

Cimarron Canyon Natural Resources Restoration Plan for the Fronk Oil Spill Public Review Draft



Prepared by:

New Mexico Office of Natural Resources Trustee

121 Tijeras Avenue, NE Suite 1000
Albuquerque, NM 87102

With assistance from:

Abt Associates

2755 Canyon Boulevard, Suite 3-101
Boulder, CO 80302

February 17, 2021

Contents

List of Figures	ii
List of Tables	iii
List of Acronyms and Abbreviations.....	iv
1. Introduction	1
1.1 Purpose and Need	1
1.1.1 Summary of Natural Resource Injury.....	1
1.1.2 Need for Restoration under OPA.....	3
1.1.3 Purpose of this Draft RP.....	3
1.2 Authority	3
1.3 Coordination with Responsible Party	4
1.4 Settlement of Natural Resource Claims.....	4
1.5 Public Participation.....	4
1.6 Administrative Record	5
1.7 Organization of this Document.....	5
2. Natural Resource Injuries and Lost Services Resulting from the Fronk Oil Tanker Spill.....	5
2.1 Injured Habitat and Associated Biological Natural Resources.....	5
2.2 Recreational Use.....	6
3. OPA Evaluation Criteria and Summary of the Alternatives	6
3.1 OPA Evaluation Criteria.....	6
3.2 Trustee's Goals and Objectives.....	8
3.3 Selection of Restoration Alternatives to Evaluate in this Draft RP.....	8
3.4 No-Action/Natural Recovery Alternative.....	10
3.5 Alternative A: Restoration of Overwintering Trout Habitat in the Cimarron River (Preferred Alternative).....	10
3.5.1 Description of Alternative.....	10
3.5.2 Evaluation.....	12
3.5.3 Performance Criteria and Monitoring	15
3.6 Alternative B: Installing a Fish Migration Barrier in Combination with Eradicating Nonnative Fish in Tolby Canyon.....	15
3.6.1 Description of Alternative.....	15
3.6.2 Evaluation.....	16
3.6.3 Performance Criteria and Monitoring	18
3.7 Summary	18
4. References.....	20

Figures

1	Location of the Fronk Oil tanker spill.....	2
2	Map of STWs in New Mexico	6
3	Photograph of closure sign posted as a result of the Fronk Oil tanker spill	7
4	Location of restoration alternatives	9
5	Location of the Alternative A and the Gravel Pit Lakes	10

Tables

1	Cost to carry out Alternative B.....	16
----------	---	-----------

Acronyms and Abbreviations

BTEX	benzene, toluene, ethylbenzene, and xylenes
CCSP	Cimarron Canyon State Park
CFR	Code of Federal Regulations
CNWMA	Colin Neblett Wildlife Management Area
CWA	Cimarron Watershed Alliance
Draft RP	Draft Restoration Plan
DVD	digital versatile disc
Fronk Oil	Fronk Oil Co., Inc.
NMAC	New Mexico Administrative Code
NMDGF	New Mexico Department of Game and Fish
NMED	New Mexico Environment Department
NMONRT	New Mexico Office of Natural Resources Trustee
NRDA	Natural Resource Damage Assessment
NWP	Nationwide Permit 27
OPA	Oil Pollution Act
PAH	polycyclic aromatic hydrocarbon
RGCT	Rio Grande Cutthroat Trout
State	State of New Mexico
STW	Special Trout Water
USACE	United States Army Corps of Engineers
USC	United States Code

1. Introduction

This Draft Restoration Plan (Draft RP), prepared by the New Mexico Office of Natural Resources Trustee (NMONRT), presents restoration alternatives intended to compensate the public for injuries to fish and other aquatic natural resources, and for the loss of services provided by those resources that occurred when gasoline and diesel fuels were spilled into the Cimarron River. The spill occurred on December 27, 2016 along a section of the Cimarron River approximately 5 miles east of Eagle Nest in Colfax County, New Mexico (Figure 1), when a Fronk Oil Co., Inc. (Fronk Oil) tanker truck was involved in an accident. This reach of the Cimarron River, located within the Colin Neblett Wildlife Management Area (CNWMA) of the Cimarron Canyon State Park (CCSP), is high-quality trout habitat that is protected with the designation of a “Special Trout Water” (STW) by the State of New Mexico (State; NMDGF, 2019).

Pending approval by the United States District Court for the District of New Mexico, NMONRT will receive \$150,000 in settlement funds for use toward natural resource restoration. The State sought these settlements because the Fronk Oil tanker truck spill had resulted in natural resource injuries and service losses under State trusteeship authority. Natural resource trustees are to use settlement money to plan and implement restoration actions that are designed to compensate the public for natural resource injuries and the loss of services provided by those resources. The State is a natural resource trustee,¹ authorized under the Oil Pollution Act (OPA) to act on behalf of the public to (1) assess the natural resource injuries resulting from an oil spill, and then (2) plan and implement restoration to address those injuries [OPA, 33 USC § 2701 *et seq.*]. The Natural Resource Damage Assessment (NRDA) regulations under OPA [15 Code of Federal Regulations (CFR) § 990] establish a process for restoration planning.

This Draft RP is being presented to the public for notice and comment. It will be available for public review for 30 days pursuant to OPA regulations.

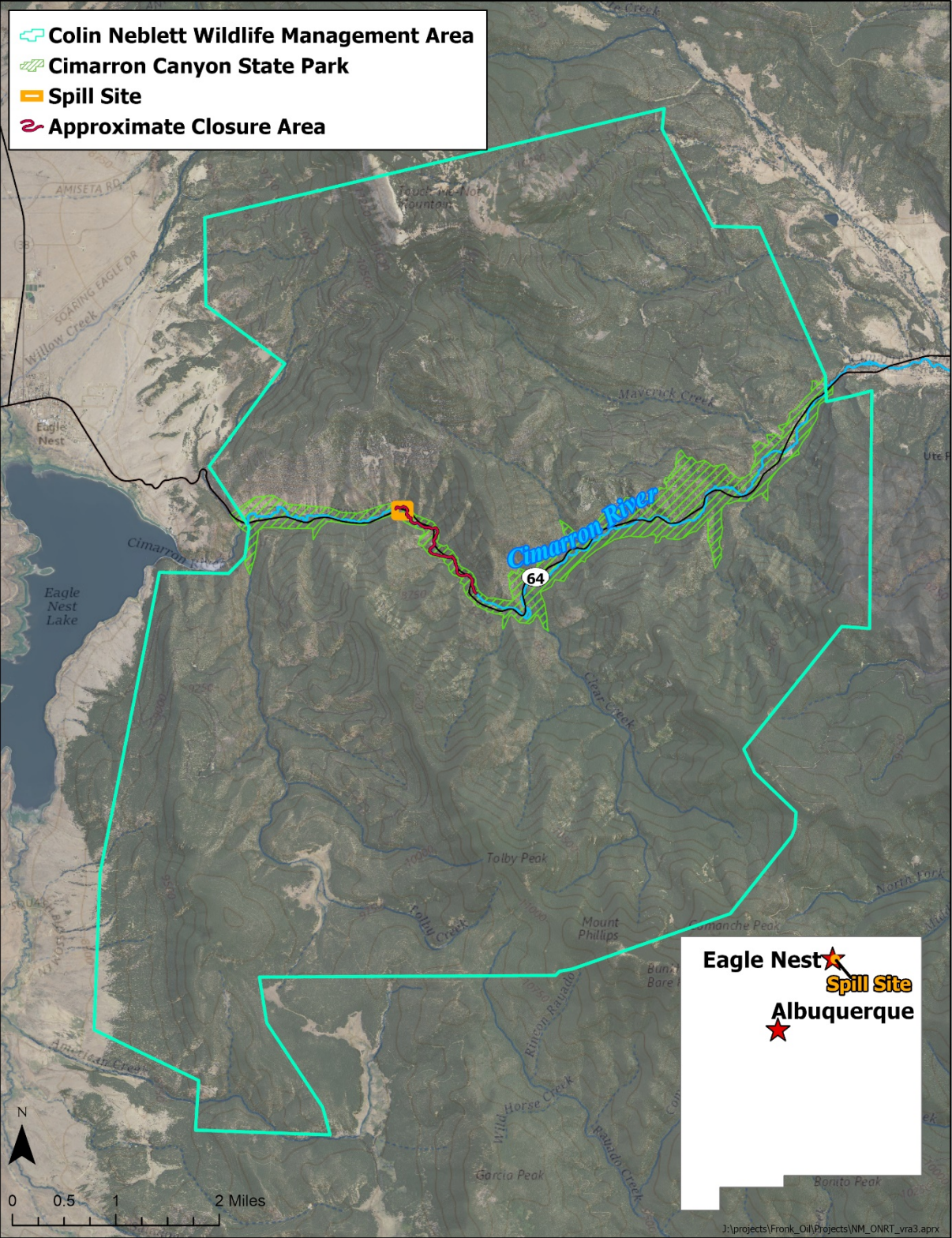
1.1 Purpose and Need

1.1.1 Summary of Natural Resource Injury

On December 27, 2016, a Fronk Oil tanker truck carrying unleaded gasoline was involved in an accident approximately 5 miles east of Eagle Nest, New Mexico (Figure 1; NMED, 2017a). The accident caused the release of approximately 1,100 gallons of unleaded gasoline that the truck was carrying, as well as the release of diesel fuel from the saddle tanks of the truck, into the Cimarron River located in the CNWMA (Figure 1; NMED, 2017a). The spill killed fish and macroinvertebrates in the river; contaminated water, soils, and sediments; and resulted in an advisory to limit the consumption of fish caught in the spill area (NMDGF, 2017a).

1. Under 33 United States Code (USC) 2796 Section 1006 of the Oil Pollution Act (OPA), the governor of each state appoints a trustee for natural resources. The New Mexico Natural Resources Trustee, acting through the New Mexico Office of Natural Resources Trustee (collectively, “NMONRT”), is the designated natural resource Trustee for the State of New Mexico. NMONRT derives additional authority from the New Mexico Natural Resources Trustee Act [NMSA 1978, §§ 75-7-1 to -45 (1993)].

Figure 1. Location of the Fronk Oil tanker spill.



The initial cleanup occurred in December 2016 in the days after the spill. However, subsequent site visits by State authorities in the following months identified persistent contamination, and additional cleanup actions were required in March 2017 to remove contaminated bank soils (D&H United Fueling Solutions, 2017). Due to the spill, a 1.5-mile stretch of the river east (downstream) of the spill location was immediately closed to public access and was not reopened until May 25, 2017 (NMDGF, 2017a; NMONRT, 2021). Even after the river was reopened in May 2017, the advisory to limit the consumption of fish caught in the spill area remained in place until December 11, 2017 (NMDGF, 2017b). Natural resource injuries and lost services are described further in Section 2, below.

1.1.2 Need for Restoration under OPA

A primary goal of OPA is to make the environment and public whole for injuries to natural resources and services provided by those resources resulting from incidents involving an oil discharge or substantial threat of an oil discharge [OPA, 33 USC § 2701 *et seq.*].

The NRDA regulations under OPA establish a process for restoration planning, including the development and evaluation of restoration alternatives, and the development of restoration plans. These OPA NRDA regulations establish criteria for identifying and evaluating restoration alternatives. Restoration activities under OPA are intended to return injured natural resources and services to their baseline conditions, and to compensate the public for interim losses from the time of the incident until the time resources and services recover to baseline conditions. To meet these goals, the restoration activities need to produce benefits that are related to or have a nexus (i.e., connection) to the natural resource injuries and service losses resulting from the spill.

1.1.3 Purpose of this Draft RP

The purpose of this Draft RP is to evaluate restoration alternatives and identify NMONRT's preferred restoration alternative to compensate the public for injuries to natural resources and services provided by those resources resulting from the oil spill. Accordingly, this Draft RP describes the different restoration alternatives considered, presents an evaluation of the alternatives based on restoration criteria in the OPA NRDA regulations, identifies NMONRT's preferred restoration alternative that it proposes to implement to compensate for injuries at the spill site, and invites public comment.

1.2 Authority

The natural resource trustee's authority to pursue NRDA and restoration claims is identified in the New Mexico Natural Resources Trustee Act [NMSA 1978, §§ 75-7-1 *et seq.*] and in the following federal statutes:

- OPA [33 USC § 2701 *et seq.*]
- The Comprehensive Environmental Response, Compensation, and Liability Act, as amended [42 USC § 9601 *et seq.*]
- The Clean Water Act [33 USC § 1251 *et seq.*].

Under these authorities, natural resource trustees are responsible for assessing natural resource damages and identifying restoration projects to compensate for natural resource injuries and service losses, and make the public whole. This Draft RP was prepared by NMONRT pursuant to

its authority and responsibilities as the natural resource Trustee, specifically under OPA [33 USC 2701 *et seq.*].

1.3 Coordination with Responsible Party

The identified responsible party for this oil spill, as defined by OPA, is Fronk Oil Co., Inc. The OPA NRDA regulations specify that natural resource trustees should invite the responsible party to participate in the damage assessment process. Accordingly, on June 22, 2020, NMONRT sent Fronk Oil Co., Inc. a written Notice of Intent to Perform Assessment and Invitation to Explore Settlement. In July 2020, counsel for Fronk Oil Co., Inc. contacted counsel for NMONRT, expressing a desire to engage in discussions. From July 2020 through October 2020, counsel for the parties and New Mexico Trustee Maggie Hart Stebbins held discussions and exchanged information until reaching the settlement described below in Section 1.4.

1.4 Settlement of Natural Resource Claims

NMONRT estimated damages resulting from the injuries to natural resources using methods outlined in the OPA Natural Resource Damage Assessment and Restoration Regulations. NMONRT filed a complaint² in the United States District Court for the District of New Mexico on December 22, 2020 to recover from Fronk Oil Co., Inc. (defendant) damages for the injury to, destruction of, or loss of natural resources, including lost ecological and recreational services, resulting from releases and the threat of releases of oil into the Cimarron River near Eagle Nest, New Mexico.

On December 22, 2020, NMONRT also lodged³ with the Court a proposed settlement agreement in the form of a Consent Decree.⁴ Under the settlement agreement, Fronk Oil Co., Inc. will pay \$150,000 to implement restoration projects that benefit fish, habitat, soil, water, and other natural resources injured, destroyed, or lost as a result of the spill.

1.5 Public Participation

The OPA regulations specify public involvement in the selection of restoration actions. Public review of the restoration actions proposed in this Draft RP is an integral part of NMONRT's restoration planning process. NMONRT seeks public comment on the projects being proposed. This Draft RP will be available at <https://onrt.env.nm.gov/fronk-oil-spill/> for public comment for 30 days from February 17, 2021 until March 19, 2021.

Comments should be received in writing and should be addressed to Ralph Gruebel, Office of New Mexico Natural Resources Trustee, at nm.onrt@state.nm.us; or at 121 Tijeras Avenue NE, Suite 1000, Albuquerque, NM 87102; and should refer to: Draft Cimarron Canyon Restoration Plan.

Comments received after 5:00 PM MST on March 19, 2021 may not be considered.

Written comments received during the public comment period will be evaluated by NMONRT and incorporated into the Final RP, as appropriate.

2. <https://onrt.env.nm.gov/wp-content/uploads/2020/12/2020-12-22-1-Fronk-Complaint.pdf>.

3. <https://onrt.env.nm.gov/wp-content/uploads/2020/12/2020-12-22-2-Notice-of-Lodging-Consent-Decree.pdf>.

4. <https://onrt.env.nm.gov/wp-content/uploads/2020/12/2020-12-22-2-1-Proposed-Consent-Decree-1.pdf>.

1.6 Administrative Record

To facilitate public participation, NMONRT has compiled an administrative record containing documents used by NMONRT in the restoration planning process. The administrative record can be viewed online at <https://onrt.env.nm.gov/fronk-oil-spill/> or provided in digital versatile disc (DVD) format upon request to the New Mexico Office of Natural Resources Trustee, 121 Tijeras Avenue NE, Suite 1000, Albuquerque, NM 87102, (505) 699-5083, or nm.onrt@state.nm.us.

1.7 Organization of this Document

The remainder of this document is organized as follows: Section 2 describes the natural resource injuries and lost services resulting from the oil spill; and Section 3 provides the OPA evaluation of the restoration alternatives and identifies NMONRT's preferred restoration alternative.

2. Natural Resource Injuries and Lost Services Resulting from the Fronk Oil Tanker Spill

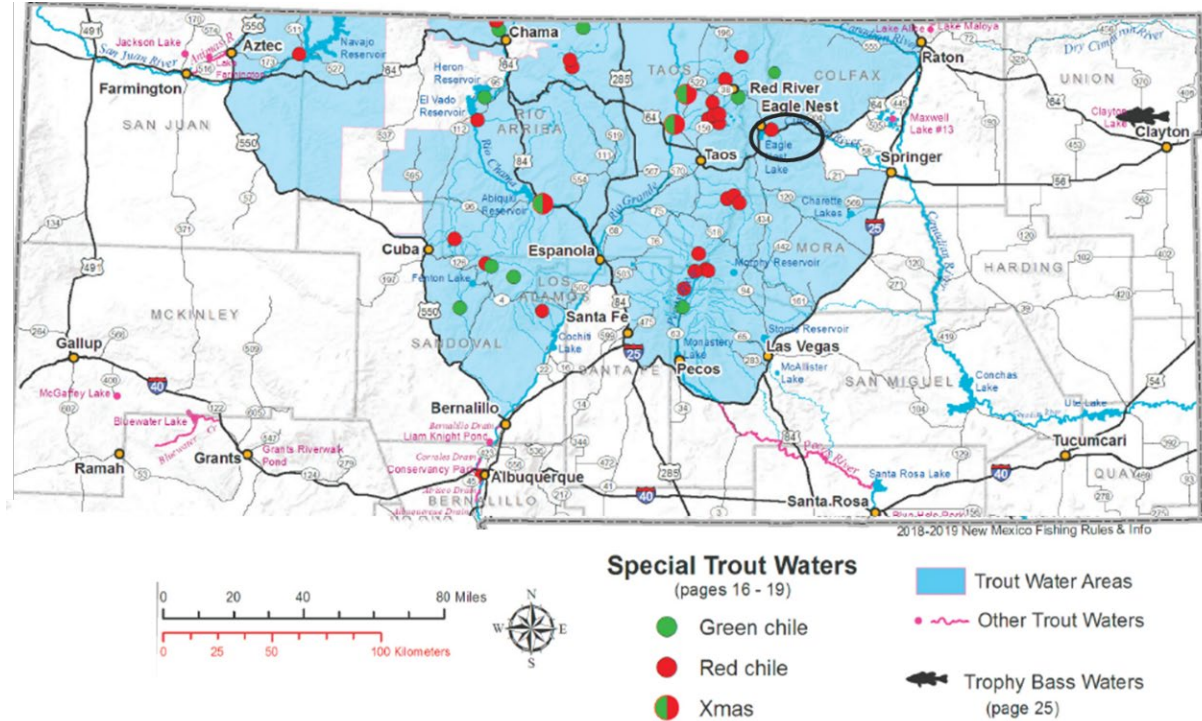
This section of the document describes the injured natural resources and lost recreational uses resulting from the Fronk Oil tanker spill.

2.1 Injured Habitat and Associated Biological Natural Resources

The Fronk Oil tanker spilled gasoline and diesel into the Cimarron River's aquatic habitat and the surrounding riparian habitat. The Cimarron River is "a perennial classified water of the State subject to 20.6.4.309 NMAC [New Mexico Administrative Code] with designated uses of domestic water supply, irrigation, high quality cold-water aquatic life, livestock watering, wildlife habitat and primary contact; and public water supply on the Cimarron River upstream from Cimarron" (NMED, 2017b, p. 2). Additionally, this stretch of river, within the CNWMA, is classified by the New Mexico Department of Game and Fish (NMDGF) as a "Special Trout Water," a designation intended to help conserve healthy fisheries in New Mexico. STWs can be assigned specific designations for trout management purposes by the State. The stretch of river where the spill occurred is within a STW "Red Chile" designation (Figure 2). Red Chile waters are highly protected waters, where all trout fishing is catch-and-release only and there are very strict tackle restrictions (i.e., artificial tackle with single, barbless hooks). This stretch of the Cimarron River is home to Brown Trout and Rainbow Trout (NMDGF, 2014).

The spill contaminated sediment and surface water in the Cimarron River, with surface water samples collected downstream of the spill exceeding maximum contaminant levels for benzene (NMED, 2017a). Additional detected constituents included BTEX (benzene, toluene, ethylbenzene, and xylenes), various alkylbenzenes, naphthalene, diesel range organics, and gasoline range organics (NMED, 2017a). The fuel spill caused a complete fish and macroinvertebrate kill along a stretch of the river from the crash site to a large beaver pond located about 400 yards downstream (NMDGF, 2017c). During a visit to the spill site on January 4, 2017, the New Mexico Environment Department (NMED) observed 21 dead Brown Trout and 5 dead White Suckers just downstream of the crash site. Based on their observations of dead fish and historical fish population surveys in the Cimarron River, NMDGF estimates the fuel spill killed a minimum of 300–400 trout that inhabit this reach of the Cimarron River (i.e., Brown Trout and Rainbow Trout; NMDGF, 2017c).

Figure 2. Map of STWs in New Mexico. The area of the spill is circled in black.



Source: Modified from NMDGF (2019).

2.2 Recreational Use

The Cimarron River is a very popular location for anglers. Immediately after the spill, NMDGF enacted a temporary closure of the area from mile marker 291 downstream to the Perryville Fishing Area. The closure included approximately 1.5 river miles within the CNWMA (Figure 3; NMDGF, 2017c; NMONRT, 2021). The initial purpose of the closure was for public safety concerns during cleanup efforts. Subsequent to the spill, fish samples were collected by the State and analyzed for polycyclic aromatic hydrocarbons (PAHs). Based on the results of this analysis, which showed elevated PAH levels in fish tissue, the State prolonged the closure of the Cimarron River until May 25, 2017 (NMED, 2017b). Even after the area was reopened to angling, the State cautioned the public to eat no more than three meals of fish per month in the spill area (NMDGF, 2017a). The advisory to limit the consumption of fish caught in the spill area remained in place until December 11, 2017 (NMDGF, 2017b).

3. OPA Evaluation Criteria and Summary of the Alternatives

3.1 OPA Evaluation Criteria

OPA regulations specify that natural resource trustees are to develop a reasonable number of possible alternatives for restoration and evaluate the alternatives based on six evaluation criteria. OPA [15 CFR § 990.54] identifies the following six criteria to be used when evaluating and identifying alternatives to restore or replace injured natural resources:

Figure 3. Photograph of closure sign posted as a result of the Fronk Oil tanker spill.



Source: NMED Surface Water Quality Bureau.

1. The cost to carry out the alternative;
2. The extent to which each alternative is expected to meet the Trustee's goals and objectives in returning the injured natural resources and services to baseline and/or compensating for interim losses (see Section 3.2);
3. The likelihood of success of each alternative;
4. The extent to which each alternative will prevent future injury as a result of the incident, and avoid collateral injury as a result of implementing the alternative;
5. The extent to which each alternative benefits more than one natural resource and/or service; and
6. The effect of each alternative on public health and safety.

3.2 Trustee's Goals and Objectives

NMONRT has identified the following goals and objectives to evaluate potential restoration alternatives. NMONRT supports restoration alternatives that:

- Benefit the specific biological species that were injured as a result of the spill and lost services;
- Are located in close proximity to the spill site, in areas where comparable biodiversity and ecological and human use services can be secured or restored;
- Are technically and administratively feasible with reasonable planning costs;
- Leverage funds through partnerships;
- Would be unlikely to proceed without NRDA restoration funding; and
- Have a reasonable implementation timeframe so that the public is made whole sooner rather than later.

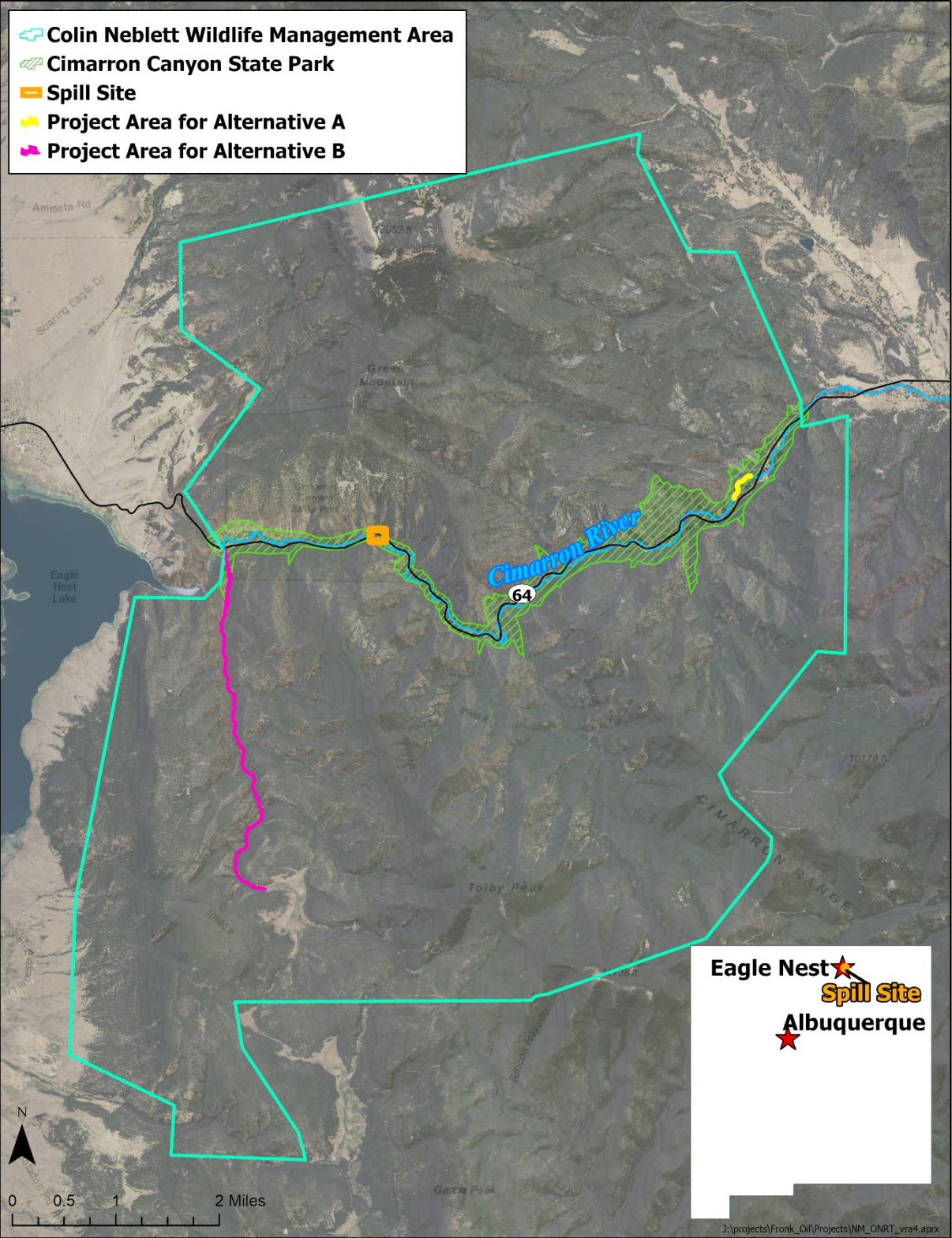
3.3 Selection of Restoration Alternatives to Evaluate in this Draft RP

To identify restoration alternatives to evaluate in this Draft RP, restoration ideas were solicited from State, environmental, nonprofit groups, and resource management agencies with oversight and familiarity with the general area where the spill occurred, including NMONRT, the NMED, NMDGF, and the Cimarron Watershed Alliance (CWA). Through this process, NMONRT identified two potential restoration alternatives to evaluate. The first alternative, Alternative A, is intended to benefit trout and involves the restoration of overwintering trout habitat in the Cimarron River in a reach located downstream of the spill site (Figure 4). This alternative would be implemented in a partnership with the NMED and the CWA. The second alternative, Alternative B, is designed to restore Rio Grande Cutthroat Trout (RGCT) in Tolby Creek, a tributary to the Cimarron River upstream of the spill site, by installing a fish migration barrier to prevent nonnative fish from invading the RGCT population and eradicating any nonnative fishes upstream of the barrier (Figure 4). The OPA NRDA regulations also specify that natural resource trustees should evaluate a natural recovery alternative in which no restoration actions are undertaken. Accordingly, alternatives that NMONRT evaluates in this Draft RP include:

- A No Action/Natural Recovery Alternative
- Alternative A: Restoration of overwintering trout habitat in the Cimarron River
- Alternative B: Installing a fish migration barrier in combination with eradicating nonnative fish in Tolby Canyon.

Below we discuss these alternatives.

Figure 4. Location of restoration alternatives.



3.4 No-Action/Natural Recovery Alternative

The OPA NRDA regulations specify that the natural resource trustees consider a “natural recovery alternative in which no human intervention would be taken to directly restore injured natural resources and services to baseline” [15 CFR § 990.53(b)(2)]. The No Action/Natural Recovery Alternative would mean that no actions would be taken by the natural resource Trustees to restore injured natural resources and that the public would not receive compensation for losses that occurred over time, between the occurrence of the spill and a return to baseline conditions. It is possible under the No Action/Natural Recovery Alternative that injured natural resources may recover to baseline or near baseline conditions over time. However, this would not compensate the public for the losses that occurred in the interim, and hence would not make the public whole. Therefore, NMNRT does not further evaluate the No Action/Natural Recovery Alternative in this Draft RP.

3.5 Alternative A: Restoration of Overwintering Trout Habitat in the Cimarron River (Preferred Alternative)

3.5.1 Description of Alternative

The goal of Alternative A is to improve overwintering habitat along a 0.35-mile stretch of the Cimarron River for resident Brown Trout by increasing instream habitat complexity (including creating deep instream pools), and controlling the amount of river flow that is currently being diverted to the Gravel Pit Lakes. The instream pools would also attract and act as holding areas for stocked Rainbow Trout in the Cimarron River.

The restoration would occur in the Cimarron River, approximately 5 river miles downstream from the location of the spill, where the river travels through the CCSP in the CNWMA (Figure 4). Habitat quality for overwintering trout is poor in this reach of the river, due to low flows combined with a lack of stream complexity and the absence of pools. Flows in this area are lowest in the winter due to Eagle Nest Dam operations (SWQB, 2010). Streamflow in this reach is dependent on releases from the Eagle Nest Dam, which is located approximately 2.3 river miles upstream of the spill site. Water is released to meet irrigation demands downstream during the growing season (June 15–October 31; SWQB, 2010). In the winter months when water is stored in the Eagle Nest Lake, flows in the Cimarron River can be very low.

Further, up to half of the flow in the main channel along this stretch is currently diverted to the Gravel Pit Lakes, located adjacent to the river (Figure 5). Though the lakes were anthropogenically created as a result of historical gravel mining, they currently provide habitat benefits including calm water refugia and wetland habitat, and are a popular fishing destination. However, the current volume of flow diverted to them is deleterious to the main channel of the river (particularly in the winter, when flows are already low), and the sedimentation rate associated with the diverted river flow is undesirable for the lakes. If no action is taken along this water-impooverished stretch of the Cimarron River, the connectivity between the Cimarron River above and below the Gravel Pit Lakes could be lost altogether, and sedimentation will eventually fill up the Gravel Pit Lakes, resulting in the loss of this calm water and wetland habitat.

Figure 5. Location of Alternative A and the Gravel Pit Lakes.



Accordingly, this alternative would involve two distinct components to improve habitat within the stream channel and within the lakes, including (1) the installation of instream habitat features that would create habitat complexity and pools of greater depth, and (2) the construction of a headgate and sediment trap for the Gravel Pit Lakes.

This alternative will create winter habitat in the stream by excavating periodic deep pools and installing boulders to increase the area of calm water available to fish. Large woody debris will be added to the channel and boulder cross vanes will be constructed to enhance instream complexity. Channel shaping will connect low-flow channels to deepened pools.

The headgate structure is intended to further improve low-flow conditions in the Cimarron River channel by better regulating the volume of water entering the Gravel Pit Lakes under the lowest-flow conditions, prioritizing flow to the river over the Gravel Pit Lakes. The sediment trap will collect suspended sediment from the diverted river flow prior to entering the Gravel Pit Lakes, which will diminish the amount of sediment reaching the Gravel Pit Lakes, and thereby prolonging the lifespan of this habitat.

Alternative A would take advantage of existing planning, permitting, and oversight activities already under way for a separate CWA restoration project on the Cimarron River (*Restoration of Trout Habitat on the Cimarron River*). The CWA, under contract with the NMED, is working with NMDGF and Trout Unlimited to design this separate project that was funded by a competitive grant through the River Stewardship Program, and is being implemented in the next downstream reach of the Cimarron River. All planning, permitting, and oversight activities and costs for Alternative A would be covered under this downstream River Stewardship Program project.

3.5.2 Evaluation

Below we evaluate Alternative A against the six OPA criteria.

1. Cost to carry out the alternative

The total cost of Alternative A is \$150,000. This includes the cost of CWA personnel; contractor services; and supplies for the cross vanes, headgate, and sediment traps.

Alternative A provides cost efficiencies by taking advantage of existing planning and permitting activities already under way for a separate CWA River Stewardship Program project, being implemented in the next downstream reach of the Cimarron River.

2. Meets Trustee's goals and objectives

This restoration alternative meets the Trustee's goals and objectives. Below we present this evaluation:

- **Benefits specific biological species that were injured as a result of the spill and lost services**

This restoration alternative would improve the overwintering habitat of Brown Trout and create instream pool areas that would attract and hold stocked Rainbow Trout along a 0.35-mile reach of the Cimarron River. Therefore, this alternative directly benefits

two species of trout that were injured as a result of the Fronk Oil tanker spill. Anglers would also benefit from the improved fishery.

- **Is located in close proximity to the spill site, in areas where comparable biodiversity and ecological and human use services can be secured or restored**

This restoration alternative is located in close proximity to the spill site. The restoration is directly in the Cimarron River, approximately 5 river miles downstream of the spill site, with similar fish and macroinvertebrate assemblages and other biological communities. In addition, fish from the spill site and other biological resources that use the spill area (e.g., birds of prey) may directly benefit from this restoration because they are likely to also utilize downstream habitat on the Cimarron River. The alternative aims to improve the local fishery and, hence, would also benefit anglers, thereby compensating for service losses due to the spill and the river closure.

- **Is technically and administratively feasible with reasonable planning costs**

This restoration alternative is technically feasible for many of the same reasons the alternative is expected to have a high likelihood of success (see “Likelihood of success” discussion below). The alternative is also administratively feasible and has reasonable planning costs, because this restoration alternative takes advantage of existing planning, permitting and oversight already under way for a separate CWA River Stewardship Program project that is being implemented in the next downstream reach of the Cimarron River.

- **Leverages funds through partnerships**

Alternative A would leverage funds by taking advantage of existing planning and permitting activities already under way for a separate CWA River Stewardship Program project being implemented in the next downstream reach of the Cimarron River (approximately one river mile in length).

- **Would be unlikely to proceed without NRDA restoration funding**

Without NRDA restoration funding, Alternative A is unlikely to proceed.

- **Has a reasonable implementation timeframe so that the public is made whole sooner rather than later**

This restoration alternative can be implemented quickly as it takes advantage of existing planning and permitting already under way for a separate CWA River Stewardship Program project, being implemented in the next downstream reach of the Cimarron River.

3. Likelihood of success

This restoration alternative has a high likelihood of success. The installation of instream structures to create pools and increase habitat complexity are established techniques that have been applied in multiple locations, and are included in various government guidance documents (Cramer, 2012). CWA is working under contract with the NMED as well as consulting with the NMDGF and Trout Unlimited to design this restoration alternative. With all four of these groups having experience implementing trout restoration projects, it improves the likelihood of success

of this project. For example, the Ponil Creek Restoration Project that was implemented by CWA in 2009–2013 included the construction of cross vanes and post vanes to upgrade low-water crossings. Monitoring suggests these installations have successfully stabilized the sites, prevented the low-water crossings from contributing major amounts of sediment into the stream, and decreased the stream’s width-to-depth ratios at these sites (CWA, 2013). Additionally, the Cieneguilla Creek Riparian Ecosystem Restoration Project implemented by CWA included the construction of a flow-through rock barrier structure to induce stream bed meandering. This structure successfully induced meandering and resulted in an increase in stream sinuosity (CWA, 2012). Similar techniques would be implemented as a part of Alternative A, and their successful deployment by CWA at these other sites suggests a high likelihood of success for the proposed restoration actions in the Cimarron River.

4. Prevents future injury and avoids collateral damage

The OPA NRDA regulations specify that natural resource trustees should evaluate the extent to which an alternative will prevent future injury as a result of a spill and will avoid collateral injury as a result of the implementation of the restoration. While this alternative is located in the same river as the spill, the restoration would not directly target the spill site; rather, it would occur approximately 5 river miles downstream of the spill site, and hence does not directly address future injury resulting from the spill. Hence, NMNRT focuses on the second part of this criterion in this evaluation – whether and to what extent each restoration alternative will either avoid or result in collateral injury to natural resources.

The intent of the restoration is to improve aquatic habitat within the river, thereby benefiting fish and other biological resources. However, during the construction phase, there would be disturbance of the stream substrate and streambank, which may cause temporary loss of habitat and potential adverse effects to macroinvertebrates and other biota that use and live within these substrates. However, these adverse effects would be short-lived, occurring only during construction, and would be outweighed by the longer-term benefits to these biological communities provided by the enhanced habitat, upon completion of the restoration actions.

5. Benefits multiple resources and/or services

While this restoration alternative is primarily focused on improving fish habitat, specifically for Brown Trout and stocked Rainbow Trout, and on benefiting anglers, it would also benefit many other natural resources, as creating better fish habitat and increasing the fish population would also benefit other species. Creating more complexity in the stream channel would enhance and expand habitat niches for other in-stream aquatic species such as macroinvertebrates (e.g., insects), and provide food sources for insect-feeding birds. Increased fish populations will benefit species that prey on the fish, such as fish-eating mammals and birds.

In the Gravel Pit Lakes, preventing sedimentation of the ponds will extend the life of the ponds, which support many wetland plant and animal species, in addition to fish (e.g., ducks, aquatic furbearers, other aquatic animals). Large birds of prey such as the Golden Eagle, the Osprey, and the Bald Eagle are commonly observed foraging at the ponds; these species will benefit from extending the lifespan of these ponds.

In addition, the restoration alternative would likely enhance other recreational uses in the area, in addition to angling. Recreational uses that may also be enhanced by improving the habitat include hiking, birdwatching, camping, and other forms of recreational shoreline use.

6. Effect on public health and safety

During the construction of Alternative A, the State, CWA, and their contractors will take all appropriate safety measures to ensure public health and safety. Once implemented, NMONRT does not expect any effects to public health and safety.

3.5.3 Performance Criteria and Monitoring

To monitor the success of Alternative A, CWA will conduct monitoring after implementation of the restoration to confirm the stability of the installed structures and characterize the morphology of the restored reach.

One of the permits issued for this project is the United States Army Corps of Engineers (USACE) Nationwide Permit 27 (NWP). The NWP applies to activities in waters of the United States associated with the restoration, enhancement, and establishment of wetlands. In accordance with the NWP, those activities should result in net increases in aquatic resource functions and services. CWA's monitoring will comply with the USACE permit requirements for monitoring. The CWA would prepare annual monitoring reports that NMDGF would provide to USACE. NMDGF would also use these results to evaluate the success of the restoration. The USACE NWP requires annual reporting for not less than 5 years unless the project is released after 3 years by the USACE upon official request from NMDGF. NMDGF would be responsible for monitoring and maintaining the headgate structure. Additionally, NMDGF has a regularly surveyed electrofishing site near the Alternative A site. The data from this electrofishing site may be used to monitor the local trout population subsequent to implementation of the restoration.

3.6 Alternative B: Installing a Fish Migration Barrier in Combination with Eradicating Nonnative Fish in Tolby Canyon

3.6.1 Description of Alternative

The goal of this restoration alternative is to restore RGCT to 3 miles of Tolby Creek, within Tolby Canyon. Tolby Canyon is located within the CNWMA, and the proposed restoration site is shown in Figure 4. The RGCT is a subspecies of Cutthroat Trout that occupies high-elevation headwater streams and lakes throughout New Mexico. It is designated as New Mexico's State fish (NMDGF, 2016). Currently, RGCT occupy 12% of their historical range; this decline is due to the introduction of nonnative trout species to New Mexico (NMDGF, 2016). Specifically, when inhabiting the same area, other trout species outcompete the RGCT for resources (Western Native Trout Initiative, 2016). Additionally, some other trout species can hybridize with the RGCT to produce fertile offspring, leading to a further reduction in the size of the native RGCT population (Western Native Trout Initiative, 2016). NMDGF has prioritized improving the conservation status of RGCT in selected waters, and this restoration alternative is consistent with its RGCT conservation priorities.

To successfully reintroduce RGCT to Tolby Creek, this restoration alternative would be implemented in three phases. First, a fish migration barrier would be installed in the area, near

the mouth of the canyon. This barrier is intended to prevent all fish migration, thereby preventing nonnative species from entering the proposed restoration area; and would be designed to remain functional for several decades. Next, nonnative fishes upstream of the barrier will be eradicated using the pesticide rotenone. Last, once nonnative fish have been successfully eradicated from the project area, RGCT would be transferred to the creek from a nearby population, and the maintained fish migration barrier would protect RGCT from nonnative species.

3.6.2 Evaluation

Below we evaluate Alternative B against the six OPA criteria.

1. Cost to carry out the alternative

The total anticipated cost for Alternative B is \$570,000 (Table 1). As this cost is greater than the settlement agreement funds, additional funds from other sources would need to be secured for this alternative to be implemented.

Table 1. Cost to carry out Alternative B

Item	Cost
Fish barrier design cost	\$50,000
Construction oversight cost	\$50,000
Construction cost	\$450,000
NMDGF costs for pesticide application and RGCT stocking	\$20,000
Total cost	\$570,000

2. Meets Trustee's goals and objectives

This restoration alternative meets the Trustee's goals and objectives. Below we present this evaluation:

- **Benefits specific biological restoration of species that were injured as a result of the spill and lost services**

This restoration alternative would be implemented in Tolby Creek and benefit RGCT. While this specific species of trout was not directly injured by the Fronk Oil tanker spill, the Cimarron River was historically RGCT habitat, and the alternative would benefit a native species. Restoration Alternative B would also benefit anglers because it would introduce as additional species of trout to the area that could be targeted while fishing in the future, once the population is established.

- **Is located in proximity to the affected site in areas where comparable biodiversity and ecological and human use services can be secured or restored**

Located in Tolby Creek in the CNWMA, this restoration alternative is in close proximity to the spill site. Tolby Creek is a tributary of the Cimarron River and is located approximately 1.8 river miles upstream from the spill site. Tolby Creek provides habitat to similar biological communities as those affected by the spill and provides similar ecological and human use services. The project would also provide benefits for anglers (as described above), in close proximity to the spill area.

- **Is technically and administratively feasible with reasonable planning costs**

This restoration alternative is technically feasible for many of the same reasons the alternative is expected to have a high likelihood of success (see “Likelihood of Success” discussion below). The alternative is still being developed and designed, and currently does not include any partnerships for leveraging costs. Therefore, the administrative burden and planning costs would be relatively high compared to if the restoration were already designed and/or included partnerships.

- **Leverages funds through partnerships**

This restoration alternative does not have any leveraged funds through partnerships.

- **Would be unlikely to proceed without NRDA restoration funding**

Although this restoration alternative is likely to proceed without NRDA restoration funding through NMDGF, the timing for proceeding with this restoration alternative is uncertain.

- **Has a reasonable implementation timeframe so that the public is made whole sooner rather than later**

The goal of this restoration alternative is to restore RGCT populations by 2023. However, because the settlement agreement would not cover the total cost of the project, it could not proceed until additional funding is secured. Further, prior to the implementation of this alternative, the fish barriers will need to be designed and the proper permits will need to be obtained. Therefore, this project could not be immediately implemented if funded as it would require some time to develop engineering designs before implementation. Further, benefits to anglers resulting from the addition of a new trout species that could be fished in the area would be delayed for a few years after completion of restoration actions, until the population is sufficiently established.

3. Likelihood of success

The use of piscicides to eradicate nonnative fish is an established technique that has been applied in multiple locations and is included in various restoration guidance documents (Finlayson et al., 2000; Moore et al., 2005). Historically, rotenone has been used by fisheries biologists throughout the United States with the intent of restoring native fish species in streams and lakes. The State conducts restoration projects such as this annually and has a long record of successfully and safely using rotenone to restore native fish to streams across New Mexico (NMDGF, 2016).

4. Prevents future injury and avoids collateral damage

The OPA NRDA regulations specify that natural resource trustees should evaluate the extent to which an alternative will prevent future injury as a result of a spill and avoid collateral injury as a result of implementation of the project. As this alternative is located on a tributary of the Cimarron River, the restoration would not directly target the spill site, and hence does not directly address future injury resulting from the spill. Hence, NMONRT focuses on the second part of this criterion in this evaluation – whether and to what extent each restoration alternative will either avoid or result in collateral injury to aquatic habitat resources.

The intent of this restoration alternative is to improve the RGCT population in the State. In doing so, the restoration alternative is designed to eradicate nonnative fish species within the targeted area using rotenone. Rotenone is not a selective compound; it is a broad-spectrum pesticide, insecticide, and piscicide. Therefore, during and shortly after the application of rotenone, there will also be short-term injuries to aquatic invertebrates, amphibians, fish, and terrestrial wildlife from the consumption of or contact with treated water. Rotenone degrades rapidly in the environment; once rotenone is no longer in the environment, these organisms will recover. To minimize any collateral injuries, prior to the application of rotenone, NMDGF could survey the application area for threatened and endangered species, or other species of concern.

5. Benefits multiple resources and/or services

This alternative is primarily designed to benefit a single species, the RGCT. The project would primarily benefit anglers and would not directly enhance other recreational uses.

6. Effects on public health and safety

This alternative will have no impacts on public health and safety. The use of rotenone may affect human health through the consumption of or contact with treated water. However, the application of rotenone to kill fish can be accomplished at concentrations less than the 200 parts-per-billion maximum approved by the U.S. Environmental Protection Agency. The typical concentration used for the eradication of nonnative trout is 50 parts-per-billion rotenone. The maximum concentration used would not likely exceed 100 parts-per-billion active ingredient (Blue Earth Ecological Consultants, 2014).

3.6.3 Performance Criteria and Monitoring

The treated segment of Tolby Creek could be monitored (possibly by electrofishing) following individual rotenone treatments to confirm the successful eradication of nonnative trout. If, during post-treatment surveys, nonnative species that were targeted for removal are found in the creek, the creek would be retreated with rotenone. Following the successful eradication of nonnative fish, the aquatic macroinvertebrate community could be monitored to assess recovery of the aquatic macroinvertebrate community (i.e., fish food) in the creek. Once the monitoring shows that the aquatic macroinvertebrate community has recovered sufficiently to support a fish community, the creek would be stocked with RGCT. Subsequent to the stocking of RGCT, NMDGF could monitor Tolby Creek RGCT populations by conducting annual fish surveys.

3.7 Summary

NMONRT completed the OPA evaluation of the restoration alternatives presented in this Draft RP and identified Alternative A as the preferred alternative because it best meets the OPA restoration criteria.

Cost to carry out the alternative. The cost for Alternative A is \$150,000. Alternative A also has cost-sharing efficiencies because permitting, planning, and oversight costs would be already covered under another restoration project also being implemented on the Cimarron River. The cost of Alternative B is \$570,000. The settlement agreement funds would not be sufficient to fully implement this restoration, and additional sources of funding would need to be identified prior to implementing Alternative B.

Meets the Trustee's goals and objectives. Alternative A meets all of the Trustee's goals and objectives. This alternative would benefit biological species that were injured as a result of the spill (Brown and Rainbow Trout). It is located along the Cimarron River that is in close proximity to the spill site, with comparable habitats and biodiversity. The improved fishery would benefit anglers, compensating for service losses due to the spill and river closure. Alternative A is technically and administratively feasible with reasonable planning costs. This alternative would also leverage funds; with permitting, planning, and oversight costs covered through another nearby restoration project. Alternative A would be unlikely to proceed without NRDA restoration funding and it could be implemented within a short timeframe of being selected.

Alternative B does not meet the Trustee's goals and objectives to the same degree as Alternative A. It would not directly benefit the specific trout species injured as a result of the spill, though it does aim to restore a trout species (RGCT) that is a priority for restoration efforts in the State. However, the addition of a RGCT fishery to the area would benefit anglers, compensating for service losses due to the spill and river closure. The alternative is in close proximity to the spill, and though not directly on the Cimarron River, it is located on a Cimarron River tributary, with similar habitats and biological communities. Alternative B is technically and administratively feasible; however, planning costs may be high. Although Alternative B does not have any leveraged funds or cost sharing, it is likely to proceed without NRDA restoration funding. However, the timing is uncertain. Alternative B would take longer to implement than Alternative A, as funding would first need to be secured, and then engineering design work would need to be completed prior to implementation. Overall, Alternative A best meets the Trustee's goals and objectives.

Likelihood of success. Both alternatives have a high likelihood of success as they both use established restoration techniques that have been demonstrated to be effective elsewhere. Both alternatives also involve monitoring and the restoration would be adjusted, based on the outcomes of the monitoring, as needed.

Prevents future injury and avoids collateral injury. There would be only minimal collateral injury associated with Alternative A. Some adverse effects might occur to biological communities (e.g., macroinvertebrates) that inhabit the river bottom and banks substrate during installation of instream features. These effects would be short-lived and outweighed by the benefits of the project. Alternative B would result in more substantial collateral injury. Rotenone would be applied to eradicate nonnative fish species as a part of implementing this alternative; and given that it is a broad-spectrum pesticide, insecticide, and piscicide, there would also be mortality to aquatic invertebrates, amphibians, fish, and terrestrial wildlife from the consumption of or contact with treated water. Once rotenone is no longer in the environment, these organisms would recover, and the long-term benefits of restoring RGCT will outweigh the short-term period of injury. However, overall, Alternative A would avoid collateral injury to a greater extent than Alternative B.

Benefits multiple resources and services. Alternative A targets restoring Brown and Rainbow Trout, but the habitat improvements would also benefit multiple other biological resources, including macroinvertebrates, ducks, birds of prey, and aquatic mammals. Alternative A would also extend the life of the Gravel Pit Ponds, which support fish and many plant and animal wetland species. Although Alternative A is primarily focused on enhancing angling, it may also

enhance other shoreline uses such as hiking, camping, and birdwatching. Alternative B aims to restore RGCT, and given the nature of the restoration technique, would less directly benefit any other biological resources. Alternative B would benefit anglers; but, would not directly enhance other human uses of Tolby Creek. Hence, Alternative A benefits multiple resources, and to a greater extent than Alternative B.

Effects on public health and safety. No effects on public health and safety are expected for Alternatives A and B. All appropriate safety measures to ensure public health and safety would be taken during implementation of the alternatives. Once implemented, NMNRT does not expect any effects to public health and safety associated with Alternative A. The levels of rotenone that would be applied in Alternative B are not a human health concern.

In summary, Alternative A, restoration of overwintering trout habitat in the Cimarron River, is NMNRT's preferred alternative because it best meets the OPA restoration criteria set forth in 15 CFR § 990.

4. References

Blue Earth Ecological Consultants. 2014. Environmental Assessment for Restoration of the Rio Grande Cutthroat Trout to the Las Animas Creek Watershed. Prepared for the New Mexico Department of Game and Fish, U.S. Fish and Wildlife Services, USDA Forest Service, and Turner Ranch Properties, LP by Blue Earth Ecological Consultants, Inc. January 14. Available: [https://fws.gov/southwest/federal_assistance/PDFs/Las_Animas_Creek_Renovation_Prelim_EA_01-14-2014_reduced%20\(1\).pdf](https://fws.gov/southwest/federal_assistance/PDFs/Las_Animas_Creek_Renovation_Prelim_EA_01-14-2014_reduced%20(1).pdf). Accessed 1/15/2021.

Cramer, M.L. (managing editor). 2012. Stream Habitat Restoration Guidelines. Copublished by the Washington Departments of Fish and Wildlife, Natural Resources, Transportation and Ecology, Washington State Recreation and Conservation Office, Puget Sound Partnership, and the U.S. Fish and Wildlife Service, Olympia, WA. Available: <https://wdfw.wa.gov/sites/default/files/publications/01374/wdfw01374.pdf>. Accessed 1/25/2021.

CWA. 2012. Cieneguilla Creek Ecosystem Restoration Project 2012 Final Report. Cimarron Watershed Alliance, Inc., Cimarron, NM. June. Available: <https://static1.squarespace.com/static/51ca5c70e4b043b66a223790/t/52c899d3e4b0d95d5af3fd62/1388878291582/RERI+Cieneguilla+Project+Final+Report.+web+final.09.29.13+-+A.+Copy+-+Copy.pdf>. Accessed 1/25/2021.

CWA. 2013. Ponil Creek Restoration Project Final Report. Cimarron Watershed Alliance. May 10. Available: <https://static1.squarespace.com/static/51ca5c70e4b043b66a223790/t/51ca63bde4b014f2c6e1627b/1372218301402/Ponil319-+Final+Report-FINAL.pdf>. Accessed 1/25/2021.

D&H United Fueling Solutions. 2017. Corrective Action Report for the Cimarron River Spill Near Horseshoe Mine, Cimarron Canyon State Park New Mexico. Prepared for the New Mexico Environment Department Surface Water Quality Bureau. June.

Finlayson, B.J., R.A. Schnick, R.L. Cailteux, L. DeMong, W.D. Horton, W. McClay, C.W. Thompson, and G.J. Tichacek. 2000. Rotenone Use in Fisheries Management: Administrative and Technical Guidelines Manual. American Fisheries Society, Bethesda, MD.

Moore, S.E., M.A. Kulp, J.H. Hammonds, and B. Rosenlund. 2005. Restoration of Sams Creek and an Assessment of Brook Trout Restoration Methods. USDI-NPS Technical Report NPS/NRWRD/NRTR-2005/342. Fort Collins, CO.

NMDGF. 2014. Colin Neblett Wildlife Area. New Mexico Department of Game and Fish. Available: <http://www.wildlife.state.nm.us/wp-content/uploads/2014/06/Colin-Neblett-GAIN-WMA-NMDGF.pdf>. Accessed 1/25/2021.

NMDGF. 2016. Rio Grande Cutthroat Trout. New Mexico Department of Game and Fish. Available: <http://www.wildlife.state.nm.us/fishing/native-new-mexico-fish/rio-grande-cutthroat-trout/>. Accessed 1/25/2021.

NMDGF. 2017a. Cimarron River Open for Fishing. New Mexico Department of Game and Fish. Available: <http://www.wildlife.state.nm.us/cimarron-river-open-fishing/>. Accessed 1/25/2021.

NMDGF. 2017b. Cimarron River Fish Safe to Eat, Tests Show. New Mexico Department of Game and Fish. Available: <http://www.wildlife.state.nm.us/cimarron-river-fish-safe-eat-tests-show/>. Accessed 1/25/2021.

NMDGF. 2017c. Re: Cimarron River Fuel Spill Situation Synopsis. Letter addressed to Alexa Sandoval. New Mexico Department of Game and Fish. April 28.

NMDGF. 2019. 2019–2020 New Mexico Fishing Rules and Info. New Mexico Department of Game and Fish. Available: http://www.wildlife.state.nm.us/download/publications/rib/2019/fishing/2019_20-New-Mexico-Fishing-Rules-and-Info.pdf. Accessed 1/26/2021.

NMED. 2017a. Re: Tanker Spill into the Cimarron River and Associated Clean-Up near Cimarron, New Mexico. Letter addressed to Mr. Keith Fronk. New Mexico Environment Department. February 14.

NMED. 2017b. Re: Notice of Deficiency, Diesel and Gasoline Spill into the Cimarron River and Associated Clean-Up near Cimarron, New Mexico. Letter addressed to Mr. Keith Fronk. New Mexico Environment Department. March 16.

NMONRT. 2021. Fronk Oil Spill. January 8. Available: <https://onrt.env.nm.gov/fronk-oil-spill/>. Accessed 1/25/2021.

SWQB. 2010. US EPA-Approved Total Maximum Daily Load (TMDL) for the Cimarron River Watershed. Surface Water Quality Bureau. September 3. Available: <https://www.env.nm.gov/surface-water-quality/wp-content/uploads/sites/25/2019/04/CimarronTMDL-USEPAApproved.pdf>. Accessed 1/25/2021.

Western Native Trout Initiative. 2016. Rio Grande Cutthroat Trout Species Status Report. Available: https://westernnativetrout.org/wp-content/uploads/2018/03/RGCT_WesternNativeTroutStatusReport_UpdatedMay2016.pdf. Accessed 1/25/2021.