UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Farmington District
Farmington Field Office
6251 N College Blvd., Ste. A
Farmington, NM 87402

Finding of No Significant Impact

Lybrook Water Recycling Facility
NEPA No. DOI-BLM-NM-F010-2014-0223-EA

FINDING OF NO SIGNIFICANT IMPACT:

I have determined that the proposed action, as described in the EA will not have any significant impact, individually or cumulatively, on the quality of the human environment. Because there would not be any significant impact, an environmental impact statement is not required.

In making this determination, I considered the following factors:

1. The activities described in the proposed action do not include any significant beneficial or adverse impacts (40 CFR 1508.27(b)(1)). The EA includes a description of the expected environmental consequences of approving a right-of-way grant to allow Basin Water Recycling to construct, operate, maintain, and terminate a water recycling facility to recycle water produced from oil & natural gas extraction activities in the Lybrook area.

2. The activities included in the proposed action would not significantly affect public health or safety (40 CFR 1508.27(b)(2)).

3. The proposed activities would not significantly affect any unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas (40 CFR 1508.27(b)(3)).

4. The activities described in the proposed action do not involve effects on the human environment that are likely to be highly controversial (40 CFR 1508.27(b)(4)).

5. The activities described in the proposed action do not involve effects that are highly uncertain or involve unique or unknown risks (40 CFR 1508.27(b)(5)).

6. My decision to implement these activities does not establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration (40 CFR 1508.27(b)(6)).

7. The effects of approving a right-of-way grant to allow Basin Water Recycling to construct, operate, maintain, and terminate a water recycling facility to recycle water produced from oil & natural gas extraction activities in the Lybrook area would not be significant, individually or cumulatively, when considered with the effects of other actions (40 CFR 1508.27(b)(7)). The EA discloses that there are no other connected or cumulative actions that would cause significant cumulative impacts.

8. I have determined that the activities described in the proposed action will not adversely affect or cause loss or destruction of scientific, cultural, or historical resources, including those listed in or eligible for listing in the National Register of Historic Places (40 CFR 1508.27(b)(8)). Cultural resource surveys were conducted and a Cultural Resource Record of Review BLM Report Number 2014(IV) 042F was signed on September 1, 2014 for the Lybrook Water Recycling Facility. Cultural resources were not located during the

archaeological survey. Pages 15 – 16 of the October 2014 Environmental Assessment DOI-BLM-NM-F010-2014-0223-EA, Lybrook Water Recycling Facility describes the cultural resources.

9. The proposed activities are not likely to adversely affect any endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (40 CFR 1508.27(b)(9)). The project area does not contain any known populations or designated habitat for federal listed endangered or threatened species. Pages 19-21 of the October 2014 Environmental Assessment DOI-BLM-NM-F010-2014-0223 EA, Lybrook Water Recycling Facility, describe the effects to Special Status Species

10. The proposed activities will not threaten any violation of Federal, State, or local law or requirements imposed for the protection of the environment (40 CFR 1508.27(b)(10)). Pages 2-3 of the October 2014 Environmental Assessment DOI-BLM-NM-F010-2014-0223 EA, Lybrook Water Recycling Facility, describe conformance with the Farmington Field Office Resource Management Plan and other relevant laws, regulations, and policies

APPROVED:

Mark Kelley

for Sarah Scott
Supervisory Multi Resource Specialist
Farmington Field Office

OCT 17 2014

Date

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Farmington District
Farmington Field Office
6251 N College Blvd., Ste. A
Farmington, NM 87402

DECISION RECORD
for the
Lybrook Water Recycling Facility
NEPA No. DOI-BLM-NM-F010-2014-0223 EA

I. Decision

I have decided to select the proposed action for implementation as described in the October 2014 Environmental Assessment DOI-BLM-NM-F010-2014-0223-EA, Lybrook Water Recycling Facility. Based on my review of the Environmental Assessment (EA) and project record, I have concluded that the proposed action was analyzed in sufficient detail to allow me to make an informed decision. I have selected this alternative because the proposed treatments will provide access to public lands for the construction, operation, maintenance, and termination of a water recycling facility.

II. Conformance and Compliance

Pursuant to 40 Code of Federal Regulations (CFR) 1508.28 and 1502.21, this site-specific EA tiers to and incorporates by reference the information and analysis contained in the Farmington Proposed Resource Management Plan/Final Environmental Impact Statement [(PRMP/FEIS) BLM 2003a]. This EA is in conformance with the management goals set forth in the Resource Management Plan (RMP) for the Farmington Field Office (FFO) of the BLM, which was approved by the Record of Decision (ROD) signed September 29, 2003, and updated in December 2003 (BLM 2003b).

Specifically, the proposed action supports the following BLM policy:

> It is the policy of the BLM to make mineral resources available for disposal and to encourage development of mineral resources to meet national, regional, and local needs, consistent with national objectives of an adequate supply of minerals at reasonable market prices. At the same time, the BLM strives to ensure that mineral development is carried out in a manner that minimizes environmental damage and provides for the rehabilitation of affected lands (2003b, 2-2 – 2-3).

The PRMP/FEIS, RMP, and ROD are available for review at the BLM Farmington Field Office, 6251 College Blvd., Suite A, Farmington, NM, or electronically at: http://www.nm.blm.gov/ffo/ffo_home.html.

Development of energy-related ROWs, such as off-lease well pads and pipelines, is one of the primary activities of the BLM-FFO lands program. Such ROWs receive environmental review on a case-by-case basis (BLM 2003b). As required by NEPA, this EA addresses site-specific

resources and effects of the proposed action that were not specifically covered within the PRMP/FEIS.

Basin would comply with applicable federal, state, and local laws and regulations. Necessary permits and approvals for the proposed project would be obtained prior to project implementation.

Many requirements regulating specific environmental elements are found in the appropriate elements sections of this EA (Chapter 3). Several permits, licenses, consultations, or other requirements are discussed below.

Clean Water Act

Recognizing the potential for the continued or accelerated degradation of the Nation's waters, the U.S. Congress enacted the Clean Water Act (CWA), formerly known as the Federal Water Pollution Control Act (33 USC 1344). The objective of the CWA is to maintain and restore the chemical, physical, and biological integrity of the waters of the United States.

Under Section 401 of the CWA, an applicant for a federal license or permit to conduct an activity that may result in a discharge into a water of the U.S. must provide the federal agency with a Section 401 certification declaring that the discharge would comply with the CWA. The certification would be granted by the New Mexico Environment Department (NMED).

Under Section 402 of the CWA, the U.S. Environmental Protection Agency (EPA) regulates storm water discharges from industrial and construction activities under the National Pollution Discharge Elimination System (NPDES) program. Permits are required if discharge results in a reportable quantity for which notification is required (pursuant to 40 CFR 117.21, 40 CFR 302.6, or 40 CFR 110.6) or if the discharge contributes to a violation of a water quality standard.

Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill material into the waters of the U.S., including wetlands. The U.S. Army Corps of Engineers (USACE) has jurisdiction over "waters of the U.S." These jurisdictional waters include those that have a "significant nexus" to traditional navigable waters. The BLM-FFO and USACE Durango Regulatory Office have determined that jurisdictional waters may include USGS watercourses (i.e., "blue lines" on USGS 1:24,000 topographic maps).

National Historic Preservation Act

Compliance with Section 106 responsibilities of the National Historic Preservation Act are adhered to by following the BLM – New Mexico SHPO protocol agreement, which is authorized by the *National Programmatic Agreement between the BLM*, the *Advisory Council on Historic Preservation*, and the *National Conference of State Historic Preservation Officers*, and other applicable BLM handbooks.

Clean Air Act

The Clean Air Act of 1972, as amended (CAA; 42 USC 7401 et seq.), establishes national ambient air quality standards (NAAQS) to control air pollution. In New Mexico, the NMED has adopted most of the CAA into the New Mexico Administrative Code (NMAC). The NMED issues construction and operating permits for air quality and enforces air quality regulations and permit conditions.

Finding of No Significant Impact

I have reviewed the direct, indirect and cumulative effects of the proposed activities documented in the EA for the October 2014 Environmental Assessment DOI-BLM-NM-F010-2014-0223-EA, Lybrook Water Recycling Facility. I have also reviewed the project record for this analysis. The effects of the proposed action and alternative[*s*] are disclosed in the Alternatives and Environmental Consequences sections of the EA. I have determined that providing access to public lands to construct, operate, maintain, and terminate a water recycling facility as described in the EA will not significantly affect the quality of the human environment. Accordingly, I have determined that the preparation of an Environmental Impact Statement is not necessary.

IV. Other Alternatives Considered

An alternative action was analyzed for this project which would provide a larger site for the water recycling facility. Page 11 of the October 2014 Environmental Assessment DOI-BLM-NM-F010-2014-0223-EA, Lybrook Water Recycling Facility contains the description of the alternatives analyzed for this project. The proposed action was selected over the alternative action to reduce the footprint of the facility and lessen the impact to public land.

V. Rationale for the Decision

I have determined that the activities described in the proposed action will not adversely affect or cause loss or destruction of scientific, cultural, or historical resources, including those listed in or eligible for listing in the National Register of Historic Places (40 CFR 1508.27(b)(8)). Cultural resource surveys were conducted and a Cultural Resource Record of Review BLM Report Number 2014(IV) 042F was signed on September 1, 2014 for the Lybrook Water Recycling Facility. Cultural resources were not located during the archaeological survey. Pages 15 – 16 of the October 2014 Environmental Assessment DOI-BLM-NM-F010-2014-0223-EA, Lybrook Water Recycling Facility describes the cultural resources.

The proposed activities are not likely to adversely affect any endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (40 CFR 1508.27(b)(9)). The project area does not contain any known populations or designated habitat for federal listed endangered or threatened species. Pages 19-21 of the October 2014 Environmental Assessment DOI-BLM-NM-F010-2014-0223 EA, Lybrook Water Recycling Facility, describe the effects to Special Status Species.

VI. Public Involvement

The Farmington Field Office (FFO) publishes a NEPA log for public inspection. This log contains a list of proposed and approved actions in the field office. The log is located on the BLM New Mexico website (http://www.blm.gov/nm/st/en/prog/planning/nepa_logs.html).

An onsite meeting, attended by Basin, BLM-FFO representatives, Cheney-Walters-Echols, Inc., La Plata Archaeological Consultants (LAC), NMDOT representatives, Synergy Operating, LLC, and an environmental consultant (Adkins Consulting, Inc. [ACI]), was held for the proposed project on July 15, 2014. A public invitation to the on-site meetings was posted online (http://www.blm.gov/nm/st/en/fo/Farmington_Field_Office/ffo_oil_and_gas/ffo_onsites.html); no private citizens or groups attended the meeting. A BLM-FFO Interdisciplinary Team meeting was held on July 21, 2014 to discuss the proposed action. At the aforementioned meetings, potential issues of concern were identified by the BLM-FFO and ACI.

Based on the size and scale, routine nature, and potential impacts associated with the proposed action, no additional external scoping was conducted. No public comments were received for the proposed action.

VII. Administrative Review and Appeal

This decision may be appealed to the Interior Board of Land Appeals (IBLA), Office of the Secretary, in accordance with the regulations contained in 43 CFR Part 4. Any appeal must be filed within 30 days of this decision. Any notice of appeal must be filed with Gary Torres, Field Manager, Farmington Field Office, 6251 College Boulevard, Suite A, Farmington, NM 87402. The appellant shall serve a copy of the notice of appeal and any statement of reasons, written arguments, or briefs on each adverse party named in the decision, not later than 15 days after filing such document (see 43 CFR 4.413(a)). Failure to serve within the time required will subject the appeal to summary dismissal (see 43 CFR 4.413(b)). If a statement of reasons for the appeal is not included with the notice, it must be filed with the IBLA, Office of Hearings and Appeals, U. S. Department of the Interior, 801 North Quincy St., Suite 300, Arlington, VA 22203 within 30 days after the notice of appeal is filed with Gary Torres, Farmington Field Office Manager.

Notwithstanding the provisions of 43 CFR 4.21(a)(1), filing a notice of appeal under 43 CFR Part 4 does not automatically suspend the effect of the decision. This decision can be implemented immediately and remains in effect pending appeal according to 43 CFR 2881.10 (b). If you wish to file a petition for a stay of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for a stay must accompany your notice of appeal.

A petition for a stay is required to show sufficient justification based on the following standards:

(1) The relative harm to the parties if the stay is granted or denied;
(2) The likelihood of the appellant's success on the merits;
(3) The likelihood of immediate and irreparable harm if the stay is not granted; and
(4) Whether the public interest favors granting the stay.

In the event a request for stay or an appeal is filed, the person/party requesting the stay or filing the appeal must serve a copy of the appeal on the Office of the Field Solicitor: United States Dept. of the Interior, Office of the Solicitor, Southwest Regional Office, 505 Marquette Avenue NW, Suite 1800, Albuquerque, NM 87102.

Maureen Joe
Assistant Field Manager
Lands & Renewable Resources
Farmington Field Office

10/20/14
Date

United States Department of the Interior
Bureau of Land Management

Environmental Assessment
DOI-BLM-NM-F010-2014-0223 EA

Basin Water Recycling's
Lybrook Water Recycling Facility

October 2014

U.S. Department of the Interior
Bureau of Land Management
Farmington District
Farmington Field Office
6251 N. College Blvd., Ste. A
Farmington, NM 87402
Phone: (505) 564-7600
FAX: (505) 564-7608

BLM

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

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1. PURPOSE AND NEED FOR ACTION

1.1. Background

Basin Water Recycling (Basin) has submitted an Application for a Right-of-Way (ROW) Grant with the Bureau of Land Management - Farmington Field Office (BLM-FFO) for the Lybrook Water Recycling Facility project. The proposed project includes the construction of a produced water recycling facility on public lands managed by the BLM-FFO, including ingress and egress points through New Mexico Department of Transportation (NMDOT) ROW corridor for U.S. Highway 550. The facility would utilize reverse osmosis technology to recycle water produced from oil and natural gas extraction activities in the Lybrook area of the San Juan Basin in northwest New Mexico. Basin would receive an approved ROW Grant from the BLM-FFO for the authorization to construct, maintain and operate the proposed facility on public lands. The proposed action is the approval of the ROW Grant by the BLM-FFO, located in Farmington, New Mexico.

The proposed project is located on public lands managed by the BLM-FFO. Basin would receive authorization from NMDOT to develop ingress and egress points off of U.S. Highway 550 within the NMDOT ROW corridor.

The proposed facility would be constructed within a tract of public lands located north of a recently constructed WPX Energy Production well site, south of U.S. Highway 550, and west of a Jemez Mountains Electric Cooperative sub-station.

Oil and natural gas, vital components of the nation's energy supply, account for approximately 36 and 25 percent of total energy consumed in the U.S., respectively (U.S. Energy Information Administration 2012). Natural gas is used in homes, commercially, in industry, and in the transportation sector. Common uses for natural gas include space heating, water heating, cooling, cooking, waste treatment and incineration, metals preheating, drying and humidification, glass melting, food processing, fueling industrial boilers, vehicle fueling, and electricity generation. Gases such as butane, ethane, and propane can be extracted from natural gas to be used for products such as fertilizers and pharmaceuticals. Natural gas can also be used to create methanol, which is utilized in the production of formaldehyde, acetic acid, fuel cell sources, and additives for cleaner burning gasoline (Natural Gas Supply Association 2010). Most oil goes into fuels, including gasoline, jet fuel, and home-heating oil. Additionally, non-fuel compounds extracted from oil are used to develop lubricants; asphalt for roads; tar for roofing; waxes for food wrapping; solvents for paints; cosmetics and dry-cleaning products; plastics; and foams (U.S. Energy Information Administration 2012).

Most of the oil and natural gas found in North America is concentrated in distinct basins. The BLM-FFO management area is within the San Juan Basin, one of the most prolific gas-producing basins in the country. Currently, the San Juan Basin produces small amounts of oil (BLM 2003a).

Taxes and royalties on oil, natural gas, and carbon dioxide production contribute approximately 25 percent of New Mexico's general fund, and the oil and gas industry is one of the largest private sector employers in the state (New Mexico Bureau of Geology and Mineral Resources 2012). Additionally, the federal government receives royalties, or a share of the production income, for extracted federal minerals. In 2011, federal natural gas royalties totaled over 2 billion dollars (Office of Natural Resources Revenue 2012).

1.2. Purpose and Need for Action

The purpose of the proposed action is to allow Basin reasonable access to public lands managed by the BLM-FFO to construct a water recycling facility.

The need for the proposed action is established by the BLM's responsibility under the Federal Land Policy and Management Act (FLPMA) of 1976 (43 USC 1701 et seq.) to respond to a request for a ROW Grant over public lands.

1.3. Decision to be Made

Based on the information in this environmental assessment (EA), the BLM-FFO will decide whether or not to issue the ROW Grant, and if so, under what terms and conditions. Under the National Environmental Policy Act (NEPA) (Public Law [PL] 91-90, 42 USC 4321 et seq.), the BLM-FFO must determine if there are any significant environmental impacts associated with the proposed actions warranting further analysis in an Environmental Impact Statement (EIS). The BLM-FFO Field Manager is the responsible officer who will decide either:

- To approve the ROW Grant with design features as submitted;
- To approve the ROW Grant with additional mitigations;
- To analyze the effects of the proposal in an EIS; or
- To deny the ROW Grant.

1.4. Conformance with Applicable Land Use Plan(s)

Pursuant to 40 Code of Federal Regulations (CFR) 1508.28 and 1502.21, this site-specific EA tiers to and incorporates by reference the information and analysis contained in the Farmington Proposed Resource Management Plan/Final Environmental Impact Statement [(PRMP/FEIS) BLM 2003a]. This EA is in conformance with the management goals set forth in the Resource Management Plan (RMP) for the Farmington Field Office (FFO) of the BLM, which was approved by the Record of Decision (ROD) signed September 29, 2003, and updated in December 2003 (BLM 2003b).

Specifically, the proposed action supports the following BLM policy:

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The PRMP/FEIS, RMP, and ROD are available for review at the BLM Farmington Field Office, 6251 College Blvd., Suite A, Farmington, NM, or electronically at: http://www.nm.blm.gov/ffo/ffo_home.html.

Development of energy-related ROWs, such as off-lease well pads and pipelines, is one of the primary activities of the BLM-FFO lands program. Such ROWs receive environmental review on a case-by-case basis (BLM 2003b). As required by NEPA, this EA addresses site-specific resources and effects of the proposed action that were not specifically covered within the PRMP/FEIS.

1.5. Relationship to Statutes, Regulations or Other Plans

Basin would comply with applicable federal, state, and local laws and regulations. Necessary permits and approvals for the proposed project would be obtained prior to project implementation.

Many requirements regulating specific environmental elements are found in the appropriate elements sections of this EA (Chapter 3). Several permits, licenses, consultations, or other requirements are discussed below.

1.5.1. Clean Water Act

Recognizing the potential for the continued or accelerated degradation of the Nation's waters, the U.S. Congress enacted the Clean Water Act (CWA), formerly known as the Federal Water Pollution Control Act (33 USC 1344). The objective of the CWA is to maintain and restore the chemical, physical, and biological integrity of the waters of the United States.

Under Section 401 of the CWA, an applicant for a federal license or permit to conduct an activity that may result in a discharge into a water of the U.S. must provide the federal agency with a Section 401 certification declaring that the discharge would comply with the CWA. The certification would be granted by the New Mexico Environment Department (NMED).

Under Section 402 of the CWA, the U.S. Environmental Protection Agency (EPA) regulates storm water discharges from industrial and construction activities under the National Pollution Discharge Elimination System (NPDES) program. Permits are required if discharge results in a reportable quantity for which notification is required (pursuant to 40 CFR 117.21, 40 CFR 302.6, or 40 CFR 110.6) or if the discharge contributes to a violation of a water quality standard.

Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill material into the waters of the U.S., including wetlands. The U.S. Army Corps of Engineers (USACE) has jurisdiction over "waters of the U.S." These jurisdictional waters include those that have a "significant nexus" to traditional navigable waters. The BLM-FFO and USACE Durango Regulatory Office have determined that jurisdictional waters may include USGS watercourses (i.e., "blue lines" on USGS 1:24,000 topographic maps).

1.5.2. National Historic Preservation Act

Compliance with Section 106 responsibilities of the National Historic Preservation Act are adhered to by following the BLM – New Mexico SHPO protocol agreement, which is authorized by the *National Programmatic Agreement between the BLM*, the *Advisory Council on Historic Preservation*, and the *National Conference of State Historic Preservation Officers*, and other applicable BLM handbooks.

1.5.3. Clean Air Act

The Clean Air Act of 1972, as amended (CAA; 42 USC 7401 et seq.), establishes national ambient air quality standards (NAAQS) to control air pollution. In New Mexico, the NMED has adopted most of the CAA into the New Mexico Administrative Code (NMAC). The NMED issues construction and operating permits for air quality and enforces air quality regulations and permit conditions.

1.6. Scoping, Public Involvement, and Issues

1.6.1. Scoping and Public Involvement

The Farmington Field Office (FFO) publishes a NEPA log for public inspection. This log contains a list of proposed and approved actions in the field office. The log is located on the BLM New Mexico website (http://www.blm.gov/nm/st/en/prog/planning/nepa_logs.html).

An onsite meeting, attended by Basin, BLM-FFO representatives, Cheney-Walters-Echols, Inc., La Plata Archaeological Consultants (LAC), NMDOT representatives, Synergy Operating, LLC, and an environmental consultant (Adkins Consulting, Inc. [ACI]), was held for the proposed project on July 15, 2014. A public invitation to the on-site meetings was posted online (http://www.blm.gov/nm/st/en/fo/Farmington_Field_Office/ffo_oil_and_gas/ffo_onsites.html); no private citizens or groups attended the meeting. A BLM-FFO Interdisciplinary Team meeting was held on July 21, 2014 to discuss the proposed action. At the aforementioned meetings, potential issues of concern were identified by the BLM-FFO and ACI.

Based on the size and scale, routine nature, and potential impacts associated with the proposed action, no additional external scoping was conducted. No public comments were received for the proposed action.

1.6.2. Issues

Issues Analyzed

The following issues were identified during internal scoping as potential issues of concern for the proposed action. These issues will be addressed in this EA.

- How would the proposed project impact air resources?
- How would surface-disturbing activities associated with construction of the proposed project impact cultural resources?
- How would vegetation-clearing, proposed project activities, and final reclamation associated with the proposed project impact upland vegetation?
- How would vegetation-clearing, proposed project activities, and final reclamation associated with the proposed project impact migratory birds?
- How would vegetation-clearing, proposed project activities, and final reclamation associated with the proposed project impact the following BLM Special Status Species (SSS): Bendire's thrasher (*Toxostoma bendirei*), ferruginous hawk (*Buteo regalis*), golden eagle (*Aquila chrysaetos*), and prairie falcon (*Falco mexicanus*)?
- How would the proposed project impact noxious weeds and invasive species?
- How would vegetation-clearing, proposed project activities, and final reclamation associated with the proposed project impact soils?
- How would the proposed project impact water resources?
- How would vegetation-clearing, proposed project activities, and final reclamation associated with the proposed project impact livestock grazing?
- How would with the proposed project impact visual resources?

- How would proposed project activities impact ambient noise?
- How would proposed project activities impact transportation and travel?
- How would proposed project activities impact economics?
- How would proposed project activities impact public health and safety?

Issues Considered but not Analyzed

The following issues were identified during scoping as issues of concern that would not be impacted by the proposed action or that have been covered by prior environmental review. These issues will not be analyzed in this EA.

Endangered Species Act Species

The Endangered Species Act (ESA) of 1973 requires all federal departments and agencies to conserve threatened, endangered, and critical and sensitive species and the habitats on which they depend, and to consult with the U.S. Fish and Wildlife Service (USFWS) on all actions authorized, funded, or carried out by the agency to ensure that the action will not likely jeopardize the continued existence of any threatened and endangered species or adversely modify critical habitat. Consultation with the USFWS, as required by Section 7 of the ESA, was conducted as part of the Farmington PRMP/FEIS (Consultation No. 2-22-01-I-389) to address cumulative effects of RMP implementation. The consultation is summarized in Appendix M of the PRMP/FEIS. No unaccounted-for water depletions within USFWS-listed fish habitat would occur. Therefore, there is no need for additional Section 7 consultation.

Native American Religious Concerns

For the proposed action, identification efforts for Native American Religious Concerns were limited to a review of existing published and unpublished literature (e.g., Van Valkenburgh 1941, 1974; Brugge 1993; Kelly, et al. 2006), development of the site-specific Class III survey report prepared for the proposed action (LAC Report No. 2014-11 [Fuller 2014]), and a review by the BLM's cultural resources program regarding the presence of Traditional Cultural Properties (TCPs) identified through ongoing BLM tribal consultation efforts. There are currently no known remains that fall within the purview of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA; 25 USC 3001) or the Archaeological Resources Protection Act (ARPA; 16 USC 470) within the proposed project area. The proposed action would not impact any known TCPs, prevent access to sacred sites, prevent the possession of sacred objects, or interfere with or hinder the performance of traditional ceremonies and rituals pursuant to the American Indian Religious Freedom Act of 1978 (AIRFA; 42 USC 1996) or Executive Order (EO) 13007.

Paleontology

The San Juan Basin in northwestern New Mexico is rich in paleontological resources. The BLM used the Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands (Instruction Manual 2008-009) to identify areas with a high potential to produce significant fossil resources (BLM 2008d). Under this system, all lands within the BLM-FFO management area were designated as Class 5 (Very High Potential) for paleontological resources. Class 5 areas require an assessment of paleontological resources at the project level (BLM 2009). If a paleontological site is discovered during the construction phase of the proposed project, the site would be avoided by personnel, personal vehicles, and company equipment. Therefore, no impacts to paleontological resources are anticipated as a result of the proposed project.

2. PROPOSED ACTION AND ALTERNATIVE(S)

2.1. Proposed Action

The Proposed Action is the BLM-FFO approval of a 20.47-acre ROW Grant associated with Basin's Lybrook Water Recycling Facility project. The proposed project includes the construction of a produced water recycling facility on public lands managed by the BLM-FFO, including ingress and egress points through the NMDOT ROW corridor for U.S. Highway 550. The facility would utilize reverse osmosis technology to recycle water produced from oil and natural gas extraction activities in the Lybrook area of the San Juan Basin in northwest New Mexico. The proposed project would commence after the ROW Grant is issued.

Construction plats associated with the proposed project are provided in Appendix B. Photographs of the proposed project area are provided in the Surface Reclamation Plan (Appendix C).

2.1.1. Location of Proposed Project Area

A map of the proposed project area plotted on USGS topographic quadrangle (Figure A.1) and a drawing of the proposed development on aerial imagery (Figure A.2) are provided in Appendix A.

The proposed project area is located within the BLM-FFO management area on public lands managed by the BLM within the San Juan Basin of northwest New Mexico in Rio Arriba County. The proposed development is located approximately 2.5 miles east-southeast of Lybrook, 3.7 miles west-northwest of Counselor, and 42 miles southeast of Bloomfield.

The proposed project area is located within the east half of Section 13, Township 23 North, Range 7 West, New Mexico Principle Meridian (NMPM).

The general region surrounding the proposed project area is characterized by wooded mesas and relatively flat lowland valleys. The project area is situated within sagebrush shrubland just north of a principle drainage channel in upper Escrito Canyon. No prominent topographical features are located within the project area. The proposed project area is located at approximately 7,000 feet above mean sea level (AMSL).

Existing oil and gas development, public roads, and commercial development are in the general vicinity of the proposed project area.

2.1.2. Description of Proposed Project

For a detailed description of design features and construction practices associated with the proposed action, refer to the ROW Grant application on file at the BLM-FFO. Construction plats associated with the proposed projects are provided in Appendix B and provide additional details. Photographs of the proposed project area are provided in the Surface Reclamation Plan (Appendix C).

Design Features and Best Management Practices

Basin would adhere to the stipulations attached to an approved ROW Grant from the BLM-FFO. The following general design features and best management practices (BMPs) would occur.

Control of Waste

Liquid and solid wastes would be disposed of at an appropriate waste-disposal site. The proposed project area would be maintained in a sanitary condition. Hazardous substances would be handled and disposed of according to federal law. Waste resulting from construction activities would be removed from the proposed project area and disposed of in an authorized area, such as an approved landfill.

Protection of Paleontological Resources

If a paleontological site is discovered, the BLM would be notified and the site would be avoided by personnel, personal vehicles, and company equipment. Workers would be informed that it is illegal to collect, damage, or disturb some such resources, and that such activities are punishable by criminal and/or administrative penalties.

Protection of Cultural Resources

All cultural resource stipulations would be followed as indicated in the Cultural Resource Records of Review, attached to the stipulations in an approved ROW Grant. These stipulations could include, but would not be limited to, temporary or permanent fencing or other physical barriers, monitoring of earth disturbing construction, reduction of the proposed project areas and/or establishment of specific construction avoidance zones, and employee education.

Employees, contractors, and sub-contractors associated with the proposed project would be informed by Basin that cultural sites are to be avoided by personnel, personal vehicles, and company equipment. These individuals would be informed that it is illegal to collect, damage, or disturb cultural resources, and that such activities are punishable by criminal and/or administrative penalties under the provisions of ARPA.

In the event of a cultural discovery during construction, Basin would immediately stop all construction activities in the immediate vicinity of the discovery and immediately notify the archaeological monitor, if present, or the BLM. The BLM would then evaluate or cause the site to be evaluated. Should a discovery be evaluated as significant (e.g., eligible for the National Register of Historic Places [NRHP] or protected under NAGPRA or ARPA), it would be protected in place until mitigating measures could be developed and implemented according to guidelines set by the BLM.

Protection of Flora and Fauna, including SSS and Livestock

Should any active raptor nests be observed within one-third mile of the proposed project area or should any additional SSS (listed by the USFWS or BLM) be observed within the proposed project area prior to or during project implementation, construction would cease and the BLM-FFO would be immediately contacted. The BLM-FFO would then ensure evaluation of the resource. Should a discovery be evaluated as significant (protected under the ESA, etc.), it would be protected in place until mitigation could be developed and implemented according to guidelines set by the BLM.

Under the Migratory Bird Treaty Act – BLM/FFO Interim Management Policy (IM No. NM-F00-2010-001), timing limitations on use authorizations will be enforced for projects during the nesting period of May 15 to July 31 to avoid or minimize the possibility of the unintentional take of migratory birds. These timing limitations will be enforced for projects during the nesting period of May 15 to July 31 under the following conditions:

- For proposed projects 4.0 acres or more of vegetative disturbance, no construction activities from May 15 to July 31 will be permitted without a migratory bird nest survey. These surveys will be conducted by a BLM/FFO approved biologist using a survey protocol provided by a BLM/FFO biologist. If any active nests are located within the proposed project area, projects activities will not be permitted until written approval by a BLM/FFO biologist. The BLM/FFO will monitor any active nests located from a nest survey.

- The use of prescribed fire and mechanical thinning equipment (i.e. hydromower and tree axe) during this period (5/15-7/31) will be avoided. Exceptions to this policy will be considered where repeated complications due to weather have prevented the attainment of resource objectives through the use of prescribed fire. In these situations a thorough environmental analysis will be prepared assessing the effects of conducting the burn during the restricted period. The decision to proceed or not will be based upon this analysis. It should be noted also that this policy does not apply to natural ignitions in areas that the District Fire Management Plan has designated as a

"wildland fire use area" nor does it apply to treatments 4.0 acres or less in size. In addition, should state or national guidance be issued that differs from this policy; the FFO policy will be modified to conform to it.

- Should active nests be observed, the contractor has determined that project activities cannot be avoided until after the birds have fledged (left the nest), and if no practicable or reasonable avoidance alternatives are identified, then the contractor must contact the USFWS's Migratory Bird Permit Office in Albuquerque, NM at (505) 248-7882. The contractor may proceed with work on the affected project activities following receipt of the approved permit from the USFWS.

The proposed action is located within the Venado Allotment Number 5112 managed by the BLM-FFO. Grazing lease operator(s) would be notified at least 10 business days prior to beginning the construction phase of the proposed project in order to ensure that there would be no conflicts between construction activities and livestock grazing operations. Construction would not cease or delay unless directed by the authorized BLM-FFO officer. If present, any range improvements (e.g., fences, pipelines, and ponds) disturbed by construction activities would be repaired to the condition they were in prior to disturbance. Repairs, if needed, would take place immediately following construction.

The following design features would apply to the proposed project:

- All construction and/or maintenance resulting in surface disturbance would be done in accordance to the BLM Surface Operating Standards and Guidelines for Oil and Gas Development, Fourth Edition-Revised 2007 (The Gold Book).
- If used, all pits would meet State of New Mexico, Oil Conservation Division (NMOCD) pit guidelines and requirements, NMAC 19.15.17.
- Cattle guards would be installed at the ingress and egress points at the NMDOT ROW fence line.
- All permanent (on location for 6 months or longer) above-ground equipment constructed or installed will be painted Covert Green as specified by the BLM. All production facilities will be painted within 6 months of installation. Facilities that are required to comply with Occupation Health and Safety Rules and Regulations will be excluded from this painting requirement.

Protection of Air Resources

BMPs for dust suppression would be utilized within the proposed project area to reduce fugitive dust during the construction phase of the proposed project. Water application, using a rear-spraying truck or other suitable means, would be the primary method of dust suppression within the proposed project area. Any additional dust-suppression practices would include the BLM-standard BMPs found in the Gold Book (BLM and USFS 2007) and the BMPs outlined in the stipulations attached to an approved ROW Grant.

Prevention and Control of Weeds

Prior to construction equipment entering the proposed project area, construction equipment would be inspected for noxious weeds and cleaned. It would be Basin's responsibility to monitor, control, and eradicate all invasive, non-native plant species within the proposed project area throughout the life of the project. Basin's weed-control contractor would contact the BLM-FFO regarding acceptable weed-control methods. If the contractor does not hold a current Pesticide Use Permit, a Pesticide Use Permit would be submitted prior to pesticide application. Only pesticides authorized for use on BLM lands would be used. The use of pesticides would comply with federal and state laws. Pesticides would be used only in accordance with their registered use and limitations. Basin's weed-control contractor would contact the BLM-FFO prior to using these chemicals.

Protection of the Public

The hauling of equipment and materials for the proposed project on public roads would comply with Department of Transportation regulations. No toxic substances would be stored or used within the proposed project area. Basin would have inspectors present during construction. Any accidents involving persons or property would immediately be reported to the BLM-FFO. Basin would notify the public of potential hazards by posting signage, as necessary.

Protection of Topsoil

Topsoil, which would be stripped from the surface during the construction phase of the proposed project, would be stored and protected until it is redistributed during reclamation. The topsoil would be stored separately from subsoil or other excavated material within the permitted project area. The topsoil would be free of brush and tree limbs, trunks, and roots. Vehicle/equipment traffic would not be allowed to cross topsoil stockpiles. The topsoil would be protected using wattles or other BMPs so that erosion is minimized. If topsoil is stored for a length of time such that nutrients are depleted from the topsoil, amendments would be added to the topsoil as advised by an appropriate agent/contractor.

Protection of Water Resources

The proposed facility is situated just north of a principle drainage channel in upper Escrito Canyon. Basin would minimize impacts to the watercourse by establishing a buffer zone in which native vegetation would be preserved. In addition, the waterbars developed on the recently constructed Beeline pipeline corridor through the proposed project area would be maintained. If necessary, Basin would establish an eyebrow ditch on the west side of the facility, directing potential stormwater run-off around the project area. Culverts would be installed at the ingress and egress points within the U.S. Highway 550 NMDOT ROW corridor for the proper drainage of stormwater. Installation and maintenance of erosion-control features would be done in accordance with BLM Gold Book Standards. A berm will be constructed completely around any facilities which contain fluids (i.e., storage tanks, etc.). These berms will be constructed of compacted subsoil, corrugated metal, or equivalent, be impervious, and hold 110 percent the capacity of the largest tank.

Additional Design Features and BMPs

Vehicles would be restricted to proposed disturbance areas and existing areas of surface disturbance, such as existing roads and well pads.

Worker safety incidents would be reported to the BLM-FFO as required under Notice to Lessees (NTL) - 3A (USGS 1979). Basin would adhere to company safety policies, Occupational Safety and Health Administration regulations, and Department of Transportation regulations.

Basin would comply with Onshore Oil and Gas Order No. 2, issued under Onshore Oil and Gas Operations (43 CFR 3160).

Construction and maintenance activities would cease when soil or road surfaces become saturated to the extent that construction equipment is unable to stay within the proposed project area and/or when activities would cause irreparable harm to roads, soils, or watercourses.

Proposed Project Phases

Under the proposed action, the following phases would occur.

Construction Phase

Once the ROW Grant is issued, project construction can begin. The BLM-FFO would be notified at least 48 hours prior to the start of construction activities.

Within the proposed project area, vegetation would be cleared in such a manner to allow proper safe access and work space. Where available, the top 6 inches of topsoil would be salvaged and stockpiled for use in reclamation. Vegetation removed during construction, including slash/brush, would be chipped or mulched and incorporated into the topsoil as additional organic matter.

Construction would involve preparing a level area for the equipment that would be needed at the water recycling facility. Following removal of vegetation and stockpiling of viable soil material, the project area would be graded using standard, cut-and-fill techniques of construction using a bulldozer, grader, front-end loader, and/or backhoe.

Basin would construct new ingress and egress points within NMDOT ROW corridor for U.S. Highway 550. Proposed road construction will be done in accordance with BLM Gold Book Standards, BLM 9113-1 (Roads Design Handbook), and BLM 9113-2 (Roads Inventory and Condition Assessment Guidance and Instructions Handbook).

Production Facilities

The production equipment and facility layout will be deferred until the facility's operational characteristics can be evaluated after construction. All permanent (on location for 6 months or longer) above-ground equipment constructed or installed will be painted Covert Green as specified by the BLM-FFO. All production facilities will be painted within 6 months of installation. Facilities that are required to comply with Occupation Health and Safety Rules and Regulations will be excluded from this painting requirement.

The facility would utilize reverse osmosis technology to recycle water produced from oil and natural gas extraction activities in the Lybrook area. Equipment installed at the facility may include: 400 barrel (bbl.) receiving tanks; a 26,000 bbl. above ground storage tank; 400 bbl. equalization tanks; a skid mounted oil/water separator; 400 bbl. skimmed oil tanks; a clarifier (above ground storage tank); a filter unit; a backwash tank; an office trailer; a clearwell tank; a reverse osmosis unit; 13,000 bbl. clear water storage tanks; and an adjustment tank.

Interim Reclamation

Following the above mentioned phases of the proposed project, interim reclamation would occur within all new disturbance areas associated with the proposed project. The BLM-FFO would be notified at least 48 hours prior to surface reclamation activities.

During this phase, a bulldozer and a tractor with seeding capabilities would be used for reclamation purposes.

In areas that would be reclaimed, slopes would be re-contoured to pre-construction topographical contours, if possible. Additionally, stockpiled topsoil would be redistributed and the surface would be ripped and seeded.

The facility area would be reclaimed to a BLM-approved working area. Access to the facility would be maintained in accordance with the BLM Gold Book Standards, BLM 9113-1 (Roads Design Handbook), and BLM 9113-2 (Roads Inventory and Condition Assessment Guidance and Instructions Handbook).

During the July 2014 pre-disturbance onsite meeting, it was determined that the Sagebrush/Grass Community best represents the proposed project area. Details of the interim reclamation process (including species included in the seed mixture) are provided in the Surface Reclamation Plan (Appendix C). Reclamation monitoring and reporting are discussed in the Surface Reclamation Plan.

Final Reclamation and Abandonment

Once the water recycling facility is no longer necessary and would not be expected to be utilized in the foreseeable future, it would be abandoned. Abandonment of the facility would be carried out under current BLM regulations. Aboveground facilities would also be removed.

Final reclamation would occur within any portion of the project area that would be disturbed to bare soil during the abandonment phase of the proposed project, if these areas meet the acreage requirements for reclamation. These acreage requirements are summarized below:

- If final abandonment activities would disturb less than or equal to 0.1 acre to bare soil, the area(s) would be expected to re-vegetate naturally (no reclamation or monitoring activities will be required).
- If final abandonment activities would disturb more than 0.1 acre to bare soil, final abandonment reclamation activities would be the same as described for interim reclamation.

2.1.3. Proposed Surface Disturbance

Basin would be granted access to 20.47 acres of public lands for the construction of the proposed water recycling facility under the Proposed Action. Under the Alternative Action, Basin would be granted access to an additional 7.99 acres, for a total of 28.46 acres, for the construction of the proposed water recycling facility and future development.

Depictions of proposed surface-disturbing activity locations are provided in Appendices A (Maps) and B (Plats).

2.2. No Action

Under the No Action Alternative, the ROW Grant associated with the proposed Lybrook Water Recycling Facility project would not be approved. The proposed facility would not be constructed. Current land and resource uses would continue to occur in the proposed project area.

2.3. Alternative Action

The Alternative Action is the BLM-FFO approval of a 28.46-acre ROW Grant associated with Basin's Lybrook Water Recycling Facility project. The Alternative Action includes the construction of the produced water recycling facility, including ingress and egress points through the NMDOT ROW corridor for U.S. Highway 550, on public lands managed by the BLM-FFO. In addition to the 20.47-acre tract, Basin would be granted access to a 7.99-acre tract of public lands to be preserved for future development, which may include expansion of the water recycling facility and/or the drilling of a water disposal well and associated facilities. The Alternative Action would commence after the ROW Grant is issued.

Construction plats associated with the Alternative Action are provided in Appendix B. Photographs of the project area are provided in the Surface Reclamation Plan (Appendix C).

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Under the No Action alternative, current land and resource issues within the proposed project area would continue; there would be no new impacts from oil and gas development. The No Action alternative will serve as the baseline for comparing the environmental impacts of the analyzed alternatives, and will not be further evaluated in this EA (BLM 2008b).

3.1. Air Resources

3.1.1. Affected Environment

The proposed project is located in Rio Arriba County, New Mexico. Additional general information on air quality in the area is contained in Chapter 3 of the Farmington PRMP/FEIS. In addition, new information about greenhouse gases (GHGs), and their effects on national and global climate conditions has emerged since this document was prepared. On-going scientific research has identified the potential impacts of GHG emissions such as carbon dioxide (CO_2) methane (CH_4); nitrous oxide (N_2O); water vapor; and several trace gases on global climate. Through complex interactions on a global scale, GHG emissions may cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back into space. Although GHG levels have varied for millennia (along with corresponding variations in climatic conditions), industrialization and burning of fossil carbon sources have caused GHG concentrations to increase measurably, and may contribute to overall climatic changes, typically referred to as global warming.

Much of the information referenced in this section is incorporated from the Air Resources Technical Report for BLM Oil and Gas Development in New Mexico, Kansas, Oklahoma, and Texas (herein referred to as Air Resources Technical Report; (U.S. Department of Interior Bureau of Land Management, 2014). This document summarizes the technical information related to air resources and climate change associated with oil and gas development and the methodology and assumptions used for analysis.

The Environmental Protection Agency (EPA) has the primary responsibility for regulating air quality, including six nationally regulated ambient air pollutants (criteria pollutants). These criteria pollutants include carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2) and lead (Pb). EPA has established National Ambient Air Quality Standards (NAAQS) for criteria air pollutants. The NAAQS are protective of human health and the environment. EPA has approved New Mexico's State Implementation Plan and the state enforces state and federal air quality regulations on all public and private lands within the state, except for tribal lands and within Bernalillo County. Air quality is determined by atmospheric pollutants and chemistry, dispersion meteorology and terrain, and also includes applications of noise, smoke management, and visibility. Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years. EPA has proposed or completed actions recently to implement Clean Air Act requirements for greenhouse gas emissions. Climate has the potential to influence renewable and non-renewable resource management.

Air Quality

Criteria Air Pollutants

The Air Resources Technical Report describes the types of data used for description of the existing conditions of criteria pollutants, how the criteria pollutants are related to the activities involved in oil and gas development, and provides a table of current National and state standards. EPA's Green Book web page (U.S. Environmental Protection Agency, 2013) reports that all counties in the Farmington Field Office area are in attainment of all National Ambient Air Quality Standards (NAAQS) as defined by the Clean Air Act. The area is also in attainment of all state air quality standards (NMAAQS). The current

status of criteria pollutant levels in the Farmington Field Office are described below. Total emissions of criteria pollutants from each source sector were calculated by adding together the emissions from the four counties that are located in FFO: San Juan, McKinley, Rio Arriba, and Sandoval.

"Design Concentrations" are the concentrations of air pollution at a specific monitoring site that can be compared to the NAAQS. The 2012 design concentrations of criteria pollutants are listed below in Table 1. There is no monitoring for CO and lead in San Juan County, but because the county is relatively rural, it is likely that these pollutants are not elevated. PM10 design concentrations are not available for San Juan County.

Table 1. 2012 Criteria Pollutant Monitored Values in San Juan County (U.S. Environmental Protection Agency, 2014)

Pollutant	2012 Design Concentration	Averaging Time	NAAQS	NMAAQS
O_3	0.071 ppm	8-hour	0.075 ppm[1]	
NO_2	13 ppb	Annual	53 ppb[2]	50 ppb
NO_2	38 ppb	1-hour	100 ppb[3]	
$PM_{2.5}$	4.7 µg/m^3	Annual	12 µg/m^3[3,4]	60 µg/m^3[3,6]
$PM_{2.5}$	14 µg/m^3	24 hour	35 µg/m^3[3,3]	150 µg/m^3[3,6]
SO_2	19 ppb	1-hour	75 ppb[5]	

[1] Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
[2] Not to be exceeded during the year
[3] 98th percentile, averaged over 3 years
[4] Annual mean, averaged over 3 years
[5] 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
[6] The NMAAQS is for Total Suspended Particulate (TSP)

In 2005, the EPA estimates that there was less than 0.01 ton per square mile of lead emitted in FFO counties, which is less than 2 tons total (U.S. Environmental Protection Agency, 2012). Lead emissions are not an issue in this area, and will not be discussed further.

Air quality in a given region can be measured by its Air Quality Index value. The air quality index (AQI) is reported according to a 500-point scale for each of the major criteria air pollutants, with the worst denominator determining the ranking. For example, if an area has a CO value of 132 on a given day and all other pollutants are below 50, the AQI for that day would be 132. The AQI scale breaks down into six categories: good (AQI<50), moderate (50-100), unhealthy for sensitive groups (100-150), unhealthy (>150), very unhealthy and hazardous. The AQI is a national index, the air quality rating and the associated level of health concern is the same everywhere in the country. The AQI is an important indicator for populations sensitive to air quality changes.

Mean AQI values for San Juan County were generally in the good range (AQI<50) in 2013 with 80% of the days in that range. The median AQI in 2013 was 42, which indicates "good" air quality. The maximum AQI in 2013 was 156, which is "unhealthy".

Although the AQI in the region has reached the level considered unhealthy for sensitive groups on several days almost every year in the last decade, there are no patterns or trends to the occurrences (Table 2). On 8 days in the past decade, air quality has reached the level of "unhealthy" and on two days, air quality reached the level of "very unhealthy". In 2009 and 2012, there were no days that were "unhealthy for sensitive groups" or worse in air quality. In 2005 and 2013, there was one day that was "unhealthy" during each year. In 2010, there were five "unhealthy" days and two "very unhealthy days".

Table 2. Number of Days classified as "unhealthy for sensitive groups" (AQI 101-150) or worse (U.S. Environmental Protection Agency, 2013a)

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Days	3	6	9	18	1	0	12	9	0	1

Hazardous Air Pollutants

The Air Resources Technical Report discusses the relevance of hazardous air pollutants (HAPs) to oil and gas development and the particular HAPs that are regulated in relation to these activities (U.S. Department of Interior Bureau of Land Management, 2014). The EPA conducts a periodic National Air Toxics Assessment (NATA) that quantifies HAP emissions by county in the U.S. The purpose of the NATA is to identify areas where HAP emissions result in high health risks and further emissions reduction strategies are necessary. A review of the results of the 2005 NATA shows that cancer, neurological and respiratory risks in San Juan County are generally lower than statewide and national levels as well as those for Bernalillo County where urban sources are concentrated in the Albuquerque area (U.S. Environmental Protection Agency, 2012).

Climate

The analysis area is located in a semiarid climate regime typified by dry windy conditions and limited rainfall. Summer maximum temperatures are generally in the range of 80 or 90 degrees Fahrenheit (°F), and winter minimum temperatures are generally in the teens to 20s. Temperatures occasionally reach above 100°F in June and July and have dipped below zero in December and January. Precipitation is divided between summer thunderstorms associated with the southwest monsoon and winter snowfall as Pacific weather systems drop south into New Mexico. Table 3 shows climate normals for the 30-year period from 1981 to 2010 for the Farmington, New Mexico, area.

Table 3. Climate Normals for the Farmington Area, 1981-2010

Month	Average Temperature (^{O}F [(1)])	Average Maximum Temperature (^{O}F)	Average Minimum Temperature (^{O}F)	Average Precipitation (inches)
January	30.5	40.8	20.3	0.53
February	35.8	46.8	24.8	0.59
March	43.2	56.1	30.3	0.78
April	50.4	64.7	36.2	0.65
May	60.4	74.8	46.1	0.54
June	69.8	85.1	54.5	0.21
July	75.4	89.6	61.2	0.90
August	73.2	86.5	59.8	1.26
September	65.4	79.1	51.7	1.04
October	53.3	66.4	40.1	0.91
November	40.5	52.2	28.8	0.68
December	31.0	41.2	20.7	0.50

Source: data collected at New Mexico State Agricultural Science Center - Farmington
[(1)] degrees Fahrenheit

The Air Resources Technical Report summarizes information about greenhouse gas emissions from oil and gas development and their effects on national and global climate conditions. While it is difficult to determine the spatial and temporal variability and change of climatic conditions; what is known is that increasing concentrations of GHGs are likely to accelerate the rate of climate change.

3.1.2. Impacts from the Proposed and Alternative Actions

Direct and Indirect Impacts

Air quality would temporary be directly impacted with pollution from exhaust emissions and dust. Air pollution from the motorized equipment and dust dissemination would discontinue at the completion of the project. Other factors that currently affect air quality in the area include dust from livestock herding activities, dust from recreational use, dust from use of roads for vehicular traffic, and emissions from oil

and gas production activities. Impacts to air quality attributable to this project would be temporary and minor.

Cumulative Impacts

The FFO manages Federal hydrocarbon resources in San Juan, Sandoval, Rio Arriba, and McKinley counties. There are approximately 21,150 wells in the San Juan Basin. About 18,483 of the wells in these counties are Federal wells. Analysis of cumulative impacts for reasonable development scenarios and RFDS of oil and gas wells on public lands in the FFO was presented in the 2003 RMP. This included modeling of impacts on air quality. A more detailed discussion of Cumulative Effects can be found in the Air Resources Technical Report (U.S. Department of Interior Bureau of Land Management, 2014).

The primary activities that contribute to levels of air pollutant and GHG emissions in the Four Corners area are electricity generation stations, fossil fuel industries, and vehicle travel. The Air Quality Technical Report includes a description of the varied sources of national and regional emissions that are incorporated here to represent the past, present, and reasonably foreseeable impacts to air resources (U.S. Department of Interior Bureau of Land Management, 2014). It includes a summary of emissions on the national and regional scale by industry source. Sources that are considered to have notable contributions to air quality impacts and GHG emissions include electrical generating units, fossil fuel production (nationally and regionally), and transportation.

The emissions calculator estimated that there could be very small direct and indirect increases in several criteria pollutants, HAPs, and GHGs as a result of implementing the proposed alternative. The very small increase in emissions that could result would not be expected to result in exceeding the NAAQS for any criteria pollutants in the analysis area.

The very small increase in GHG emissions that could result from implementing the Proposed or Alternative Action would not produce climate change impacts that differ from the No Action alternative. This is because climate change is a global process that is impacted by the sum total of GHGs in the Earth's atmosphere. The incremental contribution to global GHGs from the action alternatives cannot be translated into effects on climate change globally or in the area of this site-specific action. It is currently not feasible to predict with certainty the net impacts from the action alternatives on global or regional climate.

The Air Resources Technical Report (U.S. Department of Interior Bureau of Land Management, 2014) discusses the relationship of past, present, and future predicted emissions to climate change and the limitations in predicting local and regional impacts related to emissions. It is currently not feasible to know with certainty the net impacts from particular emissions associated with activities on public lands.

3.2. Cultural Resources

3.2.1. Affected Environment

The proposed project is located within the archaeologically rich San Juan Basin of northwest New Mexico. In general, the history of the San Juan Basin can be divided into five major periods: PaleoIndian (ca. 10000 B.C. to 5500 B.C.), Archaic (ca. 5500 B.C. to A.D. 400), Basketmaker II-III and Pueblo I-IV periods (aka Anasazi; A.D. 1-1540), and the historic (A.D. 1540 to present), which includes Native American as well as later Hispanic and Euro-American settlers. Detailed descriptions of these various periods are provided in the Bureau of Land Management Farmington Field Office Final Environmental Impact Statement (2003) and will not be reiterated here. Additional information can also be found in an associated documented, Cultural Resources Technical Report (CRTR; SAIC 2002).

Cultural sites vary considerably, and can include but are not limited to simple artifact scatters, domiciles of various types with a myriad of associated features, rock art and inscriptions, ceremonial/religious features, and roads and trails.

The entire Area of Potential Effect (APE) for the Proposed Action was archaeologically surveyed by LAC at a BLM Class III (100 percent) level. The archaeological report was prepared and submitted to the BLM in accordance with the *Procedures for Performing Cultural Resources Fieldwork on Public Lands in the Area of New Mexico BLM Responsibilities* (BLM 2005).

The Class III inventory identified no cultural sites within the APE (LAC Report No. 2014-11; BLM Report 2014(IV)042F). No TCPs are known to exist in the APE.

3.2.2. Impacts from the Proposed and Alternative Actions

Direct and Indirect Impacts

There are no cultural sites within the APE. The proposed action is not known to physically threaten any TCPs, prevent access to sacred sites, prevent the possession of sacred objects, or interfere or otherwise hinder the performance of traditional ceremonies/rituals. The Proposed Action will have no direct or indirect impacts on cultural sites.

Cumulative Impacts

There will be no negative cumulative impact on cultural resources as no cultural sites are present. A positive cumulative effect is the additional scientific information yielded by the archaeological survey.

3.3. Upland Vegetation

3.3.1. Affected Environment

The analysis area is located within the United States Environmental Protection Agency (USEPA) designated Arizona/New Mexico Plateau Level III ecoregion. The Arizona/New Mexico Plateau occurs primarily in Arizona, Colorado, and New Mexico, with a small portion in Nevada. This ecoregion is approximately 45,870,500 acres (185,632 square kilometers [km^2]), and the elevation ranges from 2,165 to 11,949 feet AMSL (660 to 3,642 meters). The ecoregion's landscapes include low mountains, hills, mesas, foothills, irregular plains, alkaline basins, some sand dunes, and wetlands. This ecoregion is a large transitional region between the semiarid grasslands to the east, the drier shrublands and woodlands to the north, and the lower, hotter, less vegetated areas to the west and south. Vegetation communities include shrublands with big sagebrush, rabbitbrush, winterfat, shadscale saltbush, and greasewood; and grasslands of blue grama, western wheatgrass, green needlegrass, and needle-and-thread grass. Higher elevations may support piñon pine and juniper forests. The ecoregion includes the urban areas of Santa Fe and Albuquerque. Important land uses include irrigated farming, recreation, rangeland, wildlife habitat, and some natural gas production (Griffith, et al. 2006).

The general region surrounding the proposed project area is characterized by sagebrush shrubland valleys and wooded hills and mesas. The analysis area is situated within sagebrush shrubland with an estimated ground cover of 35 percent. Vegetation found in the analysis consists of alkali sacaton (*Sporobolus airoides*), big sagebrush (*Seriphidium tridentatum*), blue grama (*Bouteloua gracilis*), claret cup cactus (*Echinocereus triglochidiatus*), four-wing saltbush (*Atriplex canescens*), New Mexican prickly pear cactus (*Opuntia phaeacantha*), rabbitbrush (*Chrysothamnus* sp.), and spiny-star nipple cactus (*Coryphantha vivipara* var. *radiosa*). No trees were documented within the analysis area.

3.3.2. Impacts from the Proposed and Alternative Actions

Direct and Indirect Impacts

Under the Proposed Action, Basin would be granted access to 20.47 acres of public lands containing Sagebrush/Grass Community. Actual vegetative disturbance from the Proposed Action would be dependent on facility and equipment layout, but could result in the removal of up to 20.47 acres of sagebrush shrubland. Under the Alternative Action, Basin would be granted access to 28.46 acres of

public lands containing Sagebrush/Grass Community. Actual vegetative disturbance from the Alternative Action would be dependent on facility and equipment layout, but could result in the removal of up to 20.47 acres of sagebrush shrubland. Approximately 8 acres of sagebrush shrubland would be preserved for future development.

During interim and final reclamation, the BLM Sagebrush/Grass Community Seed Mixture would be utilized; the species included in this mixture are included in the Surface Reclamation Plan (Appendix C). Reestablished vegetation would consist of native grass, forb, and shrub species included in the seed mixture, as well as native species that are not deliberately planted. It is also possible that invasive, non-native species could become established within the proposed project area, as such species could be transported by project equipment and tend to thrive in disturbed areas. Following the reclamation process, the resulting vegetation communities could differ from the native plant communities surrounding the proposed project area. Within reclaimed areas, it is not expected that the vegetation communities would return to native conditions within 20 years (BLM 2003a, 4-18).

During final reclamation, Basin would fully reclaim any portions of the proposed project that would be disturbed to bare soil as a result of final abandonment earthwork activities (if such areas total greater than 0.1 acre).

The deposition of fugitive dust generated during vegetation-clearing activities and during wind events could reduce photosynthesis and productivity of the surrounding vegetation (Thompson, et al. 1984; Hirano, et al. 1995), increase water loss in plants near the proposed project area (Eveling and Bataille 1984), and result in injury to leaves of surrounding vegetation.

Cumulative Impacts

The spatial analysis area is the proposed project area and immediately adjacent lands. Within the spatial analysis area, the following vegetative disturbances have occurred or are anticipated to occur in the reasonably foreseeable future:

- Approximately 18 wells have been drilled within a one mile radius of the proposed water recycling facility. The nearest is a recently constructed WPX Energy Production well pad located adjacent to the analysis area to the south.
- A Jemez Mountains Electric Cooperative sub-station is located immediately east of the proposed project area. The facility is a fenced area approximately 4 acres in size.
- U.S. Highway 550 is located on the north side of the proposed project area.
- Active wildlife and livestock grazing occurs in the area. The proposed action is located within the Venado Allotment Number 5112 managed by the BLM-FFO.

Indirectly, fugitive dust or deposition associated with existing roads, well pads, utility corridors, and public use in the immediate area could impact the vegetation within the analysis area, and could continue to do so throughout the life of the proposed project. Aside from those discussed above, no additional impacts to vegetation are expected within the analysis area for the reasonably foreseeable future.

The proposed project would contribute to direct and indirect vegetation disturbance and fugitive dust and/or deposition within the spatial analysis area.

3.4. Migratory Birds

3.4.1. Affected Environment

Executive Order 13186 dated January 17, 2001 calls for increased efforts to more fully implement the Migratory Bird treaty Act of 1918. In keeping with this mandate, the BLM/FFO has issued an interim policy

to minimize unintentional take as defined by the EO 13186 and to better optimize migratory bird efforts related to BLM/FFO activities (BLM 2010). In keeping with this policy, a list of priority birds of conservation concern which occur in similar eco-regions as the proposed action area was compiled through a review of existing bird conservation plans including:

- Fish and Wildlife Service (USFWS) Birds of Conservation Concern (BCC)
- New Mexico Partners in Flight (NMPIF) New Mexico Bird Conservation Plan
- Comprehensive Wildlife Conservation Strategy for New Mexico (CWCS)
- Gray Vireo Recovery Plan
- The North American Waterbird Conservation Plan
- Recovery plans and conservation plans/strategies prepared for federally-listed candidate species.

The selected species have a known distribution in the BLM-FFO area and may be affected by various types of perturbations. Table 4 lists these priority species that have the potential to occur within the proposed project area. During the biological survey of the proposed project area, no priority birds of conservation concern were observed or heard.

Table 4. Priority Birds of Conservation Concern with Potential to Occur in the Project Area

Species Name	Habitat Associations	Potential to Occur in the Project Area
Black-throated sparrow (*Amphispiza bilineata*)	Xeric habitats dominated by open shrubs with areas of bare ground.	Suitable habitat is present within the action area for species to occur.
Brewer's sparrow (*Spizella breweri*)	Closely associated with sagebrush, preferring dense stands broken up with grassy areas.	Suitable habitat is present within the action area for species to occur.
Gray vireo (*Vireo vicinior*)	In northern NM, open stands of piñon pine and Utah juniper (5,800 – 7,200 ft) with a shrub component and mostly bare ground; antelope bitterbrush, mountain mahogany, Utah serviceberry and big sagebrush often present. Broad, flat or gently sloped canyons, in areas with rock outcroppings, or near ridge-tops.	Marginal habitat for species to occur was documented within the action area. Lack of piñon-juniper woodland characteristics likely a limiting factor.
Loggerhead shrike (*Lanius ludovicianus*)	Open country interspersed with improved pastures, grasslands, and hayfields. Nests in sagebrush areas, desert scrub, and woodland edges.	Suitable habitat is present within the action area for species to occur.
Mountain bluebird (*Sialia currucoides*)	Open piñon-juniper woodlands, mountain meadows, and sagebrush shrublands; requires larger trees and snags for cavity nesting.	Marginal habitat for species to occur was documented within the action area. Lack of piñon-juniper woodland characteristics likely a limiting factor.
Mourning dove (*Zenaida macroura*)	Open country, scattered trees, and woodland edges. Feeds on ground in grasslands and agricultural fields. Roost in woodlands in the winter. Nests in trees or on ground.	Marginal habitat for species to occur was documented within the action area. Lack of woodland characteristics and agricultural areas likely limiting factors.
Sage sparrow (*Amphispiza belli*)	Large and contiguous areas of tall and dense sagebrush. Negatively associated with seral mosaics and patchy shrublands and abundance of greasewood.	Suitable habitat is present within the action area for species to occur.
Sage thrasher (*Oreoscoptes montanus*)	Shrub-steppe dominated by big sagebrush.	Suitable habitat is present within the action area for species to occur.
Scaled quail (*Callipepla squamata*)	Brushy arroyos, cactus flats, sagebrush or mesquite plains, desert grasslands, Plains grasslands, and agricultural areas. Good breeding	Suitable habitat is present within the action area for species to occur.

	habitat has a diverse grass composition, with varied forbs and scattered shrubs.	
Swainson's hawk (*Buteo swainsoni*)	A mixture of grassland, cropland, and shrub vegetation; nests on utility poles and in isolated trees in rangeland. Nest densities higher in agricultural areas.	Marginal foraging habitat within the action area; lack of suitable nesting habitat likely a limiting factor for species to occur.
Vesper sparrow (*Pooecetes gramineus*)	Dry montane meadows, grasslands, prairie, and sagebrush steppe with grass component; nests on ground at base of grass clumps.	Suitable habitat is present within the action area for species to occur.

3.4.2. Impacts from the Proposed and Alternative Actions

Direct and Indirect Impacts

Under the Proposed Action, Basin would be granted ROW access to 20.47 acres of public lands containing Sagebrush/Grass Community. Under the Alternative Action, Basin would be granted ROW access to 28.46 acres of public lands containing Sagebrush/Grass Community. There is available, similar habitat in the surrounding area that migratory birds could utilize. However, the clearing of vegetation would remove potential habitat. The transformation of the proposed project area to a reseed community could remove potential habitat for migratory bird species, including the priority bird species listed in Table 4 above.

If interim reclamation is successful, Sagebrush/Grass Community would become re-established in areas not needed for the operation of the water recycling facility. However, as discussed in Section 3.3 (Upland Vegetation), the re-establishment of a mature, native plant community could require decades, and it is possible that the plant community could never fully recover from disturbance (BLM 2003a, 4-18).

As discussed in Section 2.1.2 (Description of Proposed Project - Protection of Flora and Fauna, Including SSS and Livestock), if the vegetation-clearing phase of construction is scheduled to occur during migratory bird breeding season, a pre-construction migratory bird nest survey will be conducted within the proposed project area. Therefore, it is unlikely that nests, eggs, or young birds within the proposed project area would be directly harmed. If proposed project activities would occur during migratory bird breeding season, birds nesting outside of but near the proposed project area could abandon existing nests as a result of visual and audial disturbances. Due to the mobility of adult birds, they would be unlikely to be directly harmed by the proposed project.

Cumulative Impacts

Reasonably foreseeable development within the Largo sub-watershed may include an estimated additional 1,811 oil and gas wells and related facilities, and 147 miles of new roads. Surface-disturbing activities that would be associated with these actions may affect an estimated 6,756 acres of potential migratory bird habitat (USDI/BLM 2003a, page 4-7 and 4-8). Other reasonably foreseeable actions such as continued livestock grazing, vegetation treatments, and community development would cumulatively impact wildlife, including migratory birds, through direct and effective habitat loss. The intensity of indirect effects would be dependent upon the species, its life history, time of year and/or day and the type and level of human and vehicular activity occurring.

3.5. Special Status Species

3.5.1. Affected Environment

The BLM manages certain species which are not federally listed as threatened or endangered in order to prevent or reduce the need to list them as threatened or endangered in the future. BLM SSS include BLM Sensitive Species and BLM-FFO Special Management Species (SMS).

New Mexico BLM State Directors have developed a list of BLM Sensitive Species for the State of New Mexico (BLM 2011a, BLM 2011b, BLM 2011c, BLM 2012a). In accordance with BLM Manual 6840, the BLM-FFO has prepared a list of BLM-FFO SMS to focus species management efforts toward maintaining habitats under a multiple-use mandate (BLM 2008a, BLM 2008c). BLM-FFO SMS include some BLM Sensitive Species and other species for which the BLM-FFO has determined special management is appropriate (BLM 2008c). The authority for this policy and guidance is established by the ESA; Title II of the Sikes Act, as amended (16 USC 670a-670o, 74 Stat. 1052); FLPMA; and Department of Interior Manual 235.1.1A.

It was determined that the following SSS have the potential to occur or are known to occur within the proposed project area:

- **Bendire's thrasher**: Potential foraging and nesting habitat is available within the proposed project area. No sign of this species was recorded during the biological survey.

- **Ferruginous hawk**: Potential foraging habitat is available within the proposed project area; however, no suitable nesting habitat is present within or adjacent to the proposed project area. No sign of this species was recorded during the biological survey of the proposed Lybrook Water Recycling facility project area.

- **Golden eagle**: Potential foraging habitat is available within the proposed project area; however, no suitable nesting habitat is present within the proposed project area. A previously documented golden eagle nest site is located approximately 5.7 miles east of the project area. No sign of this species was recorded during the biological survey of the proposed Lybrook Water Recycling facility project area.

- **Prairie falcon**: Potential foraging habitat is available within the proposed project area; however, no suitable nesting habitat is present within or adjacent to the proposed project area. No sign of this species was recorded during the biological survey of the proposed Lybrook Water Recycling facility project area.

3.5.2. Impacts from the Proposed and Alternative Actions

Direct and Indirect Impacts

There is similar habitat available in the surrounding area that BLM SSS could utilize. However, the Proposed Action could result in the disturbance of up to 20.47 acres of Sagebrush/Grass Community. The Alternative Action could result in the disturbance of up to 28.46 acres of Sagebrush/Grass Community. No suitable raptor nesting habitat is available within the proposed project area.

If interim reclamation is successful, Sagebrush/Grass Community would become re-established in areas not needed for the operation of the water recycling facility. However, as discussed in Section 3.3 (Upland Vegetation), the re-establishment of mature, native plant communities could require decades, and it is possible that plant communities could never fully recover from disturbance (BLM 2003a, 4-18).

Bendire's Thrasher

Bendire's thrasher is found in southwest U.S. and northwest Mexico, from southern Nevada, southern Utah, and southwestern Colorado, south to central Sonora. Status in Baja California is unresolved. Distribution is patchy and in some cases poorly known. Bendire's thrasher breeds in scattered locations in central and western portions of New Mexico, and is most common in the southwest part of the state.

As discussed in Section 2.1.2 (Description of Proposed Project - Protection of Flora and Fauna, Including SSS and Livestock), if the vegetation-clearing phase of construction is scheduled to occur during the migratory bird breeding season, a pre-construction migratory bird nest survey will be conducted within the proposed project area.

Audial and visual disturbances associated with the proposed project could temporarily deter this species from utilizing the proposed project area and immediately adjacent lands.

Ferruginous Hawk, Golden Eagle, and Prairie Falcon

No suitable raptor nesting habitat is available within the proposed project area. Raptors could potentially utilize the proposed project area for foraging within sagebrush shrubland. Due to the mobility of adult birds, it is unlikely that raptors would be directly harmed by activities associated with the proposed project.

Audial and visual disturbances associated with the proposed project could temporarily deter these species from utilizing the proposed project area and immediately adjacent lands.

Cumulative Impacts

The FFO would continue to manage non-federally listed species according to BLM policies and guidelines, with the goal of contributing to the conservation of these species to reduce the potential for being listed under the ESA of 1973, as amended (USDI/BLM 2003a, 4-111). For reasonably foreseeable actions on federal lands, direct impacts to SSS would be avoided through the BLM's siting criteria. Development on federal and private land would result in the removal or modification of potential SSS habitat. These effects would be related to availability of undisturbed habitat in the area and the amount of disturbance that would occur within the area. The PRMP/FEIS determined that cumulatively up to 5.5 percent (128,000 acres) of vegetation in the planning area could be impacted by oil and gas development (USDI/BLM 2003a, page 4-125). Other reasonably foreseeable actions within the planning area that could impact SSS would include livestock grazing, agriculture, commercial and residential development, mining, wildfire, and vegetation management.

3.6. Noxious Weeds and Invasive Species

3.6.1. Affected Environment

Management of invasive and non-native plant species is mandated under several pieces of legislation, including the Lacey Act, as amended (16 USC 3371-3378); the Federal Noxious Weed Act of 1974, as amended (7 USC 2801 et seq.); the New Mexico Noxious Weed Management Act of 1998; and EO 13112 regarding Invasive Species. Under EO 13112, Federal agencies are ordered not to authorize or carry out actions that would cause or promote the introduction of invasive species.

In the San Juan Basin, invasive plants are frequently found in areas that have been disturbed by surface activities. A mission of the BLM-FFO is to detect new invasive plant species populations, prevent the spread of these new populations, manage existing populations, and eradicate invasive populations. This is to be accomplished in a timely manner, using the safest environmental methods available. For all actions on BLM-FFO lands that involve surface disturbance or reclamation, reasonable steps are required to prevent the introduction or spread of invasive plants (BLM 2003a, 3-34).

The U.S. Department of Agriculture (USDA) has designated certain plants as federally listed noxious weeds (NRCS 2010). The New Mexico Department of Agriculture (NMDA) has designated certain plants as state-listed noxious weeds (NMDA 2010). A total of 212 invasive and poisonous weed species have been identified on BLM-FFO lands. The PRMP/FEIS lists the invasive, non-native plant species of concern in the BLM-FFO area (BLM 2003a, 3-34 – 3-35).

During the July 2014 biological survey and onsite field inspection of the proposed project area, Russian knapweed (*Acroptilon repens*) was found within NMDOT ROW for U.S. Highway 550 adjacent to the proposed project area. Russian knapweed is an NMDA-listed Class B noxious weed. No other USDA-listed noxious weeds (NRCS 2010), NMDA-listed noxious weeds (NMDA 2010), or BLM-FFO invasive or poisonous weed species (BLM 2003a, 3-34 – 3-35) were identified within the proposed project area. A

noxious weed plan for monitoring and treatment of any existing or new infestations will be established for the length of this project.

3.6.2. Impacts from the Proposed and Alternative Actions

Direct and Indirect Impacts

Noxious weeds and invasive species are generally tolerant of disturbed conditions, and disturbed soils at project sites could provide an opportunity for the introduction and establishment of noxious weeds and invasive species. Seeds or other propagules of noxious/invasive species could be transported to a project site from infested areas by heavy equipment or other vehicles that are used at the site. Noxious weeds and invasive species could also spread from established populations near a project site and colonize soils disturbed by project activities. In arid regions, such as the area in which the proposed project area is located, longer time periods are required for the re-establishment of plant communities; this could create an increased potential for the establishment and spread of noxious/invasive species. Noxious weeds and invasive species typically develop high population densities and tend to exclude most other plant species, thereby reducing species diversity and potentially resulting in long-term effects. The establishment of noxious/invasive species could greatly reduce the success of native plant community restoration efforts in project areas and create a source of future colonization and degradation of adjacent undisturbed areas.

The establishment of invasive species, particularly annual grasses, such as cheatgrass, which produce large amounts of easily ignitable fuel over large contiguous areas, could also alter fire regimes. This situation could result in an increase in the frequency and intensity of wildfires, and in some areas, such as in some desert-scrub communities, a fire regime could be created where none was present before. In plant communities that are not adapted to frequent or intense fires, native species, particularly shrubs and trees, could be adversely affected, and their populations could be greatly reduced, creating opportunities for greater increases in noxious/invasive species populations (Brooks and Pyke 2001). Increases in fire frequency or severity could thus result in a reduction of biodiversity and could promote the conversion of some habitats (such as forest, shrubland, or shrub-steppe) to other types, prolonging or preventing the development of mature native habitats (BLM and U.S. Department of Energy 2010).

Cumulative Impacts

The spatial analysis area is the proposed project area and immediately adjacent lands. Within the spatial analysis area, ground-disturbing activities have or are anticipated to occur in the reasonably foreseeable future; these disturbances are described in Section 3.3 (Upland Vegetation). These ground disturbances could encourage the establishment of noxious weeds. In addition, ongoing activities, such as vehicles driving and livestock grazing, have contributed to the potential for weeds to be introduced to the spatial analysis area from other locations. The disturbances and activities have contributed to the establishment of cheatgrass (downy brome), Russian knapweed, and Russian thistle (tumbleweed), and could contribute to the establishment and spread of other noxious weeds or invasive species. The proposed project would contribute to surface disturbance and ongoing activity, and thus contribute to the potential for the establishment and spread of noxious weeds or invasive plant species within the spatial analysis area.

3.7. Soils

3.7.1. Affected Environment

The San Juan Basin is bordered by the Defiance Uplift and Chuska Mountains to the west, San Juan Dome to the north, Chaco Slope and Zuni Uplift to the south and the Nacimiento Uplift to the east. In total, the San Juan Basin covers a surface of approximately 4,600 square miles. The soils in the San Juan Basin were formed primarily from two kinds of parent material: alluvial sediment and sedimentary rock. The alluvial sediment is material that was deposited in river valleys and on mesas, plateaus, and abandoned river terraces. The material has been mixed and sorted in transport and has a wide range of mineralogy and particle size. Sedimentary parent material consists mainly of sandstone and shale

bedrock. These shale and resistant sandstone beds form prominent structural benches, buttes, and mesas bounded by cliffs.

According to the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) Web Soil Survey, the analysis area lies within the Sparank-San Mateo silt loams soil mapping unit. The BLM-FFO has reviewed NRCS soil surveys and has identified the Sparank-San Mateo silt loams mapping unit as potentially fragile. The proposed project area is situated within relatively dense sagebrush shrubland. The slope of the analysis area is not estimated to be 15 percent or more.

3.7.2. Impacts from the Proposed and Alternative Actions

Direct and Indirect Impacts

The Proposed and Alternative Actions would result in the removal of established vegetation in Sagebrush/Grass Community. Construction of the water recycling facility could reduce up to approximately 20.47 acres of Sagebrush/Grass Community to bare mineral soils. As discussed in Section 2.1.2 (Description of Proposed Project - Protection of Air Resources), BMPs for dust suppression would be utilized within the proposed project area to reduce fugitive dust during the construction phase of the proposed project. In addition, topsoil, which would be stripped from the surface of the proposed pipeline corridor during the construction phase of the proposed project, would be stored and protected until it is redistributed during reclamation. The topsoil would be protected using wattles or other BMPs so that erosion is minimized.

Cumulative Impacts

The primary cumulative impacts on soils would result from an increase in the amount of surface disturbance due to increased oil and gas development activity and other earthmoving activities in the Largo sub-watershed of the planning area. Other vegetation damaging practices, such as OHV use, livestock grazing, and vegetation management on non-public lands, could contribute to increased soil erosion.

3.8. Water Resources

3.8.1. Affected Environment

Groundwater

The planning area is underlain by sandstone aquifers and unconsolidated sand and gravel aquifers. The Colorado Plateaus Aquifers are sandstone while the Rio Grande Aquifer system is unconsolidated sand and gravel. The primary Colorado Plateaus Aquifers that underlie the planning area are the Unita-Animas Aquifer, which underlies the vast majority of the San Juan Basin, and the Mesaverde aquifer (USGS 2001a).

The Unita-Animas aquifer is composed primarily of Lower Tertiary rocks in the San Juan Basin. It consists of the San Jose Formation, the underlying Animas Formation and its lateral equivalent, the Nacimiento Formation, and the Ojo Alamo Sandstone. The San Jose Formation is the uppermost significant bedrock formation in the San Juan Basin and primarily consists of permeable, coarse, arkosic sandstone interlayered with mudstone. The Animas and Nacimiento Formations and the Ojo Alamo Sandstone consist primarily of permeable conglomerate and medium to very coarse sandstone interlayered with relatively impermeable shale and mudstone. The thickness of the Unita-Animas aquifer generally increases toward the central part of each basin. In the northeastern part of the San Juan Basin, the maximum thickness of the aquifer is about 3,500 feet (USGS 2001a).

Surface Water

As discussed in Section 1.5.1 (Clean Water Act), the BLM-FFO and USACE Durango Regulatory Office have determined that USACE-jurisdictional waters may include USGS watercourses. A principle drainage channel in upper Escrito Canyon is located adjacent to the proposed project area.

3.8.2. Impacts from the Proposed and Alternative Actions

Direct and Indirect Impacts

Groundwater

The proposed water recycling facility would reduce potential impacts to groundwater resources in the planning area by eliminating the need for additional produced water injection wells in the San Juan Basin. Impacts to groundwater resources in the analysis area are anticipated to be minimal as a result of the proposed water recycling facility.

Surface Water

As discussed in Section 2.1.2 (Description of Proposed Project - Protection of Water Resources), erosion control and stormwater management design features would be implemented to minimize impacts to USGS watercourses within the vicinity of the proposed project area.

Cumulative Impacts

The primary cumulative impacts on water quality would result from an increase in the amount of surface disturbance due to increased oil and gas development activity and other earthmoving activities in the Largo sub-watershed of the planning area. The proposed surface disturbances and increased sediment yields, along with an increase in roads that would direct sedimentation to stream crossings, would occur mainly in the high development area. Other vegetation damaging practices, such as OHV use cross-country and in drainageways, livestock grazing, and vegetation management on non-public lands, could contribute to increased sedimentation.

As population increases in the planning area, domestic water consumption would also increase, but no data are available to quantify the amount.

3.9. Livestock Grazing

3.9.1. Affected Environment

The proposed water recycling facility is located within the Venado Allotment Number 5112 managed by the BLM-FFO. The Venado Allotment has a grazing authorization that permits 79 head of cattle with a grazing period from March 1 to February 28 annually. The term grazing authorization permits the utilization of 806 active AUMs (Animal Unit Months) of forage. An AUM is the amount of forage needed to sustain a cow (1,000 pounds) or cow/calf pair for one month. The Venado Allotment is 13,640 acres in size and contains 85 percent public lands. The average rangeland carrying capacity for the Venado Allotment is approximately 16.9 acres/AUM.

3.9.2. Impacts from the Proposed and Alternative Actions

Direct and Indirect Impacts

The Proposed Action could result in the loss of up to approximately 1.2 AUM of forage. The Alternative Action could result in the loss of up to approximately 1.7 AUM of forage.

Additional short term impacts may include displacement of permitted livestock during construction activities or exposure of livestock to hazards. After construction, livestock should become acclimated to the facility and traffic associated with its maintenance. Vehicle traffic associated with the facility could

pose impacts to livestock considering that the area is open range and livestock may be found on roads in the area.

Direct impacts to livestock occur when holes or ditches are not excluded properly. Any type of hole or ditch is potentially a hazard to livestock while grazing. Cow or calf injuries may occur when they fall into a ditch-type cavity or in process of trying to get out. Cow or calf leg injuries also may occur when any type of small hole is left uncovered. Livestock can step into the hole and break a leg.

Impacts to livestock may occur when containment of livestock is compromised (i.e., fencing cutting). This could result in injury to livestock or individuals in the event of a vehicular accident. Indirect impacts include extra time required by the permittee to locate livestock or potential trespass issues for the respective livestock owner if the livestock cross allotment boundaries.

Cumulative Impacts

Reasonably foreseeable development within the Largo sub-watershed may include an estimated additional 1,811 oil and gas wells and related facilities, and 147 miles of new roads. Surface-disturbing activities that would be associated with these actions may affect an estimated 6,756 acres (USDI/BLM 2003a, page 4-7 and 4-8). Other reasonably foreseeable actions such as continued oil and gas development, vegetation treatments, and community development would cumulatively impact livestock grazing through direct and effective rangeland loss.

3.10. Visual Resources

3.10.1. Affected Environment

The BLM classifies visual resources through a Visual Resource Inventory (VRI). The VRI has three components: scenic quality, sensitivity, and distance zone. Scenic quality is a measure of the visual appeal of a tract of land. In the VRI process, BLM-managed lands are given an A, B, or C rating based on the apparent scenic quality. Scenic quality is determined by using seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modification. Areas with the most visual appeal are rated A, while areas with the least visual appeal are rated C. The project area is within the Sisnathyel No. 30 area rated C for scenic quality. The area contains a band of badland landscape in the middle of a large, open complex of rolling hills and dry drainages. The low buttes and mesas of the badlands add diagonal lines to the otherwise horizontal landscape. Scattered clusters of piñon/juniper add greens and grays to the browns, reds, whites, and yellows of the soils.

Sensitivity is a measure of the public concern for scenic quality. During the sensitivity rating, public lands are assigned high, medium, or low sensitivity by analyzing six indicators of public concern: type of user, amount of use, public interest, adjacent land uses, special areas, and other factors. The project area is within an area rated medium for sensitivity.

The distance zone analysis is conducted to determine the relative visibility from travel points or observation points. The distance zone for this area is foreground/middle ground meaning the area can be seen from travel routes of observation points within a distance of 3 to 5 miles. This indicates activities and development may be able to be viewed in detail.

These components resulted in the area being assigned a VRI Class IV.

Visual resources are managed by assigning a Visual Resource Management (VRM) Class. The objective for each VRM Class describes how that area should be managed. The project area is within a VRM Class IV. The objective of this class is to provide for activities that require major modification of the landscape. The level of change to the landscape can be high, and management activities may dominate the view and be the major focus of attention.

3.10.2. Impacts from the Proposed and Alternative Actions

Direct and Indirect Impacts

Under the Proposed Action, Basin would be granted ROW access to 20.47 acres of public lands containing relatively flat sagebrush shrubland. Under the Alternative Action, Basin would be granted ROW access to 28.46 acres of public lands containing relatively flat sagebrush shrubland. As discussed in Section 2.1.2 (Description of Proposed Project – Production Facilities), all permanent (on location for 6 months or longer) above-ground equipment constructed or installed will be painted Covert Green as specified by the BLM-FFO. All production facilities will be painted within 6 months of installation. Facilities that are required to comply with Occupation Health and Safety Rules and Regulations will be excluded from this painting requirement.

Reclaimed portions of the proposed project area would be converted to a reseed community. The impacts to the Sagebrush/Grass Community are described in detail in Section 3.3 (Upland Vegetation). If reclamation is successful, Sagebrush/Grass Community would become re-established within the reclaimed portions of the proposed project area. However, as discussed in Section 3.3, the re-establishment of a mature, native plant community could require decades, and it is possible that the plant community could never fully recover from disturbance (BLM 2003a, 4-18).

The conversion of the proposed project area to barren surface and reseed community would result in an alteration in the texture and color of the ground and a reduction in the roughness and complexity of the surface. Additionally, the proposed equipment would be visible on the proposed facility, creating possible color contrasts, a change in the texture of the landscape due to the smooth surface of tanks, and a break in the horizontal landscape plane.

The proposed project is congruent with viewer expectation, as the proposed facilities would be located in an area known for oil and gas industrial activity. Proposed project activities could attract attention but would not dominate the view of the casual observer. The proposed water recycling facility would be constructed along U.S. Highway 550 in the vicinity to existing commercial establishments, residences, and other energy infrastructure. The C scenic quality rating, the medium sensitivity rating, VRI Class 4 rating, and VRM Class IV criteria would be met.

Cumulative Impacts

The spatial analysis area for visual resources includes the proposed project area and an approximately two-mile radius around the proposed project area. Within the spatial analysis area, there is existing disturbance. Visual resource disturbances in the area are primarily the result of oil and gas development (including well pads, access roads, pipeline corridors, compression/distribution facilities, and storage facilities).

The proposed project would contribute to the cumulative visual resources impacts within the spatial analysis area.

3.11. Noise

3.11.1. Affected Environment

Increases in noise have the potential to affect natural resource values and management in BLM-FFO Specially Designated Areas, such as Special Management Areas, Areas of Critical Environmental Concern, and Research Natural Areas. The BLM has designated certain areas within the BLM-FFO planning area as Noise Sensitive Areas (NSAs), which include some visitor use areas, wilderness areas, semi-private recreation areas, habitat for SSS, raptor nesting/roosting sites, recreational trails, and sites where people live and work. Within NSAs, noise-control measures are either receptor or boundary focused, as determined by BLM-FFO management guidelines for each NSA.

According to NTL 04-2 FFO, for oil and gas operations that operate on a continual (greater than 8 hours per day), long-term (greater than one week in duration) basis, sound levels at designated receptors or boundaries must be less than or equal to 48.6 A-weighted decibels over a continuous 24-hour period. The NTL 04-2 FFO sound level requirement does not apply to transient operations (e.g., construction, drilling, completion, workover activities), short-term events (e.g., venting a well, compressor start-ups), or temporary non-oil and gas sound sources. The NTL 04-2 FFO provides further detail on noise standards related to oil and gas activities (BLM 2004).

The proposed project area is not located within 400 feet of an NSA (BLM 2003c), within 100 feet of an occupied dwelling or building, or within an incorporated city or township.

3.11.2. Impacts from the Proposed and Alternative Actions

Direct and Indirect Impacts

Sound levels within NSAs, occupied dwellings/buildings, or incorporated cities or townships would not be affected by the proposed project.

During the construction phase of the proposed project, sound levels would be elevated above pre-existing levels during normal daylight working hours. During the operation phase of the proposed project, noise levels would vary depending on equipment used and activity at the water recycling facility. Operational noise would be produced by facility equipment, such as compressors, filters, and separators, and by vehicles periodically visiting the facility. Noise levels associated with oil and gas activities are described above and in the PRMP/FEIS (2003a).

Cumulative Impacts

The spatial analysis area for the proposed project area is the BLM-FFO planning area. Increases in the level of sound generated from the extraction, production, and transportation of oil and gas development has occurred in the San Juan Basin over the last several decades. Increased sound levels are associated with oil- and gas- operation activities, including well drilling, pump jack operations, produced water injection facilities, and gas compressor facilities. The proposed project would contribute to noise in the spatial analysis area.

3.12. Transportation and Travel

3.12.1. Affected Environment

Within the BLM-FFO planning area, there are approximately 15,000 miles of roads. Most of the roads are unpaved and provide access to resources on Federal lands, predominantly oil and gas facilities. In areas with a high level of oil and gas development, there are approximately 4 miles of roads per square mile. In areas outside of oil and gas development areas, there are approximately 1 mile of roads per square mile. The major roads within the BLM-FFO planning area are U.S. Highways 550, 64, and 491 and State Highways 96, 170,173, 371, 511, 537, 544, 574, and 595 (BLM 2003a, 3-57 – 3-58).

The county roads within the BLM-FFO planning area have been categorized (BLM 2003a, 3-58):

- Full county-maintained: maintained at best level possible with resources available
- Lesser county-maintained: bladed twice a year
- Unmaintained roads

There are existing roads within the general vicinity of the proposed project area. The government entity that owns a road is responsible for maintenance (BLM 2003a, 3-58). During the onsite meeting, the BLM-FFO did not assign Basin any upgrades to existing roads.

3.12.2. Impacts from the Proposed and Alternative Actions

Direct and Indirect Impacts

Basin would develop an ingress and egress point off of U.S. Highway 550 as part of the proposed project. Basin would comply with NMDOT rules and regulations, including the development of acceleration/deceleration lanes affecting travel on the highway.

During all proposed project phases, vehicles would use developed BLM roads, county roads, and highways in the region. Traffic would include light vehicles (such as cars and pick-up trucks) and heavy vehicles (such as water trucks and large tractor-trailers hauling equipment).

During all proposed project phases, the proposed project would result in increased traffic on area roads; therefore, there would be an increased potential for traffic accidents. Traffic estimates would likely increase during mobilization/demobilization phases, which would include the movement of equipment, tanks, pipes, sand, and other materials in/out of the proposed facility area using heavy vehicles.

Roads would be maintained in the same or better condition as existed prior to the commencement of proposed operations. The maintenance activities would continue until final abandonment and reclamation of the proposed project area. The proposed ingress and egress points would be maintained for the life of the proposed project in accordance with *The Gold Book* (BLM and USFS 2007) and/or NMDOT regulations.

BMPs to be utilized within the proposed ingress/egress areas are described further in Section 2.1 (Proposed Action) and the Surface Reclamation Plan (Appendix C).

The roads in the general region of the proposed project area include BLM resource roads, full county-maintained and lesser county-maintained roads, and a U.S. Highway (550).

Cumulative Impacts

The spatial analysis area for transportation includes the proposed ingress/egress points and U.S. Highway 550. Within the spatial analysis area, the existing roads are used to access commercial infrastructure, oil and gas operations, public lands, and residences.

The proposed project would contribute to the cumulative transportation impacts within the spatial analysis area. Overall impacts to the transportation network and access in general will be moderate due to the potential for increased heavy truck traffic on U.S. Highway 550.

3.13. Economics

3.13.1. Affected Environment

Within the BLM-FFO planning area there are three major economic sectors: public land grazing, recreation, and oil and gas development. The BLM-FFO planning area is directly affected by oil and gas development, as the area provides many employment opportunities to the local communities and the tax receipts from oil and gas development are distributed to local governments (BLM 2003a, 3-93 – 3-94).

Sandoval County is partially located within the BLM-FFO planning area; the San Juan Basin oil and gas development area within this county is relatively small (BLM 2003a, 3-94). In 2010, Sandoval County had lower unemployment than State and U.S. averages. In 2012, the county had 8.1-percent unemployment. The State and the U.S. had 9.3- and 9.1-percent unemployment, respectively (U.S. Census Bureau 2012).

3.13.2. Impacts from the Proposed and Alternative Actions

Direct and Indirect Impacts

The proposed project would not negatively affect economics in the region. Indirectly, there could be positive, short- and/or long-term effects to economics associated with the proposed project. The proposed project could contribute to employment opportunities in the oil and gas industry. In addition, there could be taxes and royalties to local, State, and Federal governments as a result of the proposed project.

Cumulative Impacts

The spatial analysis area for the proposed project is the BLM-FFO planning area. In the BLM-FFO planning area, the oil and gas industry is the dominant force in the economy. In New Mexico, the oil and gas industry provides nearly one billion dollars per year in taxes, royalties, and interest to the State; at least half of this is related to oil and gas production in the San Juan Basin. This industry is a primary employer and provides higher paying jobs than many other job sectors available to the population. As of 2000, over 11,000 people in northwestern New Mexico were employed in the industry. Overall, the positive effects of oil and gas development in the spatial analysis area are expected to outweigh any changes in jobs, expenditures, or revenues resulting from any other actions expected or likely in the region (BLM 2003a). The proposed project would contribute to this positive economic cumulative impact.

3.14. Public Health and Safety

3.14.1. Affected Environment

Worker safety is regulated under the Occupational Safety and Health Act of 1970, as amended (29 USC 651). Additional safety regulations found in Pipeline Safety Programs and Rulemaking Procedures (49 CFR 190) and Transportation of Natural and Other Gas by Pipeline: Minimal Federal Safety Standards (40 CFR 192) apply to natural gas pipelines.

The proposed project area is fairly remote. The proposed project area is fairly remote. The small communities of Counselor and Lybrook are both located within 5 miles of the proposed project area. Nageezi (population 286 [U.S. Census Bureau 2012]), is approximately 15 miles to the northwest. There are no designated recreation areas, commercial areas, or residential areas within 1 mile of the proposed project area.

The nearest hospital is in Farmington, New Mexico. This hospital is approximately 52 air miles or approximately 65 road miles from the proposed well pad.

3.14.2. Impacts from the Proposed and Alternative Actions

Direct and Indirect Impacts

The proposed project would affect transportation. During construction, the proposed project would result in increased traffic on area roads; some vehicles would be hauling heavy equipment. Therefore, there would be an increased potential for traffic accidents. Transportation impacts are discussed further in Section 3.12 (Transportation and Travel).

Dust associated with construction activities or travel on unpaved areas could result in poor visibility in the proposed project area. The increased use of dirt access roads during muddy conditions could worsen the roads' conditions. Following proposed construction, traffic levels would increase from current levels as water trucks and employee vehicles would access the facility on a regular basis.

During proposed construction and maintenance activities, the operation of heavy equipment could pose potential safety concerns. Existing facilities (such as oil and gas wells, pipelines, and powerlines) could be damaged or ruptured, which could pose a risk to human safety.

During operation of the proposed facility, facility failure (such as pipeline ruptures) could represent a potential danger to the public.

Health and safety BMPs associated with the proposed projects are described in detail in Section 2.1.2 (Description of Proposed Projects - Design Features and Best Management Practices).

Cumulative Impacts

The spatial analysis area for the proposed project is the BLM-FFO planning area. The general BLM-FFO region has been experiencing oil and gas development for several decades. This extensive development could contribute to public health and safety concerns in the general proposed project area. Transportation issues are a primary safety concern. Vehicles associated with oil and gas development utilize the developed highway and county road systems in the spatial analysis area. In addition, the oil and gas industry constructs and utilizes dirt access roads in the spatial analysis area. These roads, most of which are accessible by the public, are often hazardous, particularly during and following periods of inclement weather.

Additional safety concerns in the spatial analysis area include wildfire; oil and gas facility leakage or rupture; moving equipment (such as pump jacks); oil and gas explosions; and the handling, storage, and disposal of wastes, chemicals, or condensate.

The proposed project would contribute to the cumulative public safety impacts in the spatial analysis area.

4. SUPPORTING INFORMATION

4.1. Tribes, Individuals, Organizations, or Agencies Consulted

- Basin Disposal
- Cheney-Walters-Echols, Inc.
- La Plata Archaeological Consultants
- Tom Mullins – Synergy Operating
- New Mexico Department of Transportation

4.2. List of Preparers

- Janelle Alleman, Outdoor Recreation – BLM-FFO
- Jim Copeland, Archaeologist – BLM-FFO
- Stan Dykes, Natural Resource Specialist – BLM-FFO
- Scott Hall, Realty Specialist – BLM-FFO
- John Kendall, Wildlife Management Biologist – BLM-FFO
- Marcella Martinez, Environmental Protection Specialist – BLM-FFO
- Sarah McCloskey, Biologist – Adkins Consulting, Inc.
- Amanda Nisula, Planning and Environmental Coordinator – BLM-FFO
- Jeff Tafoya, Rangeland Management Specialist – BLM-FFO
- Sheila Williams, District Botanist – BLM-FFO
- Dale Wirth, Branch Chief – BLM-FFO
- Matthew Zabka, Environmental Specialist – Adkins Consulting, Inc.

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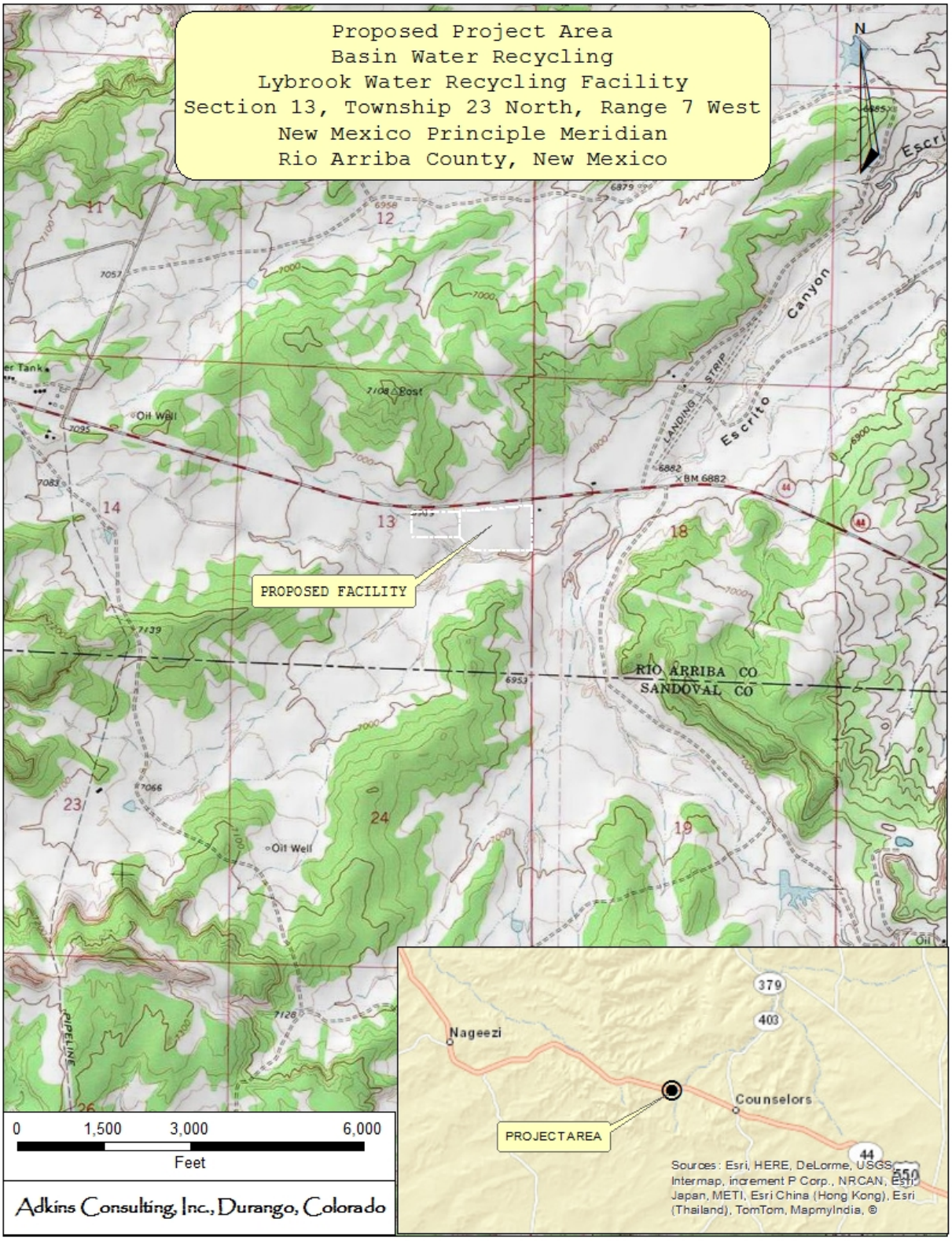
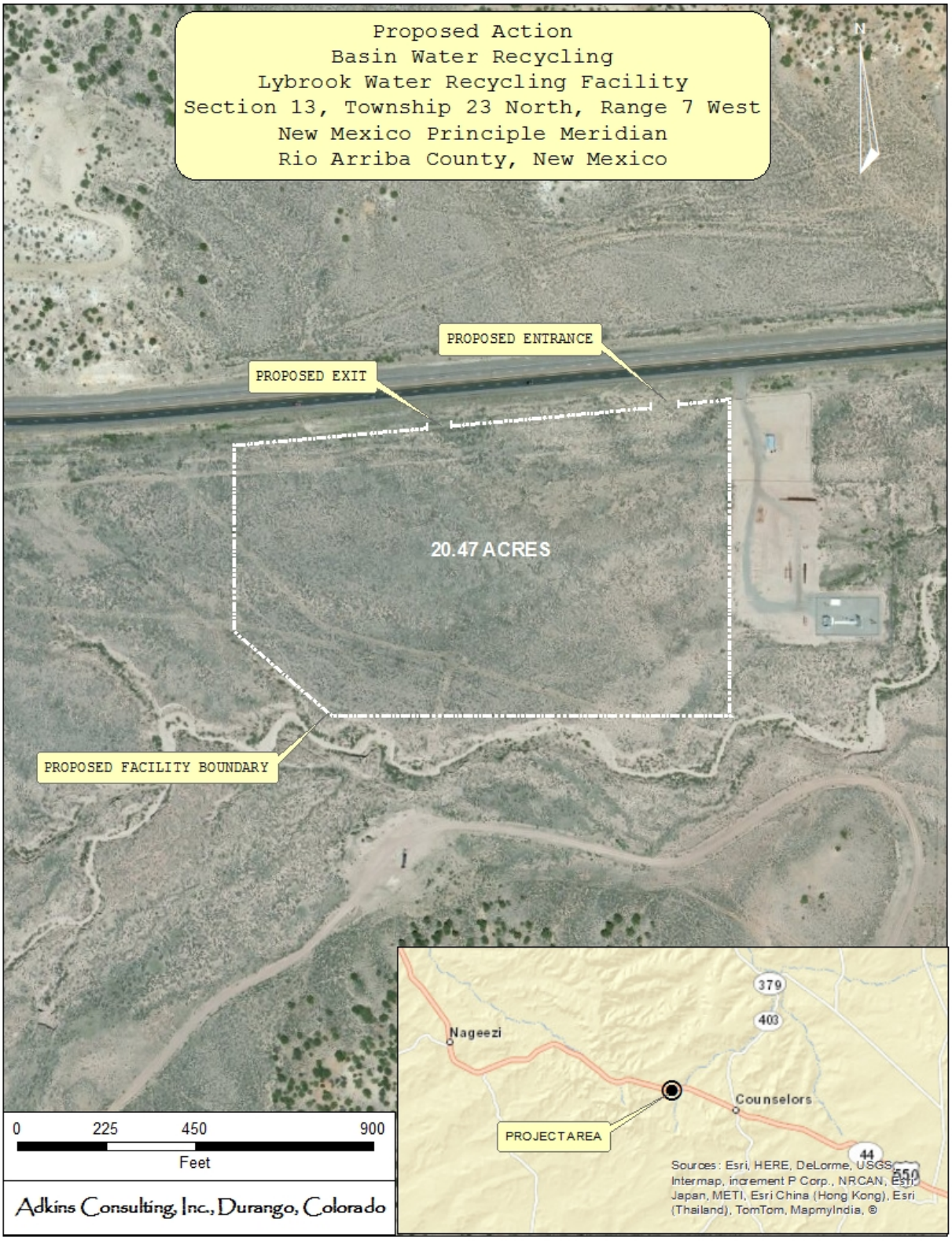
APPENDIX A. MAPS

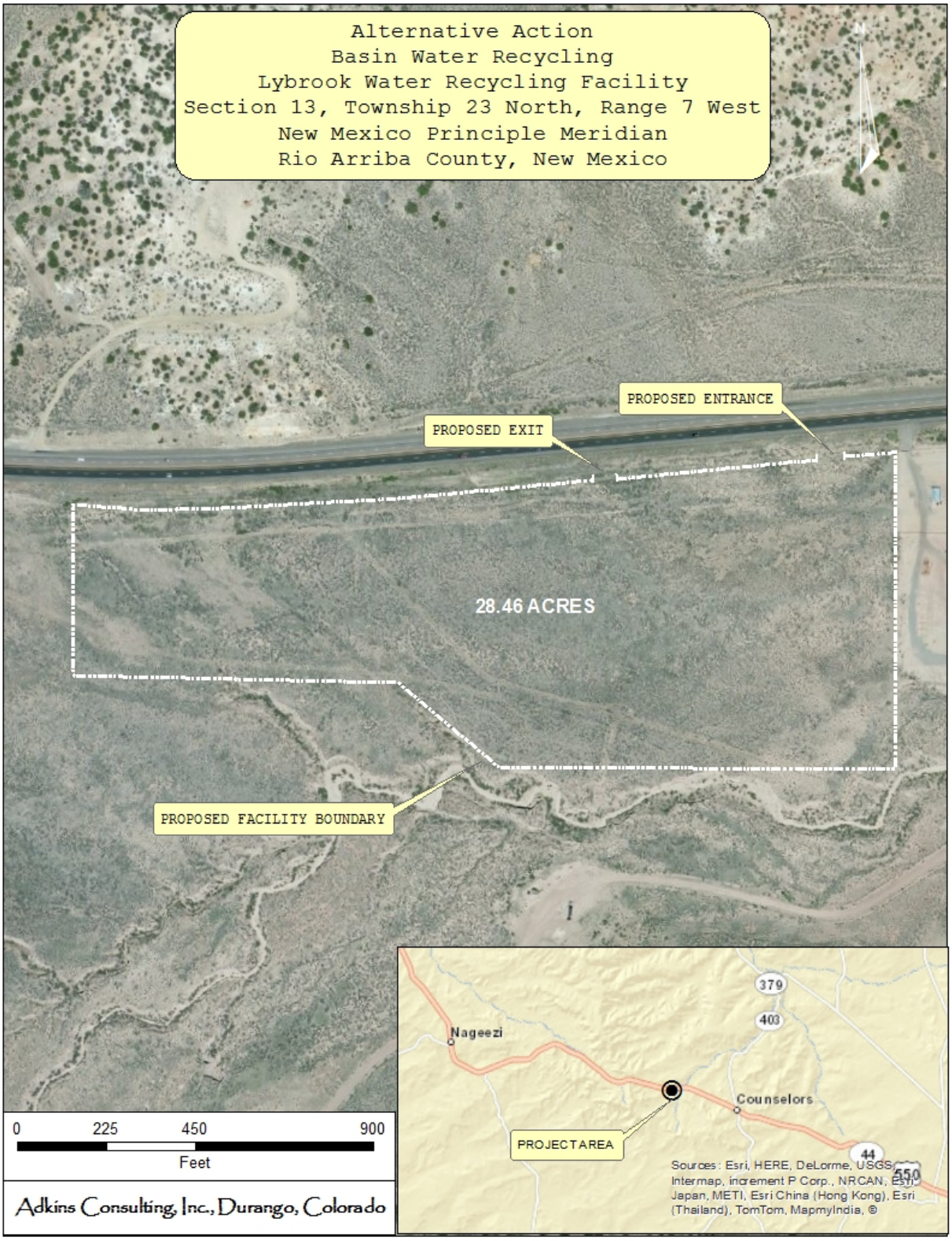
A.1. Project Area Map



A.2. Proposed Action



A.3. Alternative Action



APPENDIX B. PLATS

APPENDIX C. SURFACE RECLAMATION PLAN

United States Department of the Interior
Bureau of Land Management

BLM

Surface Reclamation Plan

Basin Water Recycling

Proposed
Lybrook Water Recycling Facility

Prepared for

Basin Water Recycling
PO Box 100
Aztec, New Mexico 87410

Prepared by

Adkins Consulting, Inc.
Environmental Permitting Services

August 2014

U.S. Department of the Interior
Bureau of Land Management
Farmington District
Farmington Field Office
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Farmington, NM 87402
Phone: (505) 564-7600
FAX: (505) 564-7608

Contents

Introduction

This reclamation plan has been prepared to meet the requirements and guidelines of the Bureau of Land Management's Farmington Field Office (BLM-FFO) Bare Soil Reclamation Procedures (BLM 2013a) and Onshore Oil and Gas Order No. 1. The reclamation plan has been developed for the Lybrook Water Recycling Facility proposed by Basin Disposal Inc., dba Basin Water Recycling.

The Basin Water Recycling contact person for this reclamation plan is:

John Volkerding
Phone: (505) 334-3103
Email: jvolkerding@aztecwell.com

Table 1. Proposed Project Information

Applicant	Basin Water Recycling
Project Type	Water Recycling Facility
Well, Oil and Gas Lease, or Right-of-Way (ROW) Name	Lybrook Water Recycling Facility
Legal Location	S1/2 NE1/4 and N1/2 SE1/2 of Section 13, Township 23 North, Range 7 West, New Mexico Principal Meridian, in Rio Arriba County, New Mexico
BLM-FFO ROW Serial Number	NMNM 132770

Vegetation Reclamation Procedure

Completion of a Vegetation Reclamation Plan in accordance with Procedure B of the BLM-FFO Bare Soil Reclamation Procedures is required for surface disturbing actions, grants, or permits authorized by the BLM-FFO resulting in bare mineral soil **across an area greater than or equal to 1 acre**, not including a BLM-FFO approved working area. Working areas include areas routinely used to operate and maintain facilities or improvements. The FFO makes no distinction between interim and final revegetation processes; revegetation processes and standards are the same for all revegetation activities.

Revision of the Reclamation Plan

Basin Water Recycling may submit a request to the BLM-FFO to revise the Reclamation Plan at any time during the life of the project in accordance to page 44 of the Gold Book (USDI-USDA 2007). Basin Water Recycling will include justification for the revision request.

Pre-Construction Conditions

Vegetation Community

The general region surrounding the proposed project area is characterized by lowland valleys containing greasewood and sagebrush shrubland, sparsely vegetated sandstone outcrops, and wooded mesas. The proposed water recycling facility lies within the Sagebrush/Grass Community. Vegetation found in the analysis consists of alkali sacaton (*Sporobolus airoides*), big sagebrush (*Seriphidium tridentatum*), blue grama (*Bouteloua gracilis*), claret cup cactus (*Echinocereus triglochidiatus*), four-wing saltbush (*Atriplex canescens*), New Mexican prickly pear cactus (*Opuntia phaeacantha*), rabbitbrush (*Chrysothamnus* sp.), and spiny-star nipple cactus (*Coryphantha vivipara* var. *radiosa*). No trees were documented within the analysis area.

Pre-Disturbance Weed Survey

The proposed action area was surveyed for noxious weeds listed on the New Mexico Department of Agriculture's Class A and Class B list. During the July 2014 biological survey and onsite field inspection of the proposed project area, Russian knapweed (*Acroptilon repens*) was found within NMDOT ROW for U.S. Highway 550 adjacent to the proposed project area. Russian knapweed is an NMDA-listed Class B

noxious weed. No other USDA-listed noxious weeds (NRCS 2010), NMDA-listed noxious weeds (NMDA 2010), or BLM-FFO invasive or poisonous weed species (BLM 2003a, 3-34 – 3-35) were identified within the proposed project area.

Existing Facilities, Uses, and Previous Surface Disturbance

The proposed water recycling facility would be constructed on the west side of a Jemez Mountains Electric Cooperative sub-station. A single wire, above-ground utility line exists along the northern edge of the proposed facility area, along with an abandoned two-track road. Beeline has recently constructed a subsurface natural gas pipeline through the proposed project area. An above-ground assembly associated with the Beeline pipeline has been installed within the proposed project area as well.

Proposed Surface Disturbance Acreage

The proposed project area is 28.46 acres and has been split into two tracts: a 20.47-acre east tract, and a 7.99-acre west tract. If Basin Water Recycling receives a ROW Grant from the BLM-FFO for the entire 28.46 acres, the 7.99-acre west tract would be set aside for future development, leaving the existing vegetation undisturbed. Actual new surface disturbances will be dependent on facility placement and equipment needs at the water recycling facility. Basin Water Recycling would maintain a vegetative buffer along the south side of the proposed facility area between the recently constructed Beeline pipeline corridor and a principle drainage channel in upper Escrito Canyon. This would leave approximately 16 acres of sagebrush shrubland to construct the proposed facility.

Existing Site Conditions

The analysis area contains relatively healthy Sagebrush/Grass Community. Dominant vegetation consists of big sagebrush and blue grama. Vegetative cover within the proposed project area was visually estimated at 35 percent. The project area drains southeast into a principle drainage channel in upper Escrito Canyon, containing an ephemeral USGS watercourse. Waterbars have been installed within the recently constructed Beeline pipeline corridor, and divert stormwater run-off to the south of the proposed water recycling facility area. Commercial establishments are located approximately 2 miles west of the project area at Lybrook and 3.5 miles east at Counselor. Oil and gas industrial activity and scattered residences are found in the immediate vicinity.

Pre-Disturbance Site Visit

The pre-disturbance site visit occurred on July 15, 2014. The following persons were present at the site visit:

Table 2. Pre-disturbance Site Visit Attendees

Name	Affiliation	Contact Info
Rob Adair	Cheney-Walters-Echols Inc.	roba@c-w-e.com
Scott Hall	BLM-FFO	shall@blm.gov
Greg Hovezak	La Plata Archaeological	ghovezak@gmail.com
Mike Martinez	NMDOT	michael.martinez2@state.nm.us
Sarah McCloskey	Adkins Consulting	sarahm@adkinsconsultinginc.com
Tom Mullins	Synergy Operating	tom.mullins@synergyoperating.com
Jan Niclas	NMDOT	jan.niclas@state.nm.us
Leslie Sesler	La Plata Archaeological	laplata99@live.com
Shannon Spellbring	Basin Disposal	sspellbring@aztecwell.com
John Volkerding	Basin Disposal	jvolkerding@aztecwell.com
Matthew Zabka	Adkins Consulting	matt@adkinsconsultinginc.com

Pre-Disturbance Site Photographs

Photographs were taken of pre-disturbance conditions using a digital camera. Each photograph is notated with the direction the photograph was taken and the approximate location.

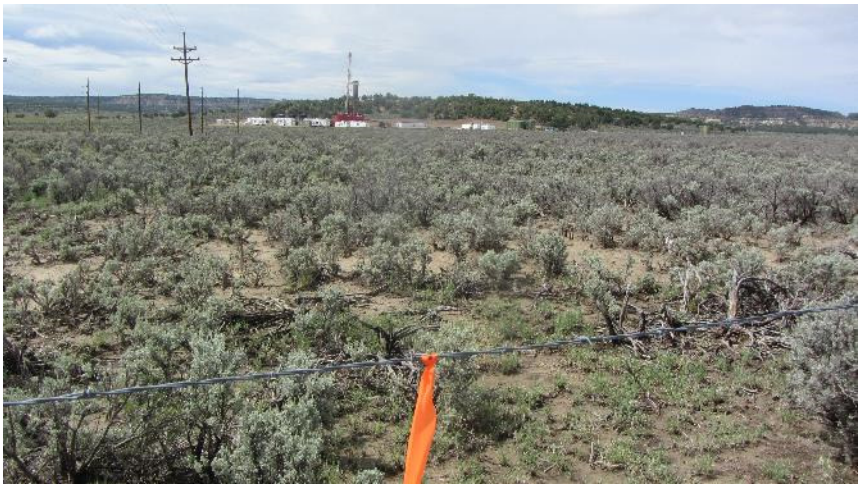
Proposed facility area, view southeast from northwest corner

Proposed facility area, view south from north facility boundary

Proposed facility area, view east from east and west tract boundary

Proposed facility area, view northwest from southeast corner

Proposed facility area, view southwest from northeast corner



Proposed entrance along north facility boundary, view south

Proposed entrance along north facility boundary, view north across U.S. Highway 550

Proposed exit along north facility boundary, view south

Proposed exit along north facility boundary, view north across U.S. Highway 550

Interim Reclamation

Vegetation Reclamation Standards

Requirements for determining reclamation and if it is successfully completed for the selected vegetation community are determined by the reclamation percent cover standards for the Sagebrush/Grass Community, as outlined in the Table 3 below. These standards must be met during post-disturbance monitoring procedures in order for the BLM-FFO to sign off on the attainment of vegetation reclamation standards.

Table 3. Reclamation Goal for Sagebrush/Grass Community Cover

Functional Group	Percent (%) Foliar Cover	Common Species
Trees/Shrubs/Grasses/Forbs	≥35	Utah Juniper, piñon pine; big sagebrush, four-wing saltbush, antelope bitterbrush, alkali sacaton, Western wheatgrass, Indian ricegrass, galleta, sand dropseed, scarlet globemallow, wooly Indianwheat, fleabane, *Penstemon* sp., buckwheat, threadleaf groundsel.
Invasive/undesirables **10% allowed toward meeting standard of 35%.**	≤10	Plants that have the potential to become a dominant species on a site where its presence is a detriment to revegetation efforts or the native plant community. Examples of invasive species include cheatgrass, cheatgrass (*Anisantha* [*Bromus*] *tectorum*), Russian thistle (*Salsola australis*), and ironweed (*Bassia* sp. [*Kochia scoparia*]).

Soil Replacement and Stabilization

Basin Water Recycling will develop a site-specific plan and coordinate with the BLM Authorized Officer to address erosion control and water management features to be developed within the project area. If available, the upper 6 inches of topsoil will be stripped, following vegetation and site clearing during construction activities. Basin Water Recycling (or its contractor) will take care not to mix topsoil with the underlying subsoil horizons and will stockpile the topsoil separately from subsoil or other excavated material. Topsoil and sub-surface soils will be replaced in the proper order, prior to final seedbed preparation. Construction design practices could include culverts, diversion ditches, berms, and other such soil erosion control structures. Additional hydrological BMPs would be installed where needed to maintain drainages within the proposed action area.

Water Management/Erosion Control Features

The BLM-FFO and Basin Water Recycling representatives will work in collaboration to develop site-specific erosion control or water management features and to identify installation locations. Potential erosion control or water management features that may be used include (but are not limited to), waterbars or rolling dips for roads, sediment basins or sediment traps, check dams, silt fencing, outlet protection for culverts, erosion control blankets or geotextiles, and straw wattles.

Basin Water Recycling (or its contractors) will use erosion control blankets, straw bales, or straw wattles as appropriate to limit erosion and sediment transport from any stockpiled soils.

Vegetation and Site Clearing

Woody vegetation, such as large shrubs, will be cleared from the staked project area and stockpiled for later use as soil mulch, visual mitigation, and/or wildlife shelter. No trees were documented within the project area.

Surface rocks (where present and useful for reclamation) will be stockpiled adjacent to the topsoil stockpiles. During reclamation activities, the surface rock will be placed within the area of reclamation for erosion control or in a manner that visually blends with the adjacent undisturbed area.

Proposed Reclamation Seed Mix

Areas not needed for operation of the water recycling facility will be re-contoured and topsoil will be redistributed and prepared for seeding by the construction and/or reclamation contractor. The site will be seeded using a BLM-approved seed mix shown in either Table 4. The proposed reclamation seed mix takes into account the existing vegetation on the proposed project site.

Table 4. Sagebrush/Grass Community Seed Mix

Common Name	Scientific Name	Variety	Season	Form	PLS lbs/acre[1]
Fourwing saltbush	*Atriplex canescens*	VNS	Cool	Shrub	2.0
Winterfat	*Krascheninnikovia lanata*	VNS	Cool	Shrub	2.0
Blue grama	*Bouteloua gracilis*	Alma or Hachita	Warm	Sod-forming	2.0
Galleta	*Pleuraphis jamesii*	Viva florets	Warm	Bunch/Sod-forming	3.0
Sand dropseed	*Sporobolus cryptandrus*	VNS	Warm	Bunch	0.5
Bottlebrush squirreltail	*Elymus elymoides*	Tusas or VNS	Cool	Bunch	3.0
Small burnet	*Sanguisorba minor*	Delar	Cool	Forb	2.0
Rocky Mountain bee plant	*Cleome serrulata*	Local collection or VNS	Cool	Forb	0.25

[1]Based on 60 pure live seeds (PLS) per square foot, drill seeded; double this rate (120 PLS per square foot) if broadcast or hydroseeded; "lbs" refers to pounds.

Seedbed Preparation

For cut and fill slopes, initial seedbed preparation will consist of backfilling and re-contouring to achieve a configuration as close to pre-disturbance conditions as possible. Areas to be reclaimed will be re-contoured to blend with the surrounding landscape, emphasizing restoration of existing drainage patterns and landform to pre-construction condition, to the extent practicable.

Seedbed preparation of compacted areas will be ripped to a minimum depth of 12 inches, with a maximum furrow spacing of 2 feet. Where practicable, ripping will be conducted in two passes at perpendicular directions. Disking will be conducted if large clumps or clods remain after ripping. Any tilling or disking that occurs along the contour of the slope and seed drills will also be run along the contour to provide terracing and prevent rapid run-off and erosion. If broadcast seeding is used, a dozer or other tracked equipment will track perpendicular to the slope prior to broadcast seeding.

Following final contouring, the backfilled or ripped surfaces will be covered evenly with stockpiled topsoil. Final seedbed preparation will consist of raking or harrowing the spread topsoil prior to seeding to promote a firm (but not compacted) seedbed without surface crusting. Seedbed preparation may not be necessary for topsoil storage piles or other areas of temporary seeding.

Seeding

The seed mix chosen for this project is listed in Table 4. Seeding will occur within 90 days of project completion.

A Truax seed drill or modified rangeland drill that allows for seeding species from different seed boxes at different planting depths will be used to seed the disturbed areas of the project area. Basin Water Recycling or its reclamation contractor will ensure that perennial grasses and shrubs are planted at the appropriate depth. Intermediate size seeds (such as wheatgrasses and shrubs) will be planted at a depth of 1 to 2 inches. Small seeds (such as alkali sacaton and sand dropseed) will be planted at a depth of 0.25 inch. In situations where differing planting depths are not practicable using available equipment, the entire seed mix will be planted no deeper than 0.25 inch.

Drill seeding may be used on well-packed and stable soils that occur on gentler slopes and where equipment and drills can safely operate. Where drill seeding is not practicable due to topography, the reclamation contractor will hand-broadcast seed using a "cyclone" hand seeder or similar broadcast seeder. Broadcast application of seed requires a doubling of the drill-seeding rate. The seed will then be raked into the ground so the seed is planted no deeper than 0.25 inch below the surface.

Noxious and Invasive Weed Control

Should noxious or invasive weeds be documented after earthwork and seeding activities, Basin Water Recycling would contact the BLM-FFO weed coordinator for specific requirements and instructions for weed treatments, including the period of treatment, approved herbicides that may be used, required documentation to be submitted to the BLM-FFO after treatment, and any other site-specific instructions that may be applicable.

Limiting Access to the ROW

Signage to alert the general public of potential hazards associated with activities at the water recycling facility would be posted as necessary. Access to the facility would be controlled by Basin Water Recycling. A chain linked fence would be installed around the perimeter of the facility. Cattle guards would be installed at the entrance and exit to the facility.

Reclamation of Temporary Access Roads

No temporary access roads have been proposed for the project.

Monitoring Requirements

Monitoring will be completed according to BLM/FFO Bare Soil Reclamation Procedure B (BLM 2013b). Monitoring activities will be initiated after the project is completed, during the post-disturbance earthwork and seeding inspection process.

Post-Disturbance Monitoring Initiation

The FFO will conduct initial surface compliance inspection, establish monitoring sites, and complete the initial monitoring report after reclamation and seeding has been completed. FFO will make the initial monitoring report available to the holder within 60 days of compliance inspection. During the post-disturbance inspection at the project site, the FFO representative (in collaboration with Basin Water Recycling) will determine site-specific monitoring locations for photo point monitoring and vegetation line point intercept transects, if necessary. The BLM-FFO will collect GPS data on the monitoring locations, take the initial monitoring photographs, and complete the initial monitoring report within 60 days of the post-disturbance earthwork and seeding inspection.

Post-Disturbance Monitoring Photographs

The minimum photo points necessary to document post-disturbance monitoring (including annual monitoring and long-term monitoring) are described in Table 5. Photographs will be taken with a digital camera without zoom or wide-angle adjustments. GPS coordinates for each photo point will be provided by the BLM/FFO in the initial monitoring report and subsequently included with each photograph in the annual monitoring report.

Table 5. List of Minimum Required Post-Disturbance Monitoring Photographs

Photo Point	Photographs	Location Description

Annual Monitoring

The FFO will conduct annual vegetation monitoring starting two calendar years after seeding and continuing until the vegetation percent cover standards have been attained. The FFO monitoring form will be completed with 60 days and made available to the holder.

Attainment of Vegetation Reclamation Standards

The FFO is responsible for the preparation of documentation that vegetation percent cover standards have been attained. The FFO would request a conference to analyze the issues that may have contributed to vegetation reclamation failure or lack of meaningful progress if the FFO identifies negative impacts within the vegetation reclamation area.

Long-Term Monitoring

The FFO would conduct long-term monitoring (photo points) every five years after vegetation percent cover standards have been attained. These annual inspections will continue until relinquishment of the ROW Grant.

Termination and Restoration

Basin Water Recycling would be responsible for the complete and final restoration of the project area. All structures and above-ground appurtenances would be removed. All subsurface pipelines would be purged and abandoned in place. Stipulations for seed mix selection, seedbed preparation and seeding method, weed control, limiting access to the ROW, reclamation of temporary roads, and monitoring would be identical to those developed for Interim Reclamation above.

Final Abandonment

If 1 or more acre of bare soil results from earthwork required in preparation for final abandonment, Basin Water Recycling will follow Vegetation Reclamation Plan in accordance with Procedure B of the BLM/FFO Bare Soil Reclamation Procedures (2013a).

If final abandonment or relinquishment earthwork results in less than 1 acre, but more than 0.1 acre of bare soil, Basin Water Recycling will initiate the Vegetation Reclamation Plan in accordance with Procedure A of the BLM/FFO Bare Soil Reclamation Procedures (2013a).

Cessation of Monitoring

The ROW holder (Basin Water Recycling) is responsible for all revegetation and reclamation requirements for the life of the ROW Grant or until the FFO approves a relinquishment request. If abandonment earthwork results in bare soil, the holder will follow Vegetation Reclamation Procedure A or B depending on the area of bare soil resulting from the earthwork. The holder must document that percent cover standards have been obtained when submitting a request for a relinquishment. If ownership of any portion of the ROW is transferred to another entity, the revegetation and monitoring requirements for the portion transferred will be assumed by the acquiring entity.

References

43 CFR Part 3160, “Onshore Oil and Gas Order No. 1; Onshore Oil and Gas Operations; Federal and Indian Oil and Gas Leases; approval of Operations,” 72 Federal Register 44 (march 2007), pp. 10328-10338.

BLM. 2013a. Farmington Field Office Bare Soil Reclamation Procedures. Available at: http://www.blm.gov/nm/st/en/fo/Farmington_Field_Office/ffo_planning/surface_use_plan_of.html.

BLM. 2013b. Updated Reclamation Goals. Available at: http://www.blm.gov/nm/st/en/fo/Farmington_Field_Office/ffo_planning/surface_use_plan_of/updated_reclamation.html.

U.S. Department of the Interior, U.S. Department of Agriculture (USDI, USDA). 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. BLM/WO/ST-06/021+307/REV 07. Bureau of Land Management, Denver, Colorado. 84 pp.

Onsite Noxious Weed Form

If noxious weeds are found during the onsite, fill out form and submit to FFO weed coordinator
Operator Kern Water Bank Authority Surveyor(s) [illegible]
Well Name and Number Lokern Water Bank Date 15 June 2017
Location: Township, Range, Section S 1/2 NE 1/4 & N 1/2 SE 1/4 of Sec. 13, T29S, R27W
Location of Project NAD 83 Decimal Degrees 35.22193, -119.89395

Class A Noxious Weed – Check Box if Found

	Alfombrilla		Diffuse knapweed		Hydrilla		Purple starthistle		Yellow toadflax
	Black henbane		Dyer's woad		Leafy spurge		Ravenna grass		
	Camelthorn		Eurasian watermilfoil		Oxeye daise		Scotch thistle		
	Canada thistle		Giant salvinia		Parrotfeather		Spotted knapweed		
	Dalmation toadflax		Hoary cress		Purple loosestrife		Yellow starthistle		

Class B Noxious Weed – Check Box if Found

	African rue		Perennial pepperweed		Russian knapweed		Tree of heaven
	Chicory		Musk thistle		Poison hemlock		
	Halogeton		Malta starthistle		Teasel		

Comments: No Class A or B found on project area. Russian knapweed was found on ADOT adjacent to project area.

FFO Representative: [signature] 6/15/17
sign and date
Operator Representative [signature]
sign and date