a problem. Patrols may be conducted in the evening to monitor smoke dispersion and address safety concerns. Burn personnel will be available to provide traffic control if needed.

ELEMENT 20: MONITORING

A. Fuels Information Required and Procedures

1. Pre-Burn Monitoring
Carlsbad fire personnel will monitor weather and fuel conditions to determine the appropriate time to implement the burn. The local weather forecast will be checked on the day prior to the burn to verify that conditions will be favorable for ignition and for the duration of the burn period. A spot weather forecast will be obtained on the morning of the burn and will include the burn period, overnight conditions, and conditions for the following day. Additional spot requests should be submitted for any operational periods where continued fire activity warrants. Spot forecasts may be obtained via the internet at:

http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=maf

B. & C. Weather (Forecasted and Observed) and Fire Behavior Monitoring
D. & E. Monitoring of Prescribed Fire Objectives and Smoke Monitoring

1. Burn Operations

For each operational period, the Burn Boss or their designee will be responsible for monitoring and recording on site weather conditions, fire behavior and smoke observations.

2. Post-Fire
The burn unit will be monitored daily until it is declared out.

Long term post-fire monitoring will be conducted by the CFO Range staff. The reading of range study plots and transects will aid in determining if burn objectives are being met.

ELEMENT 21: POST-BURN ACTIVITIES

An After Action Review (AAR) will be conducted and will include all available resources (see Element 10). The Burn Boss will facilitate the AAR and will complete a written summary of this evaluation for inclusion in the fire file.

The Burn Boss will be responsible for ensuring that the following documents are completed:

Prescribed Fire Report

A post burn evaluation and summary that documents burn day weather, fuel conditions, fire behavior, problems and concerns. The report must also indicate if objectives were met and make recommendations for future projects. The prescribed fire results must be compared to the fire treatment objectives and resource objectives that were identified for the project. The prescribed fire report must be completed and signed by the Burn Boss and retained as part of the prescribed fire project file.

Incident Action Plans
Copies of Go / No-Go and Agency Administrator Approval
After Action Review Summary

The Fire Management Specialist is responsible for the following post-fire documentation:

Project accomplishments will be documented in the NFPORS web site within 5 days of project completion. This web site can be accessed at: https://www.nfpors.gov/index.cfm

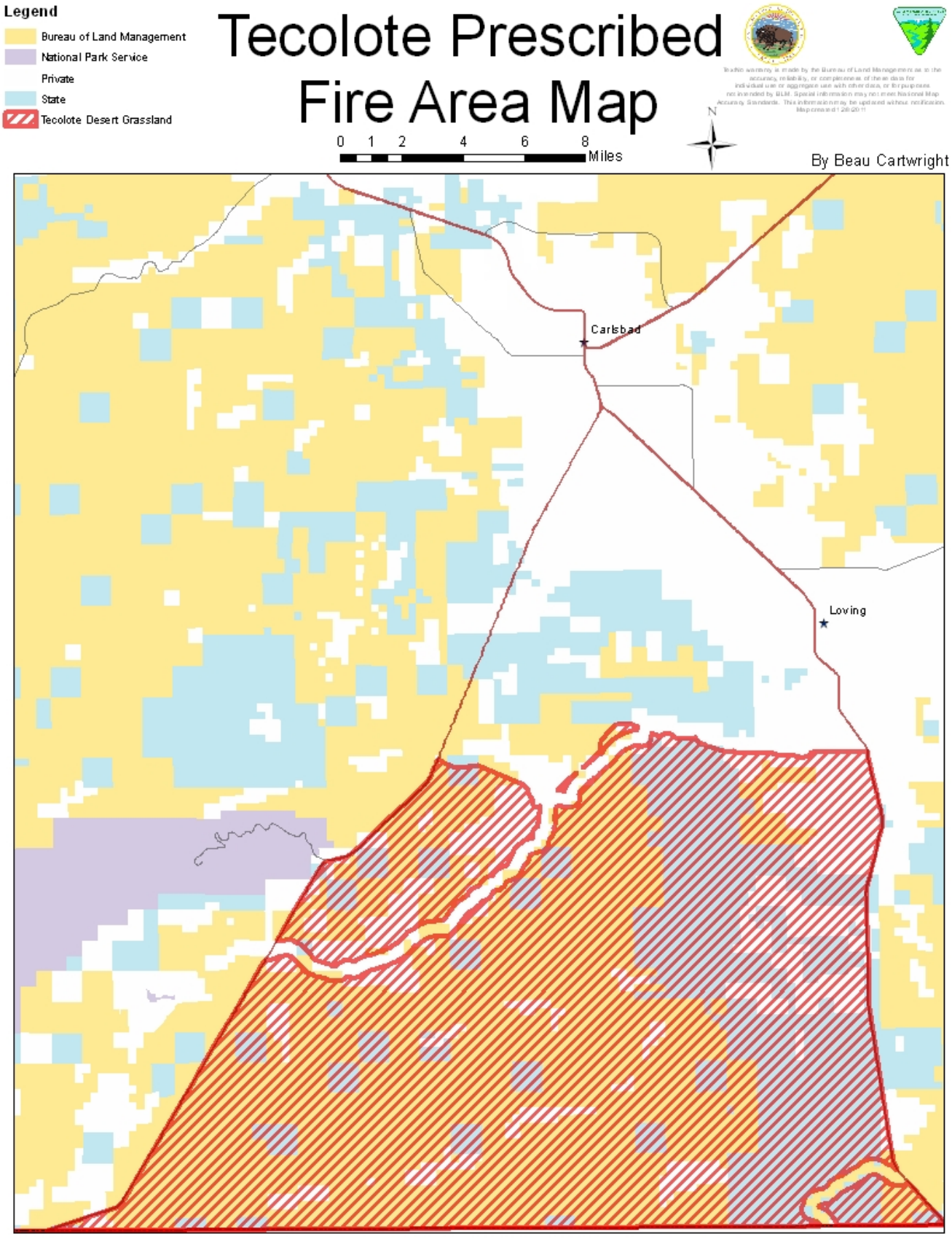
APPENDICES

A. Maps
- **Vicinity**
- **Allotment**
- **Project**

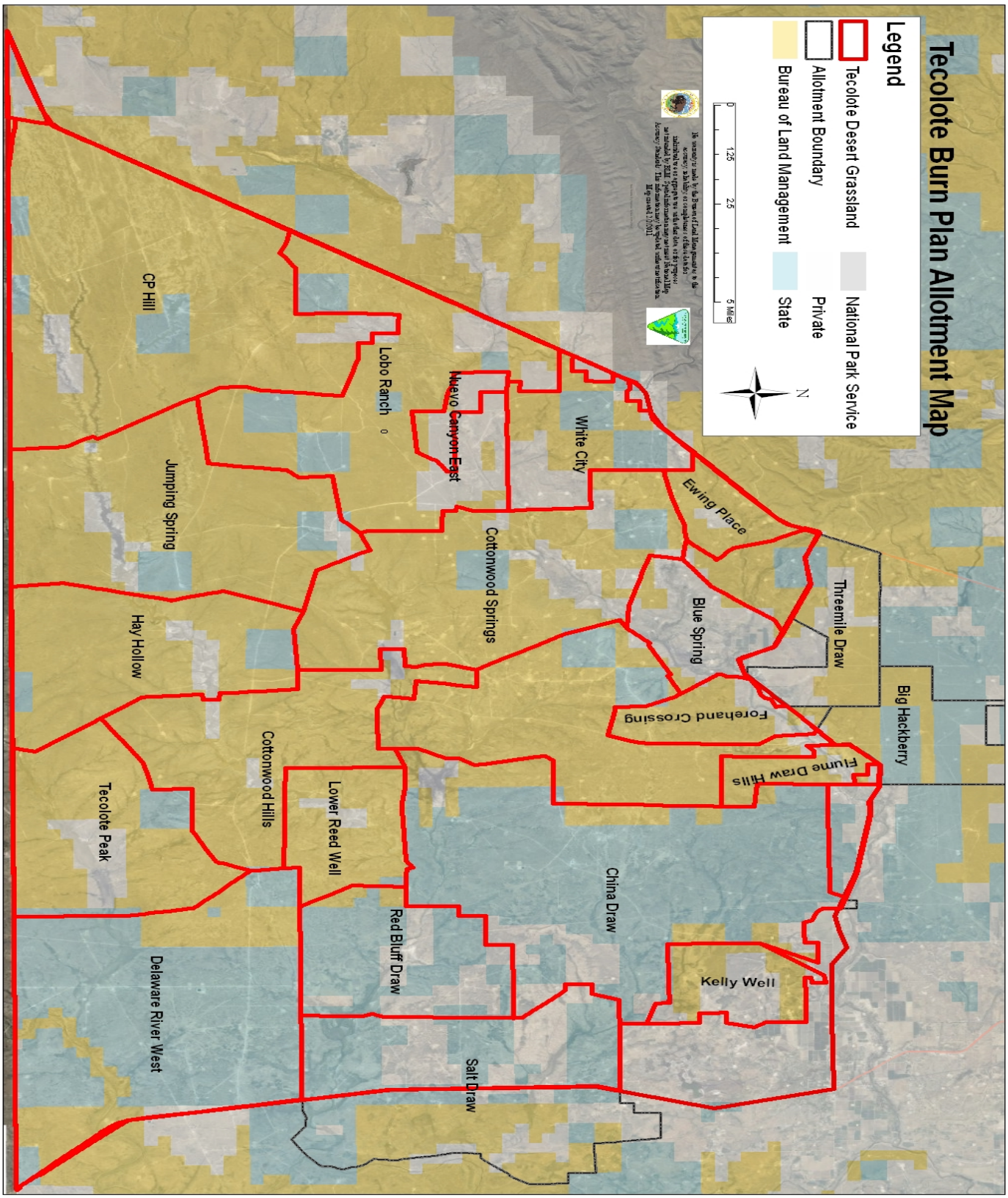
B. Technical Review Checklist
C. Complexity Analysis
D. Risk Assessment Analysis
E. Fire Behavior Modeling Documentation or Empirical Documentation
F. Adequate Holding Resources Sheet

Appendix A: MAPS

1. Vicinity Map:


Legend
Bureau of Land Management
National Park Service
Private
State
Tecolote Desert Grassland
Tecolote Prescribed Fire Area Map
0 1 2 4 6 8
Miles
N
By Beau Cartwright
Carlsbad
Loving

2. Allotment Map:



Appendix B: TECHNICAL REVIEWER CHECKLIST

PRESCRIBED FIRE PLAN ELEMENTS:	S /U	COMMENTS
1. Signature page		
2. GO/NO-GO Checklists		
3. Complexity Analysis Summary		
4. Description of the Prescribed Fire Area		
5. Goals and Objectives		
6. Funding		
7. Prescription		
8. Scheduling		
9. Pre-burn Considerations		
10. Briefing		
11. Organization and Equipment		
12. Communication		
13. Public and Personnel Safety, Medical		
14. Test Fire		
15. Ignition Plan		
16. Holding Plan		
17. Contingency Plan		
18. Wildfire Conversion		
19. Smoke Management and Air Quality		
20. Monitoring		
21. Post-burn Activities		
Appendix A: Maps		
Appendix C: Complexity Analysis		
Appendix D: Risk Analysis		
Appendix E: Fire Behavior Modeling		
Appendix F: Adequate Holding Resources Worksheet		

S = Satisfactory **U = Unsatisfactory**

Recommended for Approval: **Not Recommended for Approval:**

Technical Reviewer Qualification and currency (Y/N) Date

Approval is recommended subject to the completion of all requirements listed in the comments section, or on the Prescribed Fire Plan.

Appendix C: COMPLEXITY ANALYSIS

Prescribed Fire Complexity Rating System Guide Worksheet

Project Name: Tecolote Prescribed Fire Plan

Signature	**Rx Plan Preparer**	**Date**

Signature	**Agency Administrator**	**Date**

Complexity elements:

1. Potential for Escape

Risk	**Rationale**
Preliminary Rating: ***Moderate***	Potential exists for multiple spot fires, however, spots can be held by skilled and prompt holding actions. The fire has limited potential to cross unit boundaries and exceed the capabilities of holding resources.
Final Rating: ***Moderate***	No change.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low***	The majority of land adjacent to the project is BLM or NM State. Spots can likely be caught with on scene resources.
Final Rating: ***Low***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Moderate***	Engines, UTV's and squads may be involved in holding operations. Portions of some burn units may not be easily accessible to holding resources. All key burn personnel will be familiar with the burn unit and values at risk.
Final Rating: ***Moderate***	No change.

2. The Number and Dependency of Activities

Risk	Rationale
Preliminary Rating: ***Moderate***	All required compliance and prep work will be completed prior to ignition. The success of holding operations will depend on close coordination with ignitions personnel.
Final Rating: ***Moderate***	No change.
Potential Consequences	**Rationale**
Preliminary Rating: ***Moderate***	Lack of coordination between burn resources could create safety issues and increase the risk of escape. A detailed ignition and holding plan will be developed and discussed with all burn personnel in the pre-burn briefing. LCES will be in place. FIRB and Holding Boss will coordinate ignition and holding forces.
Final Rating: ***Moderate***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Moderate***	Lack of communication between burn resources could create safety issues and/or increase the risk of escape. A radio communications plan will be included in the IAP. LCES will be in place prior to ignition and will be evaluated throughout the burn. All burn personnel will receive an IAP and be qualified for the positions they are filling.
Final Rating: ***Moderate***	No change.

3. Off-Site Values

Risk	Rationale
Preliminary Rating: ***Moderate***	Power lines and oil and gas wells are within the area. Fire outside of the project boundary may be undesirable to adjacent permittees.
Final Rating: ***Moderate***	No change.
Potential Consequences	**Rationale**
Preliminary Rating: ***Moderate***	Smoke impacts to adjacent roads should be minimal and of short duration. Fire outside of the allotment may be undesirable to adjacent permittees.
Final Rating: ***Moderate***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low***	Protection of off-site resources should be easily accomplished by on-site resources listed in this plan.
Final Rating: ***Low***	No change.

4. On-Site Values

Risk	Rationale
Preliminary Rating: ***Moderate***	Actively producing oil and gas wells are located in many of the burn units. Power lines are in the allotment.
Final Rating: ***Moderate***	Prep work around improvements will be done prior to burn implementation as needed.
Potential Consequences	**Rationale**
Preliminary Rating: ***Moderate***	Implementation problems will not damage special features or adversely affect on-site resource values.
Final Rating: ***Moderate***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Moderate***	There may need to be some blacklining around some sites prior to the main ignition phase.
Final Rating: ***Moderate***	Prep work may need to be completed around some of the sites as well.

5. Fire Behavior

Risk	Rationale
Preliminary Rating: ***Moderate***	Variable fuel loadings and terrain features may affect fire behavior. Fire behavior is such that on site holding forces can control most spot fires and slop-overs by direct attack.
Final Rating: ***Moderate***	No change.
Potential Consequences	**Rationale**
Preliminary Rating: ***Moderate***	Fire behavior in available fuels outside the burn unit is expected to be similar to that experienced within the unit.
Final Rating: ***Moderate***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Moderate***	Access to units is good, with numerous escape routes and safety zones in the immediate area. On-site resources should be adequate to handle any spot fires that occur. Resources are familiar with terrain, fuels and fire behavior.
Final Rating: ***Moderate***	No change.

6. Management Organization

Risk	Rationale
Preliminary Rating: ***Moderate***	Both a Burn Boss and Firing Boss will be required for this burn. The Firing Boss will coordinate firing operation with a dedicated holding specialist who will supervise holding operations.
Final Rating: ***Moderate***	No change.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low***	The small number of resources required should not present any problems due to supervision or communication.
Final Rating: ***Low***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low***	Resources assigned will be predominately from the home unit, familiar with burn units, terrain, fuels, and fire behavior. All personnel will be qualified for the position assigned.
Final Rating: ***Low***	No change.

7. Public and Political Interest

Risk	**Rationale**
Preliminary Rating: ***Low***	Burn will be visible to nearby public residences and roads. The local media will be notified of the burn. No public controversy is expected.
Final Rating: ***Low***	No change.
Potential Consequences	**Rationale**
Preliminary Rating: ***Moderate***	Unintended adverse effects could cause public concern and scrutiny. Media briefings and or public meetings may be required depending on extent of escape and or damage to resource.
Final Rating: ***Moderate***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low***	No special fire information will be required. The local media will be notified.
Final Rating: *Low*	No change.

8. Fire Treatment Objectives

Risk	**Rationale**
Preliminary Rating: ***Low***	The burn objectives include both fuels reduction and ecosystem restoration, and are expected to be easily accomplished with low to moderate fire behavior.
Final Rating: ***Low***	No change.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low***	There may be limited opportunities for implementing this burn due to resource availability and dry weather conditions. Failure to meet burn objectives should not negatively impact natural resources.
Final Rating: ***Low***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Moderate***	The treatment unit objectives will be easy to achieve when the prescription parameters are met. Local weather forecasts, RAWS information, and local knowledge will help determine when the unit is in prescription.
Final Rating: ***Moderate***	No change.

9. Constraints

Risk	Rationale
Preliminary Rating: ***Low***	Access to the burn units is good. There are no restrictions due to access, water resources, tactics or equipment.
Final Rating: ***Low***	No change.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low***	The project can be implemented whenever it is in prescription and resources are available.
Final Rating: ***Low***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low***	There are no anticipated constraints which will affect completion of the project.
Final Rating: ***Low***	No change.

10. Safety

Risk	Rationale
Preliminary Rating: ***Moderate***	Safety concerns are easily identified and mitigated. Moderate fire behavior intensities are expected. Warning signs will be in place (when smoke impacts are likely), prior to ignition to alert the public to the burn and potential smoke.
Final Rating: ***Moderate***	No change.
Potential Consequences	**Rationale**
Preliminary Rating: ***Moderate***	Roads and oilfield infrastructure could be impacted by smoke from the burns.
Final Rating: ***Moderate***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Moderate***	The pre-burn briefing will address LCES and all known safety concerns.
Final Rating: ***Moderate***	No change.

11. Ignition Procedures/Methods

Risk	Rationale
Preliminary Rating: ***Moderate***	Firing sequences and timing are critical to ensure the safety of burn personnel. Two or more ignition squads may be necessary. The Burn Boss and Firing Boss will have good visibility and access throughout the unit.
Final Rating: ***Moderate***	No change.
Potential Consequences	**Rationale**
Preliminary Rating: ***Moderate***	Firing methods and procedures must be coordinated to ensure the safety of burn personnel and to meet burn objectives. An ignition and holding plan will be developed and discussed with all burn personnel in the pre-burn briefing.
Final Rating: ***Moderate***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Moderate***	Technical difficulty is moderately complex. Two or more ignition squads may be necessary. Two or more ignition devices may be needed.
Final Rating: ***Moderate***	No change.

12. Interagency Coordination

Risk	Rationale
Preliminary Rating: ***Low***	This burn unit does not require interagency support. All necessary interagency contacts listed in Element 9C will be made prior to ignition. No restrictions due to regional preparedness levels are expected do to season of implementation.
Final Rating: ***Low***	No change.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low***	This project can be accomplished without delay or restrictions due to interagency coordination.
Final Rating: ***Low***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low***	It is anticipated that only BLM personnel from within the Pecos District will participate in these treatments.
Final Rating: ***Low***	No change.

13. Project Logistics

Risk	Rationale
Preliminary Rating: ***Low***	There are no logistical concerns or needs relating to this project. Supplies and equipment will be provided by the Carlsbad BLM Fire program or readily available. Individual treatment duration is not expected to exceed 1 to 3 days.
Final Rating: ***Low***	No change.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low***	No problems relating to logistics are expected.
Final Rating: ***Low***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low***	There are no logistical support issues.
Final Rating: ***Low***	No change.

14. Smoke Management

Risk	**Rationale**
Preliminary Rating: ***Moderate***	Smoke will be monitored during the burn and traffic control will be used if safety concerns arise. Mop-up may be required to reduce smoke emissions. Smoke signs will be posted prior to ignition and will remain until all safety concerns from smoke are mitigated.
Final Rating: ***Moderate***	No change.
Potential Consequences	**Rationale**
Preliminary Rating: ***Moderate***	Smoke impacts should be moderate due to the location of the burn units and distances from receptors. Smoke signs will posted prior to ignition, and burn personnel will be available to assist with traffic control if needed.
Final Rating: ***Moderate***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low***	Transport winds and mixing heights should minimize any smoke impacts. No special operational procedures are required.
Final Rating: ***Low***	No change.

See Element 3 for the Complexity Analysis Summary

Appendix D. RISK MANAGEMENT ANALYSIS

Form 1112-5
(May 2001)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
RISK MANAGEMENT WORKSHEET

1. Organization and Location			2. Page _1_of_2__
BLM – Fire – Pecos District			
3. Operation / Task	4. Beginning Date:	5. Ending Date:	6. Date Prepared
General Firefighting/ Prescribed Fire	5/13/06	Updated as Needed	03/06/10

7. Prepared by *(Name / Duty Position)* Roswell/Carlsbad Fire Staff

8. Identified Hazards	9. Assess the Hazards: Initial Risk				10. Control Measures Developed for Identified Hazards: *(Specific measures taken to reduce the probability of a hazard)* **Include all PPE**	11. Assess the Hazard's Residual Risk:				12. How to Implement the Controls: (May Be Filled in By Hand)	13. Supervisors and Evaluation by: (Continuous Leader Checks, Buddy System, etc.)
(Be Specific)	**L**	**M**	**H**	**E**	**(Be Specific)**	**L**	**M**	**H**	**E**	**(Be Specific)**	**(Be Specific)**
1. Heat related injuries/ burns			X		1a. wear PPE 1b. adhere to 10 & 18, LCES 1c. minimize exposure	X				1a. training 1b. provide proper equipment 1c. safety briefings	1a. leader checks 1b. buddy system 1c. self
2. Snags, Falling Trees, Rolling Debris			X		2a. flag known hazards 2b. avoid and/or remove hazards 2c. look up, down, around 2d. stay alert		X			2a. scout area 2b. training 2c. safety briefings	2a. leader checks 2b. buddy system 2c. self
3. Fatigue			X		3a. work to rest ratio 3b. take breaks 3c. eat and stay hydrated 3d. maintain fitness level		X			3a. follow guidelines/ policies	3a. leader checks 3b. buddy system 3c. self

14. Remaining Risk Level After Control Measures Are Implemented: (CIRCLE HIGHEST REMAINING RISK LEVEL)	**LOW** (Line Supervisor)	**MEDIUM** (Branch Chief)	**HIGH** (District Manager	**EXTREMELY HIGH** (Must be State Director/Associate)

15. RISK DECISION AUTHORITY: **(Approval/Authority Signature Block)** (If Initial Risk Level is Medium, High or Extremely High, Brief Risk Decision Authority at that level on Controls and Control Measures used to reduce risks) (**Note**: if the person preparing the form signs this block, the signature indicates only that the appropriate risk decision authority was notified of the initial risk level, control measures taken and appropriate resources requested; and that the risk was accepted by the decision authority.)

_____/s/ Ty Bryson_____
(Signature)

CONTINUED

CONTINUED

8. Identified Hazards	9. Assess the Hazards: Initial Risk				10. Control Measures Developed for Identified Hazards*: (Specific measures taken to reduce the*	11. Assess the Hazard's Residual Risk:				12. How to Implement the Controls: (May Be Filled in By Hand)	13. Supervisors and Evaluation by: (Continuous Leader Checks, Buddy
(Be Specific)	**L**	**M**	**H**	**E**	**(Be Specific)**	**L**	**M**	**H**	**E**	**(Be Specific)**	**(Be Specific)**
4. Trips, Slips, & Falls	X				4a. proper footwear 4b. alertness 4c. maintaining physical condition	X				4a. follow guidelines/ policies 4b. safety briefings	4a. leader checks 4b. buddy system 4c. self
5. Smoke – Inhalation - Visibility			X		5a. stay out of smoke when possible		X			5a. rotate people 5b. use tactics & environmental conditions that benefit	5a. leader checks 5b. buddy system 5c. self
6. Loud Noise			X		6a. wear hearing protection 6b. avoid loud noises	X				6a. training 6b. provide hearing protection	6a. leader checks 6b. buddy system 6c. self
7. Entrapment			X		7a. maintain situational awareness 7b. adhere to 10 & 18s, LCES	X				7a. training 7b. safety briefing 7c. provide safety materials	7a. leader checks 7b. buddy system 7c. self
See Also: Air Operations Driving Urban Interface Operations Chainsaws Fueling Environmental HazMat Oilfield ATV Firing Hand Tools											

Appendix E. FIRE BEHAVIOR MODELING

See Burn Folder

Appendix F. ADEQUATE HOLDING RESOURCES WORKSHEET

Project Name: Tecolote Fuel Models Inside Project Area: FM 3 FM1
Prepared By/Date: Matias Telles Jan 11, 2012 Fuel Models Outside Project Area: FM 1

Characteristics	Output type	FM 3	Unit of Measure
CRITICAL FIRE INPUTS	1 Hr Fuel Moisture	1	%
	Mid-Flame Wind Speed	20	MPH
	Slope	0	%
	Elapsed Time	5	hours
KEY OUTPUTS	Flame Length	46.9	Feet
	Rate of Spread	1237	Ch/hr
	POI	100	%
FIRE SIZE	Time From Report	.1	Hours
	Fire Perimeter	12913	Chains
	Fire Status	Escaped	Contained / Escaped
FIRE CONTAINMENT	Method Of Attack	Rear	Head/Rear
	Contained Fire Size	-	Acres
	Fireline Constructed	-	Chains
	Total Line Building Rate	14	Ch/hr

1. Total line building rate above that is needed for containment of slop over or spot fire : 618 ch/hr
2. Estimate potential number spot fires or slop-overs at one time: 1
3. TOTAL LINE BUILDING RATE NEEDED (multiply line 1 times line 2) 618 ch/hr

4. Production Rates: Ease of Access: POOR-FAIR-**GOOD**-EXCELLENT
   Fuel Resistance to Control: LOW-**MODERATE**-HIGH-EXTREME
   (per fire line handbook, **FM1**)
   Hand Crew Production per individual **1.3** ch/hr
   Engine Production (Crew of 2) **5** ch/hr
   Dozer Production (Type _____) **N/A** ch/hr

On Site Organization	Total # Planned On Burn	Total # Available for Spot Fire or Slop Over Control		Line Building Production Rates		Spot Fire or Slop Over Line Building Capacity
Overhead	1	0	**X**	4	Ch/hr	0
Firing Crew	5	3	**X**	1.3	Ch/hr	4
Holding	3	3	**X**	1.6	Ch/hr	5
Engine (Crew of 2)	1	1	**X**	5	Ch/hr	5

5. TOTAL SLOP OVER OR SPOT FIRE LINE BUILDING RATE CAPACITY 14 ch/hr
6. DETERMINATION OF ADEQUATE HOLDING RESOURCES (Line 5 minus Line 3) -604 ch/hr *
***see justifications under Appendix G**

Appendix G. ADEQUATE HOLDING RESOURCES WORKSHEET JUSTIFICATIONS

*** Justifications -** The fire behavior modeling outputs listed in the Holding Resources Worksheet above were generated using Behave Plus version 5.0.1 software. Behave Plus uses several assumptions in generating fire behavior predictions, including continuous fuels across the landscape and static topography. While the outputs listed above indicate fire behavior potential that would exceed the capacity of on-site resources as indicated on the Adequate Holding Resources Worksheet (Appendix F), the following justifications should be considered:

- The primary carrier fuel (short grass) is not uniform or continuous within the fire unit or across the landscape. Barren areas and areas with lower grass loadings will reduce fire spread and behavior and facilitate holding operations. Many of the burn units are surrounded by roads which would aid in holding and containing a spot fire.
- The fire modeling outputs were generated using the hot end of the prescription. It is very unlikely that these burns would be implemented under such conditions.
- Line production rates were generated using one type 6 engine. It is expected, but not necessary, that at least 2 type 6 engines and 1 utv with water will be on scene when the burn is implemented thus adding to resource production rates.

Report for Carlsbad Cavern City Air Terminal Airport
From March 2002
to March 2014

Month	Temperatur Max F	Temperatur Min F	Temperatur Mean F	Humidity Max %	Humidity Min %	Humidity Mean %	Precipitat Max in	Precipitat Min in	Precipitat Accum in	Windspeed Max mph	Windspeed Min mph	Windsp M
January	54.720	29.263	41.613	0.000	0.000	no data	no data	no data	0.000	18.382	1.986	8.8
February	59.618	32.973	45.893	0.000	0.000	no data	no data	no data	0.000	20.537	1.925	9.8
March	67.229	39.806	53.695	0.000	0.000	no data	no data	no data	0.000	21.023	1.791	10.5
April	73.940	46.520	60.979	0.000	0.000	no data	no data	no data	0.000	23.329	2.720	11.7
May	79.945	54.164	67.545	0.000	0.000	no data	no data	no data	0.000	20.504	1.824	10.1
June	88.006	62.180	75.604	0.000	0.000	no data	no data	no data	0.000	20.893	1.982	9.8
July	85.288	64.507	74.488	0.000	0.000	no data	no data	no data	0.000	17.414	1.706	7.8
August	85.877	64.110	74.489	0.000	0.000	no data	no data	no data	0.000	16.201	0.965	7.1
September	77.294	56.552	66.307	0.000	0.000	no data	no data	no data	0.000	15.570	1.205	7.3
October	66.599	45.021	55.329	0.000	0.000	no data	no data	no data	0.000	16.191	1.344	8.0
November	72.553	35.090	48.145	0.000	0.000	no data	no data	no data	0.000	16.520	1.392	7.9
December	52.054	30.127	40.802	0.000	0.000	no data	no data	no data	0.000	18.425	1.389	8.4

APPENDIX C
COMMUNICATION

Lucas Middleton

From: Meyers, Mark <MKMeyers@slo.state.nm.us>
Sent: Monday, January 12, 2015 3:39 PM
To: 'Lucas Middleton'
Cc: Dolly, Ian
Subject: RE: Eddy County Rx Burn
Attachments: Red Bluff Scope of Work.pdf

Hi Lucas,
We understand that Souder Miller is currently working on a Task #2 in the attached Red Bluff Scope of Work.

TASK 2: ESTABLISH PRECEDENTS AND EVALUATE POTENTIAL EFFICACY
Research and document existing evidence that supports the effectiveness of fire as a hydrocarbon remediation approach. Determine if prescribed fire is the preferred way to remediate vegetation in the subject affected areas. Identify alternative approaches and compare.

Please pass along an update on this task when available along with all supporting information collected. If prescribed fire is selected as the preferred method of vegetation remediation, I have listed several questions below to be addressed.

- What are the values at risk within or near the impacted area? If so, how would this risk be mitigated?
- Who has liability for the burn?
- Who would be responsible for ignition and holding of the burn?
- Are there any residences or nearby populations that could be impacted by the smoke?
- Are there any smoke or safety concerns from burning vegetation impacted by the spill?
- Has the Environment Dept been contacted regarding smoke issues and burning vegetation impacted by the spill?
- Is there a plan to manage traffic if smoke impacts road visibility?
- What public notification would occur in advance of the burn?

Please let me know if you have any questions.

Thanks,
Mark

From: Lucas Middleton [mailto:lucas.middleton@soudermiller.com]
Sent: Tuesday, January 06, 2015 11:39 AM
To: Meyers, Mark
Cc: Dolly, Ian
Subject: RE: Eddy County Rx Burn

Hello,
In regards to the Prescribed Fire at Red Bluff Draw. We talked about issue you might have with the project. I would like it if you could please send me the concerns you have. So we can address them all for you.

Thanks,

Lucas Middleton
Staff Scientist

Souder Miller & Associates
C: 575-689-5351
Lucas.middleton@soudermiller.com

From: Meyers, Mark [mailto:MKMeyers@slo.state.nm.us]
Sent: Monday, January 05, 2015 2:04 PM
To: 'lucas.middleton@soudermiller.com'
Subject: Eddy County Rx Burn

Hi Lucas,

Thanks for the phone call today. I have attached a burn plan that was recently written for a project in Catron County. This is only an example for format and content and is not in any way indicative of the objectives, fuels, conditions, etc for the proposed prescribed burn in Eddy County. If you need further assistance in writing the burn plan, I can suggest some individuals who have extensive experience in writing burn plans.

Please let me know if you have any further questions.

All the Best,

Mark K. Meyers
Field Operations Division
New Mexico State Land Office
P.O. Box 1148
310 Old Santa Fe Trail
Santa Fe, New Mexico 87504-1148

(505) 827-4453 Phone/Voicemail
(505) 946-7082 Cell
(505) 827-5873 Fax

mkmeyers@slo.state.nm.us

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NEW MEXICO
STATE LAND OFFICE
When we Take Care of our Land, Our Land Takes Care of us!

NEW MEXICO STATE FORESTRY

PADDYS' HOLE PEAK
PRESCRIBED FIRE PLAN

Prepared By: _____ Date: _____
Don Kearney Fire Management Consultant
RXB1

Reviewed By: _____ Date: 7-8-14
Doug Boykin Technical Specialist Reviewer

Reviewed By: _____ Date: _____
Todd Richards Albuquerque District BLM FMO

Approved By: _____ Date _____
Mark Matthews Acting Socorro Field Office Manager

Approved By: _____ Date: 7-10-14
Jim Norwick, Director of Field Operations New Mexico State Land Office

Approved By: _____ Date: _____
Lew Davies, Owner, Luera Ranch

Approved By: _____ Date: _____
Roy Farr, Owner, Farr Ranch

The approved Prescribed Fire Plan constitutes a delegation of authority to burn. No one has the authority to burn without an approved plan or in a manner not in compliance with the approved plan. Actions taken in compliance with the approved Prescribed Fire Plan will be fully supported. Personnel will be held accountable for actions taken that are not in compliance with elements of the approved plan regarding execution in a safe and cost-effective manner.

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EXECUTIVE SUMMARY

The intent of the Paddys Hole Peak Prescribed Fire is to reintroduce fire into the ecosystem. Returning fire to the area after years of exclusion will promote diversity in the ecosystem. Fire will help restore the ponderosa pine stands and pinyon juniper woodlands to conditions within their natural range of variability. The burn project will also reduce the risk of catastrophic, crown-replacing wildfire and the associated undesirable effects of erosion as a result of a high intensity fire. Additionally, the prescribed fire will have beneficial effects on the adjacent grassland, revitalizing grass and forb species while combating woody specie encroachment. This plan is consistent the approved Luera Mountain Forest and Watershed Health Improvement Management Plan.

Fire suppression and grazing, since the turn of the century; have contributed to an alteration of the pre-settlement vegetation density and structure on the Luera Mountains. Before 1900 the mean fire return interval averaged 7 years in the ponderosa pine and grass savannas. This short interval perpetuated low-intensity ground fires. These frequent fires kept the ponderosa forests open and resistant to high-intensity crown fire. It also discouraged pinyon juniper encroachment onto the grasslands. Since the turn of the 20th century fire exclusion has altered this natural cycle allowing for pinyon juniper encroachment onto the grasslands and pine stands. In the ponderosa it has increased fuel loading and produced a more uniform fuel bed that is more conducive to high intensity stand replacing fires. On the grass savanna, areas of open grassland has been replaced by even aged pinyon juniper woodland with little fine fuel and limited ability for fire spread.

The Paddys Hole Peak Prescribed Burn is planned as an "in-season" burn. This strategy, mimics, as closely as possible, the ecologically significant natural fire regime on which the native species of the Luera Mountains depend. Fire history has shown that most natural ignitions occurred between April 15 and July 15. Fire effect studies in the Southwest on previous fires supports in-season burning. It is the driest time of the year when dead and down wood consumption is highest and live fuel moistures in target species are low. Dependent on stand condition, using a low-intensity ground fire in the ponderosas and moderate/high intensity fire in the woodlands can achieve management objectives. Additionally, with the soon to follow monsoon season, grasses and forbs show a long-term positive response with an increase in diversity and abundance with an "in-season"fire application. In the event of not being able to burn "in-season" due to drought conditions or high preparedness levels, a fall burn could be attempted. A fall burn would constitute burning after monsoon season, generally between late August and early October. Although not the primary strategy, in an effort to return fire to the ecosystem the benefits of fall burning outweigh not burning at all.

There are three distinct fuel vegetation types within the boundaries of the Paddys Hole Peak Prescribed Fire, Ponderosa Pine stringers, Pinyon Juniper Woodland, and grasslands. To ensure the correct type of fire for attaining burn objectives in each of these vegetation/fuel types two separate burn prescriptions will be used. The ponderosa pine stringers will be ignited first using a cooler low intensity fire. Intensity will be regulated

viva ignition patterns and the timing of ignition. There is recently cut slash within some of the pine stringers. Some preparation work will need to take place in those areas to ensure "leave trees" are not impacted by the increased ground fuel loading. Ample needle litter exists within the non-thinned ponderosa pine stringers to ensure fire carry. The pine stringers are embedded in the pinyon juniper woodlands. Fuel continuity in the pinyon juniper is much less than in the pine stringers. The woodlands will not sustain a low intensity ground fire. Once the ponderosa pine stringers are burned, higher intensity fire can be utilized to fire the pinyon juniper woodlands and grasslands.

The Paddys Hole Peak Prescribed Fire can be implemented with a small organization due to the burn design. The target area in which active ignition will take place is surrounded on three sides by a large allowable zone. Holding concerns are along the northern boundary. The size of the burn unit provides opportunity for a head fire with rapid spread. Once the stringers are burned out and the northern boundary line secure ignition can allow fire to move across sparse grass/ juniper encroachment areas with moderate to high wind speeds. When ignited, fire will finger out into multiple heads and spread until it runs out of fuel in the sparse grasslands and/or pinyon juniper vegetation. This type of fire replicates natural fires for these fuel types. Natural fuel breaks occur throughout the project area and will contribute to a "mosaic" burn pattern. The large allowable area built into the burn design eliminates most holding concerns. The fire can burn into the allowable areas zones, areas of inconsistent fuel continuity and loading and be allowed to go out naturally. The burn unit is also isolated from population centers. There are no structures close to the project. With the exception of a fence and cattle water well there are no range improvements.

Copies of Approved Plan will be sent to:

- Gila Las Cruces Zone Dispatch Center
- Socorro BLM Field Office
- BLM Albuquerque District Fire
- Farr Ranch
- Luera Ranch

ELEMENT 2: AGENCY ADMINISTRATOR GO/NO-GO PRE-IGNITION APPROVAL CHECKLIST

Instructions: The Agency Administrator's GO/NO-GO Pre-Ignition Approval is the intermediate planning review process (i.e. between the Prescribed Fire Complexity Rating System Guide and Go/No-Go Checklist) that should be completed before a prescribed fire can be implemented. The Agency Administrator's Go/No-Go Pre-Ignition Approval evaluates whether compliance requirements, Prescribed Fire Plan elements, and internal and external notifications have been or will be completed and expresses the Agency Administrator's intent to implement the Prescribed Fire Plan. If ignition of the prescribed fire is not initiated prior to expiration date determined by the Agency Administrator, a new approval will be required.

YES	NO	KEY ELEMENT QUESTIONS
		Is the Prescribed Fire Plan up to date? *Hints: amendments, seasonality.*
		Will all compliance requirements be completed? *Hints: cultural, threatened and endangered species, smoke management, NEPA.*
		Is risk management in place and the residual risk acceptable? *Hints: Prescribed Fire Complexity Rating Guide completed with rational and mitigation measures identified and documented?*
		Will all elements of the Prescribed Fire Plan be met? *Hints: Preparation work, mitigation, weather, organization, prescription, contingency resources*
		Will all internal and external notifications and media releases be completed? *Hints: Preparedness level restrictions*
		Will key agency staff be fully briefed and understand prescribed fire implementation?
		Are there any other extenuating circumstances that would preclude the successful implementation of the plan?
		Have you determined if and when you are to be notified that contingency actions are being taken? Will this be communicated to the Burn Boss?
		Other:

Recommended by: _____ Date: _____
FMO/Prescribed Fire Burn Boss

Approved by: _____ Date: _____
Agency Administrator

Approval expires (date): _____

ELEMENT 2: PRESCRIBED FIRE GO/NO-GO CHECKLIST

	YES	NO
A. Has the burn unit experienced unusual drought conditions or contain above normal fuel loadings which were not considered in the prescription development? If NO proceed with checklist., if YES go to item B.		
B. If YES have appropriate changes been made to the Ignition and Holding plan and the Mop Up and Patrol Plans? If YES proceed with checklist below, if NO STOP.		

YES	NO	QUESTIONS
		Are ALL fire prescription elements met?
		Are ALL smoke management specifications met?
		Has ALL required current and projected fire weather forecast been obtained and are they favorable?
		Are ALL planned operations personnel and equipment on-site, available, and operational?
		Has the availability of ALL contingency resources been checked, and are they available?
		Have ALL personnel been briefed on the project objectives, their assignment, safety hazards, escape routes, and safety zones?
		Have all the pre-burn considerations identified in the Prescribed Fire Plan been completed or addressed?
		Have ALL the required notifications been made?
		Are ALL permits and clearances obtained?
		In your opinion, can the burn be carried out according to the Prescribed Fire Plan and will it meet the planned objective?

If all the questions were answered "YES" proceed with a test fire. Document the current conditions, location, and results

_____ _____

Burn Boss Date

ELEMENT 3 COMPLEXITY ANALYSIS SUMMARY

PRESCRIBED FIRE NAME	PADDYS HOLE PEAK PRESCRIBED BURN		
ELEMENT	**RISK**	**POTENTIAL CONSEQUENCE**	**TECHNICAL DIFFICULTY**
1. Potential for escape	Low	Low	Low
2. The number and dependence of activities	Moderate	Moderate	Moderate
3. Off-site Values	Low	Low	Low
4 On-Site Values	Low	Moderate	Low
5. Fire Behavior	Moderate	Moderate	Moderate
6. Management organization	Moderate	Low	Low
7. Public and political interest	Low	Low	Low
8. Fire Treatment objectives	Moderate	Low	Moderate
9 Constraints	Moderate	Moderate	Moderate
10 Safety	Moderate	Moderate	Moderate
11. Ignition procedures/methods	Moderate	Moderate	Moderate
12. Interagency coordination	Moderate	Moderate	Moderate
13. Project logistics	Moderate	Moderate	Low
14 Smoke management	Low	Low	Low

COMPLEXITY RATING SUMMARY	
	OVERALL RATING
RISK	Moderate
CONSEQUENCES	Moderate
TECHNICAL DIFFICULTY	Moderate
SUMMARY COMPLEXITY DETERMINATION	Moderate/High
RATIONALE: see complexity analysis summary worksheet in appendix	

Element 4- DESCRIPTION OF THE PRESCRIBED FIRE AREA

1-Size and Land Status- The Paddys Hole Peak Prescribed Fire is located on the southern end of the Luera Mountains in west central New Mexico. The burn unit is approximately 25 miles southwest of Datil, in Catron County New Mexico. The burn unit target area is *3,559 acres* in size. The majority of the target acres are New Mexico State Trust lands (2,024 acres). Additionally there are 670 acres of private land and 865 acres of Bureau of Land Management (BLM) within the burn target boundaries. Private property is all on Farr cattle Company.

The large allowable area of *15,940 acres* involves the target area on 3 sides. This expanse serves as a buffer. No active ignition will take place in the allowable. Fire can burn into the allowable and go out on its own. Many natural barriers to fire growth exist within the allowable. Land ownership in the allowable is as follows; BLM Socorro 12,242 acres, NM State Trust Land 294 acres, and private 3,404 acres. The private acres are split between 3 separate ranches; Farr Cattle Co. 1,122, Adobe Ranch 2,067, and Luera Ranch 215. All of the included BLM acres are also encompassed in the East Block Unit of the Pelona Mountain Prescribed Fire Burn Plan. This is a large prescribed burn unit with an approved plan bordering the Paddys Hole Peak Rx to the south. The East Block Unit of the Pelona Mountain Burn Plan is 22,881 acres in size.

2-Lat/Long Location- The lat/long coordinates of the center point within the prescribed burn area (allowable and target) is: Latitude N 33 42' 15.21", Longitude W 107 53' 33.54"

The lat/long coordinates of the center point within the prescribed burn area (target only) is:
Latitude N 33 43' 59.80", Longitude W 107 51' 48.44"

3- Legal Description of the Target Area-

Covered by this burn plan is all or parts of:

T7S, R10W, all or parts of SEC 2, 3, 4, 5, 10 and 11

T6S, R10W, all or parts of SEC 32, 33, 34, and 35

4-Geographic Attributes General Area Description - The Paddys Hole Peak RX is in the southern end of the Luera Management Unit. The Luera Mountains are an isolated range that reaches altitudes over 9,000 feet surrounded by high elevation grasslands. Elevation within the burn unit ranges from 7,600' to 8,546 feet. Slopes range from 0-60% with typical slopes around 30%. All aspects can be found in the project area with North and South being the most common and influential. The continental divide cuts through the burn block. The project is in a remote location approximately 2 hours driving time from Socorro. Road access (high clearance 4x4) is limited to the north side.

5-Description of Project Boundaries- The burn unit is more or less diamond shaped with the north and south sides making up the majority of the perimeter. The north side is bounded by a 2-track ranch road. The road can be accessed by 4x4 vehicles. Some ponderosa pine areas along the road have been thinned. A water source (well and storage tank) is located along the road near the center of the north boundary. The north side is the only area that will need holding. All other sides of the burn are open and transition into areas of less fuel. Much of the East Block of the BLM Pelona Mountain RX Units will be incorporated into the allowable burn area. No active ignition is planned in the 22,000 acre unit. The unit is entirely made up of grass fuels. If fire from the Paddys Hole Peak Rx is able, it can burn into the East Block and go out. It is doubtful that fire would be able to sustain any momentum as it would be backing downslope into the prevailing SW wind and through rocky soil blue grama grasslands. The pastures which make up this area are grazed. Two-track ranch roads are also present within the East Block Unit.

6- Vegetation Types and Fuel Description

There are three general vegetative types in the project area. They are ponderosa pine, piyon juniper woodland, and grasslands dominated by blue grama. The ponderosa pine is primarily on the north aspects or along drainages. They grow in stringers imbedded within the pinyon juniper wood lands. Some of the stands have been recently (over a year ago) thinned. In some stringers pinyon pine, alligator juniper, and one-seed juniper are present. Understory vegetation can consists of gray oak, gambel oak, mountain mahogany, snow berry, wax currant, and buck brush. The piñon/juniper community surrounds the ponderosa pine stringers and intermingles with it in transition areas. Pinyon juniper woodland exists primarily on the southern and eastern slopes and along ridge tops in areas of shallow soil. Understory species can include mountain mahogany, oak, and rubber rabbitbrush. Grasses can include blue grama, sideoats grama, and western wheatgrass. Fine fuel (grasses) loads and fuel continuity in the woodlands is poor. This vegetation type typically does not leaned itself to fire spread. Blue grama dominated grasslands make up the southern half of the burn unit and the majority of the adjacent areas in all direction except to the north. Other grasses include squirreltail, needle and thread, and black grama. Some common grasslands shrubs can be found primarily in the swales and drainages. These include broom snakeweed, apache plume, rubber rabbitbrush, fourwing saltbush and winterfat.

1. Adjacent fuels data: Fuels adjacent to the burn are similar to those within the burn. To the north fuels are generally pinyon juniper woodland with interspersed ponderosa pine stands. In all other directions blue grama dominated grasslands make up the majority of the vegetative cover. Grazing activity in and around the Paddys Hole Peak Burn can have a dramatic effect on the amount of fine fuel and a grasslands ability to carry fire.

2. Description of Unique Features: There are private property inholdings within the burn unit. The private land owners are in favor of the burn and welcome fire on their acres. An allotment boundary fence and a cattle watering facility are areas of concern within the unit. These areas of concern can be protected with little difficulty. Some preparation work will also need to protect" leave trees" within the thinned pine stringers

Element 5- GOALS AND OBJECTIVES

A. Management Goals for the Paddys Hole Peak Prescribed Fire include:

1. Restore fire as part of the natural cycle of events.
2. Re-introduce fire into ponderosa pine stands to maintain open stand spacing with reduce fuel loadings and encouragement of a grass understory.
3. Rejuvenate elk and deer habitats and improve forage quality and quantity through the use of fire.
4. Create a mosaic of burned and unburned areas throughout the project to enhance a natural diversity for the benefit of plants and wildlife.
5. Perpetuate fire dependent species and grasslands through the use of prescribed and natural fire. Remove decadent grass fuels and reduce the encroachment of woody species onto the grasslands.
6. Implement cost effective fire management strategies for habitat protection and enhancement.
7. Conduct burning operations with minimal off-road and resource disturbance or disruption of natural resource values.
9. Reduce unnatural heavy fuel loading

B. Management Objectives:

1. Ensure firefighter and public safety throughout all aspects of the prescribe fire.
2. Reduce 20-90% of woody vegetation encroachment on the grasslands to restore/maintain desired vegetative communities, and overall watershed health.
3. Improve forage quality and quantity by burning 50-80% of the grass fuels. This will allow for rejuvenation of native grasses by removing decadent above ground biomass and recycling nutrients. Primary grass species of concern are blue and sideoats grama.
4. Reduce the risk of high intensity wildfire within ponderosa pine stands by reducing between 40-90% of encroaching pinyon junipers and younger age class pine to promote a more mature age class structure within the stands.
5. Limit mortality in mature ponderosa pine to less than 5%
6. Reduce slash 50-75 % in the thinned areas.

7. Burn 50-60% of the mature mountain mahogany, oak and other brush forage species to rejuvenate and improve feedstuff for elk and deer.
8. Reduce pinyon and juniper density by 10-30% to enhance habitat and create open areas within the woodlands.
9. Protect 100% of the archaeological sites as identified by the pre-burn surrey.

Element 6- FUNDING and ESTIMATED PROJECT COSTS

Resource	**Quantity**	**10 Hour Days**		**12 Hour Days**	
		Per Day	3 Day Total	Per Day	3 Day Total
Personnel (9 folks @ $25/hr/person)	9	2,500	6,750	2,700	8,100
Type 6 Engine (include crew of 3)	1	1,250	3,750	1,250	3,750
Food for 12 @ $25/day.	1	300	900	300	900
Misc. Consumables (drip torch fuel, fuel ,batteries, etc	N/A		5,000		5,000
TOTAL		**16,400**		**17,750**	
Cost/Acre		**$5.96**		**$6.45**	

Element 7- PRESCRIBED FIRE PRESCRIPTION

There are 3 fuel/vegetation types present in and adjacent to the Paddys Hole Peak Rx Burn. The pinyon juniper is modeled via a combination of two fuel models to represent both an open or closed canopy type of woodland. The majority of the pinyon juniper in the burn unit is dense closed canopy. To separate grass fuel models are used to predict conditions on the grasslands. The GR1 sparse grass model is more common than GR2 in the burn and in adjacent areas.

Vegetative Type	Percent of acres in burn unit	Representative Fuel model
Ponderosa Pine	15%	TL8
Pinyon Juniper woodland	25%	Combined GR1 and TL1
Grassland	60%	GR1 and GR2

The following tables exhibit the result of the BEHAVE fire modeling runs. Three runs for each of the five fuel categories were run. Runs were made for low, moderate and high intensity conditions. Pine stringers will be fired under the moderate indices. The Low intensity out puts denotes the probable fire activity during the night. The grasslands and pinyon juniper woodlands can be ignited under higher indices.

Low Intensity Prescription Variables: Temp- 45°; RH- 50%; MF Wind- 0 mph

Low Intensity										
Fuel Model	TL8 Ponderosa		GR1 Sparse Grass		GR2 Light Grass		GR1 (70%); TL1 (30%) Open PJ		GR1 (10%); TL1 (90%) Closed PJ	
Slope percent	20%	60%	20%	60%	20%	60%	20%	60%	20%	60%
Rate of Spread (chains/hr)	0.9	3.4	1.6	9.5	3.4	19.8	1.4	7.9	0.2	
Flame Length	1.3	2.4	.6	1.5	1.5	3.4	.6	1.5	.6	1.
1-hour Fuel Moisture	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
10-hour Fuel Moisture	14%	14%					14%	14%	14%	14%
100-hour Fuel Moisture	18%	18%					18%	18%	18%	18%
Herbaceous Fuel Moisture (%)			50%	50%	50%	50%	50%	50%	50%	50%
Scorch Height (Feet)	3.0	8.0	1	4	4	12	1	4	1	
Probability of Ignition (%)	25%	25%	27%	27%	27%	27%	26%	26%	26%	26%
Spotting Distance (miles)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.
Spot Perimeter in 1 hr (chains)	3.0	9.0	6	25	13	53	5	21	1	

Moderate Intensity Prescription Variables: Temp - 80°; RH - 15%; MF Wind - 6 mph

Moderate Intensity										
Fuel Model	**TL8 Ponderosa**		**GR1 Sparse Grass**		**GR2 Light Grass**		**GR1 (70%); TL1 (30%) Open PJ**		**GR1 (10%); TL1 (90%) Closed PJ**	
Slope percent	20%	60%	20%	60%	20%	60%	20%	60%	20%	60%
Rate of Spread (chains/hr)	8.9	12.5	18	18	71.5	96.4	14.7	14.7	1.8	1.8
Flame Length	4.1	4.8	2	2	6.2	7.1	2	2	2	2
1-hour Fuel Moisture	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
10-hour Fuel Moisture	7%	7%					7%	7%	7%	7%
100-hour Fuel Moisture	9%	9%					9%	9%	9%	9%
Herbaceous Fuel Moisture (%)			30%	30%	30%	30%	30%	30%	30%	30%
Scorch Height (Feet)	15.0	21.0	3.0	3.0	36	46	3	3	3.0	3.0
Probability of Ignition (%)	63%	63%	65%	65%	65%	65%	64%	64%	64%	64%
Spotting Distance (miles)	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Spot Perimeter in 1 hr (chains)	21.0	29.0	46.0	46.0	171	223	38	38	4.0	4.0

High Intensity Variables: Temp - 95°; RH - <5% (in TL8) <3 (in PJ); Wind-12 mph

High Intensity										
Fuel Model	**TL8 Ponderosa**		**GR1 Sparse Grass**		**GR2 Light Grass**		**GR1 (70%); TL1 (30%) Open PJ**		**GR1 (10%); TL1 (90%) Closed PJ**	
Slope percent	20%	60%	20%	60%	20%	60%	20%	60%	20%	60%
Rate of Spread (chains/hr)	29.3	34.2	37.6	37.6	269.6	305.5	30.5	30.5	3.3	3.3
Flame Length	7.7	8.3	3.1	3.1	12.8	13.5	3.1	3.1	3.1	3.1
1-hour Fuel Moisture	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
10-hour Fuel Moisture	3%	3%					3%	3%	3%	3%
100-hour Fuel Moisture	4%	4%					4%	4%	4%	4%
Herbaceous Fuel Moisture (%)			30%	30%	30%	30%	30%	30%	30%	30%
Scorch Height (Feet)	40.0	47.0	4.0	4.0	120.0	135.0	4.0	4.0	4.0	4.0
Probability of Ignition (%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Spotting Distance (miles)	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Spot Perimeter in 1 hr (chains)	64.0	74.0	92.0	92.0	587.0	659.0	77.0	75.0	8.0	8.0

Notes on BEHAVE Runs: BEHAVE modeling runs may over predict ROS, flame length, tree scorch height, and probability of ignition values due to the inconsistent nature of the fuel bed(s) being modeled.

The above parameters represent the broadest possible conditions that will allow for a successful burn. It is important to note that conditions at the edge of each range will mitigate each other. For example, the burn can be conducted with higher wind speeds if RH and/or live fuel percent levels also have higher values. The same burn could be done

with low to moderate wind speeds to achieve similar results if combined with low RH and fuel moisture values. Prescribed burning is as much an art as a science. A burn boss must be aware of a multitude of environmental conditions. He must adapt to the conditions, adjust ignition patterns, and monitor fire behavior constantly.

A SSW wind is preferred for the Paddys Hole Peak Prescribed Fire. However wind direction is not a limiting factor. The burn can be successfully implemented with wind from any direction. Light winds are preferred for burning the ponderosa stringers. A moderate to strong wind component is needed in the grassland and woodlands to move fire across the fuel beds in areas of less slope percent. Fuel beds on steeper slopes may require less wind speed to achieve desirable results. Inconsistent fuel continuity, natural barriers (rock outcroppings, sparse areas, livestock and wildlife grazing, etc.) will contest fire spread. Sustained runs at higher ROS are unlikely due to the inconsistent fuel continuity characteristics over the landscape area.

Element 8- SCHEDULING

Proposed Ignition Date: late May thru mid-July (If unable to burn "in-season" due to drought or preparedness levels the burn can be attempted in the fall or at any time when in prescription.

Projected Duration: Entire project will take 2 to 4 days
Ignition: 2 to 3 days. Perimeter mop up: 1 to 2 days Burn Down: an additional 5 to 7 days. Smoldering is possible for up to 30 days. Ignition and mop up operations can be simultaneous.

Constraints:

1. No-burn day as determined by New Mexico Air Quality Bureau
2. GACC Preparedness Levels of 4 or 5 preclude implementation of prescribed fire projects, unless permission is obtained from the NM State FMO and/or the SW Interagency Coordination Group.
3. Burn area not in prescription.

Element 9- PRE-BURN CONSIDERATIONS

A. Considerations:

1. On Site:

- The range improvements (fences) values at risk within the burn will be protected.
- Live fuel moistures of the target fuels will be taken before ignition to assess the area fuel conditions..
- Weather will be tracked via the Pelona RAWS to assess condition.

2. Off Site:

- Coordination between NM State Forestry, New Mexico State Land Office, Socorro BLM and private land owners, will take place for scheduling and monitoring considerations.
- A smoke permit will be obtained by the NM State Land Office from the New Mexico Environmental Department (NMED) Air Quality Division prior to burning.
- If a regional preparedness level 4 or 5 is in effect at the time of the scheduled burn, written approval will need to be obtained from the NM State Land Office and/or SW Coordination Group prior to ignition.

B. Method and Frequency for Obtaining Weather and Smoke Management Forecast(s):

A spot weather forecast will be obtained prior to ignition from the National Weather Service NWS in Santa Teresa NM (575-589-3972) on ignition days. Web address: www.srh.weather.gov/epz/misc/firewx.php A copy of the forecast will be included in the burn report file. The burn boss is encouraged to remain in phone contact with NWS throughout the burn.

C. Notifications:

Pre-Burn:

Contact	Phone#	When	By Whom
NMED, AQB. Smoke Mng.	505-476-4330	24 hours prior	Burn Boss
New Mexico State Land Office	575-838-2115	1 week	Burn Boss
Socorro District NM State Forestry	575-835-9359	1 week	Burn Boss
Socorro BLM Field Office	575-835-0412	1 weeks	Burn Boss
Farr Ranch	575-772-5750	1 weeks	NMSLO
Luera Ranch	575-772-5549	1 week	NMSLO
Harriet Ranch	575-772-5659	1 week	NMSLO
Adobe Ranch	575-772-5557	1 week	NMSLO
VLA Datil Site	575-772-4011	1 week	NMSLO

Burn Day:

Contact	Phone#	When	By Whom
Gila/LC Zone	538-5371	day prior to burn	Burn Coordinator
Albuquerque Zone	505-474-4661		
N.M. State Forestry	575-835-9359		
Socorro BLM	575-835-0412		
Socorro County Sheriff	575-835-0941		
Catron County Sheriff	575-533-6400		
State Police	575-835-0741		
Magdalena Ranger Dist .	575-854-2281		
Zina McGuire Catron Fire Marshal	575-772-2713		
Farr Ranch	575-772-5750		
Luera Ranch	575-772-5549		
Adobe Ranch	575-772-5515		
Harriett Ranch	575-772-5659		
Adobe Ranch	575-772-5557		
VLA Datil Site	575-772-4011		

Media Contacts: A news release can be issued to the media organizations and elected officials by the New Mexico State Land Office approximately two weeks prior to the ignition date. A project information release will be written by the NM State Land Office. Copies of the release will be posted at the Datil and Magdalena Post Offices prior to ignition. Additional copies will be distributed to the Silver city and Albuquerque Dispatch Centers, participating agencies and adjoining cooperators.

Element 10- BRIEFING

Briefing Checklist:

Burn Organization

Burn Objectives (reference burn plan)

Description of Burn Area (map, values at risk, fuels, problem areas, water sources, ect…)

Expected Weather & Fire Behavior (reference spot weather forecast)

Communications (reference communication plan)

Ignition plan

Holding Plan

Contingency Plan (allowable, slopover vs. escape, strategy/tactics, assignments

Wildfire Conversion (when, who, how)

Safety (LCES, Medical/EMTs, Hazards, aerial ignition, helicopters, other)

Element 11- ORGANIZATION

Due to the large allowable area associated with this prescribe fire and its remote location a small organization can successfully implement this burn. Once the northern boundary line is established there are few holding concerns and all personnel can be utilized for ignition operations and/or patrol. At a minimum there needs to be 12 fire fighters on site. Minimum equipment needs include 1 Type 6 engine and 2 UTVs with water delivery capabilities. One person can perform more than one role. Burn will take 2 to 4 days with all personnel based on the project site. There are numerous potential spike camp locations around the unit. The grassy swale NE of the burn unit is the most probable area for a basecamp. The table below outlines the minimal burn organization. Additional resources can be used.

Minimum Burn Organization	
Position/Equipment	**Number of personnel**
1 Burn Boss Type 2	1
1 Burn Boss Type 2 (trainee)	Optional
2 Ignition Specialist	2
2 ignition teams	4
1 Holding Boss	1
1 Type 6 Engine with EMT	2-3
2 UTVs with water capability	2
TOTAL	**12-13**
Other Positions that could be utilized	
Resource Advisor	Fire Information Officer
Safety Officer	Spike camp manager/cook
Logistics/runner	

Element 12- COMMUNICATIONS

A. Radio Frequencies

INCIDENT COMMUNICATIONS PLAN

RADIO COMMUNICATIONS			
CHANNEL	**FUNCTION**	**FREQUENCY**	**REMARKS**
1	OPERATION	159.2250	Primary on-site radio communication NM State Forestry car to car
2	COMMAND/ DISPATCH	RX 159.420 TX 159.420 TX Tone 156.7	Gila dispatch <==> burn boss NM Forestry Mountain Top
3	Contingency Command	169.9750	Gila North Direct
4	Contingency Operations	167.550	Region 3 Tac 1

Operations will be used as the primary communication channel on the fire (ch.1) If primary channels becomes over loaded with traffic the listed contingency channels can be used.

PHONE COMMUNICATIONS

B. Telephone Numbers:

Cell phone communication with dispatch is encouraged to keep unnecessary traffic off the radio and to communicate specific details between dispatch and the burn boss. Cell phone contact is limited by remoteness and topography in most locations of the burn area.

Land Line Phone Numbers: (All are 575 area code)

Gila/Las Cruces Dispatch Number	538-5371	24 hour#	800-538-1644
NM State Forestry Fire Socorro District	835-9359		
NM State Land Office (Socorro)	835-5168		
Socorro BLM Office	835-0412		

Cell phone numbers:
Cell numbers of key personnel will be listed in the project briefing packet.

Element 13- PUBLIC/ PERSONNEL SAFTEY (Medical Plan)

Safety Hazards: The Paddys Hole Peak Burn is a long way from any town. It takes over 2 hour of driving much of it on dirt roads to reach the project. The terrain is generally steep and rocky. Flashy grass fuels are the main fire carrier over the majority of the burn area, with heavier pockets of slash present in some ponderosa pine stringers. Hot and dry atmospheric conditions are liable to exist during burn operations. Hazards to personnel include heat, dehydration, snakes, insects, footing, shift in wind direction, reliance of ATVs, vehicle travel, poor roads, poor visibility, communication problems, and maintaining control of resources are all potential safety issues with the burn . There are few concerns for public safety on the burn. The project is far from population centers. There is no legal public access into the burn area.

Measures Taken to Reduce the Hazards:

A safety briefing will be given and at the start of each operational period. All personnel will be advised of the above listed hazards. (LCES) Lookouts, Communications, Escape Routes, and Safety Zones will be stressed. Sparse fuel areas, roads, and the black can serve as safety zones and escape routes. Adequate fluids will be available and personnel will be reminded to stay hydrated. Any other potential safety hazards will be pointed out and mitigated as soon as possible. All burn personnel will wear standard firefighting personal protective equipment. All standard wildland firefighter safety rules will be adhered to (ref: Fireline Handbook), especially the 10 Standard Firefighter Orders and the 18 Watch Out Situations.

Briefing packets can be distributed to personnel on the first day of the burn (similar to an IAP – Incident Action Plan). The packets will contain communications plan, medical plan, project maps, and objectives of the burn. Due to the remote location of the project, a briefing packet will not be distributed each following day of the burn project. However, at the start of each operational period, a safety briefing will be given and updates to maps and other information will be passed on to all participants.

If Fire Monitors and nonoperational personnel are present on the project they will coordinate with the Burn Boss by maintaining communication and relaying their location when moving about the unit. Nonoperational personnel will not be allowed inside any unburned portions of the unit. Fire Monitors may be allowed inside the burned portions of the unit for data collections only after coordinating with the Burn Boss.

Emergency Medical Procedures:

Personnel will notify their immediate supervisor who will then inform the Prescribed Fire Burn Boss of any accident or injury. The Prescribed Fire Burn Boss will initiate on-site response as needed and coordinate additional needs through Gila Las Cruces Zone Dispatch. The first option is to transport to the local General Hospital (Socorro). This can be done with support personnel if the injury is not life threatening. If an ambulance is used, someone will be sent to meet the ambulance at the 163 road junction

(Paddys Hole) to lead them into the burn area. If using an air ambulance, communicate latitude and longitude of helispot and on-site radio frequency.

Emergency Evacuation Methods:

Emergency evacuation is not likely. There are no residents in the burn area and no public access. The one road that exists on the burn is dirt. If personnel have to leave the Paddys Hole Peak Rx it will be on the dirt road when conditions allow safe passage.

Emergency facilities:

Ambulance Services

Name	Telephone	Location	Paramedics	
			Yes	No
Lifeguard I, Air Ambulance	1-800-633-5438	Albuquerque, NM	Paramedic and Flight Nurse	
Magdalena FD	911	Magdalena		No

Hospitals

Name	Address And Lat/Long.	Travel time		PHONE	Helipad		Burn Center	
		Air	Ground		Yes	No	Yes	No
Socorro General Hospital	West Highway 60, Socorro.	45 min	3 hours	(505) 835-1140	Yes			No
University Hospital	Albuquerque N35 50.3 W106 37.01	1 hour	5 hours	(505) 272-2111	Yes		Yes	
Magdalena Area Medical Center	801 10th. Street, Magdalena	N-A	2hours	(505) 854-3161		No		No

Element 14- TEST FIRE

A. A test ignition at the burn site will be conducted each day to observe fire behavior, smoke column dispersal and to assess probability of attainment of objectives. The test fire will be conducted in a location determined appropriate by the Burn Boss, Ignition Specialist and Holding Boss. It will be set in an area of the burn unit where environmental and weather parameters will permit the test fire to be contained and controlled easily. The Burn Boss will be present and observe the test fire.

B. Test Fire Documentation *(see appendix for test fire form)*

1. Weather conditions On-Site:

2. Test Fire Results:

Element 15- IGNITION PLAN

Ignition of the Paddys Hole Peak Rx will be by hand firing. Hand firing will be completed by ignition team(s) using drip torches and/or fusees. The Burn Boss and Ignition Specialist will describe the firing plan and safety considerations to all burn personnel at the pre-burn briefing. Copies of the project map will be provided at the briefing. Firing operations for the entire unit should be completed in 1 to 3 days.

Firing and Ignition:

Once the test fire has been determined to be acceptable, ignition of the unit will commence. Combinations of strip head, flanking, spot, and backing ignition patterns will be used to ignite the unit. Firing patterns and directions could change depending on wind direction and other parameters.

The Ignition Specialist and ignition teams will be briefed before operations begins to ensure safety and understanding of the plan. Good communication will be stressed for all personnel around the burn unit. Strip and spot firing patterns utilizing slope and prevailing winds will be used to create an even backing and /or short strip head fire through the unit. Firing pattern distances may range from 5-80 feet apart depending on winds, topography and observed fire behavior. Exact ignition patterns and firing sequence of the Paddys Hole Peak RX Burn can only be presented as possibilities. It is not possible to depict on paper what the exact firing pattern will be. The ignition time, pattern, and sequence will be determined on the day of the burn by the Burn Boss, in coordination with the Ignition Specialist and Holding Boss. It will be based on the conditions that are present on that day. Ignition for the burn block can be accomplished with a wind component from any direction. It will most likely be with the prevailing SW wind.

Coordination between the burn boss, ignition specialists and holding boss will determine, the time of ignition along with the appropriate ignition pattern and firing sequence. The most likely scenario is as follows; upon arrival all prep-work will be completed. This includes securing the allotment boundary fence within the burn unit interior, brushing/removing fuel along the holding road which serves as the northern boundary if necessary, and moving heavy slash concentrations away from the "leave trees " in the thinned ponderosa pine stringers. The second phase will be to burn the ponderosa pine stringers. The stringers are located in the northern portion of the burn unit. Ignition will most likely be done towards the end of the burn period when cooler conditions prevail. Two or three small burn teams can accomplish the task. There will be little to no potential for fire to spread outside of the stingers due to the scarcer fuel continuity in the pinyon juniper vegetation type and the cooler burn conditions. Low intensity fire will be allowed to burn in the pine stringers through the night. The strength of the northern burn unit boundary will also be assessed and black line established where needed. The third phase will be to induce fire into the grasslands and pinyon juniper woodlands. A hotter fire is prescribed for these fuel types. The pine stringers will be checked to ensure they have burned through. The northern boundary will be checked to ensure its adequacy. Head fire will be started in the grasslands towards the southern end of the burn unit and allowed the spread north into the pinyon juniper areas. Stronger winds (9-12 mph) and hotter dryer atmospheric conditions are preferred to enable maximum fire spread. Fire should move readily through the grasslands moving north/northeast and start going out once it travels into the pinyon juniper fuel type. The pine stringers will not be affected as they had been burned out previously. The burned out stringers will also serve as barriers to fire spread. It is not expected that fire will reach the units northern control line. Fire will be allowed to spread to the south, east, and west. It is expected that fire will be unable to sustain any growth in these directions. To the west and south the fire will be backing downslope into the wind through a short grass rocky soiled area. To the east fire will run out of fuel in sparse pinyon juniper.

If prescription parameters are exceeded during project execution, ignition operations will be terminated by the Burn Boss at safe and appropriate locations based on fire behavior, fuels, topography and weather conditions. If the project area comes back into prescription based on current and forecasted weather, ignition operations may continue. If not, the project area will be put into a holding pattern or mop-up and patrol status. Holding actions shall maintain control of the fire until a decision to continue, postpone or extinguish the prescribed fire is made and the Agency Administrator or their designee is notified. The Burn Boss will document this decision process on a unit log.

Element 16 HOLDING

A. General Procedures for Holding:

Other than the two-track ranch road along the northern boundary, there is minimal holding on the Paddys Hole Peak Rx. Portions of the north boundary with spread/spotting potential will be secured via black lining and removing (brushing back) heavy fuels. The burn design incorporates a large allowable area on the areas to the west, south, and east sides which fire can move into that has little potential for fire spread. Holding in these areas is not a concern Rocky outcrops, sparse vegetation, and drainages are all abundant in the allowable area that limit fire growth. Interior holding concerns (protecting the wood fence post) can be mitigated before ignition with scratch lines and spot blacking.

B. Critical Holding Points and Actions:

Critical holding areas are the northern boundary. A black line can be established along the two-track road in this vicinity. A spot fire or slop-over across this containment line will be considered and appropriate holding action will be taken. Holding actions will consist of any or all of the following: use of bladder bags, patrolling the line for spot fires and slop-overs, gridding areas outside of the burn unit to look for spot fires as situations warrant, mopping up, and removing any burning snags or trees that are threatening the line.

C. Minimum Organization or Capabilities Needed:

With little holding concerns the organization needed to implement the burn is greatly reduced. Once the northern boundary is secured holding will be regulated to patrol status and all personnel can be utilized for interior ignition. Burn out along the northern two-track can be done with one type 6 engine and/or 6 firefighters with ATV water support.

D. Mop-Up Operations:

Mop-up of any part of the unit may occur if the Burn Boss determines a need. Most fuels in the units will burn up in less than an hour. Heavy fuels are well within the burn block. Fire can be allowed to burn till it extinguishes naturally. Due to the remoteness of the area and the distance to populated areas smoke concerns are unlikely.

Element 17- CONTINGENCY

A. Trigger Points: The Contingency Plan considers the possible but unlikely event that the burn organization is losing control of the prescribe fire. This can manifest itself in the form of the fire is not meeting, or threatens to exceed: project boundaries, resource objectives or fire effects, prescription parameters, smoke impacts, or minimum implementation organization. The Contingency Plan is not just a response to an escaped fire, but is the determination of the initial actions and additional resources needed. Fire

does not necessarily need to be outside the burn block boundaries to activate the plan. This plan pertains to the above conditions only if they cannot be mitigated by the end of shift on the following day. When problems arise, all ignitions should be terminated, except for those that may be required to secure the burn block. Ignition may continue once mitigations have been met. Trigger Points on the Paddys Hole Peak Burn include:

1. Fire is within a mile of any point of the Allowable boundary and sustained winds over 15 mph towards the boundary are predicted.
2. Fire is exceeding plan objectives of limited mortality in the ponderosa pine

B. Actions Needed:

1. Burn out along the allowable boundary roads to increase buffer
2. Stop burning; contain spot fires or slopovers with holding forces confine existing fire to natural boundaries.

C. Additional Resources and Maximum Response Time(s):

Burn out/black line operations would involve resources on site as directed by the burn boss. Resources on site will be sufficient to accomplish the task of catching spot fires or slopeovers in most cases. Additional resources can be ordered through Gila/Las Cruces Zone. The closest additional resources are: (This list is not inclusive and their availability will need to be checked on days of ignition).

Resource	Location	Response Time
T6 Engine	Magdalena RD	3 hour
T6 Engine	NMSF - Socorro	4 hours
T6 Engine	BLM Socorro	4 hours
T6 Engine	Gila NF - Beaverhead	2 hour
T6 Engine	Gila NF - Reserve, NM	2 hour
T4 Engine	Sevilleta NWR	4 hours
T2 Dozer	Bosque del Apache NWR	6 hours
T1 Hand Crew	Gila IHC - Negrito	6 hours
T1 Hand Crew	Silver City IHC - Silver City	6 hours
T2 Hand Crew	Magdalena, NM	8 hours
*Air Tanker	Silver City, NM	24 hour
*Air Tanker	Albuquerque, NM	24 hour

*Air Tankers may or may not be available at any given time. Due to the nature and area of this project and land management objectives air tankers use would be considered low priority unless life and property and essential infrastructure is threatened.

Element 18- WILDFIRE CONVERSION

WILDLAND FIRE TRANSITION PLAN

1. Fire outside of the Paddys Hole Peak Rx Burn boundaries target area along the west, south and east boundaries can be allowed to continue burning without converting the project to a wildfire. A large allowable zone exists in these directions. Fuels are sparse in these areas and fire spread is unlikely. If suppression is needed resistance to control is considered to be minimal. Furthermore there are no anticipated undesired effects that may occur within these areas.

2. If spot fires and/or slopovers outside the allowable areas cannot be controlled within 24 hours with on-site resources the Burn Boss must consider the fire behavior, current and expected weather and any other factors that may influence the ability to control the slopover or spot before converting the prescribed fire to a wildfire. These factors will be documented and placed in the final project file regardless of the decision to convert or to not convert the project to a wildfire.

3. If converted, a Wildland Fire Decision Support System (WFDSS) will be completed. Any suppression actions will be in accordance with the New Mexico State Forestry Fire Management Plans. The Burn Boss will make the declaration and assume the role of Incident Commander until relieved by an Incident Commander Type 3 (ICT3). If the Burn Boss is not a qualified ICT3, prior to ignition of the prescribed fire, one will be ordered and confirmed to be available on scene within four hours. The Burn Boss will immediately notify Gila Las Cruces Zone Dispatch and the Socorro District Forester of the change in status to a wildland fire and will order resources through the dispatch center.

4. All section leaders and support staff (Holding, Ignition, and Monitoring) will ensure safety of personnel assigned to them. All personnel will be assigned holding or suppression duties. Strategies for containing escaped fires will consider the safety of firefighters and the public to be paramount. Strategies will include flanking the fire until the forward rate of spread is stopped, and/or burning out from natural barriers.

PROTECTION OF SENSITIVE FEATURES

1. Besides range improvements in the form of fences and stock water facilities there is little that fire can negatively impact in the Luera Mountain vicinity. A mountain top repeater site exists 2 miles north of the burn unit. The nearest residence (Luera Ranch HQ) is over 6 miles north of the unit.
2. An archaeological survey for the proposed project area is in process. A broader archaeological survey for the Luera Mountains was completed as part of the Forest and Watershed Health Improvement Management Plan. Burn operations will be closely monitored by the Burn Boss for compliance with any stated mitigation requirements in the clearance. Currently there are no known archaeological sites within the burn unit.

Element 19- SMOKE and AIR QUALITY

Smoke columns produced from the prescribed fire may at times be large. A column might be visible from highway 60, highway 12, and surrounding areas. The Paddys Hole Peak Rx and Luera Mountains are in a remote part of New Mexico with little population. The nearest towns of size are Datil approximately 30 miles North and Magdalena over 50 miles NE. Due to its remote location no smoke impacts are anticipated. The smoke column should disperse to the northeast with prevailing winds with minimal to no effect on visibility to any developed areas.

A. Compliance: In compliance with New Mexico air quality regulations, a burn registration number will be obtained by the NM State Land Office prior to the burn through the NM Environmental Department, Air Quality Bureau. Registration numbers are issued on a yearly basis.

B. Permits To Be Obtained: A registration number for an SMP II burn (over 99 acres) will be acquired in the calendar year. Notification of intent to burn will be given to the NMED no less than 24 hours prior to ignition, as per state regulations.

C. Impacted Areas: With the exception of the very small communities of Old Horse Springs and New Horse Springs the nearest populated area is a minimum of 30 miles away, so smoke impacts are expected to be minimal.

a. Aragon	30 Mi. W
b. Datil	30 Mi. NNW
c. VLA	25 Mi. N
d. Reserve	45 Mi. W
e. Pie Town	40 Mi. NW
f. Horse Mountain Subdivisions	25 Mi. W

D. Mitigation Strategies and Techniques to Reduce Smoke Impacts:

The Paddys Hole Peak Rx Burn is far from populated areas. Traffic volume on the vicinity roadways is light. These two factors mitigate most potential problems. In order to reduce impact and hazard to local traffic Smoke and/or Fire in Progress signs can be placed on paved and unpaved state and county roadways if deemed necessary.

Element 20- MONITORING

Monitoring of the burn can occur through data collection at specific plots, photo-documentation, weather observations, fire behavior observations, and fire effects

observations as outlined below. Significant fire effects research has already been completed for many of the fuel types found on the vegetation types that make up the Paddys Hole Peak Burn. Generally photo points and ocular estimates, coupled with existing fire effects research, are adequate to determine short term fire effects and the overall success of the burn.

Data Collection Plots: Depending on time and labor constraints plots may be established pre-burn to determine vegetation composition, density, and cover. If plots are established they will be monitored during the burn to determine fire behavior and again post-burn to determine vegetative changes.

Photo-documentation: Photo-documentation may range from establishing pre-burn photo points from which before and after shots can be compared, and change over time can be tracked from an established point. Also photos can be taken during and after the burn to document achievement of objectives. Photos are taken to document the operation and fire behavior. All photos will be labeled and cataloged by a refuge specialist or fire staff for future reference.

Weather Observations: Weather observations are taken prior to ignition and at regular intervals, generally hourly, throughout the burn. Data from local RAWS stations can also be obtained for correlation. A spot weather forecast will be requested from the National Weather Service prior to ignition.

Fire Behavior Observations: Fire behavior observations are made throughout the burn duration by the Burn Boss, Ignition Specialist, Holding Boss, and/or other designated personnel to determine whether the prescribed fire objectives are being met. These observations are documented in the post-burn report.

First Order Fire Effects: Numerous personnel on the burn from the Burn Boss to the Ignition Specialist and Ignition Crewmembers observe first order fire effects. These observations are documented in the post-burn report. First order fire effects include fuel loads and vegetative types, fire behavior, current and forecasted weather, objectives achievement, and smoke volume and movement. Longer term observations can also be documented in coordination with refuge staff and cooperators.

Long-term Monitoring: Long term monitoring is the responsibility of the New Mexico State Land Office resource specialists. Monitoring could include second order fire effects, the impact of post-burn weather, animal impacts, presence of invasive weeds, site-specific research, monitoring for changes in species composition, and in woody species verses grass vegetation cover etc.

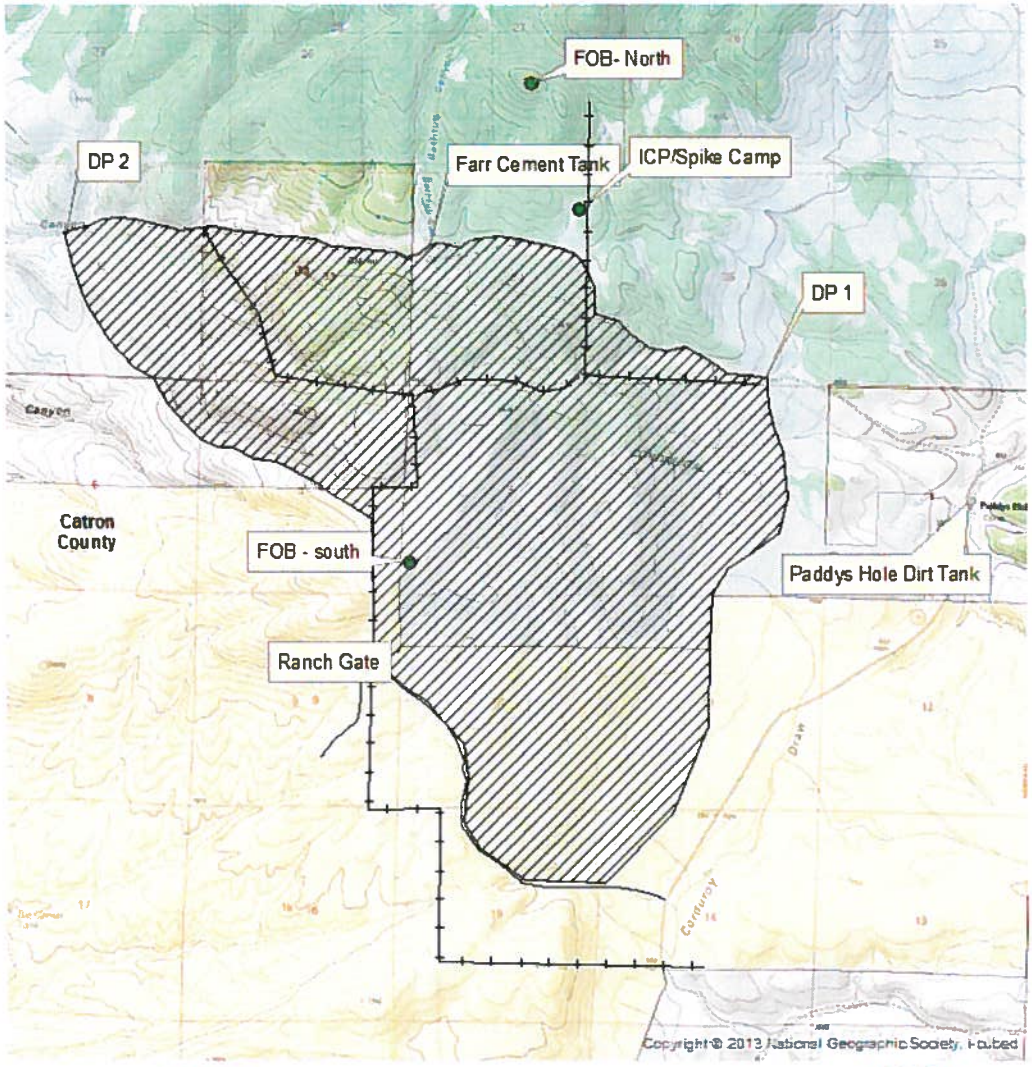
Element 21- POST-BURN ACTIVITIES

Post-burn Activities That Must Be Completed: An After-Action-Review will be conducted at the end of each operational shift involving all personnel. Upon completion of the burn, the Burn Boss will complete a prescribed fire report that outlines the entire operation. Smoke information (acres burned, percent consumption) must be reported to the NMED for air quality tracking. Upon completion of the burn a list of general housekeeping items should be addressed by all resources. These include removal of flagging and signage; ensure no trash or supplies have been left in camp areas and drop points. Ensure all gates opened for the burn are closed and locked gates are relocked. Any necessary rehabilitation of temporary firelines or trails will be completed before resources leave the area.

Appendices

Unit 16 E Project - Luera Mountain
Paddys Hole Peak Prescribed Burn
Target Acres = 3,559

0 0 4 0 8 1 6 Miles

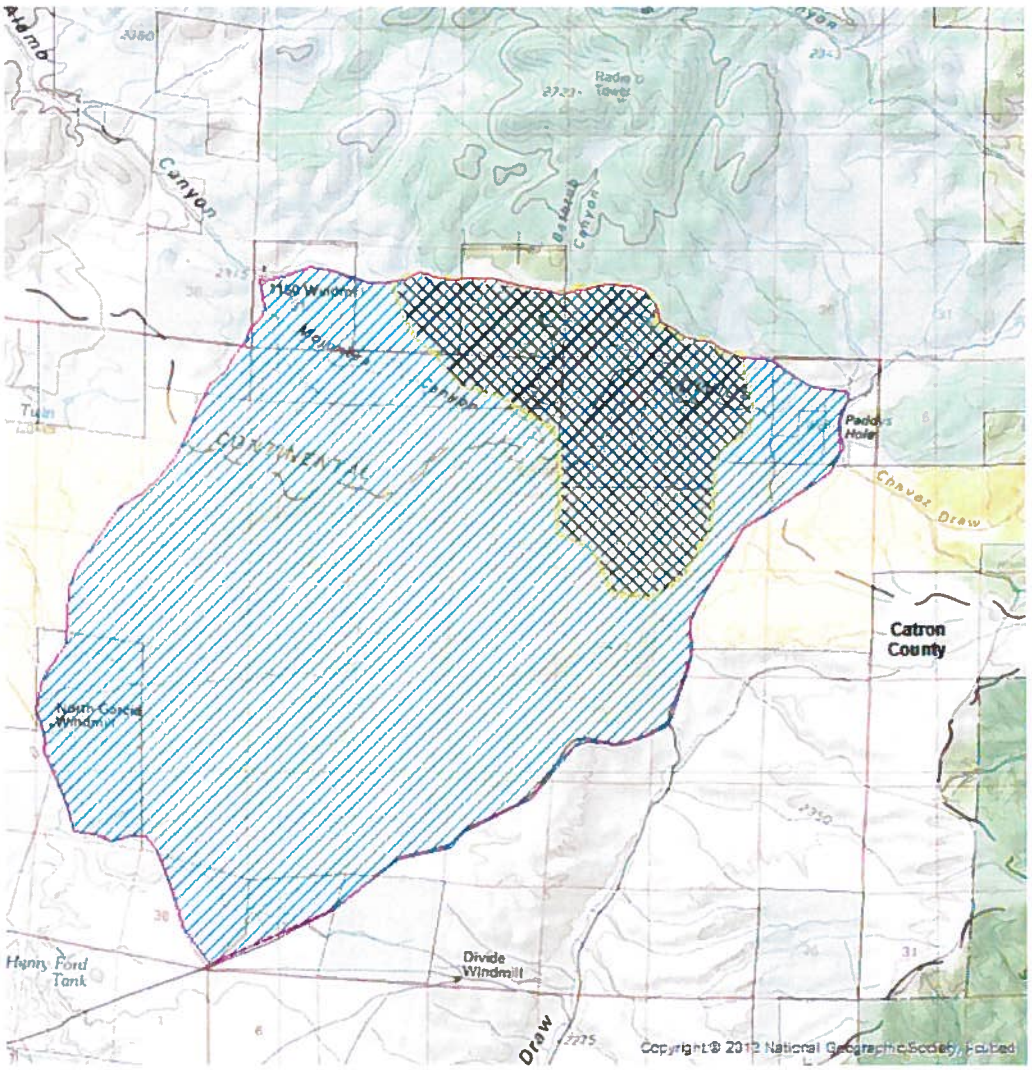


Paddys Hole Prescribed Burn
Single Hatch - Targeted Acrerage
--+---+---+---+---+---+ Wood/ metal t-post allotments fences
---------- Two Track Roads

Map created by D. Boykin

Unit 16 E Project - Luera Mountain
Paddys Hole Peak Prescribed Burn
Allowable Treatment Area

0 0.75 1.5 3 Miles



Yellow Double Cross Hatch - Targeted Treatment 3,559 Acres
Blue Single Cross Hatch - Total Alowable Treatment = 19,450

Map created by D. Boykin

TECHNICAL REVIEWER CHECKLIST	Paddys Hole Peak Prescribed Fire	
PRESCRIBED FIRE PLAN ELEMENTS:	**S /U**	**COMMENTS**
1. Signature page		
2. GO/NO-GO Checklists		
3. Complexity Analysis Summary		
4. Description of the Prescribed Fire Area		
5. Goals and Objectives		
6. Funding		
7. Prescription		
8. Scheduling		
9. Pre-burn Considerations		
10. Briefing		
11. Organization and Equipment		
12. Communication		
13. Public, Personnel Safety and Medical Procedures		
14. Test Fire		
15. Ignition Plan		
16. Holding Plan		
17. Contingency Plan		
18. Wildfire Conversion		
19. Smoke Management and Air Quality		
20. Monitoring		
21. Post-burn Activities		
22. Maps		
23. Complexity Analysis		
24. JHA		
25. Fire Prediction Modeling Runs		
26. Other		

S = Satisfactory

U = Unsatisfactory

See approval form next page

Recommended for Approval:

Technical Reviewer	Qualification and currency (Y/N)	Date

€ Approval is recommended subject to the completion of all requirements listed in the comments section, or on the Prescribed Fire Plan.

Not Recommended for Approval:

Technical Reviewer	Qualification and currency (Y/N)	Date

Reason(s) for non – approval and follow-up required for approval:

Prescribed Fire Complexity Rating System Guide Worksheet

Project Name **Paddys Hole Peak RX**

Complexity elements

1. Potential for Escape

Risk	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	To minimize resource impacts there are long stretches of the burn that will have no holding line. There are natural barriers to fire spread both inside and outside of the burn unit. Inconsistent fuel beds lowers the probability of ignition from fire brands
Final Rating: **Low** *Moderate* *High*	A large allowable area is added to the burn in all directions except to the north. Fuels in the allowable are generally rocky soil blue grama grasslands which do not carry fire well. Over most of the allowable fire will have to back into the prevailing wind and burn downslope. Interspersed pockets of space fuel and patches of bare ground provide strong barriers to fire spread in the allowable . A two-track road provides a good barrier to hold fire on the north boundary.
Potential Consequences	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	An escape would result in little damage to grassland habitat. Fuels adjacent to the burn are less than those in the unit. No structures are within 10 miles of the burn unit. There is minimal impact to the public There is no public access to the burn area. Lands to the south are BLM. Lands that are in an approved burn block. All other directions are NM State trust with some private land.
Final Rating: **Low** *Moderate* *High*	Burn design ensures minimal escape potential. With the exception of the north line there are few holding concerns. A two track exists along the north that provides a good fire break. In all other directions fire leaves the target unit into the allowable area. There it can be allowed to burn till it extinguishes on natural barriers. Vegetation in the allowable area is rocky soil blue grama grassland that does not carry fire well. An escape is unlikely due to the nature of the fuel and the large allowable area.
Technical Difficulty	**Rationale**
Preliminary Rating: **Low** *Moderate* *High*	Holding operations can be accomplished with little difficulty. A squad with an engine and/or UTV water support can hold the northern two-track. All other areas are backed by a large allowable areas of inconsistent fuels.
Final Rating: **Low** *Moderate* *High*	Experienced fire personnel will be assigned to ignition and holding duties. No Change

2. The Number and Dependency of Activities

Risk	Rationale
Preliminary Rating: *Low* **Moderate** *High*	Basic coordination and communication between all involved parties will be necessary. Good access exists into the north side of the burn. The ground ignition may use two burn teams. The north boundary and interior ponderosa pine stringers will need to be burned out before lighting the rest of the unit. The interior ignition will use two burn teams. Coordination between holding forces and ignition will be necessary to maintain safety and watch for spotting along the north boundary.
Final Rating: *Low* **Moderate** *High*	No Change
Potential Consequences	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	Coordination and communication failures would not heighten an increased likelihood of escape and could compromise firefighter safety. RXB will need to assure the communication plan is understood and equipment is operational. Interior ignition will need to be coordinated.
Final Rating: *Low* **Moderate** *High*	Radio frequencies will be identified for use on the burn. Radios will be checked before ignition. Pretreatment of values at risk will occur prior to burn operations where necessary.
Technical Difficulty	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	Continuous communication will be necessary among the Burn Boss and the ignitions and holding resources to manage for successful ignition, escape risk and fire fighter safety.
Final Rating: *Low* **Moderate** *High*	A communication plan will be included in the burn plan. Briefings will be given prior to any ignition.

3. Off-Site Values

Risk	Rationale
Preliminary Rating: **Low** *Moderate High*	There is minimal risk to improvements, private or other agency lands. Land outside the burn is vacant rangeland. NM State Trust and private to the north and BLM lands to the south. Lands outside of the burn are grazed and will not carry fire. Range improvements (fences and stock tanks) are present off site. No structures are close to the burn.
Final Rating: **Low** *Moderate High*	No Change
Potential Consequences	**Rationale**

Preliminary Rating: **Low** *Moderate High*	Adjacent lands have similar fuel types and values as the target area. The BLM land to the south is part of an approved burn block (East Block of the Pelona Mountain Rx) and is included in an allowable area.
Final Rating: **Low** *Moderate High*	Sufficient buffer exists outside of the burn unit to negatively affect fire spread. No Change to rating.
Technical Difficulty	**Rationale**
Preliminary Rating: **Low** *Moderate High*	Protection of off-site values requires no special management, equipment, or skills. Good team communication and coordination during the ignition phase will ensure no escape problems. Off-site vegetation is less and easy fire control.
Final Rating: **Low** *Moderate High*	No Change

4 On-site Values

Risk	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	Wood fences within the burn block will need to be prepped. Low to no mortality in the 'leave trees" in the thinned areas needs to be assured.
Final Rating: **Low** *Moderate High*	Wooden fence posts can be prepped via grubbing out fuel or spot burning around them. Removal of heavy slash concentrations from around the "leave trees" will reduce fire intensities.
Potential Consequences	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	Failure to protect the fences or "leave trees" could result in a possible fire damage to range improvements and mortality in the trees.
Final Rating: **Low** *Moderate High*	Fences can be prepped and slash can be removed before main ignition.
Technical Difficulty	**Rationale**
Preliminary Rating: **Low** *Moderate High*	No special skills or operations are required. A basic ignition and holding operation would be used to protect any identified sites.
Final Rating: **Low** *Moderate High*	No Change

5 Fire Behavior

Risk	Rationale
Preliminary Rating: *Low* **Moderate** *High*	Fuels vary within the burn block both in loading and arrangement. Three fuel/vegetation types are found within the burn with grasslands being the most prevalent. Slope and aspect vary and are not uniform, leading to varying fire behavior. Topography varies from flat to steep, rocky hills. Local winds and burning conditions may vary during diurnal changes to cause significant shifts in fire behavior. Isolated torching may occur in piñon/juniper stands which may enable short range spotting,
Final Rating: *Low* ***Moderate*** *High*	No Change
Potential Consequences	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	Fire behavior outside the burn block is likely to be the same or less than fire behavior within the burn block. Adjacent areas to the north are pinyon juniper woodland with interspersed ponderosa pine stringers. All other directions are within the allowable area and are short grasslands. Many natural barriers exist in the burn unit, allowable area, and adjacent country. Road accesses to areas outside the burn unit are limited. The large size of the burn unit and allowable combined with poor road access and long travel times could elevate potential consequences if there is an escape.
Final Rating: *Low* **Moderate** *High*	Strong control lines on the north boundary and a large allowable area around the rest of the burn block will ensure enough buffer to keep fire in the unit even under extreme conditions. Because of the inconsistent fuel bed outside the burn, fire should not be able to produce long sustained runs.
Technical Difficulty	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	Standard fire safety precautions are adequate to ensure personnel safety and success of mission. Strong control lines on the north boundary and a large allowable area around the rest of the burn block t will ensure enough buffer to keep fire in the unit even under extreme conditions. The burn will have adequate resources on hand to handle spot fires or slop over should they occur. Direct attack tactics can be used to control spot fires.
Final Rating: *Low* **Moderate** *High*	No Change.

6. Management Organization

Risk	Rationale

Preliminary Rating: *Low* **Moderate** *High*	A small number of qualified people can implement the Paddys Hole Peak RX Burn. A small to moderate burn organization will be used. Organization at a minimum will consists of a burn boss, with 1type 6 engines, 2 UTVs/ ATVs with water delivery capabilities, and 10 firefighters. Contingency forces could be on site
Final Rating: Low **Moderate** *High*	No Change. The personnel on the burn will be fully qualified and red carded for the positions they are filling. They will also be local resources, familiar with the fuel types involved and the fire behavior associated with those fuel types.
Potential Consequences	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	Problems related to supervision or communication may cause problems that could compromise safety and increase the risk escape. Ensuring that communications are in place and functioning properly will be necessary.
Final Rating: **Low** *Moderate High*	Small organization makes management less difficult. Making sure communications are functioning properly will be necessary.
Technical Difficulty	**Rationale**
Preliminary Rating: **Low** *Moderate High*	All the primary team members are red carded and are familiar with burning in the unit's fuel type. One person could hold multiple positions (eg.Burn boss/ignition boss)
Final Rating: **Low** *Moderate High*	No Change

7. Public and Political Interest

Risk	**Rationale**
Preliminary Rating: **Low** *Moderate High*	The burn is far from populated areas. Smoke from the burn will be visible only during the ignition phase and will be distant. There is no public access to the area. The New Mexico State land Office could have an interest in "showcasing" the burn. There could be some local media interest in the project.
Final Rating: **Low** *Moderate High*	The NM State Land Offices may prepare news releases prior to the burn if they desire. Arrangements can be made to accommodate press if there is further interest. Local contacts will be made before ignition.

Potential Consequences	**Rationale**
Preliminary Rating: **Low** *Moderate High*	Unexpected or adverse events could attract some public attention. Outside of a large escape fire, political and media attention would not increase. If such an event were to occur news releases and local briefings would be required.
Final Rating: **Low** *Moderate High*	No Change.

Technical Difficulty	Rationale
Preliminary Rating: *Low* **Moderate** *High*	Requires some time from public affairs or the designated individual to prepare news releases and possible follow up if there is local interest in the burn. If there is media interest associated with the burn additional coordination may be needed.
Final Rating: **Low** *Moderate High*	Information Officer will be on hand if interest in the project warrants it.

8. Fire Treatment Objectives

Risk	Rationale
Preliminary Rating: *Low* **Moderate** *High*	Objectives for the burn are straightforward. The Rx fire objectives require different fire intensities depending on fuel type to meet management goals and objectives. The cool fire needed in the pine stringers will be different then the hot fire called for in the grasslands and woodlands. The correct fire behavior can be created, but care will be needed to manage the burn due to the remote location and logistical challenges. Both weather and fire behavior monitoring will be critical. Tactics and burn activities are not limited.
Final Rating: *Low* **Moderate** *High*	No Change
Potential Consequences	**Rationale**
Preliminary Rating: **Low** *Moderate High*	Opportunities to meet objectives are limited year to year by environmental conditions such as weather windows, live fuel moistures, grass/ forbs production etc... Other factors include political restraints such as increased fire activity in the Zone and burn restrictions. Failure to complete this burn unit would have little effect on the overall RX burn schedule for the Luera Mountains.
Final Rating: **Low** *Moderate High*	No Change
Technical Difficulty	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	The project objectives can be completed with a ground ignition. Measures to achieve the project objectives are moderately difficult. Ignition sequence and strips must be monitored to ensure adequate heat to impact the woody species on the grasslands. Fire intensities in the pine strings must be limited. Interior ignition with multiple burn teams will be necessary.

Final Rating: *Low* **Moderate** *High*	No Change

9. Constraints

Risk	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	While a pre-monsoon ignition is preferred, operations can occur can occur in any season depending on fuel/weather conditions, National Preparedness Levels, and resource availability. No burning should be done during the fall Elk and Mule deer hunts to help mitigate public safety concerns with higher public use during hunting seasons. Grazing permit holders have cattle in and adjacent to the project area. There are no problems concerning access to the unit, water sources, or specific tactics. Ignition is not expected to be restricted during any portion of the burn window.
Final Rating: *Low* **Moderate** *High*	No Change. The needed resources will be lined up and committed in advance.
Potential Consequences	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	The project can be implemented whenever it is in prescription, preferably during the spring/summer. Implementation needs to be at a time when grasses are dormant, live fuel moisture in the juniper are low and hot dry conditions prevailing. Local fire activity could be a problem effecting resource availability. There are no constraints related to access, water sources, or specific tactics.
Final Rating: *Low* **Moderate** *High*	No Change.
Technical Difficulty	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	Scheduling constraints can increase the difficulty of completing the burn. Constraints will not increase the difficulty of the burn, with exception of hunting season due to increased public use of the project area.
Final Rating: *Low* **Moderate** *High*	No Change

10. Safety

Risk	Rationale
Preliminary Rating: *Low* **Moderate** *High*	Safety issues have been identified and can be mitigated with a detailed briefing. All safety issues will be discussed in the briefing. Potential hazards are typical to most firing operations. Special emphasis will be placed on escape routes and safety zones. Safety concerns can be mitigated through LCES.
Final Rating: *Low* **Moderate** *High*	Mitigations are included into the burn plan through communication plans, briefings, and proper PPE use.
Potential Consequences	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	Moderate potential exists for serious accident. Travel on roads both paved and dirt increase the risk of vehicle accidents. Working in hot conditions, and fatigue are all factors that could lead to accidents on this project. Distance form medical facilities are also a factor. Escape routes and safety zones must be continually updated when burning under hot prescriptions especially with interior hand ignitions. Special consideration will be given to mitigate safety concerns associated with interior ignitions.
Final Rating: *Low* **Moderate** *High*	No Change. Mitigations built into the burn plan. In depth briefing will be conducted prior to operation.
Technical Difficulty	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	Safety during all aspects of the operation will be paramount. Emphasis on LCES especially communication and escape routes will be stressed. The Burn Boss will ensure the safe and effective use of all resources required to complete Paddys Hole Peak RX burn.
Final Rating: *Low* **Moderate** *High*	No Change. The personnel on the RX burn will be fully qualified and red carded for the positions they are filling. Most will also be local resources familiar with the fuel types involved and the fire behavior associated with them.

11. Ignition Procedures/Methods

Risk	Rationale
Preliminary Rating: *Low* **Moderate** *High*	Firing sequence and timing are important to meet project objectives and manage safety risks. Firing procedures are, using drip torches, and one or two ignition teams. There will be times of interior ignitions. The burn boss cannot see all of the project area from anywhere in the unit. Lookouts will be utilized when needed. The burn boss will coordinate to ensure ignition and holding operations are running smoothly.
Final Rating: *Low* **Moderate** *High*	No Change
Potential Consequences	**Rationale**

Preliminary Rating: *Low* **Moderate** *High*	Hand ignition methods and procedures are not complicated but will entail some coordination. Firing methods and procedures must be coordinated to provide adequate safety especially with interior burning. Burn boss will coordinate ignition, and holding. Improper methods could result in personnel injury or an escaped fire.
Final Rating: *Low* **Moderate** *High*	No Change
Technical Difficulty	**Rationale**
Preliminary Rating: *Low* **Moderate** **High**	Drip torches will be utilized to achieve the objectives on the Paddys Hole Peak RX burn. Coordination among resources will be the highest priority to ensure objectives are met and the safe completion of the burn.
Final Rating: *Low* **Moderate** *High*	No Change

12. Interagency Coordination

Risk	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	The project involves some coordination with the BLM, which is in place and ongoing. Portions of the burn are on Socorro BLM and private lands. Signed clearance to burn on private land must be obtained before ignition. The majority of the allowable area of the burn is BLM lands Some local fire resources from other agencies could be used to implement the burn. National preparedness levels are expected to be no higher than a 3 at the time of the burn. If Regional levels are 4 or greater NM State Land Office approval will be necessary for burn implementation.
Final Rating: *Low* **Moderate** *High*	No change The majority of the resources on the Paddys Hole Peak RX Burn will be from the local area with an established working relationship. Clearances to burn on BLM and private land will be obtained
Potential Consequences	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	Interagency coordination will not cause significant delays. As long as the SW is in a planning level of 3 or less there should be ample fire resources within the area to replace any that are committed or scheduled to other projects. The small minimal organization needed to implement the Paddys Hole Peak Rx insulates the project from resource competition.
Final Rating: *Low* **Moderate** *High*	No change.
Technical Difficulty	**Rationale**

Preliminary Rating: *Low* **Moderate** *High*	Implementation will require attention to certain interagency details such as communications and standards of operation.
Final Rating: *Low* **Moderate** *High*	No change. The majority of the resources on the RX Burn will be from the local area with an established working relationship.

13. Project Logistics

Risk	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	The remote location of burn area presents some logistical problems. Personnel will need to campout for the duration of the burn. Ensuring adequate food, water and fuel supplies will require some pre-planning and oversight. A logistics runner may be needed. The closest towns have limited resources and services. Project operations may take up to 4 days to complete.
Final Rating: *Low* **Moderate** *High*	Smaller organization will be easier to manage. Camp and supply can be planned out before project implementation.
Potential Consequences	**Rationale**
Preliminary Rating: *Low* **Moderate** *High*	Problems related to logistics could increase affect the completion of the project, or create a safety concern.
Final Rating: *Low* **Moderate** *High*	Smaller organization will be easier to manage. Camp and supply can be planned out before project implementation. No Change
Technical Difficulty	Rationale
Preliminary Rating: **Low** *Moderate* *High*	Project implementation will not require any special logistical support. Once needed resources are in place logistical support should be minimal with proper planning. The burn organization will be able to take care of logistics at a local level.
Final Rating: **Low** *Moderate* *High*	No Change.

14. Smoke Management

Risk	**Rationale**
Preliminary Rating: **Low** *Moderate High*	The burn is far from population centers. No critical targets have been identified (schools, airports, hospitals, nursing homes) within thirty miles of the burn perimeter. There are no visibility hazards in the burn area. The burn is accessed off a low use dirt road. There is no public access into the burn area. Smoke exposure or amounts are not expected to cause health or safety concerns for either firefighters or the public.
Final Rating: **Low** *Moderate High*	No Change. Smoke production and distance to any populated area mitigate any potential problems.
Potential Consequences	**Rationale**
Preliminary Rating: **Low** *Moderate High*	Smoke production should be below levels that trigger regulatory concerns. The nearest smoke sensitive areas over 50 miles away in the Rio Grande Valley.
Final Rating: **Low** *Moderate High*	No Change. Smoke production and distance to any populated area mitigate any potential problems.
Technical Difficulty	**Rationale**
Preliminary Rating: **Low** *Moderate High*	The burn plan does not constrain wind direction. Wind will likely have a westerly component. It is anticipated that the prevailing wind during the time of year the project is implemented will be WSW. Smoke production and distance to any populated area mitigate any potential problems.
Final Rating: **Low** *Moderate High*	No smoke issues have been identified. Normal coordination with air quality officials is required.

Paddys Hole Peak Prescriber Fire Complexity Analysis Summary

The Paddys Hole Peak prescribed fire project rates an overall **MODERATE** complexity. Over all the 14 elements were balanced out between low and moderate. None of the elements rated high. Due to its size (3,559 acres), accessibility, (3 hours half on dirt road), and 2-3 day with overnight on site logistics; the higher moderate rating best fits the project.

Because of the burn design there will be little holding. Once the north line is secure there are no holding concerns. The prevailing wind (SSW) will push fire into the black. All other sides of the burn are contained by a large allowable area. Fire can burn into the allowable and extinguish itself in areas of less fuel loading. It is unlikely that any of the adjacent allowable area can sustain large fire growth. Fire would be backing down slope and into the wind in patchy fuels. Fuels in the target area are grass with areas of pinyon juniper and ponderosa pine stringers. The prescription calls for cooler fire in the ponderosa stringers. Extra care will be needed to protect the ponderosas in areas of thinning slash. Grass fuels will burn out quickly and produce little residue smoke. The 100 and 1,000 hour wood fuels could smolder for days but will not produce any political smoke issues. Due to the distance from populated areas no smoke concerns are anticipated. The Paddys Hole Peak Rx is 30 miles from the nearest town. The prescription does not limit smoke direction but a WSW wind is likely as that is the prevailing wind in the burn area. No smoke sensitive areas are close enough to be effected by the burn. There are few values at risk either on or adjacent to the burn unit. Fences on and adjacent to the burn area are the main risk. Standard protective measures can be used to protect the fences from fire were necessary.

A difficult part of the project is having a burn organization together when fuel and atmospheric conditions are in prescription to burn. Burn resources may be unavailable when conditions are right if the southwest is engaged in an active fire season. To address this, the core organization will be local personnel/equipment and resources. The burn design will allow for a smaller organization as holding concerns are mitigated. The desired prescription in the ponderosa stringers is for a cooler backing fire. This can be accomplished by setting ignition late in the burn period. The desired prescription in the grass and woodlands calls for a dry, hot, and moderately windy condition. This prescription will move fire across the grass and cause isolated torching in the juniper. Head should move across the landscape and produce the desired result. Ignition procedures are not complex. A ground ignition utilizing drip torches will be used.

The Paddys Hole Peak prescribed fire will require a minimum of 12 fire personnel. All personnel will be red carded for their assigned positions. Briefings covering the resource and fire objectives, LCES (lookouts, communication, escape routes, safety zones) and chain of command will be given prior to any ignition activities. There is no special logistical, agency coordination, constraints, or safety concern associated with this project.

HAZARDS	ACTION TO ELIMINATE HAZARD
General operations and public traffic.	Defensive driving techniques.
Winding, narrow roads.	Drive slow. Be able to stop in ½ the usual distance. Lights on.
Hauling flammable substances.	Use appropriate containers for hauling slash fuel and gas.
Transporting sharp tools and equipment.	Use guards, cages, boxes, or tool mounts. Tie down all loads.
Loading vehicles.	Check load before departing the driver is responsible.
Exposure to sparks, embers, and heat.	Use proper containers, move away from hot areas, no smoking.
Leaking containers or torches	Empty and tag in field, have repairs made before next use.
Improper gas/diesel ratios for slash fuel.	Use labels on containers, field test small amounts before use.
Backing or turning around in small areas.	Use spotters. Face the hazard while turning around.
Smoke, poor visibility.	Place a guide on foot ahead of the vehicle. Wait until smoke is less dense. Lights on. Use light bars and/or warning lights. Use radio communication.
Parking near a prescribed burn.	Use parking brake. Leave keys in ignition. Avoid leaving exposed combustible materials in bed of vehicle. All windows closed.
ATV's	Operated by trained and licensed drivers only. Lights on. Avoid steep slopes. Full PPE
Public safety and smoke on road	Post signs and/or use road blocks if needed.
Operating pumps and saws.	Tuck in shirt tails, remove scarfs and jewelry. Proper clothing, gloves and boots, and hearing protection.
Operating high pressure nozzles.	Maintain visual contact with pump operator and other crew members. Use goggles.
Close proximity to intense heat and erratic fire behavior	Use PPE. Maintain radio communication. Know escape route.
Smoke, sparks, and cinders.	Avoid very dense smoke. Wear PPE, Alter firing patterns. Rotate personnel out of worst areas.
Poor footing, steep slopes, heavy fuels.	Constant awareness, learn to identify hazard area. Slow down.
Burning fuel dripping from torches.	Know location of others. Extinguish when not inside burn unit. Be aware of spurting from drip torch.
Misguided lighter lighting wrong area. Inadvertent firing over/under shot.	Post lookouts. Notify ignition spec. and holding spec. Holding crews extinguish spot, subsequent to further ignition.
Rough terrain, heavy ground fuels, side hills and slopes.	Scout and locate accessible routes, make dry run, experienced operator or supervised trainee. Fire by hand if needed.
Noise of ATV and fire obscures verbal warnings.	Hand held radios required of all ignition personnel. Hard hats instead of helmets to facilitate communications.
Tool Use.	Proper training. Keep tool guards on while traveling, remove only while in use.
Burns from radiant heat and hot embers.	Nomex clothing, hard hats and gloves required.
Erratic fire behavior	To be covered by burn boss in pre-burn briefing, escape route shall be known by everyone.
Smoke inhalation.	Crews will be rotated in and out of dense smoke.
Fatigue, long hours of work.	Shifts of duty shall not exceed 12 hours, except in emergencies. Crews will work no longer than 7 days on 1 day off or 14 on with 2 off. Work in pairs, have rested drivers available.
Heat	Drink adequate fluids to maintain hydration.
Venomous Insects & Reptiles	Stay Alert for snakes, bees, and scorpions.

PRESCRIBED FIRE BRIEFING CHECKLIST

BURN NAME:_____ **UNIT NAME**_____

BURN SIZE:_____(acres target)_____(acres allowable)

Organization/ Assignments:
Burn Boss__

Ignitions___

Holding____

Aerial_____
Objectives: (Reference Burn Plan)

Description of the Burn Area:
A. Map
B. Values at Risk
C. Problem Areas
D. Fuel Type (both in and out of burn unit)
E. Access/Water Sources
F. Control Lines

Weather/ Fire Behavior: (Reference Spot Weather Forecast)

COMMUNICATIONS: (Reference Burn Plan)

CONTINGENCY: (Reference Burn Plan)
A. Allowable /Slop over vs. escape
B. Initial Assignments (slope over escape etc...)
C. Strategy/Tactics

SAFETY: (Reference JHA and Burn Plan)
A. LCES:
B. Medical/EMTs
C. Hazards
D. Other (air op terra torch etc…)

OTHER:

Signed:_____ **Date:** _____

BURN DAY CHECK LIST

***Name of Burn*_____ Date_____**

Paper	**X = Yes**	**Notes**
Signed Burn Plan		
Smoke Permit Obtained (24 Hr. Notification)		
Weather/Ventilation Prediction		
Spot Weather Forecast Obtained		
Go No Go Completed		
Test Fire Form		
Press Release and General PR		
Other		
Operational		
Any site preparation completed		
Committed Resources Present		
Resources briefed		
Make all Notifications		
Communications working		
Smoke/Weather Monitoring set up		.
Other		
Other		

Test Fire Paddys Hole Peak RX

Location:

DATE and TIME:

FUELS:

WEATHER CONDITIONS:

RESULTS: *(Note flame Lengths and rate of Spread)*

The Test Fire meets the prescription parameters and objectives: ***YES__*** ***NO___***

Notes:

Signed:_____ ***Date:_____***

Lucas Middleton

From: Schooley, Ted, NMENV <ted.schooley@state.nm.us>
Sent: Monday, January 12, 2015 11:43 AM
To: lucas.middleton@soudermiller.com
Cc: austin.weyant@soudermiller.com; Ely, Sandra, NMENV; Bates, Rita, NMENV; Goodyear, Richard, NMENV; Morris, Allan, NMENV
Subject: FW: Prescribed fire

Mr. Weyant,
Since I am the Permit Programs Manager, Allan forwarded me your e-mail. I understand you spoke briefly with Claudia Standish about this project. We will need more information before providing any guidance on this subject. If you could gather answers to these questions before we discuss this it would help with our analysis:

1) Please provide as much information as possible as to the nature of the oil that was spilt (diesel, unrefined oil, mixture, unknown, etc.)
2) Please provide the original quantity of oil spilt and supporting documents, if available. If the exact quantity is not known, provide a best estimate using known facts, indicating the level of confidence for each assumption in making the calculation. If the spill was from overflowing waste water tanks, estimate the percentage of oil to water typically found in the tanks before the spill.
3) Please provide a map of the entire prospective burn area with the area of the spill indicated along with your level of confidence in the accuracy of the spill area.
4) Please provide your best estimate of the affected spill area, your confidence level in the figure and any supporting documentation
5) If the oil had a volatile fraction, provide any supporting data
6) If there is any evidence of oil seepage into the ground, provide any estimate and supporting data
7) What is the purpose of the burn?
8) The date of the spill

Once you have gathered as much of this information as possible, please respond in an e-mail and then we will discuss. If you need to clarify any of my requests, please e-mail or call me.

Ted

Ted Schooley
Permit Programs Section Chief

NMED – Air Quality Bureau | 525 Camino de los Marquez, Suite 1
Santa Fe NM 87505
D: 505.476.4334 | F: 505.476.4375 | AQB Main Line: 505.476.4300
Ted.Schooley@state.nm.us | http://www.nmenv.state.nm.us/aqb/

From: Morris, Allan, NMENV
Sent: Thursday, January 08, 2015 1:40 PM
To: Schooley, Ted, NMENV
Subject: FW: Prescribed fire

Mr. Schooley,

As requested.

Allan

From: Austin Weyant [mailto:austin.weyant@soudermiller.com]
Sent: Monday, December 29, 2014 11:02 AM
To: scott.vail@state.nm.us; Morris, Allan, NMENV
Subject: Prescribed fire

We at SMA are working on a prescribed fire project in coordination with New Mexico Oil Conservation Division, Eddy County and The Bureau of Land Management. I have several Air Quality questions about this complex project.

Please Contact me at your earliest convenience

Thanks
--
Austin Weyant
Project Scientist
Souder Miller & Associates
201 S Halagueno, Carlsbad, NM 88220
C: (575) 689-7040

CHECKLIST AND GUIDE FOR OPEN BURNING OF VEGETATIVE MATERIAL

(such as slash, weeds, yard trimmings and clippings)

Complete this checklist BEFORE YOU BURN to see if it is allowed under the Open Burning Regulation (20.2.60 NMAC).

	YES	NO
∗ 1. Will you be burning no more than 10 acres or 1,000 cubic feet of piled material per day? (If NO, this regulation does not apply; see 20.2.65 NMAC, Smoke Management.)		x
∗ 2. Have you considered using alternatives to burning, such as chipping or composting? (See list)	X	
∗ 3. Will the burning be at least 300 feet from neighbors (dwellings, workplaces, places where people congregate)?	x	
4. Is the material to be burned as dry as practicable? (see recommendations)	x	
5. Is the material free of paper, plastic and other trash? (see regulation for very limited exemption for plastic sheeting covering piled slash)	x	
6. If the burning will be more than 1 acre per day, or 100 cubic feet of piled material per day, have you provided prior notice of the burn date and location to neighbors within 1/4 mile of the burn?	x	
7. Have you notified the local firefighting authority prior to burning?	x	
∗ 8. Will you be starting the burn no earlier than 1 hour after sunrise, and extinguishing the burn at least 1 hour before sunset?	x	
9. Will you be attending the burn AT ALL TIMES, until it is fully extinguished?	x	
10. Will you be using only the minimum amount of auxiliary fuel necessary, and no oil heavier than No. 2 diesel (no motor oil)?	x	

If the answer is NO to any of these questions, your burn is NOT ALLOWED under the Open Burning Regulation (20.2.60 NMAC).

∗ If your NO answers are only for one or more of these questions (1, 2, 3, and 8), you MAY be allowed to burn under the Smoke Management Regulation (20.2.65 NMAC), if you meet the requirements of that regulation. For more information, see www.nmenv.state.nm.us/aqb, or call the Air Quality Bureau at 1-800-224-7009.

How to determine "pile volume"

"Pile volume" refers to the overall volume of the pile, including the air space between the solid materials. Pile volume can be calculated from the overall dimensions (length, width, height) of the pile.

Simple Method: A simple, approximate calculation is to multiply the length times the width times the height of the pile in feet. For example, a pile that is 10 feet wide, 5 feet long, and 3 feet high would have an approximate volume of:

Length X Width X Height = volume in cubic feet

10 ft. X 5 ft. X 3 ft. = 150 cubic feet

This simple method assumes the pile has straight sides, so it overestimates the volume of rounded piles. If you use this method and determine that the pile volume is less than 1,000 cubic feet, then you can be sure that your burn is small enough to be covered by the Open Burning Regulation.

Complex Methods: Pile volume can be calculated more precisely using complex geometric formulas that take into account the rounded shape of most piles. More information on these methods is available in the Smoke Management Program's Guidance Document, Appendix K ("Guidance on How to Calculate Fuel Loading").

Mixtures of piled and nonpiled material: To determine daily burn amount when you are burning a combination of piled and nonpiled material, convert the pile volume to equivalent acreage at the rate of 100 cubic feet equals 1 acre, and add this to the acreage of nonpiled material.

Alternatives to burning

In this regulation, an alternative to burning refers to any method of removing or reducing fuels that replaces the use of fire. This includes mechanical, biological, or chemical treatments. Detailed information is provided in Appendix C ("Alternatives to Burning") of the Smoke Management Program's Guidance Document.

Alternatives to burning include:

- Composting - You can start a compost pile in your back yard. You can compost most organic material including leaves, grass clippings, coffee grounds, fruit, vegetables, and some livestock manure (but not pig, cat or dog droppings). Finished compost will provide excellent garden nutrients.

- Mowing - Frequent mowing will keep weeds from growing up and creating a fire hazard. The cut material can often be left in place, crushed or incorporated into the soil. Mowing weeds, and then allowing them to dry before piling and burning them will greatly reduce the amount of smoke produced.

- Mechanical removal - Slash, brush and weeds can be chipped and used as mulch, and/or hauled to a disposal facility or biomass utilization facility. See if your local area has a chipper or a designated facility for disposal of yard waste and slash.

For a free composting brochure, and information on facilities that will take yard waste, slash, and cut trees for recycling, contact Greg Baker, NM Environment Department, 505-827-2780, or visit the web site of the New Mexico Organics Recycling Organization (http://nmrecycle.org/nmoro.htm).

Recommended minimum drying times

Dry material burns hotter and produces less smoke and toxic air pollutants. If practicable, allow green material to dry after cutting for at least the following minimum times:

- Trees and branches over 6 inches in diameter — 90 days
- Trees and branches 2 to 6 inches in diameter — 45 days
- Brush, vines, bushes, prunings and small branches — 15 days
- Leaves, field crops and weeds — 7 dry days (no rain or snow)

Be a good neighbor!

Although not required by the regulation, these are some extra things you can do to help your neighbors breathe more easily.

- Don't burn if the wind direction would cause smoke to blow towards your neighbors.

- Don't burn if the air is already smoky from other fires. Adding more smoke will just make the air pollution problems worse.

- Don't burn on very calm, cool days, when there is likely to be an atmospheric inversion that will trap smoke near the ground.

- Burn in the morning when winds are calm, so smoke will be blown away by higher afternoon winds.

- Burn only when the Ventilation Category is "GOOD" or better. Get the forecast Ventilation Category by calling the Air Quality Bureau hotline (1-800-224-7009), or from the National Weather Service web site (http://www.srh.noaa.gov/abq/firewx/fw-3.htm)

TITLE 20 ENVIRONMENTAL PROTECTION
CHAPTER 2 AIR QUALITY (STATEWIDE)
PART 65 SMOKE MANAGEMENT

20.2.65.1 ISSUING AGENCY: Environmental Improvement Board.
[20.2.65.1 NMAC - N, 12/31/03]

20.2.65.2 SCOPE: All geographic areas within the jurisdiction of the environmental improvement board.
[20.2.65.2 NMAC - N, 12/31/03]

20.2.65.3 STATUTORY AUTHORITY: Environmental Improvement Act, NMSA 1978, Subsection 74-1-8(A) (4) and Air Quality Control Act, NMSA 1978, Sections 74-2-1 to -22, including specifically, Subsections 74-2-5(A), (B) and (C).
[20.2.65.3 NMAC - N, 12/31/03]

20.2.65.4 DURATION: Permanent.
[20.2.65.4 NMAC - N, 12/31/03]

20.2.65.5 EFFECTIVE DATE: December 31, 2003, except where a later date is cited at the end of a section.
[20.2.65.5 NMAC - N, 12/31/03]
[The latest effective date of any section in this part is December 31, 2003.]

20.2.65.6 OBJECTIVE: The objective of this part is to manage the air quality impacts of smoke from all sources of fire. This part does not preempt any more stringent controls on burning provided in:

A. any other New Mexico statute or regulation or any local law, ordinance or regulation; or

B. any lawfully issued restriction on burning such as may be issued for wildfire prevention.

[20.2.65.6 NMAC - N, 12/31/03]

20.2.65.7 DEFINITIONS: In addition to the terms defined in 20.2.2 NMAC (definitions), as used in this part:

A. "alternatives to burning" means treatments employing manual, mechanical, chemical, or biological methods to manage vegetation or fuel loads or land management practices that treat vegetation (fuel) without using fire; a treatment or practice may only be considered an alternative if it has successfully been used to take the place of fire for at least three years;

B. "burn project" means, in prescribed burning or in wildland fire use, a burn on an area that is contiguous and is being treated or managed for the same land management objectives;

C. "burner" means that person who is responsible for a prescribed fire project that is regulated under this part;

D. "class I area" means all international parks, national wilderness areas that exceed 5,000 acres in area, national memorial parks that exceed 5,000 acres in area, and national park areas that exceed 6,000 acres in area and that existed on the date of enactment of the Clean Air Act amendments of 1977; the extent of the areas designated as class I shall conform to any changes in the boundaries of such areas that occurred subsequent to the date of the enactment of the Clean Air Act amendments of 1977 or 1990;

E. "emission reduction technique" means a strategy for controlling smoke from prescribed fires that minimizes the amount of smoke output per unit of area treated or other objective unit of accomplishment; such strategy shall be used in conjunction with fire and shall not be a replacement for fire; for the purposes of this regulation, a technique used within three years of a burning operation is an emission reduction technique; if that same technique replaces fire for three years or more, the technique is considered an alternative to burning;

F. "non-attainment area" means an area which has been designated under section 107 of the federal Clean Air Act as nonattainment for one or more of the national ambient air quality standards by the federal environmental protection agency;

G. "part" means an air quality control regulation under Title 20, Chapter 2 of the New Mexico administrative code, unless otherwise noted, as adopted or amended by the board;

H. "pile" means vegetative materials that have been relocated either by hand or machinery and heaped together;

I. "pile volume" means a pile's gross volume, including the air space between solid constituents, as calculated from the pile's overall dimensions and shape;

J. "population" means the total of individuals occupying an area; locations for individuals within an area include, but are not limited to, open campgrounds, single family dwellings, hospitals, schools in use, villages, and open places of employment;

K. "prescribed fire" means any fire ignited by any person to meet specific land management objectives; for the purposes of this part, wildland fire use is considered prescribed fire; any fire ignited in an air curtain incinerator is not "prescribed fire" for purposes of this part;

L. "public notification" means any method that communicates burn information to the burners, air regulators, the local fire authority, and to the general public;

M. "SMP I" means burn projects that emit less than one ton per day of PM-10 emissions or burn less than 5,000 cubic feet pile volume of vegetative material per day;

N. "SMP II" means burn projects that emit greater than or equal to one ton of PM-10 emissions per day or greater than or equal to 5,000 cubic feet pile volume of vegetative material per day;

O. **"vegetative material"** means untreated wood and untreated wood products, including tree stumps (whole or chipped), trees, tree limbs (whole or chipped), bark, sawdust, chips, scraps, slabs, millings, shavings, grass, grass clippings, leaves, conifer needles, bushes, shrubs, clippings from bushes and shrubs, and agricultural plant residue;

P. **"ventilation category"** means that adjective describing the ventilation index conditions in terms of excellent, very good, good, fair, and poor;

Q. **"ventilation index"** means an index that describes the potential for smoke or other pollutants to ventilate away from their source;

R. **"wildfire"** means any unplanned, non-structural fire that occurs on wildland;

S. **"wildland"** means an area in which development is essentially non-existent, except for roads, railroads, power lines, and similar transportation facilities; structures if any are widely scattered;

T. **"wildland fire use"** means the management of wildfire, which is naturally ignited (such as by lightning or volcanic eruption) fire, to accomplish specific pre-stated resource objectives in predefined geographic areas, also known as fire use, wildfire use, prescribed natural fire, and fire for resource benefit.

[20.2.65.7 NMAC - N, 12/31/03]

20.2.65.8 to 20.2.65.99 [RESERVED]

20.2.65.100 APPLICABILITY:

A. This part applies to all users of prescribed fire that:

(1) exceeds ten acres in area or 1,000 cubic feet of pile volume per day of vegetative material; or

(2) exceeds the daily burn area or pile volume thresholds specified in Subsection A of 20.2.60.111 NMAC (open burning).

B. This part also applies to burn projects otherwise subject to 20.2.60 NMAC (open burning) that users of prescribed fire voluntary choose to register with the department under Subsection C of 20.2.65.102 NMAC or Subsection G of 20.2.65.103 NMAC.

C. In addition, portions of this part also apply to the land manager or owner of property on which a wildfire occurs.

[20.2.65.100 NMAC - N, 12/31/03]

20.2.65.101 MATERIALS ALLOWED TO BE BURNED: Only vegetative material shall be burned, with the following exceptions.

A. Auxiliary fuel or incendiary devices may be used to ignite the burning authorized by this section, provided that:

(1) no oil heavier than no. 2 diesel shall be used; and

(2) no more than the minimum amount of auxiliary fuel necessary to complete the burn shall be used.

B. Polyethylene sheeting may be burned with the vegetative materials, provided that:

(1) the sheeting has been covering piled vegetative material for at least one month prior to burning;

(2) the amount of sheeting burned is no more than the minimum necessary to cover the pile;

(3) removal of the sheeting before burning is impractical; and

(4) the burner is able to provide evidence, such as purchase records or package labeling, that the sheeting is polyethylene and not some other form of plastic.

[20.2.65.101 NMAC - N, 12/31/03]

20.2.65.102 REQUIREMENTS FOR SMP I: For any burn project of less than one ton of PM-10 emissions per day or less than 5,000 cubic feet pile volume per day, all of the following requirements shall apply.

A. The burner shall burn only under appropriate dispersion conditions. In order to accomplish this objective, the burner shall follow one of the two options below.

(1) The burner shall:

(a) ignite burns only during the hours from one hour after sunrise until one hour before sunset; the burner may apply for a waiver of this requirement in writing from the department no later than two weeks prior to the planned burn project; the burner shall document the reasons for waiver application on the appropriate form provided by the department; the department shall notify the burner no later than one week prior to the planned burn project of whether the waiver is granted or denied; the department shall consider such waiver requests on a case-by-case basis; and

(b) conduct burn projects at least 300 feet from any occupied dwelling, workplace, or place where people congregate, which is on property owned by, or under possessory control of, another person; the burner may apply for a waiver of this requirement in writing from the department no later than two weeks prior to the planned burn project; the burner shall document the reasons for waiver application on the appropriate form provided by the department; the department shall notify the burner no later than one week prior to the planned burn project of whether the waiver is granted or denied; the department shall consider such waiver requests on a case-by-case basis; or

(2) the burner shall:

(a) only burn during times when the ventilation category is good or better; the burner may apply for a waiver of this requirement in writing from the department no later than 10:00 a.m. one business day prior to the planned burn project; the burner shall document the reasons for waiver application on the appropriate form provided by the department; the department shall notify the burner no later than 3:00 p.m. one business day prior to the planned burn project of whether the waiver is granted or denied; the department shall consider such waiver requests on a case-by-case basis; and

(b) conduct visual monitoring and shall document the results; the burner shall maintain records of those results for a period of

one year; for any burn project planned to be conducted within a one mile radius of a population, the department may require that the burner notify the department no later than two business days prior to the planned burn project so that the department may determine whether to conduct instrument monitoring in addition to visual monitoring conducted by the burner; the need for instrument monitoring shall be determined by the department on a case-by-case basis.

B. The burner shall notify the local fire authority prior to igniting a burn.

C. The burner shall register the burn project with the department on a registration form provided by the department no later than 10:00 a.m. one business day prior to the planned ignition of the burn project. The department shall provide the burner with a registration number for the burn project. Prior to igniting the burn project, if the burner has not received the registration number, the burner shall make a good faith effort to contact the department to obtain the registration number. For burn projects longer than seven days, the burner shall notify the department separately for each seven days of burning to be conducted under that burn project registration. The burner shall not burn more area or volume than the burner has included in the notification or registration.

D. The burner shall submit a completed burn project tracking form to the department on a tracking form provided by the department no later than two weeks following completion of the burn project.

E. For burn projects conducted within a one-mile radius of a population, the following requirements shall apply in addition to all other requirements in this section (20.2.65.102 NMAC):

(1) the burner shall conduct visual monitoring and document the results; and

(2) the burner shall conduct public notification of populations within a one-mile radius of the burn project no later than two days prior to, and no earlier than thirty days in advance of, igniting a burn project.

F. The burner shall maintain all records of actions performed pursuant to the requirements of this section for a period of at least one year.

[20.2.65.102 NMAC - N, 12/31/03]

20.2.65.103 REQUIREMENTS FOR SMP II: For any burn project with emissions greater than or equal to one ton of PM-10 emissions per day or greater than or equal to 5,000 cubic feet pile volume per day, all of the following requirements shall apply.

A. The burner shall review smoke management educational material supplied by the department or complete an approved smoke management training program prior to initiating burning.

B. The burner shall consider alternatives to burning and shall document this consideration and rationale for not using alternatives on the form provided by the department.

C. The burner shall implement at least one emission reduction technique and shall document this implementation on the forms provided by the department. The burner may apply for a waiver of this requirement in writing from the department no later than two weeks prior to the planned burn project. The burner shall document the reasons for waiver application on the appropriate form provided by the department. The department shall notify the burner no later than 10:00 a.m. one week prior to the planned burn project of whether the waiver is granted or denied. The department shall consider such waiver requests on a case-by-case basis, taking into consideration the criteria of efficiency, economics, law, emission reduction opportunities, land management objectives, and reduction of visibility impact.

D. The burner shall only burn during times when the ventilation category is "good" or better. The burner may apply for a waiver of this requirement in writing from the department no later than 10:00 a.m. one business day prior to the planned burn. The burner shall document the reasons for waiver application on the appropriate form provided by the department. The department shall notify the burner no later than 3:00 p.m. one business day prior to the planned burn of whether the waiver is granted or denied. The department shall consider such waiver requests on a case-by-case basis.

E. The burner shall conduct visual monitoring and shall document the results.

F. The burner shall notify the local fire authority prior to igniting a burn.

G. The burner shall register a burn project with the department on forms provided by the department no later than two weeks prior to planned ignition of the burn.

H. The burner shall notify the department of the intent to burn on a specific date no later than 10:00 a.m. one business day prior to the planned burn project. The notification may be made for up to a seven-day advance period. The department shall notify the burner of the receipt of the notification by 11:00 a.m. If the department has not notified the burner by 11:00 a.m., the burner shall make a good faith effort to contact the department to verify that the department received the notification prior to igniting the burn. The burner shall not burn more area or volume than the burner has included in the notification. The department shall notify the burner no later than 3:00 p.m. one business day prior to the burn project if a modification of the burn is required.

I. The burner shall complete and submit to the department on a form provided by the department a fire activity tracking form no later than two weeks following the end of the burn project.

J. For burns planned to be conducted with the wind blowing toward a population, or within a fifteen mile radius of a population if wind direction is not considered, the following requirements shall apply in addition to all other requirements in this section (20.2.65.103 NMAC).

(1) The department may require that the burner notify the department no later than two business days prior to the planned burn so that the department may determine whether to conduct instrument monitoring in addition to visual monitoring conducted by the burner. The need for instrument monitoring shall be determined by the department on a case-by-case basis; and

(2) The burner shall conduct public notification no later than two days prior to, and no sooner than thirty days in advance of, igniting a burn.

K. The burner shall maintain all records of actions performed pursuant to the requirements of this section for a period of at least one year.

[20.2.65.103 NMAC - N, 12/31/03]

20.2.65.104 WILDLAND FIRE USE: For wildland fire use exceeding ten acres in area, the following requirements shall apply.

A. The burner shall register a burn project with the department on forms provided by the department no later than one business day following the decision to manage a wildland fire use burn. The burner shall notify the department daily by 10:00 a.m. of the status of the burn.

B. The burner shall notify the appropriate authorities of the decision to manage a wildland fire use burn. For burns within a fifteen mile radius of a population, the burner shall conduct public notification no later than one calendar day of the decision to manage the burn as a wildland fire use.

C. The burner shall conduct visual monitoring and shall document the results.

D. The burner shall complete and submit to the department a fire activity tracking form no later than two weeks following the end of the burn project.

E. The burner shall maintain all records of actions performed pursuant to the requirements of this section for a period of at least one year.

[20.2.65.104 NMAC - N, 12/31/03]

20.2.65.105 WILDFIRE UNDER SUPPRESSION: The land manager or owner of property on which a wildfire exceeding 100 acres in area occurs shall complete and submit to the department a fire activity tracking form no later than six weeks or by November 1 of that year, whichever is earlier, following the cessation of fire fighting activities on the wildfire.

[20.2.65.105 NMAC - N, 12/31/03]

HISTORY OF 20.2.65 NMAC:

Pre-NMAC History: None.

History of Repealed Material: [RESERVED]

Other History: [RESERVED]

Lucas Middleton

From: Lucas Middleton <lucas.middleton@soudermiller.com>
Sent: Wednesday, January 07, 2015 11:16 AM
To: 'Raymond, Gerry, DCA'
Subject: Historical Information for Wilson PLaya and Red Bluff Draw
Attachments: RED BLUFF .jpg; Red Bluff TR.jpg

Mr. Raymond,
I am doing a follow up on the request for historic properties on the Wilson Playa project from in November (HPD Log No. 100346).

Also I have another project dealing with a prescribe fire in Red Bluff Draw that is in the feasibility phase but if all is a go we are planning on conducting the fire in Early March 2015 due to time constrains. I would like to know that the area we may burn will have no impact on historic properties.
The Area that will be looked at is:
T25 S R 28 E – Section; 29,30,31,32,33,34,35,36
T25 S R 27 E- Section 24,25
T26 S R 28 E- Section; 1,2,3
This is the area including the 0.5 mile buffer. The fire is smaller than the buffer shown on the map.

I have attached two maps with location information and fire information.

Thank you for your time

Lucas Middleton
Souder Miller & Associates
C :575-689-5351
Lucas.middleton@soudermiller.com

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info@adarchsolutions.com

January 26, 2015

Souder Miller and Associates (SMA)
C/O Lucas Middleton
401 North Seventeenth Street, Suite 4
Las Cruces, New Mexico 88005
(575) 647-0799

RE: **Cultural Resource Survey Records Check for the Red Bluffs Region Near Malaga, New Mexico**

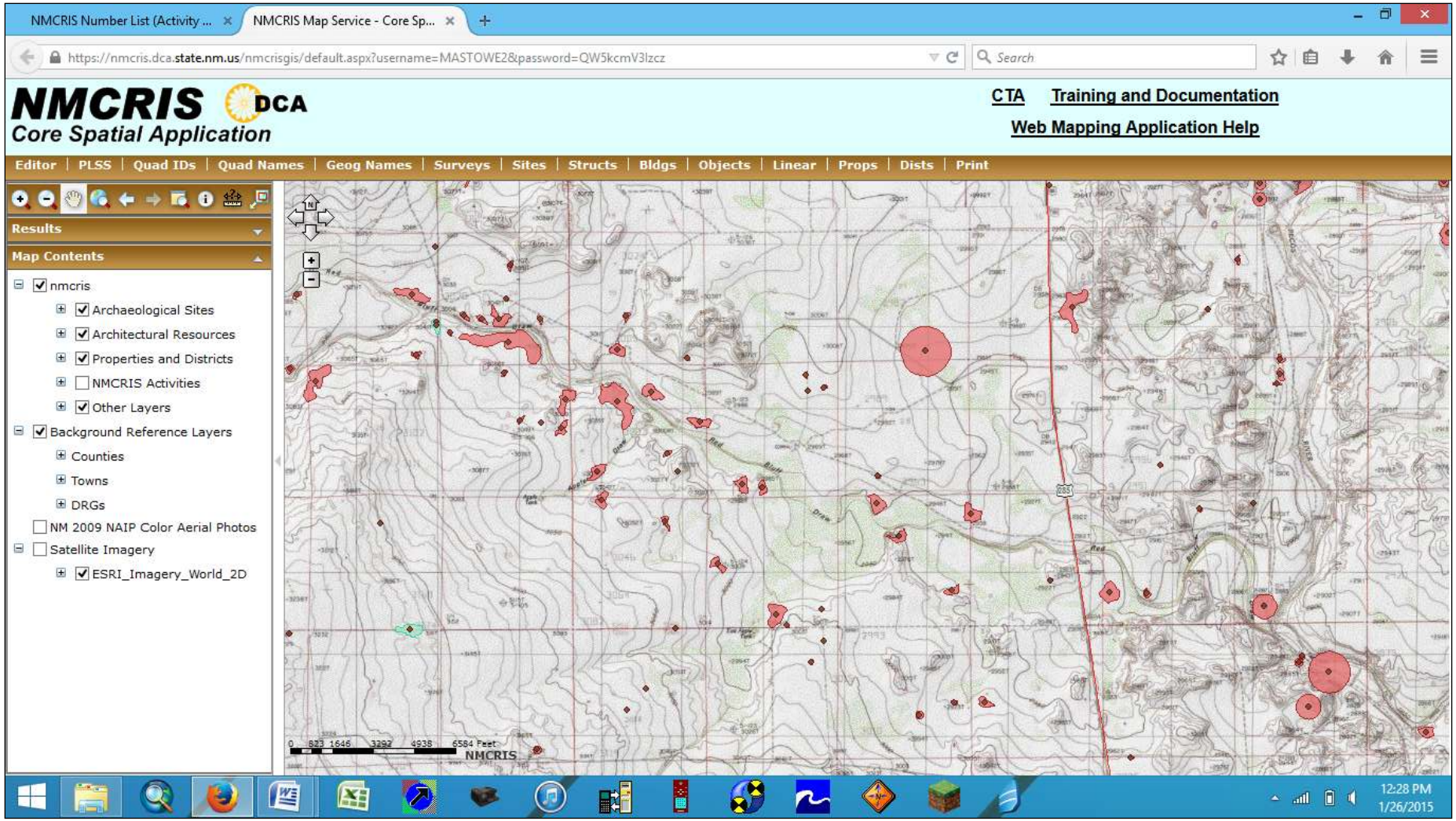
Lucas,

Please find enclosed the Records check for cultural properties located near the Red Bluffs Region near Malaga, New Mexico. (See attached)

Don't hesitate to call me with any questions or concerns.

Sincerely,

Michael A. Stowe, M.A., RPA
Principal Investigator


NMCRIS Number List (Activity ...
NMCRIS Map Service - Core Sp...
https://nmcris.dca.state.nm.us/nmcrisgis/default.aspx?username=MASTOWE2&password=QW5kcmV3Izcz
Search
NMCRIS
DCA
Core Spatial Application
CTA
Training and Documentation
Web Mapping Application Help
Editor | PLSS | Quad IDs | Quad Names | Geog Names | Surveys | Sites | Structs | Bldgs | Objects | Linear | Props | Dists | Print
Results
Map Contents
nmcris
Archaeological Sites
Architectural Resources
Properties and Districts
NMCRIS Activities
Other Layers
Background Reference Layers
Counties
Towns
DRGs
NM 2009 NAIP Color Aerial Photos
Satellite Imagery
ESRI_Imagery_World_2D
0 823 1646 3292 4938 6584 Feet
NMCRIS
12:28 PM
1/26/2015

Lucas Middleton

From: Watson, Mark L., DGF <mark.watson@state.nm.us>
Sent: Tuesday, January 13, 2015 3:00 PM
To: Lucas Middleton
Cc: Hayes, Chuck L., DGF; Watson, Mark L., DGF; Wunder, Matthew, DGF; Darr, Margaret, DGF
Subject: RE: Red Bluff Draw Prescribed Fire
Attachments: Eddy CO NMWOC Oct 2014.xls

Lucas, thanks for the additional information.

Attached for your consideration is the New Mexico Wildlife of Concern list for Eddy County.

The Migratory Bird Treaty Act protects migratory birds from take.

Prescribed burning during the nesting periods for migratory birds, generally considered to be from April 15 to September 15, could potentially cause mortality and take of nesting birds.

Based on the additional information that you have provided by email and phone conversation, the Department supports implementing the prescribed fire to volatize the spilled hydrocarbons in early March to avoid mortality of migratory birds that may nest in the affected shrubs and grasses. Burning during the period of April 15 to September 15 should be avoided.

Thanks for consulting with us.

Mark L. Watson
Terrestrial Habitat Specialist
Division of Ecological and Environmental Planning
NM Department of Game and Fish
P.O. Box 25112
Santa Fe, NM 87504
1 Wildlife Way
Santa Fe, NM 87507
(505) 476-8115
FAX: (505) 476-8128

For NM wildlife info, visit Biota Information System of New Mexico (BISON-M):
Species Accounts, Searches and County Lists (use the "Database Query" option): http://www.bison-m.org/
Habitat Handbook Project Guidelines:
http://www.wildlife.state.nm.us/conservation/habitat_handbook/index.htm
New Mexico Wildlife of Concern by Counties List:
http://www.wildlife.state.nm.us/conservation/share_with_wildlife/documents/speciesofconcern.pdf

CONSERVING NEW MEXICO'S WILDLIFE FOR FUTURE GENERATIONS

From: Lucas Middleton [mailto:lucas.middleton@soudermiller.com]
Sent: Tuesday, January 13, 2015 9:35 AM
To: Watson, Mark L., DGF
Subject: RE: Red Bluff Draw Prescribed Fire

Mark,
Yes I have attached these items. Yes we are going to burn the vegetation to remove paraffin wax.

From: Watson, Mark L., DGF [mailto:mark.watson@state.nm.us]
Sent: Monday, January 12, 2015 4:28 PM
To: Lucas Middleton
Subject: RE: Red Bluff Draw Prescribed Fire

Lucas, do you have any photos of the project area vegetation and topography?

Is this project essentially to burn vegetation and soils with oil coating?

Mark L. Watson
Terrestrial Habitat Specialist
Division of Ecological and Environmental Planning
NM Department of Game and Fish
P.O. Box 25112
Santa Fe, NM 87504
1 Wildlife Way
Santa Fe, NM 87507
(505) 476-8115
FAX: (505) 476-8128

For NM wildlife info, visit Biota Information System of New Mexico (BISON-M):
Species Accounts, Searches and County Lists (use the "Database Query" option): http://www.bison-m.org/
Habitat Handbook Project Guidelines:
http://www.wildlife.state.nm.us/conservation/habitat_handbook/index.htm
New Mexico Wildlife of Concern by Counties List:
http://www.wildlife.state.nm.us/conservation/share_with_wildlife/documents/speciesofconcern.pdf

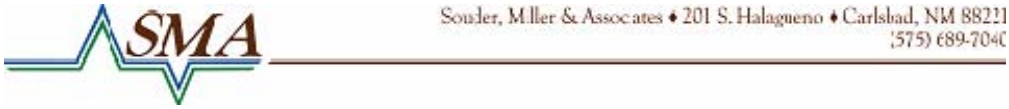
CONSERVING NEW MEXICO'S WILDLIFE FOR FUTURE GENERATIONS

From: Lucas Middleton [mailto:lucas.middleton@soudermiller.com]
Sent: Monday, January 12, 2015 2:03 PM
To: Watson, Mark L., DGF
Subject: Red Bluff Draw Prescribed Fire

Hello Mark,

Souder Miller and Associates is doing a feasibility study on a Prescribed burn in Southern Eddy County. I have attached maps with the location of the fire and details on the fire. If this plan is approved the activity will occur in Early March of 2015. If you need additional information I would be happy to supply you with it.

Lucas Middleton
Souder Miller & Associates
C :575-689-5351
Lucas.middleton@soudermiller.com



NEW MEXICO WILDLIFE OF CONCERN
EDDY COUNTY

For complete up-dated information on federal-listed species, including plants, see the US Fish & Wildlife Service Planning website at http://ecos.fws.gov/ipac/. For information on state-listed plants, contact the NM Energy, Minerals and Natural Resources Department, Division of Forestry, or go to http://nmrareplants.unm.edu/. If your project is on Bureau of Land Management, contact the local BLM Field Office for information on species of particular concern. If your project is on a National Forest, contact the Forest Supervisor's office for species information. E = Endangered; T = Threatened; s = sensitive; C = Candidate; Exp = Experimental non-essential population; P = Proposed

Common Name	Scientific Name	NMGF	US FWS	critical habitat
Mexican Tetra	Astyanax mexicanus	T		
Rio Grande Chub	Gila pandora	s		
Rio Grande Shiner	Notropis jemezanus	s		
Pecos Bluntnose Shiner	Notropis simus pecosensis	E	T	Y
Blue Sucker	Cycleptus elongatus	E		
Gray Redhorse	Moxostoma congestum	E		
Headwater Catfish	Ictalurus lupus	s		
Pecos Pupfish	Cyprinodon pecosensis	T		
Pecos Gambusia	Gambusia nobilis	E	E	
Greenthroat Darter	Etheostoma lepidum	T		
Bigscale Logperch	Percina macrolepida (Native pop.)	T		
Western River Cooter	Pseudemys gorzugi	T		
Sand Dune Lizard	Sceloporus arenicolus	E		
Gray-banded Kingsnake	Lampropeltis alterna	E		
Blotched Water Snake	Nerodia erythrogaster transversa	E		
Arid Land Ribbon Snake	Thamnophis proximus diabolicus	T		
Mottled Rock Rattlesnake	Crotalus lepidus lepidus	T		
Brown Pelican	Pelecanus occidentalis	E		
Neotropic Cormorant	Phalacrocorax brasilianus	T		
Bald Eagle	Haliaeetus leucocephalus	T		
Northern Goshawk	Accipiter gentilis	s		
Common Black-Hawk	Buteogallus anthracinus	T		
Aplomado Falcon	Falco femoralis	E	Exp	
Peregrine Falcon	Falco peregrinus	T		
Lesser Prairie-Chicken	Tympanuchus pallidicinctus	s	T	
Piping Plover	Charadrius melodus circumcinctus	T	T	
Mountain Plover	Charadrius montanus	s		
Least Tern	Sternula antillarum	E	E	
Common Ground-Dove	Columbina passerina	E		
Yellow-billed Cuckoo	Coccyzus americanus	s		
Mexican Spotted Owl	Strix occidentalis lucida	s	T	Y
Broad-billed Hummingbird	Cynanthus latirostris	T		
Lucifer Hummingbird	Calothorax lucifer	T		
Northern Beardless-Tyrannulet	Camptostoma imberbe	E		
Southwestern Willow Flycatcher	Empidonax traillii extimus	E	E	Y
Thick-billed Kingbird	Tyrannus crassirostris	E		
Loggerhead Shrike	Lanius ludovicianus	s		

Bell's Vireo	Vireo bellii	T	
Gray Vireo	Vireo vicinior	T	
Baird's Sparrow	Ammodramus bairdii	T	
Sprague's Pipit	Anthus spragueii		C
Varied Bunting	Passerina versicolor	T	
Western Small-footed Myotis Bat	Myotis ciliolabrum melanorhinus	s	
Yuma Myotis Bat	Myotis yumanensis yumanensis	s	
Cave Myotis Bat	Myotis velifer	s	
Long-legged Myotis Bat	Myotis volans interior	s	
Fringed Myotis Bat	Myotis thysanodes thysanodes	s	
Eastern Red Bat	Lasiurus borealis	s	
Pale Townsend's Big-eared Bat	Corynorhinus townsendii pallescens	s	
Big Free-tailed Bat	Nyctinomops macrotis	s	
Black-tailed Prairie Dog	Cynomys ludovicianus ludovicianus	s	
Guadalupe Pocket Gopher	Thomomys bottae guadalupensis	s	
Nelson's Pocket Mouse	Chaetodipus nelsoni canescens	s	
Pecos River Muskrat	Ondatra zibethicus ripensis	s	
Swift Fox	Vulpes velox velox	s	
Ringtail	Bassariscus astutus	s	
Western Spotted Skunk	Spilogale gracilis	s	
Common Hog-nosed Skunk	Conepatus leuconotus	s	
Texas Hornshell	Popenaias popeii	E	C
Pecos Springsnail	Pyrgulopsis pecosensis	T	
Ovate Vertigo Snail	Vertigo ovata	T	

Lucas Middleton

From: Cunningham, David, EMNRD <david.cunningham@state.nm.us>
Sent: Monday, January 12, 2015 2:30 PM
To: Lucas Middleton
Subject: RE: Red Bluff Draw Prescribed Fire

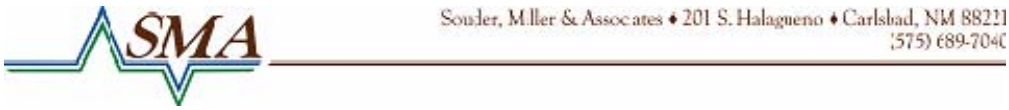
Thanks Lucas for the info. Just keep me in the loop and let me know if and when this is going to happen.
Thanks again.

David Cunningham
Fire Management Officer
NM State Forestry/Capitan District
Capitan, NM 88316
575-354-2231 Office
575-937-0716 Cell
575-354-3052 Fax

From: Lucas Middleton [mailto:lucas.middleton@soudermiller.com]
Sent: Monday, January 12, 2015 2:08 PM
To: Cunningham, David, EMNRD
Subject: Red Bluff Draw Prescribed Fire

Hello David Cunningham,
Souder Miller and Associates is doing a feasibility study on a Prescribed burn in Southern Eddy County. I have attached maps with the location of the fire and details on the fire. If this plan is approved the activity will occur in Early March of 2015. If you need additional information I would be happy to supply you with it.

Lucas Middleton
Souder Miller & Associates
C :575-689-5351
Lucas.middleton@soudermiller.com



Souder, Miller & Associates ♦ 201 S. Halagueno ♦ Carlsbad, NM 88221
(575) 689-7040

Date

Name
Title
Organization
Address
City, State, Zip Code

RE: NOTICE OF PRESCRIBED FIRE IN RED BLUFF DRAW

Dear Mr./Ms. Last Name:

Souder, Miller and Associates hereby announces its intent to conduct a prescribed fire in Red Bluff Draw. This project is performed on behalf of Eddy County. The location of the area is Township 25 South, Range 28 East, Section 29-35, 9.5 miles South of Malaga, NM in Eddy County. SMA understands that this area includes land owned by you. The expected date of the burn is early March, 2015 and will be executed in conjunction with the U.S. Bureau of Land Management Wildfire Division and the Eddy County Emergency Management Division. The project will be performed in accordance with the requirements of:

In-situ Burning (A Decision-maker's Guide to In-situ Burning) - America Petroleum Institute

Nationwide Permit 20 – U.S. Army Corp of Engineers

Smoke Management Plan 2- Air Quality Bureau, New Mexico Environment Department

If you have any questions, comments or concerns feel free to contact Austin Weyant at (575) 689-7040 or austin.weyant@soudermiller.com.

Thank you for your time.

Sincerely,

SOUDER, MILLER & ASSOCIATES

Austin Weyant
Project Scientist

Souder, Miller & Associates ♦ 201 S. Halagueno ♦ Carlsbad, NM 88221
(575) 689-7040

CM:

CONSENT FOR ACCESS TO PROPERTY
FOR PRESCRIBED FIRE IN RED BLUFF DRAW

Project: Prescribed Fire in Red Bluff Draw Project #5B23672

Project location: Section 29-35, Township 25 South, Range 28 East NMPM
Eddy County, New Mexico

Name of Property Owner: ----------

Address of Property Owner: -----

Telephone Number: ------

Location of the property on which access is sought: -------

I hereby consent to allow the employees and contractors of Souder, Miller & Associates (SMA) and Eddy County to enter and have continued access to the property located at the above address ("the property") for 120 days, commencing February 1, 2015. I consent to allow the employees and contractors of SMA and Eddy County to have property access for the following purposes:

1. Preliminary sampling of vegetation and/or soils as necessary;
2. Fire personnel to access land for fire activities;
3. Fire trucks and equipment as required;
4. Follow-up monitoring and sampling as needed.

I understand that SMA, Eddy County employees and contractors will determine exactly where samples will be taken, what the boundaries of the activities will be, and when the activities will commence, after consulting with me. In order to conduct these activities, I understand that fire equipment and related vehicles will be on my property for the period of the preliminary sampling, the mitigation by prescribed fire, and follow-up as necessary. I further understand that SMA has prepared this land access agreement and notification on behalf of Eddy County Emergency Services as required by the New Mexico Energy, Minerals, and Natural Resources Department, New Mexico Oil Conservation Division.

Further, SMA is providing facilitation of this mitigation effort on behalf of Eddy County Emergency Management. I understand that by granting this consent, I am in no way responsible for the actions or the consequences of the persons performing the activities listed above. I have also been told that the Project Manager for these activities is Austin Weyant whom I may contact at (575) 689-7040 if I have any questions or concerns about this Consent for Access or any work performed as a result of it.

In return for this permission, SMA and Eddy County agrees to the following:

A. To consult with me about the location of the prescribed fire;

B. To notify me at the above address and telephone number three days prior to entering the property for any reason;

C. To exercise reasonable professional care to ensure that the property's improvements and structures are not damaged during the prescribed fire;

D. To ensure that vehicles and equipment are promptly removed from the property at the conclusion of the work.

Property Owner or Authorized Representative	Souder, Miller and Associates
By:_____	By: _____
Date: _____	Date: _____

Type	Company	Contact
Land Owner		Joy and James Cooksey
Land Owner		Myrtle and David Fritschy
Land Owner	Devon Energy	Richard Torres
Land Owner	New Mexico State Land Office	IAN DOLLY
Land Lease	HAYHURST ROOK FAMILY EDUCATIONAL TRUST	
Land Lease	HENRY E. MCDONALD	
Land Lease	MARTHA SKEEN	
Land Lease	Joy E. Cooksey	Joy and James Cooksey
Oil and Gas Lease	Chevron	
Oil and Gas Lease	COG	
Oil and Gas Lease	Legend Natural Gas	
Oil and Gas Lease	OXY USA INC.	
Oil and Gas Lease	The Allar Company	
Oil and Gas Lease	YPC	Leory Richards

Address	City	State	Zip Code	Phone
PO BOX 45	Carlsbad	NM	88220	(575) 706-3712
603 Elora DR.	Carlsbad	NM	88220	
6488 7 Rivers Highway	Artesia	NM	88210	
602 N. Canal, Suite B	Carlsbad	NM	88220	(575) 885-1323
518 E Orchard Ln	Carlsbad	NM	88220	(575) 887-6313
P.O. BOX 597	Loving	NM	88256	(575) 745-2161
P. O. BOX 696	Loving	NM	88256	(505) 236-6148
PO BOX 45	Carlsbad	NM	88220	(575) 706-3712
500 West Taylor Street	Hobbs	NM	88240	(575) 393-4106
15021 Katy Freeway Suite 200	Houston	TX	77094	(281) 664-5900
420 Goins Ln	Hobbs	NM	88240	(575) 393-7810
735 Elm Street	Graham	TX	76450	(940) 549-0077
105 S 4th St	Artesia	NM	88210	(575) 748-4311

APPENDIX D
PHOTO GALLERY

Paraffin wax on shrubs
taken on 12/17/14

Paraffin wax close to the water taken on 12/17/14