



United States Department of the Interior



FISH AND WILDLIFE SERVICE

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July 8, 2009
File Nos. 84320-2008-F-0468,
84320-2008-B-0008, and
84320-2009-I-0103

Memorandum

To: District Manager, Ely District Office, Bureau of Land Management, Ely, Nevada

From: State Supervisor, Nevada Fish and Wildlife Office, Reno, Nevada

Subject: Request for Formal and Informal Consultation on the Lincoln County Land Act Groundwater Development and Utility Right-of-Way Project, Lincoln County, Nevada

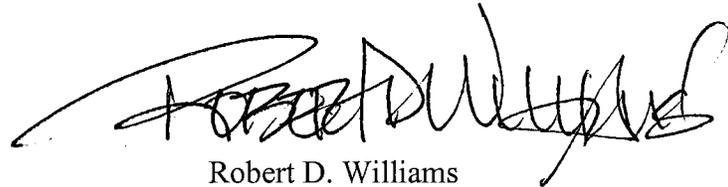
This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion (File No. 84320-2008-F-0468) based on our review of the proposed Lincoln County Land Act Groundwater Development and Utility Right-of-Way Project and its possible adverse effects on the desert tortoise (*Gopherus agassizii*) (Mojave population), a species listed as threatened under the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*), and its designated critical habitat. Our biological opinion is provided in Attachment 1. You also requested our concurrence under informal consultation (File No. 84320-2009-I-0103), that the proposed project *may affect, but is not likely to adversely affect* the southwestern willow flycatcher (*Empidonax traillii extimus*), Yuma clapper rail (*Rallis longirostris yumanensis*), Virgin River chub (*Gila seminuda*), and woundfin (*Plagopterus argentissimus*), species listed as endangered under the Act, and the yellow-billed cuckoo (*Coccyzus americanus*, western U.S. Distinct Population Segment), classified as a candidate for listing under the Act. Our response to your request for informal consultation is provided in Attachment 4. We agree with your statement in your November 18, 2008, memorandum, that the proposed project will have no effect on the Big Spring spinedace (*Lepidomeda mollispinis pratensis*) and Ute ladies'-tresses (*Spiranthes diluvialis*), listed as threatened under the Act.

District Manager

File Nos. 84320-2008-F-0468,
84320-2008-B-0008, and
84320-2009-I-0103

Our attached responses are prepared in accordance with 50 CFR § 402 of our interagency regulations governing section 7 of the Act and 2003 draft programmatic consultation guidance.

If we can be of further assistance, please contact Jeri Krueger in the Nevada Fish and Wildlife Office in Las Vegas at (702) 515-5230.

A handwritten signature in black ink, appearing to read "Robert D. Williams", with a large, sweeping flourish at the end.

Robert D. Williams

Attachments

cc:

Supervisory Biologist – Habitat, Nevada Department of Wildlife, Las Vegas, Nevada

Attachment 1

APPENDED ACTION UNDER THE ELY DISTRICT PROGRAMMATIC BIOLOGICAL OPINION (PBO)

Date of Request: November 18, 2008

File Nos. of Action: 84320-2008-F-0468

Date Received: November 21, 2008

84320-2008-B-0008

Date of Response: June 30, 2009

Species Adversely Affected: Desert tortoise (*Gopherus agassizii*) (Mojave population)

Proposed Action: Issuance of Rights-of-Way for the Construction, Operation, and Maintenance of the Lincoln County Land Act Groundwater Development Project and Associated Utilities

A. CONSULTATION HISTORY

On May 11, 2006, the Fish and Wildlife Service (Service) sent the Bureau of Land Management (BLM) a memorandum containing a species list of endangered, threatened, and candidate species that may occur in or near the proposed Lincoln County Land Act Groundwater Development and Utility Right-of-Way Project (Service File No. 1-5-06-SP-500).

On August 7, 2008, BLM sent the Service a biological assessment (BA) and a memorandum requesting formal consultation on the Lincoln County Land Act Groundwater Development and Utility Right-of-Way Project for potential adverse effects to the desert tortoise and its designated critical habitat. BLM requested our concurrence that the proposed project *may affect, but is not likely to adversely affect* the southwestern willow flycatcher, and determined that the proposed project would not affect the woundfin, Virgin River chub, Yuma clapper rail, the candidate yellow-billed cuckoo, Big Spring spinedace, and Ute ladies'-tresses.

On September 18, 2008, the Service sent BLM a memorandum recommending that effect determinations for the southwestern willow flycatcher, woundfin, Virgin River chub, Yuma clapper rail, and yellow-billed cuckoo be revisited based on the lack of information available to support a determination that groundwater pumping in the Tule Desert and Clover Valley Hydrographic Areas (HAs) would have no effect on the aquatic and riparian resources of the Virgin River, Clover Creek, and Meadow Valley Wash. The Service also requested additional information that was necessary to initiate formal consultation on the desert tortoise (Service File No. 84320-2008-F-0468).

On November 5, 2008, representatives from Lincoln County Water District (LCWD) and Lincoln County met with the Service to discuss and resolve outstanding issues identified in our September 18, 2008, memorandum.

On November 18, 2008, BLM sent the Service a revised BA and a memorandum requesting formal consultation on the project for the desert tortoise, and revised their effect determinations for the woundfin, Virgin River chub, Yuma clapper rail, and yellow-billed cuckoo from “*no affect*” to “*not likely to adversely affect*.” Our response to BLM’s request for informal consultation is provided in Attachment 4. The memorandum also provided the additional information we requested in our September 18, 2008, memorandum.

On November 26, 2008, the Service sent BLM a memorandum acknowledging receipt of the revised BA and additional information, and initiated formal consultation on November 21, 2008 (Service File No. 84320-2008-F-0468).

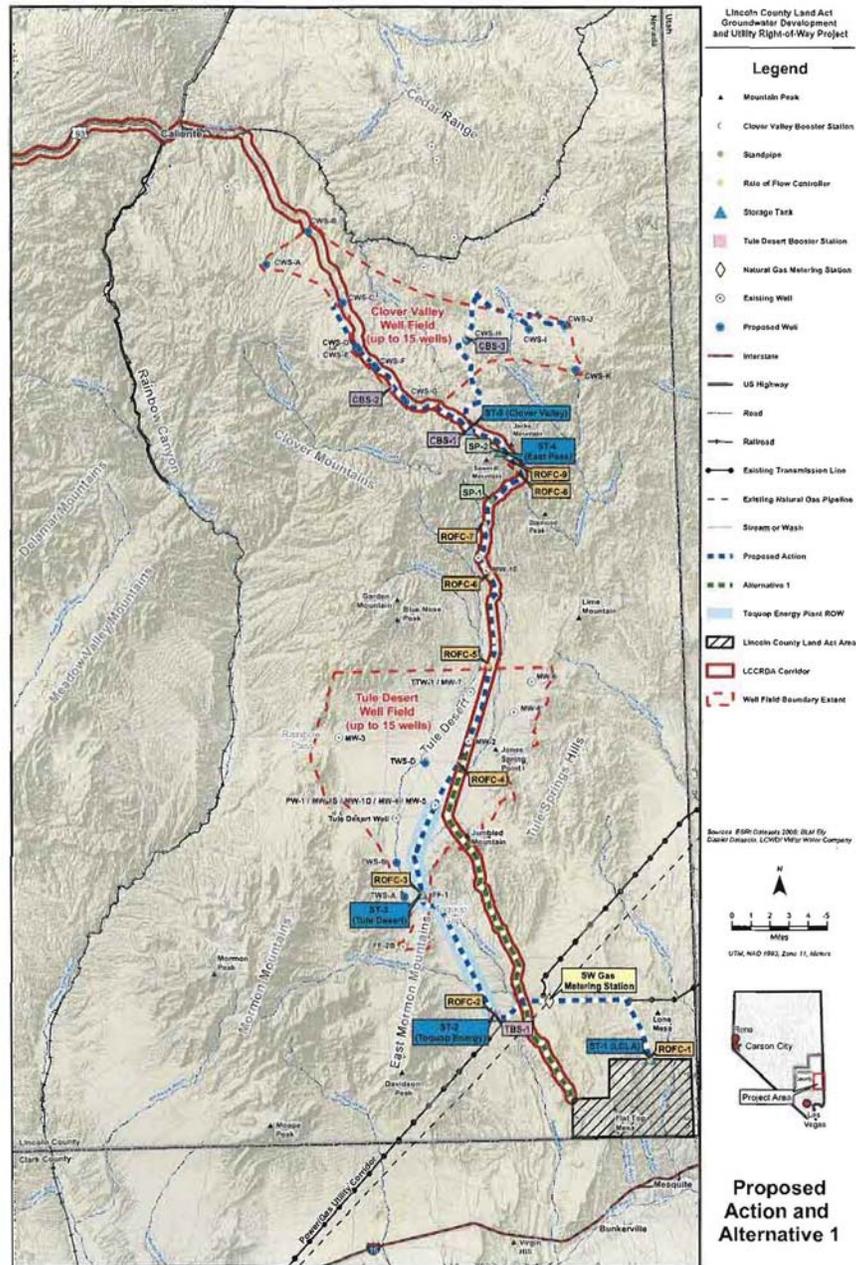
Programs in PBO that Apply to Proposed Action (Service File No. 84320-2008-B-0008):
Lands, Realty, and Renewable Energy

B. SUMMARY OF PROPOSED ACTION

The LCWD, in cooperation with other utility agencies, is proposing to construct and operate the Lincoln County Land Act Groundwater Development and Utility Right-of-Way Project. The project is located in southeastern Lincoln County, Nevada. The project alignment would be oriented north to south; between the Clover Mountains in the northern reach and the Mormon Mountains to the west, and terminating in southeastern Lincoln County to serve a planned development known as the Lincoln County Land Act (LCLA) development property (Figure 1). The purpose of the proposed project is to construct groundwater facilities and associated utility infrastructure necessary to convey groundwater that has been permitted or may be permitted to the LCWD by the Nevada State Engineer (NSE) in the Tule Desert and Clover Valley HAs. The LCWD and other utility agencies must obtain rights-of-way (ROW) from BLM in order to construct the facilities on federally-managed public lands. The Lincoln County Power District No. 1 (LCPD) and the Lincoln County Telephone Company (LCT) would cooperate with LCWD in the construction of ancillary facilities. Either a single ROW would be issued to LCWD, or individual ROWs would be issued to LCWD, LCPD, and LCT. In addition, Southwest Gas Corporation (SWG) is proposing to construct and operate a natural gas line and metering facility within the southernmost portion of the water project corridor to serve the LCLA development property. In this biological opinion, LCWD, LCPD, LCT, and SWG are collectively referred to as either the utility agencies or the project proponents.

A complete project description is provided in BLM’s Draft Environmental Impact Statement for the LCLA Groundwater Development and Utility Right of Way Project (BLM 2008a) and the BA developed by BLM for the proposed project (BLM 2008b). Below is a summary of general project components, construction procedures, and operation and maintenance of facilities:

Figure 1. Location of the proposed Lincoln County Land Act Groundwater Development and Utility Right-of-Way Project, Lincoln County, Nevada.



A. PROJECT COMPONENTS

1. Water Facilities

Approximately 75 miles of transmission pipeline (main water line) and well field collection pipelines for up to 30 wells would be constructed.

Up to 15 groundwater production wells and lateral pipelines would be installed for the Clover Valley Well Field Collection System.

Up to 15 groundwater production wells and lateral pipelines would be installed for the Tule Desert Well Field Collection System.

Clover Valley wells would be housed within masonry block buildings to protect from extreme winter conditions, and Tule Desert wells would be fenced to protect from vandalism.

Up to five storage tanks are proposed:

Two – 100,000-gallon storage tanks in the Clover Valley well field area

One – 300,000-gallon storage tank in the Tule Desert well field area

One – 500,000-gallon storage tank near the proposed Toquop Energy Project

One – 4,000,000-gallon storage tank in the LCLA development area

Each storage tank site would be enclosed by an 8-foot high chain link fence.

Eighteen production or monitoring wells are currently used to monitor groundwater levels in the Tule Desert HA. Additional monitoring wells may be constructed per terms and conditions associated with future water rights or Stipulation Agreements between the National Park Service and LCWD.

Up to four water pipeline booster stations would be constructed, and would include an above ground-set forebay storage tank with a capacity of up to 200,000 gallons and aboveground piping and pumping equipment contained within a booster station building. The stations would be enclosed in a masonry block structure and each building would be enclosed by an 8-foot high chain link fence.

2. Electric Utility Facilities

A new 23.5-mile long 138-kilovolt (kV) double-circuit overhead transmission line is proposed between the existing Mesa Substation located north of Mesquite and the proposed Tule Substation.

A new Tule Substation would be constructed.

A new 20-mile long 22.8 kV double-circuit overhead distribution line is proposed between the proposed Tule Substation and groundwater facilities in the Clover Valley.

New 22.8 kV and 4.16 kV overhead distribution lines are proposed to provide electric service to wells within the Tule Desert and Clover Valley HAs.

New 22.8 kV – 4,160/480-volt aboveground substations are proposed at each well site, booster station, and flow control station.

Each substation would be surrounded by a 7-foot high chain link fence.

3. Natural Gas Facilities

A natural gas pipeline up to 16 inches in diameter would be constructed between the proposed Toquop Energy Project and the LCLA development area.

A new natural gas metering station, which would be tied in to the existing Kern River Natural Gas pipeline, would be constructed immediately east of the proposed Toquop plant site. The tap site and metering station would be fenced.

4. Fiber Optic Lines

Radio Telemetry or Fiber Optic Cable Control Systems (to be buried with the groundwater pipelines) would be used to monitor groundwater operating system information in addition to routine checks by maintenance personnel.

5. Ancillary Project Components

Up to a total of 50 acres of temporary work space would be required, and would be distributed approximately every mile along the pipeline ROW. Typical dimensions are 60 feet by 200 feet and 150 feet by 150 feet. Some larger 1- to 2-acre extra work space areas may be designated to facilitate material storage or temporary offices.

Up to 100 acres (20 five-acre sites) of temporary construction staging areas would be needed.

As needed, small 16-foot wide access spur roads would be constructed from existing roads to each of the production wells and storage tanks and power poles.

B. CONSTRUCTION PROCEDURES

Project construction is estimated to take between 18 and 24 months, and would begin upon completion of the National Environmental Policy Act process and acquisition of necessary permits and approvals. The groundwater production facilities, groundwater collection and transmission pipelines, electric transmission and distribution system, and fiber optic line would be constructed during the same construction spread. Construction of the natural gas pipeline and metering station is expected to take four to six months. Before starting construction, the final project design would be coordinated among the utility agencies and BLM.

Construction activities for each utility agency would generally follow a sequential set of activities performed by a number of small crews proceeding along the length of the ROW. Construction activities, including construction of temporary and permanent access roads, would be coordinated among the various utility agencies sharing the permitted ROW.

Construction of the electric utility and groundwater facilities, natural gas pipeline, and the fiber optic line would involve the following sequence and would be coordinated among all utilities: engineering surveys and staking; topsoil salvage and storage (applicable to all construction activities); clearing and grading including access road construction; trenching and blasting; construction of electric transmission lines and substations; pipeline stringing and installation; regrading and post-construction cleanup and reclamation; and reclamation monitoring.

Temporary wildlife barrier fencing would be installed to make access into open trenches difficult. Those animals that are able to bypass the fencing and fall into the trench could use a soil ramp to escape.

C. OPERATION AND MAINTENANCE

Water facilities would be operated and maintained in accordance with standard procedures to ensure safe operation and integrity of the pipeline. The operation and maintenance of the pipeline would be performed by qualified and trained employees. Personnel would be capable of monitoring the operating conditions as well as controlling flows and pressures through the pipeline.

After the electric utility system has been energized, the electrical facilities would be in virtually continuous operation. The transmission line and substation facilities would be inspected periodically and maintained as needed. The electrical equipment and wood poles are anticipated to have a lifetime of approximately 50 or 60 years or more depending on the maintenance operations and climatic conditions. Emergency maintenance, such as repairing downed wires during storms and correcting unexpected

outages, would be performed by LCPD. The proposed natural gas pipeline would be added to SWG's existing pipeline inspection program.

The ROW would be accessed routinely. This would include utilizing existing trails and paths to gain access along the pipeline as close as possible to the permanent ROW.

D. DEFINITION OF THE ACTION AREA

The action area is defined as all areas to be affected directly or indirectly by the Federal action, including interrelated and interdependent actions, and not merely the immediate area involved in the action (50 CFR § 402.02). Subsequent analyses of the environmental baseline, effects of the action, cumulative effects, and levels of incidental take are based upon the action area as determined by the Service.

For the desert tortoise and its designated critical habitat, the action area is defined as the ROW grant area and a zone-of-influence extending 0.5 mile (2,400 feet) beyond the outer edge of the ROW grant area to cover potential impacts to tortoises that could move onto construction areas or access roads.

E. PROPOSED CONSERVATION MEASURES

To minimize impacts to the desert tortoise and its designated critical habitat, BLM and the project proponents propose to implement the following measures:

1. The LCWD will implement a worker Environmental Training Program. Prior to beginning work, all contractor personnel assigned to the field for construction-related activity shall attend a mandatory one-time Worker Environmental Training Program presented by the project developer's Environmental Compliance Team. The presentation shall review topsoil salvage, access restrictions, general site restrictions, and other environmental requirements regarding the project. Participants shall sign a statement declaring that they understand and will abide by any guidelines set forth in the material presented.
2. The LCWD will implement supplemental plans that include measures to avoid or reduce potential impacts to environmental resources from the proposed project. These plans are described in table 5-1, section 5 (Conservation Measures) of the BA (BLM 2008b).
3. To the extent practicable, native shrubs, and other vegetation will be preserved and protected during construction operations except where clearing operations are required for permanent structures, approved construction roads, and excavation operations.

4. To the extent practicable, all maintenance yards, field offices, and staging areas will be arranged to preserve shrubs and other native vegetation.
5. Clearing will be restricted to that area needed for construction.
6. All areas around structures will be backfilled, compacted, and returned as close as possible to the original condition and grade.
7. Signs will be placed along the access roads to discourage off-highway vehicle use of adjacent areas.
8. Project construction and traffic will remain within the construction right-of-way, facility footprints, and approved access roads.
9. Clearance surveys will be performed prior to any construction activities within the approved ROW. Any tortoises located shall be handled and relocated by a qualified tortoise biologist in accordance with Service-approved protocol (Desert Tortoise Council 1994, revised 1999). Burrows containing tortoises or nests shall be excavated by hand, with hand tools, to allow removal of the tortoise or eggs. Desert tortoises moved during the tortoise inactive season or those in hibernation, regardless of date, must be placed into an adequate burrow; if one is not available, one shall be constructed in accordance with Desert Tortoise Council (1994, revised 1999) criteria. During mild temperature periods in the spring and early fall, tortoises removed from the site shall not necessarily be placed in a burrow. Tortoises and burrows shall only be relocated to federally-managed lands. If the responsible Federal agency is not BLM, verbal permission, followed by written concurrence, shall be obtained from BLM and the Service before relocating the tortoise or eggs to lands not managed by BLM.
10. Construction monitoring will employ a field contact representative, authorized biologist(s), and qualified biologist(s) during construction activities except in those areas with high disturbance. The Service employs a specific set of guidelines for such monitoring.
11. Tortoises requiring moving will only be handled by the authorized and qualified tortoise biologist or other trained personnel approved by the Service. All tortoise handlers will possess a desert tortoise handler's permit issued by the Service.
12. Project access road speed limits will be enforced.
13. The area limits of project construction and survey activities would be predetermined based on the temporary and permanent disturbance areas noted on the final design engineering drawings to minimize environmental effects arising from the project, with activity restricted to and confined within those limits.

14. Littering is not allowed. Project personnel would not deposit or leave any food or waste in the project area, and no biodegradable or non-biodegradable debris would remain in the right-of-way following completion of construction.
15. No wildlife, including rattlesnakes, may be harmed except to protect life and limb.
16. Project personnel are not allowed to bring pets to any project area in order to minimize harassment or killing of wildlife and to prevent the introduction of destructive animal diseases to native wildlife populations.
17. Wildlife species may not be collected for pets or any other reason.
18. Project supplies or equipment where wildlife could hide shall be inspected prior to moving or working on them, to reduce the potential for injury to wildlife. Supplies or equipment that cannot be inspected or from which wildlife cannot escape or be removed, shall be covered or otherwise made secure from wildlife intrusion or entrapment at the end of each work day.
19. All steep-walled trenches or excavations used during construction shall be inspected twice daily (early morning and evening) to protect against wildlife entrapment.
20. All new access roads constructed as part of the project that are not required as permanent access for future project maintenance and operation would be permanently closed to minimize impacts from increased public access.
21. To minimize perching opportunities for raptors near habitats supporting sensitive prey species, select structures will incorporate a design to discourage raptor perching.
22. Only the minimum amount of vegetation necessary for the construction of structures and facilities will be removed. Topsoil shall be conserved during excavation and reused as cover on disturbed areas to facilitate re-growth of vegetation.
23. Construction holes left open overnight shall be covered. Covers shall be secured in place nightly, prior to workers leaving the site, and shall be strong enough to prevent livestock or wildlife from falling through and into a hole. Holes and/or trenches shall be inspected prior to filling to ensure absence of mammals and reptiles.
24. Where necessary, a biological resource monitor shall be present during the construction to ensure resources are protected in the construction area.

25. Excavations shall be sloped on one end to provide an escape route for small mammals and reptiles.
26. An Environmental Inspector will be onsite. The general responsibilities of the Environmental Inspector are listed in Table 5-3 of the BA (BLM 2008b).
27. Prior to issuance of any Federal permit, lease, or authorization for any surface-disturbing activity on public lands, the LCWD and/or other utility agencies would be required to pay a remuneration fee for each acre of surface disturbance to desert tortoise habitat. BLM would ensure payment of remuneration fees by the project proponents or the designated utilities for compensation of the loss of desert tortoise habitat as a result of the proposed project. BLM and the Service would require a receipt of payment from the project proponents/utility agencies prior to issuing the Notice to Proceed. Refer to section 5 (Conservation Measures) of the BA (BLM 2008b) for a complete description of this conservation measure.

C. STATUS OF THE SPECIES/CRITICAL HABITAT RANGE-WIDE

The current range-wide status of the desert tortoise and its critical habitat consists of information on its listing history, species account, recovery plan, recovery units, distribution, reproduction, numbers, and critical habitat units and their constituent elements. This information is provided in a document entitled “*Status of the Desert Tortoise – Rangewide*” dated October 22, 2008, and posted on the Service’s website at: http://www.fws.gov/nevada/desert_tortoise/dt_life.html. If unavailable, contact the Nevada Fish and Wildlife Office in Las Vegas at (702) 515-5230 and provide File No. 84320-2008-F-0468.

D. ENVIRONMENTAL BASELINE

Status of the Desert Tortoise/Critical Habitat in the Action Area

Approximately 54 percent of the proposed project area occurs within the Mojave Desert biome. The Mojave Desert biome is characterized by creosote bush scrub, with blackbrush dominating at elevations higher than 4,200 feet. Topography is varied, with flats, valleys, alluvial fans, washes, and rocky slopes. Approximately 38 percent of the project area consists of creosote bush scrub. Within the project area, about 41 percent of this vegetation community burned in the wildfires of 2005.

The project area is located within the Northeastern Mojave Recovery Unit, and crosses through the Beaver Dam Slope and Mormon Mesa Areas of Critical Environmental Concern (ACECs) (BLM 2000). The proposed project also crosses through the Beaver Dam Slope Critical Habitat Unit. Results of range-wide population monitoring conducted between 2001 and 2005 indicate that desert tortoise densities are low in the Northeastern Mojave Recovery Unit (Service 2006).

The proposed ROWs for the project traverse approximately 32.5 miles of suitable desert tortoise habitat, of which approximately 9.5 miles are designated critical habitat. Of the 32.5 miles of suitable habitat, approximately 12.5 miles are within the area that burned in 2005. Almost the entire corridor is directly adjacent to existing roads that support light traffic. Approximately 10 miles of the corridor are not adjacent to existing roads.

Desert tortoise surveys for the proposed project were conducted between October 19 and October 23, 2006. The strip-transect method was used to sample distribution and relative abundance of tortoise sign throughout the proposed project area. Of the 38 transects proposed to be surveyed, 8 were eliminated in burned areas based on the assumption that tortoise densities are severely depressed in these areas. Transects were 1.5 miles long by 30 feet wide and were walked in an equilateral triangle 0.5 mile to a side. Transects were placed along the entire ROW approximately 1.0 mile apart in alternating directions. Transects were surveyed for live or dead tortoises and tortoise sign including burrows, scat, tracks, and water scrapes. The total corrected sign method was used to estimate tortoise densities. Estimated tortoise densities ranged from 0 to 10 tortoises per square mile. The highest densities (10 per square mile) were found in a green field area in the southern part of the proposed project ROW. Most sign were found in sandy washes. Four transects exhibited tortoise densities of seven per square mile, and the remainder of transects yielded densities of three per square mile or less. Two tortoise sign were found in burned areas along the proposed project ROW.

In 2006, strip transect surveys were conducted for the proposed Toquop Energy Project, which is located in the southern portion of the proposed project area. Results from surveys estimated tortoise densities ranging from less than one per 100 acres (or extrapolated to approximately 6 per square mile) to less than 5 per 100 acres (or extrapolated to approximately 32 per square mile) (BLM 2006).

Factors Affecting the Desert Tortoise/Critical Habitat in the Action Area

Section E.1. of the PBO provides a general description of the factors affecting the desert tortoise and designated critical habitat within the BLM Ely District, which includes the action area for the proposed project. In addition, factors associated with global climate change may also affect the desert tortoise and its critical habitat. Climate change studies conducted within the past decade predict a general pattern of increasing temperatures and decreasing precipitation in the southwestern region of the United States (Weltzin et al. 2003; IPCC 2007; Seager et al. 2007; Neilson 2008), which is within the range of the tortoise. However, the manner or extent to which a shift in climatic regime may affect the desert tortoise is not well understood, and is limited by the inability to accurately predict detailed weather patterns well into the future at local and regional spatial scales. This further limits the ability to understand how changes in climate patterns may influence the biota at these same spatial scales. Hence, attempts at predicting the specific effects of climate change on the desert tortoise at this time would be highly speculative at best. Monitoring, management, and mitigation plans developed by LCWD in coordination with BLM and FWS may reduce the impact of future effects brought about through changes in

climate by adapting operation of proposed groundwater development projects in order to mitigate any unanticipated impacts that occur.

E. EFFECTS OF THE PROPOSED ACTION

The effects to desert tortoise of issuance of ROWs for the proposed project are within the scope of overall effects described in the section of the PBO entitled *Effects of Lands, Realty, and Renewable Energy Actions* (pages 99 through 102) and summarized in table 3 (page 10). Specifically, the proposed action may kill two desert tortoises and cause up to 40 desert tortoises to be captured and moved out of harm's way. The Service and BLM anticipate that up to 848.5 acres of desert tortoise habitat may be disturbed as a result of the issuance of ROWs for the proposed project. Of this total, 253.7 acres is designated as critical habitat. This disturbance is within the level of disturbance anticipated in the PBO for Lands, Realty, and Renewable Energy Actions (14,820 acres of non-critical habitat and 21,900 acres of critical habitat).

F. CUMULATIVE EFFECTS

Cumulative effects are those effects of future non-Federal (State, local government, or private) activities that are reasonably certain to occur in the project area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. Cumulative effects were addressed in section G of the PBO, and are consistent with the cumulative effects reasonably anticipated for the proposed project.

G. CONCLUSION

After reviewing the current status of the desert tortoise, the environmental baseline for the project area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the proposed action is within the scope of the PBO issued to the Ely District Office and is therefore, not likely to jeopardize the continued existence of the threatened desert tortoise (Mojave population). The proposed action is not likely to adversely modify designated critical habitat or diminish the capability of the area in providing the primary constituent elements of critical habitat.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act, as amended, prohibits take (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering (50 CFR § 17.3). "Harass" is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding,

feeding, or sheltering (50 CFR § 17.3). Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant. Under the terms of sections 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The terms and conditions described below may restate, clarify, modify, or supplement measures proposed by BLM or the project proponents as part of the proposed project description, or may include additional measures considered necessary by the Service. Where these terms and conditions vary from or contradict the minimization measures proposed under the project description, specifications in these terms and conditions shall apply. These measures are nondiscretionary and must be implemented by BLM and/or the project proponents so that they become binding conditions of any project, contract, grant, or permit issued by BLM or other jurisdictional Federal agencies as appropriate, in order for the exemption in section 7(o)(2) to apply.

BLM or other jurisdictional Federal agencies as appropriate, have a continuing duty to regulate the activity that is covered by this incidental take statement. If BLM or other jurisdictional Federal agencies as appropriate, fail to adhere to the action-specific terms and conditions of the incidental take statement through enforceable terms that are added to permits or grant documents, and/or fail to retain oversight to ensure compliance with the action-specific terms and conditions, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, BLM and/or the project proponents must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement (50 CFR § 402.14(i)(3)).

A. AMOUNT OR EXTENT OF TAKE

Based on the analysis of effects provided above, anticipated project duration, and minimization measures proposed by BLM and LCWD, the Service anticipates that the following take could occur as a result of the proposed action:

Two desert tortoises may be incidentally killed as a result of the proposed project. An unknown number of desert tortoises may be taken through harassment by capturing and removing from ROWs during construction, operation, and maintenance activities; however, the Service estimates that no more than a total of 40 desert tortoises may be incidentally taken (*i.e.*, other than killed or injured) as a result of project construction, operation, and maintenance activities.

B. EFFECT OF TAKE

The Service determined that this level of anticipated take is not likely to result in jeopardy to the desert tortoise. Incidental take anticipated for the proposed project is within the level of take

exempted for the Lands, Realty, and Renewable Energy program in the PBO (10 killed or injured and 850 moved out of harm's way).

C. REASONABLE AND PRUDENT MEASURES WITH TERMS AND CONDITIONS

In addition to the action-specific conservation measures proposed by BLM and the project proponents, the Service believes that the following reasonable and prudent measures (RPMs) and Terms and Conditions taken from the PBO are necessary and appropriate to minimize take of desert tortoise:

- RPMs 1, 2, and 3
- Terms and Conditions 1.a., 2.a., 2.b., 2.c., 2.d., 2.e., 3.a., 3.b., 3.c., 3.d., 3.e.

In addition, the following terms and conditions are necessary and appropriate to further minimize take of the desert tortoise as a result of the action-specific project. These terms and conditions are adapted from the October 29, 2008, biological opinion issued to BLM for a similar project proposed by LCWD, LCPD, and LCT (Kane Springs Valley Groundwater Development Project, Service File No. 84320-2008-F-0007), and clarify the responsibilities of BLM and the project proponents as described in the conservation measures provided in the project description.

- RPM 1
 - 1.b. BLM shall designate a Field Contact Representative to act as an independent third party contractor. The Field Contact Representative will be responsible for overseeing compliance with protective stipulations for the desert tortoise and will coordinate with and report directly to BLM. All questions or concerns regarding compliance shall be directed to BLM through the Field Contact Representative. The Field Contact Representative shall have the authority to halt activities or construction equipment that may be in violation of the stipulations. A copy of the terms and conditions of this biological opinion shall be provided to the Field Contact Representative, biologists, and monitors for the project.
 - 1.c. The authorized biologist(s) shall record each observation of desert tortoise handled. Information will include: location, date and time of observation; whether tortoise was handled, general health and whether it voided its bladder; location tortoise was moved from and location moved to; and unique physical characteristics of each tortoise. This information shall be included in a final report to be submitted to the Service's Nevada Fish and Wildlife Office in Las Vegas within 90 days of completion of the project.
 - 1.d. BLM shall ensure that the terms and conditions of this incidental take statement become binding conditions for all ROW grants issued for the proposed project.

1.e. BLM shall ensure that all project proponents provide annual reports to BLM, as appropriate, for activities conducted within the range of the desert tortoise associated with phased construction (*e.g.*, installation of additional wells and access roads), and operations and maintenance activities that result in new surface disturbance.

- RPM 3

3.f. Immediately prior to surface-disturbing activities or traveling off of main access roads on the ROW, the authorized biologist(s) shall survey for desert tortoises and their burrows using techniques providing 100-percent coverage of the ROW and an additional area approximately 90 feet from both sides of the ROW. Transects will be no greater than 30 feet apart. All potential desert tortoise burrows will be examined to determine occupancy of each burrow by desert tortoises and handled only by authorized biologists.

3.g. All potential desert tortoise burrows located within the project area that are at risk for damage shall be excavated by hand by an authorized biologist, tortoises removed, and burrows collapsed or blocked to prevent occupation by desert tortoises.

3.h. Desert tortoises located in the project area, but outside of an area to be disturbed, sheltering in a burrow during a period of reduced activity (*e.g.*, winter), may be temporarily penned. Tortoises shall not be penned in areas of moderate or heavy public use. Penning shall be accomplished by installing a circular fence, approximately 20 feet in diameter to enclose the tortoise/burrow. The pen should be constructed with durable materials (*i.e.*, 16 gauge or heavier) suitable to resist desert environments. Fence material should consist of ½-inch hardware cloth or 1-inch horizontal by 2-inch vertical, galvanized welded wire. Pen material should be 24 inches in width. Steel T-posts or rebar (3 to 4 feet) should be placed every 5 to 6 feet to support the pen material. The pen material should extend 18 to 24 inches aboveground. The bottom of the enclosure shall be buried several inches with soil mounded along the base, and other measures should be taken to ensure zero ground clearance. Care shall be taken to minimize visibility of the pen by the public. An authorized biologist, approved monitor, or designated worker shall check the pen daily.

3.i. Desert tortoises and eggs found within construction sites shall be removed by an authorized biologist in accordance with the most current protocols identified by BLM and the Service. Desert tortoises will be moved solely for the purpose of moving them out of harm's way. Desert tortoises shall be relocated up to 1,500 feet into adjacent undisturbed habitat on protected public land in accordance with Service-approved handling protocol (Desert Tortoise Council 1994, revised 1999). The disposition of all tortoises handled shall be documented

in accordance with the reporting requirements described in Term and Condition 1.c. above.

- 3.j. Fuel, transmission or brake fluid, or other hazardous materials shall not be drained onto the ground or into streams or drainage areas. All petroleum products and other potentially hazardous materials shall be removed to a disposal facility authorized to accept such materials. Waste leaks, spills, or releases shall be reported immediately to BLM. BLM or the project proponent shall be responsible for spill material removal and disposal to an approved off-site landfill. Servicing of construction equipment will take place only at a designated area. All fuel or hazardous water leaks, spills, or releases will be stopped or repaired immediately and cleaned up at the time of occurrence. Service and maintenance vehicles will carry a bucket and pads to absorb leaks or spills.
- 3.k. Vehicles shall not exceed 25 miles per hour on access roads. Authorized desert tortoise biologists and/or approved monitors will ensure compliance with speed limits during construction.
- 3.l. All vehicle and construction equipment shall be checked underneath for tortoises before moving. The area under vehicles should be checked any time a vehicle is left unattended, and in the morning before construction activity begins. If a desert tortoise is observed, an authorized biologist will be contacted.
- 3.m. Project activity areas shall be clearly marked or flagged at the outer boundaries before the onset of construction. All activities shall be confined to designated areas. The authorized biologist and approved monitors shall ensure that no habitat is disturbed outside designated areas as a result of the project, including ensuring that all vehicles and equipment remain in the ROW or areas devoid of native vegetation.
- 3.n. All desert tortoises observed within the project area or access roads shall be reported immediately to an authorized biologist. The authorized biologist shall halt activities as necessary to avoid harm to a desert tortoise. Project activities that may endanger a desert tortoise shall cease until the desert tortoise moves out of harm's way or is moved out of harm's way by an authorized biologist.
- 3.o. Only water or an alternative substance approved by BLM shall be used as a dust suppressant. As pools of water may act as an attractant to desert tortoises, water application shall avoid pooling of water on or adjacent to roadways.
- 3.p. In the event that blasting is required, a 200-foot radius area around the blasting site shall be surveyed for desert tortoises by an authorized biologist prior to blasting, using 100-percent coverage survey techniques. All tortoises located aboveground or in pallets within this 200-foot radius of the blasting site shall be

moved 500 feet from the blasting site. Additionally, tortoises in burrows within 75 feet of the blasting will be placed into an artificial or unoccupied burrow 500 feet from the blasting site. This will prevent tortoises that leave their burrow upon translocation from returning to the blasting site. Tortoises in burrows at a distance of 75 to 200 feet from the blasting site will be left in their burrows. Burrow locations will be flagged and recorded using a GPS unit and burrows would be stuffed with newspapers. Immediately after blasting, newspaper and flagging will be removed. Blasting would only occur in the brief time period after an area has been cleared by an authorized biologist, but before any relocated tortoises could return to the site.

- 3.q. If possible, overnight parking and storage of equipment and materials shall be located in previously-disturbed areas or areas to be disturbed that have been cleared by an authorized tortoise biologist. If not possible, areas for overnight parking and storage of equipment shall be designated by an authorized biologist.
- 3.r. Flagging and wire shall be removed from the project area at the end of the project to ensure debris is not consumed by desert tortoises.
- 3.s. All project activities in desert tortoise habitat shall be conducted from dawn until dusk.
- 3.t. Any excavated holes left open overnight shall be covered, and/or tortoise-proof fencing shall be installed to prevent the possibility of tortoises falling into the open holes. Refer to Attachment 2 for desert tortoise-proof fencing specifications.
- 3.u. Open pipeline trenches shall be fenced with temporary tortoise-proof fencing or inspected by an authorized biologist or approved monitor periodically throughout and at the end of the day, and immediately prior to backfilling, and tortoise escape ramps (of at least 3 to 1 slope) shall be installed at least every quarter mile. Any tortoise that is found in a trench or excavation shall be promptly removed by an authorized biologist in accordance with Service-approved protocol or alternative method approved by the Service if the biologist is not allowed to enter the trench for safety reasons.
- 3.v. For sites or facilities to be secured with fencing, such as well yards, storage tanks, booster stations, electrical substations, and natural gas tap site and metering station, the fence shall be installed at least 1 foot below the surface of the ground to discourage tortoises from gaining access to the site. Fences should be checked during regular maintenance of the facilities to ensure zero ground clearance.
- 3.w. BLM shall ensure payment of remuneration fees by the project proponents/utility agencies for compensation of the loss of desert tortoise habitat as a result of the

proposed project. BLM shall require a receipt of payment from each project proponent/utility agency prior to issuing the Notice to Proceed.

The ROW applicant(s) is required to submit a Final Plan of Development to BLM, which must be approved by BLM prior to issuance of the Notice to Proceed. It is likely that the amount of disturbance will change with the final engineering design; therefore, BLM will reevaluate the project disturbance and adjust the total compensation fee accordingly. A copy of the Final Plan of Development and a breakdown of the final compensation fee will be provided to the Service. The applicant(s) will be made aware that, depending on final engineering designs, the final compensation fee may be lower than the estimated value provided in this document.

As of March 1, 2009, the basic compensation rate for disturbance to desert tortoise habitat is \$754 per acre. For disturbance to desert tortoise critical habitat, a multiplier is used to increase the cost per acre as described in Hastey et al. (1991). For each project, this multiplier for critical habitat is based on assignment of ratings to the following five factors:

- Category of Habitat (value of the land to tortoise populations)
- Term of Effect (short term vs. long term)
- Existing Disturbance on Site
- Growth Inducement (growth inducing effects of the proposed action)
- Effect of Adjacent Lands (whether adjacent lands will be affected)

The proposed project will disturb an estimated 848.5 acres of desert tortoise habitat on lands in Lincoln County, of which 253.7 acres is designated critical habitat. The total estimated compensation fee for this project is \$1,437,010.90. Attachment 3 shows a breakdown of these calculations.

On March 1st of each year, the fee rate is adjusted for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U). Information on the CPI-U can be found on the internet at: <http://stats.bls.gov/news.release/cpi.nr0.htm>. The next rate adjustment will occur on March 1, 2010.

Fees collected for the compensation of desert tortoise habitat disturbed as a result of the proposed project may be used in conjunction with the mitigation program for the Southeastern Lincoln County Habitat Conservation Plan, to complement and enhance conservation and recovery actions to be implemented within the Mormon Mesa and Beaver Dam Slope Critical Habitat Units.

D. REPORTING REQUIREMENTS

Reporting requirements as described in the PBO are applicable to this action-specific project.

E. CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service does not offer any conservation recommendations at this time.

This concludes formal consultation on the action described in your November 18, 2008, request. This consultation document is hereby appended to the PBO issued to the Ely District Office to fulfill their consultation requirements pursuant to section 7(a)(2) of the Act.

Table 1. Appended actions under the PBO that may result in adverse effects to the desert tortoise.

File No.	Date	Program Affected	Project/Action Name	HABITAT				TAKE					
				Program Threshold-DTCH Acres Disturbed	Program Threshold- Non-DTCH Acres	Project Acres affected-DTCH	Project Acres affected-Non-DTCH	Program- Lethal Take Exempted	Program- Non-Lethal Take Estimate	Project- Lethal Take Exempted	Project-Non-Lethal Take Estimated	Project- Lethal Take Reported	Project- Non-lethal Take Reported
2008-F-0467	08/29/08	OHV Management	Silver State 300 OHV Race	0	0	0	0	10	NP	1	5	NR	NR
2008-F-0163	09/08/08	Vegetation and Weed Management	Meadow Valley Wash Weed Control	NP	NP	0	0	2	NP	1	5	NR	NR
2008-F-0067	04/07/09	Lands/Realty/Renewable - ROWs	Toquop Energy Project	21,900	14,820	0	698	10	850	2	59	NR	NR

NP- not provided
 NR- none reported

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Attachment 2

RECOMMENDED SPECIFICATIONS FOR DESERT TORTOISE EXCLUSION FENCING September 2005

These specifications were developed to standardize fence materials and construction procedures to confine tortoises or exclude them from harmful situations, primarily roads and highways. Prior to commencing any field work, all field workers should comply with all stipulations and measures developed by the jurisdictional land manager and the U.S. Fish and Wildlife Service for conducting such activities in desert tortoise habitat, which will include, at a minimum, completing a desert tortoise education program.

FENCE CONSTRUCTION

Materials

Fences should be constructed with durable materials (*i.e.*, 16 gauge or heavier) suitable to resist desert environments, alkaline and acidic soils, wind, and erosion. Fence material should consist of 1-inch horizontal by 2-inch vertical, galvanized welded wire, 36 inches in width. Other materials include: Hog rings, steel T-posts, and smooth or barbed livestock wire. Hog rings should be used to attach the fence material to existing strand fence. Steel T-posts (5 to 6-foot) are used for new fence construction. If fence is constructed within the range of bighorn sheep, 6-foot T-posts should be used (see New Fence Construction below). Standard smooth livestock wire fencing should be used for new fence construction, on which tortoise-proof fencing would be attached.

Retrofitting Existing Livestock Fence

Option 1 (see enclosed drawing). Fence material should be buried a minimum of 12 inches below the ground surface, leaving 22-24 inches above ground. A trench should be dug or a cut made with a blade on heavy equipment to allow 12 inches of fence to be buried below the natural level of the ground. The top end of the tortoise fence should be secured to the livestock wire with hog rings at 12 to 18-inch intervals. Distances between T-posts should not exceed 10 feet, unless the tortoise fence is being attached to an existing right-of-way fence that has larger interspaces between posts. The fence must be perpendicular to the ground surface, or slightly angled away from the road, towards the side encountered by tortoises. After the fence has been installed and secured to the top wire and T-posts, excavated soil will be replaced and compacted to minimize soil erosion.

Option 2 (see enclosed drawing). In situations where burying the fence is not practical because of rocky or undigable substrate, the fence material should be bent at a 90° angle to produce a lower section approximately 14 inches wide which will be placed parallel to, and in direct contact with, the ground surface; the remaining 22-inch wide upper section should be placed vertically against the existing fence, perpendicular to the ground and attached to the existing fence with hog rings at 12 to 18-inch intervals. The lower section in contact with the ground should be placed within the enclosure in the direction of potential tortoise encounters and level

with the ground surface. Soil and cobble (approximately 2 to 4 inches in diameter; can use larger rocks where soil is shallow) should be placed on top of the lower section of fence material on the ground covering it with up to 4 inches of material, leaving a minimum of 18 inches of open space between the cobble surface and the top of the tortoise-proof fence. Care should be taken to ensure that the fence material parallel to the ground surface is adequately covered and is flush with the ground surface.

New Fence Construction

Options 1 or 2 should be followed except in areas that require special construction and engineering such as wash-out sections (see below). T-posts should be driven approximately 24 to 30 inches below the ground surface spaced approximately 10 feet apart. Livestock wire should be stretched between the T-posts, 18 to 24 inches above the ground to match the top edge of the fence material; desert tortoise-proof fencing should be attached to this wire with hog rings placed at 12 to 18-inch intervals. Smooth (barb-less) livestock wire should be used except where grazing occurs.

If fence is constructed within the range of bighorn sheep, two smooth-strand wires are required at the top of the T-post, approximately 4 inches apart, to make the wire(s) more visible to sheep. A 20 to 24-inch gap must exist between the top of the fence material and the lowest smooth-strand wire at the top of the T-post. The lower of the top two smooth-strand wires must be at least 43 inches above the ground surface.

(72-inch T-posts: 24 inches below ground + 18 inches of tortoise fence above ground + 20 to 24-inch gap to lower top wire + 4 inches to upper top wire = 66 to 70 inches).

INSPECTION OF DESERT TORTOISE BARRIERS

The risk level for a desert tortoise encountering a breach in the fence is greatest in the spring and fall, particularly around the time of precipitation including the period during which precipitation occurs and at least several days afterward. All desert tortoise fences and cattleguards should be inspected on a regular basis sufficient to maintain an effective barrier to tortoise movement. Inspections should be documented in writing and include any observations of entrapped animals; repairs needed including bent T-posts, leaning or non-perpendicular fencing, cuts, breaks, and gaps; cattleguards without escape paths for tortoises or needed maintenance; tortoises and tortoise burrows including carcasses; and recommendations for supplies and equipment needed to complete repairs and maintenance.

All fence and cattleguard inventories should be inspected at least twice per year. However, during the first 2 to 3 years all inspections will be conducted quarterly at a minimum, to identify and document breaches, and problem areas such as wash-outs, vandalism, and cattleguards that fill-in with soil or gravel. GPS coordinates and mileages from existing highway markers should be recorded in order to pinpoint problem locations and build a database of problem locations that may require more frequent checking. Following 2 to 3 years of initial inspection, subsequent inspections should focus on known problem areas which will be inspected more frequently than twice per year. In addition to semi-annual inspections, problem areas prone to wash-outs should be inspected following precipitation that produces potentially fence-damaging water flow. A

database of problem areas will be established whereby checking fences in such areas can be done efficiently.

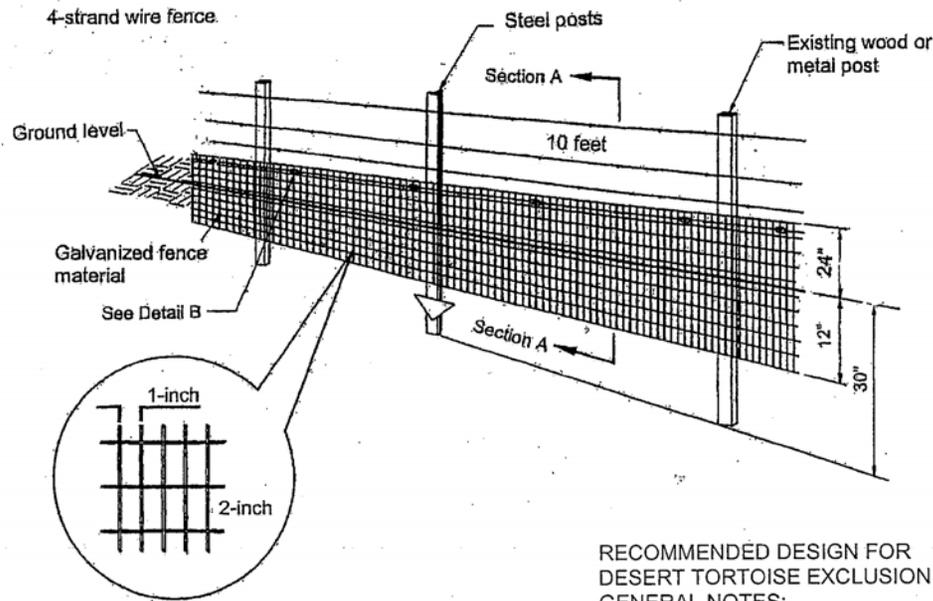
REPAIR AND MAINTENANCE OF DESERT TORTOISE BARRIERS

Repairs of fence wash-outs: (1) realign the fence out of the wash if possible to avoid the problem area, or (2) re-construct tortoise-proof fencing using techniques that will ensure that an effective desert tortoise barrier is established that will not require frequent repairs and maintenance.

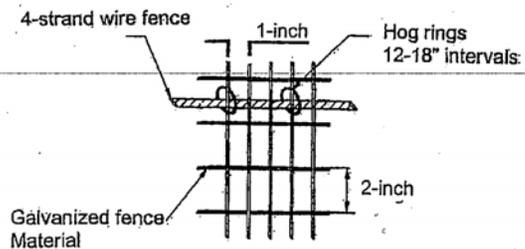
Gaps and breaks will require either: (a) repairs to the existing fence in place, with similar diameter and composition of original material, (b) replacement of the damaged section to the nearest T-post, with new fence material that original fence standards, (c) burying fence, and/or (d) restoring zero ground clearance by filling in gaps or holes under the fence and replacing cobble over fence constructed under Option 2. Tortoise-proof fencing should be constructed and maintained at cattleguards to ensure that a desert tortoise barrier exists at all times.

All fence damage should be repaired in a timely manner to ensure that tortoises do not travel through damaged sections. Similarly, cattleguards will be cleaned out of deposited material underneath them in a timely manner. In addition to periodic inspections, debris should be removed that accumulates along the fence. All cattleguards that serve as tortoise barriers should be installed and maintained to ensure that any tortoise that falls underneath has a path of escape without crossing the intended barrier.

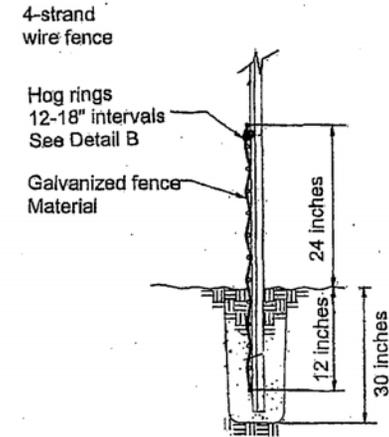
DESERT TORTOISE EXCLUSION FENCE (2005)



DETAIL A



DETAIL B



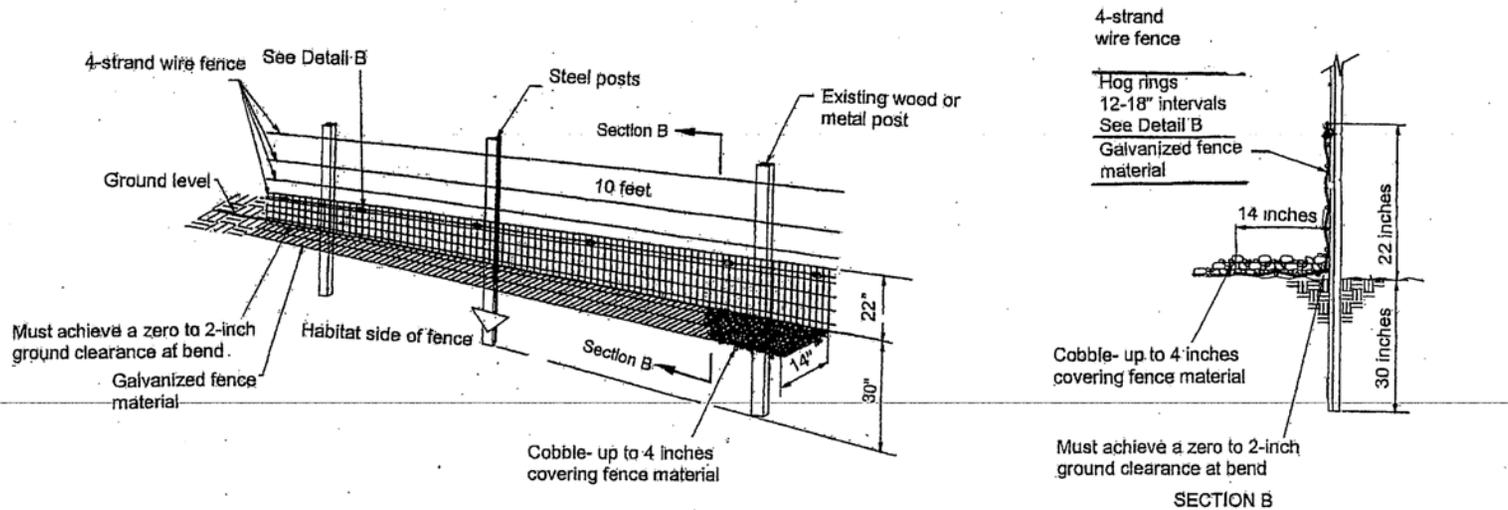
SECTION A

RECOMMENDED DESIGN FOR
DESERT TORTOISE EXCLUSION FENCE
GENERAL NOTES:

1. Ensure that fence posts and materials conform to the standards approved by the U.S. Fish and Wildlife Service.
2. Ensure that the height above ground level is no less than 18 inches and no higher than 24 inches.
3. Ensure that the depth of fence material below ground level is about 12 inches but no less than 6 inches. (See SECTION A above)
4. Install additional steel posts when span between existing fence posts exceed 10 feet.
5. Attach fence material to existing fence or wire using hog rings at 12-inch intervals.
6. Fasten fence material to posts with 3 tie wires with a wire near the top, bottom, and center of the fence material.
7. Backfill trenches with excavated material and compact the material.
8. Attach fence material to all gates. Ensure that clearance at base of gate achieves zero ground clearance.
9. Substitute smooth wire for barbed wire if additional support wires are necessary.
10. The number and placement of support wires may be modified to allow sheep and deer to pass safely.
11. Erosion at the edge of the fence material where the fence crosses washes may occur and requires appropriate and timely monitoring and repair.
12. Tie the fence into existing culverts and cattleguards when determined necessary to allow desert tortoise passage underneath roadways.

FOR BEDROCK OR CALICHE SUBSTRATE

1. Use this fence design (see below) only for that portion of the fence where fence material cannot be placed 6 inches below existing ground level due to presence of bedrock, large rocks or caliche substrate.
2. Ensure that the fence height above ground level is no less than 22 inches.
3. Ensure that there is a zero to 2-inch ground clearance at the bend.
4. Ensure that the bent portion of the fence is lying on the ground and pointed in the direction of desert tortoise habitat.
5. Cover the portion of the fence that is flush with the ground with cobble (rocks placed on top of the fence material to a vertical thickness up to 4 inches).
6. When substrate no longer is composed of bedrock or caliche, install fence using design shown above.



Attachment 3

CALCULATION OF DESERT TORTOISE HABITAT COMPENSATION FEES

Table 1. Project-specific multiplier for calculating compensation fees for critical habitat.

COMPENSATION FACTOR*	DESCRIPTION	RATING	
		211.15 acres	42.55 acres
Category of Habitat	The habitat has been rated as Category I, which is the most valuable and protected (i.e. critical habitat).	3	3
Term of Effect	The term of effect has been rated as long term (> 10 years)	1	1
Existing Disturbance on Site	0 = moderate to heavy existing disturbance 1 = little or no existing habitat disturbance	0	1
Growth Inducement	The proposed action has been rated as having growth inducing effects	.5	.5
Effect to Adjacent Habitat	Adjacent habitat will receive direct or indirect deleterious impacts from proposed action	.5	.5
TOTAL RATING FOR COMPENSATION FACTORS = MULTIPLIER		5	6
MULTIPLIER X ACRES X CURRENT COST PER ACRE **		\$796,035.50	\$192,496.20

Table 2. Calculation of compensation fees for the Lincoln County Land Act Groundwater Development and Utility Right of Way Project.

ACRES	COST PER ACRE**	COST
Compensation for disturbance <u>not</u> within designated critical habitat:		
594.8 acres	\$754/acre (basic compensation rate as of March 1, 2009)	\$448,479.20
Compensation for disturbance <u>within</u> designated critical habitat:		
211.15 acres	\$3,770/acre (basic compensation rate x 5)	\$796,035.50
42.55 acres	\$4,524/acre (basic compensation rate x 6)	\$192,496.20
TOTAL COMPENSATION FEES		\$1,437,010.90

*Compensation Factors are rated based on the *Compensation for the Desert Tortoise; A Report Prepared for the Desert Tortoise Management Oversight Group* (Hastey et al., 1991).

** On March 1st of each year the cost per acre (or compensation rate) will be indexed for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U). Information on the CPI-U can be found on the internet at: <http://stats.bls.gov/news.release/cpi.nr0.htm>. The next rate adjustment will occur on March 1, 2010.

Attachment 4

INFORMAL CONSULTATION

Service File No.: 84320-2009-I-0103

Species: Southwestern willow flycatcher, woundfin, Virgin River chub, Yuma clapper rail, yellow-billed cuckoo

Federal Action Agency: Bureau of Land Management

Federal Action(s): Issuance of ROW for groundwater pumping facilities, water conveyance system, electric utility facilities, natural gas facilities, fiber optic lines, and associated ancillary project components

Project Proponent(s): Lincoln County Water District, Lincoln County Power District, Lincoln County Telephone Company, Southwest Gas Corporation

Effects Determination: May affect, not likely to adversely affect

Project Description: See Attachment 1, Biological Opinion, Description of the Proposed Project

Comments:

Virgin River Species

The woundfin, Virgin River chub, southwestern willow flycatcher, Yuma clapper rail, and yellow-billed cuckoo are all known to occur in aquatic and riparian environments of the Virgin River. The project proponent currently holds water rights for 2,100 acre feet per year (AFY) of groundwater in the Tule Desert HA and has submitted applications for another 7,240 AFY in the basin, which is being held in abeyance until additional data are collected and submitted to the NSE pursuant to Ruling No. 5181 dated November 26, 2002. The project proponents propose to construct a water pipeline and associated facilities to convey water pumped under these rights and applications. Issuance of ROWs by BLM would be necessary for the project proponents to construct the water pipeline and associated facilities for water conveyance. At issue is the potential for groundwater pumping in the Tule Desert HA associated with the proposed project to affect surface water flows of the Virgin River and the listed and candidate species that depend on this resource.

Carbonate rocks beneath the Tule Springs Hills may provide a hydraulic connection through which groundwater flows from Tule Desert to the Virgin River Valley (Glancy and Van Denburgh, 1969; Dixon and Katzer, 2002; and Bushner and Feast, 2008). Consequently,

groundwater pumping in Tule Desert has the potential to affect surface flows in the Virgin River and water levels in riparian and phreatophytic zones along the river by capturing groundwater which may be flowing from Tule Desert into Virgin River Valley. However, we find that the degree of hydraulic connection (volume of groundwater flow) between the two basins is unknown (consistent with the findings of NSE Ruling 5181) and groundwater level measurements are not available for the western portion of the Virgin River Valley that would allow such a determination to be made today. That notwithstanding, the results of an evapotranspiration study performed by the U.S. Geological Survey (USGS) in the southern portion of the Colorado Regional Groundwater Flow System (DeMeo et al., 2008), suggest that any decline in groundwater levels within the Virgin River Valley due to pumping in Tule Desert would not likely have a significant effect on flows of the Virgin River or water levels in adjacent wetlands. Specifically, a water budget analysis prepared by DeMeo et al. (2008) suggests that groundwater discharge to the Virgin River and its riparian zone is approximately 1,000 AFY (or less) between the USGS stream gage at Littlefield (Site No. 09415000) and the downstream USGS gage at Overton, Nevada (Site No. 09415240). Even if all groundwater currently being discharged to the river and its riparian corridor originates in Tule Desert and is captured by the proponent's pumping, the change in the overall water budget of the river (1,000 AFY compared to 102,000 AFY of streamflow at the Littlefield gage and 72,000 AFY of streamflow at the Overton gage in 2003 and 2004) would be small. Moreover, since shallow groundwater levels in zones of phreatophytic and riparian vegetation along the river are largely determined by the stage of the river, the former are also unlikely to decline significantly as a result of the proposed pumping.

Additionally, it is unlikely that the proponent's proposed pumping in Tule Desert could result in a net reversal of groundwater flow away from the Virgin River in volumes significant enough to impact the overall water budget of the river, since maximum groundwater pumping in Tule Desert would be 9,340 AFY and only a portion of that is likely to be captured from the river if such a reversal occurs (streamflow ranging from 70,000 to 100,000 AFY or more depending on location). Since the effects to the overall water budget of the river (the flow of the river) would be minimal even if some capture of water from the river (a reversal of groundwater flow) occurs due to the proponent's pumping, any impacts to water levels in adjacent wetlands and the depth to shallow groundwater in zones of phreatophytic and riparian vegetation along the river should also be minimal.

A groundwater flow model (Mock, 2008) was recently prepared and submitted to the NSE by the project proponent. The model was constructed with the aim of evaluating the potential impacts of pumping up to 9,340 AFY in Tule Desert on groundwater levels in nearby basins, including Virgin River Valley. Recent geologic mapping by the USGS (Page and others, 2005a, 2005b, 2006) was used to construct the hydrogeologic framework of the model. Known and interpreted geologic structures were built into the model with the aim of evaluating the effects of geologic complexities in the regional carbonate aquifer, other fractured rock aquifers including the Muddy Creek Formation of Virgin River Valley, and area basin fill aquifers on groundwater levels and groundwater flow directions. However, no model calibration or sensitivity analyses were performed as part of this modeling exercise. Consequently, the correctness and certainty of the

model results are unknown. Additionally, few groundwater level data are available today that could be used to calibrate the model, notably in the Virgin River Valley. In view of the current limitations of the model, the limited prospects of advancing the model in the near-term, the complexities of the area's hydrogeology, and uncertainties concerning the degree of hydraulic (subsurface) connection between Tule Desert and Virgin River Valley, the water budget prepared by DeMeo et al. (2008) represents the best basis for evaluating the potential effects of the proponent's pumping on Virgin River flows, water levels in adjacent wetlands, and shallow groundwater levels in zones of phreatophytic vegetation along the river at this time.

Meadow Valley Wash and Clover Creek

Flycatchers have been detected in low numbers along Meadow Valley Wash. Surveys for flycatchers along Clover Creek have not produced any observations of the species; however, habitat in certain locations along the creek appears to be suitable. The proposed project would have no direct effect on flycatchers in Meadow Valley Wash or Clover Creek, but potential effects to surface water flows in these drainages from groundwater pumping in the Clover Valley HA are currently unknown. If groundwater pumping affects surface water flows in Clover Valley, flows in Clover Creek and Meadow Valley Wash may be reduced, leading to degradation of riparian habitat along these drainages.

In August 2001, the LCWD and Vidler Water Company (Vidler) filed water rights applications with the NSE for the appropriation of up to 14,480 AFY of groundwater in Clover Valley. To date, no studies have been conducted to estimate sources of recharge or discharge for Clover Valley. However, the perennial yield of the Meadow Valley Groundwater Flow System, only a part of which is represented by Clover Valley, is estimated to be approximately 25,000 AFY (Rush, 1964). It follows that the 14,480 AFY groundwater withdrawal proposed in Clover Valley by the proponent would represent a significant portion of the overall perennial yield of the flow system (comprised of 10 basins), particularly in view of discharge at Panaca Spring in Panaca Valley (immediately north of Clover Valley within the Meadow Valley Groundwater Flow System) which was estimated by Rush (1964) to be about 8,000 AFY in 1963. No studies have been conducted to date which have evaluated, or can be used to evaluate, the degree of hydraulic connection between springs and streams in Clover Valley and underlying consolidated rocks (volcanic or otherwise).

The proponent proposes to install production wells in either Tertiary volcanics (mapped throughout the area), various fault zones, and (or) undifferentiated Mesozoic and (or) Paleozoic rocks or Miocene/Oligocene intrusive rocks in Clover Valley which are presumed to underlie the Tertiary volcanic rocks (ash flow tuffs, bedded tuffs, and tuffaceous sandstones) and are hypothesized by the proponent to comprise a portion of the regional carbonate aquifer or a 'regional aquifer source where fractured and faulted' (in the case of Miocene/Oligocene intrusive rocks) (BLM 2008, Bushner 2009). Specifically, the proponent asserts that: 1) undifferentiated Mesozoic or Paleozoic rocks underlie mapped Tertiary volcanic rocks in Clover Valley (inferred to comprise a portion of the regional carbonate aquifer); 2) a 'regional fractured rock aquifer' underlying Clover Valley (also referred to in Figure 3-9, BLM 2008, as Miocene/Oligocene

intrusive rocks) is semi-confined; and 3) three thousand feet or more of Tertiary volcanic rocks (ash flow tuffs, bedded tuffs, and tuffaceous sandstones) act as a confining layer in the valley which would protect area springs (recharged by precipitation based on deuterium data) from the effects of pumping. However, no wells have been drilled by the proponent in Clover Valley to date and existing wells in the basin (domestic and stockwater wells) are relatively limited in depth. Consequently, the presence or absence of undifferentiated Paleozoic or Mesozoic, or Miocene/Oligocene intrusive rocks, at reachable depths which might act as a regional source of water cannot be confirmed (or refuted), nor can the hydraulic character of Tertiary volcanic rocks which can only be determined through hydraulic field testing using deep wells. That is, neither the presence nor absence of the hypothesized regional water sources or their possible confinement by Tertiary volcanics has been determined by drilling or hydraulic testing. No other basis for these hypotheses has been provided beyond the construction of a series of interpretative geologic cross-sections presented in BLM (2008) which have not been peer reviewed.

Additionally, the project proponent estimates that water from a regional source can be encountered in Clover Valley at a depth of 1,200 to 1,500 feet bgs based on an extrapolation of groundwater level measurements from other basins (Map 3-6, BLM 2008). However, no groundwater level data appear to be available for wells completed in consolidated rocks of Lower Meadow Valley Wash, Panaca Valley, Patterson Valley, Dry Valley (Basin 198), Rose Valley, Eagle Valley, or Spring Valley (Basin 201) near Clover Valley based on Map 3-6, and data are sparse in Delamar Valley and Dry Lake Valley. That is, available groundwater level measurements as depicted in Map 3-6 do not support the extrapolation of groundwater levels (water table elevation) into Clover Valley, where groundwater level measurements from deep wells are not available to estimate the depth to water.

Moreover, the proponent suggests that springs in Clover Valley are unlikely to be affected by project pumping because the former are largely recharged by precipitation (as opposed to deeper sources) based on deuterium data (BLM, 2008). However, drawdown of groundwater levels due to pumping in Tertiary volcanic rocks, or rock underlying the Tertiary volcanic rocks, may decrease spring discharges by lowering surficial groundwater levels in the vicinity of the springs, whether or not the majority of recharge to the springs is derived from precipitation (assuming no significant confining unit exists). Also, no deuterium data was reported for Big Spring, which provides the bulk of water to Clover Creek in Clover Valley. It follows that pumping in Tertiary volcanic rocks, or deeper rocks that may be reachable in Clover Valley, may affect spring discharges and streamflows in the valley, including Big Spring. Additionally, Burbey (1997) suggests that Lower Meadow Valley Wash receives some underflow from volcanic rocks at its north end (i.e., in the vicinity of the west end of Clover Valley), so that a lowering of groundwater levels in volcanic rocks of Clover Valley due to the proponent's pumping may diminish groundwater flow (underflow) to and streamflow in Lower Meadow Valley Wash.

To the extent that substantial unknowns and uncertainties remain concerning the hydrogeology of Clover Valley and potential impacts of the proponent's proposed pumping on springs and streams of Clover Valley and streamflow in Lower Meadow Valley Wash, a hydrologic

monitoring, management, and mitigation plan will be developed cooperatively by the proponent, BLM, and the Service, and implemented by the proponent, which will provide early warning of any such effects and establish measures which will be implemented to mitigate adverse effects before they occur. The proponent will ensure this plan is finalized within 30 days following conclusion of this consultation. LCWD and the Service also executed a Memorandum of Understanding on July 8, 2009, to ensure additional consultation on this project should monitoring detect effects to Clover Creek surface flows beyond that anticipated under this consultation (Attachment 5). Specifically, the Memorandum requires that the Service initiate section 7 consultation, and if necessary, LCWD will apply for an incidental take permit under section 10(a)(1)(B) of the Act to cover any take that may occur due to groundwater pumped and transferred as part of the proposed project.

CONCLUSION:

In consideration of the proposed action, potential effects of the proposed action, and measures proposed by BLM and/or LCWD, the Service concurs with BLM's determination that the proposed action *may affect, but is not likely to adversely affect* the southwestern willow flycatcher, Yuma clapper rail, Virgin River chub, and woundfin. We also agree with your determination that the proposed action is not likely to result in detrimental impacts to the candidate yellow-billed cuckoo. This response constitutes informal consultation under regulations promulgated in 50 CFR § 402.14, which establishes procedures governing interagency consultation under section 7 of the Act. This informal consultation does not authorize take of any listed species.

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- Peter Mock Groundwater Consulting, Inc. 2008. Projection of groundwater impacts in response to proposed pumping from beneath the Tule Desert in southeastern Nevada using MODFLOW-2000, prepared for Lincoln County Water District and Vidler Water Company, dated June 24, 2008.
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Attachment 5



*Lincoln County Water District
Post Office Box 307
Pioche, Nevada 89043
Phone 775 962 5165 Fax 775 962 5877*

July, 2009

Vidler Water Company, Inc.
3480 GS Richards Blvd. Suite 101
Carson City, NV 89703

ATTENTION: Don Pattalock

Dear Don:

I am sending three (3) copies of the MOU grant and stipulations for your signature.

Please forward them to US Fish and Wildlife Service, Nevada Field Office, Robert Williams, State Supervisor for their signature, and return a signed copy to us for our records.

Thanks,

A handwritten signature in cursive script that reads "Joanne Dixon".

Joanne Dixon
Recording Secretary LCWD

Memorandum of Understanding Between
Lincoln County Water District, Vidler Water Company, Inc.
and Nevada Field Office, US Fish and Wildlife Service

The Nevada Field Office of the US Fish and Wildlife Service (SERVICE), Lincoln County Water District (LCWD) and Vidler Water Company, Inc. (VIDLER) have entered into this memorandum of understanding (MOU) with reference to the following facts and circumstances:

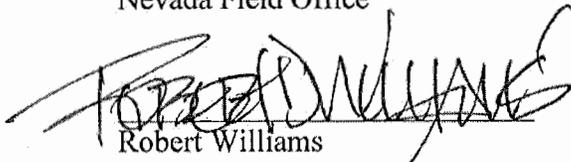
- 1) The SERVICE is responsible for administering and implementing the Endangered Species Act of 1973, as amended, (ESA) (16 U.S.C. §§ 1531 – 1544), including conducting consultation pursuant to Sections 7 and 10 of the ESA and as described in its implementing regulations (50 CFR Part 402).
- 2) LCWD and VIDLER propose to complete the Lincoln County Groundwater Development and Utility Rights of Way Project (Project), which involves the pumping and transfer of up to 9,340 acre-feet of groundwater from the Tule Desert Hydrographic Basin and 14,480 acre-feet of groundwater from the Clover Valley Hydrographic Basin for use in the Virgin Valley Hydrographic Basin in Lincoln County, Nevada.
- 3) LCWD and VIDLER, have agreed to implement a Monitoring, Management and Mitigation Plan with the SERVICE for activities associated with pumping groundwater from the Clover Valley Hydrographic Basin (EXHIBIT A).
- 4) The purpose of the Monitoring, Management and Mitigation Plan is to obtain accurate and reliable information regarding the aquifer's response to pumping and the impact of pumping on water-related resources within the regional carbonate-rock aquifer and overlying basin-fill aquifer systems so that the Project can be managed to avoid adverse impacts to the Southwestern Willow Flycatcher or its habitat.
- 5) The Nevada State Engineer has authorized LCWD and VIDLER to appropriate 2,100 acre-feet of groundwater from Tule Desert for use within Lincoln County in Virgin Valley and may in the future authorize LCWD and VIDLER to appropriate up to 9,340 acre-feet of groundwater from the Tule Desert Hydrographic Basin and 14,480 acre-feet of groundwater from the Clover Valley Hydrographic Basin for use within Lincoln County in Virgin Valley.
- 6) The Bureau of Land Management is expected to issue a Record of Decision granting a right-of-way for the Project.
- 7) The SERVICE is expected to concur with the Bureau of Land Management's determination that issuance of rights-of-way for the Project would not likely adversely affect the Southwestern Willow Flycatcher..
- 8) The extent of any impact to the Southwestern Willow Flycatcher or its habitat is uncertain and cannot be known until reliable data is collected under the Monitoring, Management and Mitigation Plan.

- 9) The sole purpose of this MOU is to ensure ongoing cooperation and consultation between LCWD, VIDLER and the SERVICE, the timely, economical and successful completion of the Project and the protection of the Southwestern Willow Flycatcher and its habitat.

Now, therefore, in consideration of the mutual promises contained in this MOU, LCWD, VIDLER and the SERVICE agree as follows:

- A. The SERVICE will issue a biological opinion and conclude informal consultation for the Project on or before April 6, 2009.
- B. Through the implementation of the Monitoring, Management and Mitigation Plan, should any Project related impacts to the Southwestern Willow Flycatcher or habitat be identified and applicable to Project pumping, LCWD and VIDLER will consult with the SERVICE under Section 7 and if necessary apply for an incidental take permit under Section 10(a)(1)(B) of the ESA to cover any take that may occur due to the pumping and transfer of Project groundwater.

US Fish and Wildlife Service
Nevada Field Office


Robert Williams
State Supervisor

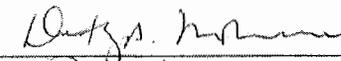
7/8/09
Date

Lincoln County Water District

By 
Title: Chair

7/1/09
Date

Vidler Water Company, Inc.

By 
Title: President

7/6/09
Date

**WATER RESOURCES MONITORING,
MANAGEMENT AND MITIGATION PLAN**

**FOR FUTURE PUMPING IN CLOVER VALLEY, NEVADA
AS IT RELATES TO THE
LCLA GROUNDWATER DEVELOPMENT AND UTILITY RIGHTS-OF-WAY PROJECT**

The purpose of this Monitoring and Management Plan (**Plan**) is to describe monitoring and management activities of water resources and related potential impacts due to development of groundwater resources in southern Clover Valley associated with the proposed Lincoln County Land Act (LCLA) Groundwater Development and Rights-of-Way Project (**Project**). This Plan applies to proposed groundwater extraction rates of up to 14,480 acre-feet per year (af/yr) in southern Clover Valley. The groundwater would be extracted from this valley by Lincoln County Water District/Vidler Water Company (LCWD/VWC) and conveyed via pipelines to the LCLA in southern Lincoln County, Nevada, and also be subject to water right appropriations from the Nevada State Engineer and conformance with Nevada State law concerning adverse impacts to public resources.

This Plan consists of four principal components:

- 1) Monitoring Requirements, related to production wells, monitor wells, elevation control, spring flow, water quality, precipitation stations, quality of data, and reporting: including location of existing supply and monitor wells, groundwater extraction rates, groundwater level measurements, flow from springs, water quality, precipitation data, and wetland/riparian conditions;
- 2) Management Requirements, related to the creation and role of the Technical Review Panel (TRP), establishment of action criteria, and details of the decision-making process;
- 3) Mitigation Measures, related to potential mitigation measures that could be implemented if “unreasonable adverse impacts” occur as a result of groundwater extraction associated with the LCLA Project; and
- 4) Modification of Plan, related to procedures that could be followed to modify the Plan if future changing conditions or mitigations warrant modifications.

INTRODUCTION

LCWD/VWC intends to explore and develop regional groundwater resources in Clover Valley (Basin 204). Initially, two exploration wells will be constructed in Clover Valley as shown on Figure 1 (attached). These locations are likely to be Clover Well Site CWS-E and CWS-G as shown on Figure 1, however the exact well sites may change based on additional ongoing studies. The exploratory wells constructed at the selected well sites may be used initially as part of this monitoring effort.

The wells to be drilled at well sites CWS-E and CWS-G will be for exploratory purposes originally to determine what type of aquifer system may occur at depth in Clover Valley. These wells may be converted to monitor wells and used for multiple purposes including determining depth to water, groundwater elevations, water quality sampling, and aquifer testing. The well sites have been chosen based on several criteria that include but are not limited to: existing geologic data including surficial geologic maps and interpretation/extrapolation of map units at depth, geologic cross-sections, existing hydrologic data, and proximity to existing roads and pipeline locations. Field investigations are ongoing to determine the best well sites within which to drill an exploratory borehole.

There are several private well owners in Clover Valley, as well as wells managed by the BLM. Well owners will be contacted by LCWD/VWC and their permission will be requested to access and monitor their wells for both water levels and groundwater quality. Potential private wells are identified on both Table 1 and Figure 1. Other wells within the basin maybe included as part of this monitoring plan as feasible. A complete listing of reported wells in Clover Valley as registered with the Nevada State Engineer's (NSE) office can be found at the Nevada Division of Water Resources web page <http://water.nv.gov>. The TRP may recommend the inclusion of one or more of these additional wells as part of this monitoring plan pending field check and owner's approval.

MANAGEMENT REQUIREMENTS

Technical Review Panel (TRP)

A committee will be established to provide the technical scientific expertise necessary to impartially develop, the monitoring, management and mitigation plan, including monitoring locations and monitoring frequencies, and evaluate and analyze data.

- The TRP will be established with representatives from cooperating agencies that may include the US Bureau of Land Management (BLM), LCWD/VWC, US Geological Survey (USGS), US Fish and Wildlife Service (USFWS), and technical representatives for the Clover Valley Protestants. It is likely that the NSE's office will also be a participant of the TRP as any water rights awarded, a Monitoring, Mitigation, and Management plan will be required. LCWD/VWC will likely submit this plan to meet that requirement. The TRP would not be limited to the above mentioned agency representatives, however additional agencies may participate in the TRP should their representatives have the appropriate technical expertise and the participating agency have reason to be a member of this review panel.
- The TRP will meet initially to develop a project monitoring plan as appropriate or modify this plan as deemed necessary by the TRP. The TRP will meet, thereafter, at intervals deemed appropriate to review and analyze data.
- The TRP will meet within the first quarter after one year's worth of data has been collected to review this information and recommend any changes to the plan as appropriate. The frequency of TRP meetings will be determined by the TRP as appropriate.
- Roles and responsibilities of the TRP are described in this Plan.

Suggested purposes and functions of the TRP would be to:

1. Develop project monitoring plans and recommend implementation as appropriate.
2. Review historic groundwater level trends, spring and creek flows to determine historic hydrologic trends.
3. Review and concur with standards and quality control procedures for data collection, management, and analysis.
4. Evaluate monitoring plans and data to determine whether data gaps exist, and make appropriate recommendations.
5. Evaluate all monitoring data for adequacy, trends, and to determine if any action criteria have been exceeded or are likely to be exceeded, indicating a possible unreasonable adverse impact.
6. Report/Recommendations to the management team for appropriate action.
7. Report/Recommendations to the NSE's office.

Action Criteria

- Specific quantitative criteria (action criteria) will be developed by the TRP and recommended to the NSE for possible use to “trigger” mitigation measures. The specific action criteria will be developed by the TRP following the collection of a minimum of 1 year’s data, and if practical 2 years worth of data before groundwater production is initiated.
- Action criteria will be developed by the TRP to provide early warning of unreasonable adverse impacts to public resources and senior water rights of other appropriators. These criteria would be based on changes in groundwater levels, flow of springs, water quality, and/or changes in wetland/riparian habitat **that can be attributed to groundwater extraction by the Project(s)**.
- If and when any action criterion is reached, the following management actions will be triggered:
 - (1) LCWD/VWC will notify the TRP and the parties will confer within 30 days;
 - (2) If the parties agree that the action criterion exceedance is not attributable to ground-water withdrawals under the subject ground-water permits, then further management actions will not be required at that time;
 - (3) If either or both parties conclude that the cause of the action criterion exceedance cannot be determined from the available data, then the TRP will meet to determine the cause;
 - (4) If either or both parties conclude that the action criterion exceedance is attributable to groundwater extraction under by the Project(s) groundwater permits, then the TRP will meet to determine the cause.
- Any member of the TRP may propose a change to any action criterion. Any such change shall be presented in writing to other members of the TRP, and accompanied by data and scientific analyses to support the proposed change. If the supporting analyses are found to be technically sound through a consensus of the TRP, then the TRP may recommend to the management team that the action criterion be adjusted, as appropriate.

Decision-Making Process

- If the TRP determines that groundwater extraction by the Proponent has contributed to an action criterion exceedance, the TRP can recommend a course-of-action (i.e., management activity or mitigation measure) to the management team as discussed below. If within the TRP, there are: (1) different interpretations regarding relationship of an adverse impact to the Project's groundwater extraction; or (2) different opinions on the course-of-action, the Parties may jointly agree to conduct additional data collection and/or data review and analysis directed at resolving the different interpretations or opinions, if possible. If that is not successful, the Parties could refer the issue to their respective managers.
- In the event that any of the Parties disagree as to whether the Proponents' proposed or ongoing groundwater extraction will result in unreasonable adverse impacts, any Party may petition the management team to request that it determine whether there is or is not adverse impact(s) that require implementation of management or mitigation measures.

Management Team

A management team will be established to provide support to the TRP. The management team will be comprised of managers that oversee the technical participants of the TRP. This would include the Regional Director of the Fish and Wildlife Service, or his designee, an officer of Vidler Water Company, the General Manager of the Lincoln County Water District or his designee, and the Clover Valley Protestants or their representatives. The sole purpose of the Management Team is to provide direction to the TRP should there be a dispute that cannot be resolved at the technical level. Should the NSE's Office be willing and interested in participating in this process, as appropriate, the Management Team may defer to the NSE.

MITIGATION MEASURES

- The TRP can recommend measures to mitigate unreasonable adverse impacts as agreed upon by the TRP or as imposed by the Management Team should that be necessary.
- The TRP shall take necessary steps to ensure that mitigation actions are feasible and reasonable.
- Mitigation measures may include one or more of the following:

1. Geographic redistribution of groundwater extraction;
2. Reduction or cessation of groundwater extraction from one or more wells;
3. Restoration/modification of existing habitat;
4. Establishment of new habitat;
5. Augmentation of water resources with groundwater extracted for the Project;
6. Purchase other water rights in the area, if available;
7. Other measures as agreed to by the Parties.

MODIFICATION OF THE PLAN

The Parties may modify this Plan by mutual agreement. The Parties also acknowledge that the Management Team or the NSE's office has authority to modify this Plan. In addition, the Parties may individually or jointly petition the Management Team the NSE's office to modify this Plan in the event that mutual agreement cannot be reached. Any such petition shall only be filed after 90 days written notice to the remaining Party members. Any Party member, including the Proponents, may submit written comments to the Management Team or the NSE's office regarding the merits of any such petition for modification.

MONITORING REQUIREMENTS

LCWD/VWC will measure groundwater levels in Clover Valley monitor wells per this monitoring, management, and mitigation plan and as developed and recommended by the TRP. Continuous water level monitoring, as feasible, will be conducted at monitor wells to be drilled at sites CWS-E and CWS-G (Figure 1) for a period of at least 1 year minimum, if possible 2 years before groundwater production would be initiated.

Accordingly, LCWD/VWC will install pressure transducers and data loggers in Clover wells selected by the TRP constructed as part of this project (including exploration wells, production wells, or piezometers) in order to collect a minimum of one year's worth of data, if possible 2 years of data before groundwater production is initiated. In addition, the intent is to install a transducer/data logger in existing private wells; however, this is subject to LCWD/VWC receiving permission to do so. Figure 1 identifies the existing private wells that may be used for monitoring purposes.

In addition, LCWD/VWC will also install one barometric pressure transducer in the monitor well constructed at site CWS-E.

Table 1: Proposed Lincoln County-Vidler Water Company

Test/Monitor Wells in Clover Valley					
Well ID	Anticipated Date Completed	Casting Diameter (inches)	Anticipated Screen Interval (feet below surface)	Groundwater Medium	Depth to Groundwater (feet below surface)
CMW 1	Fall, 2008	8	3,000-3,500	Fractured rock	1,000
CMW-2	Fall, 2008	8	3,000-3,500	Fractured rock	1,000
Proposed Private Wells to be Monitored in Clover Valley					
Well ID	Well Owner	Water Right #	Well Log	Well Location	
1	Barclay Well (BLM)	44731	65466	SW ¼, NE ¼, Sec. 31, T5S, R70E	
2	Mathew Brothers	28632	20393	SE ¼, NW ¼, Sec. 11, T5S, R69E	
3	Hershel Hafen	22872	9761	Sec. 14, T5S, R69E	
4	Cannon	—	65459/65460	SE ¼, NW ¼, Sec. 16, T5S, R69E	

Table 1 list proposed wells to be initially included as part of this Plan, however a full listing of reported wells can be found at the Nevada Division of Water Resources web page <http://water.nv.gov>. Presently, only the reported data are available for any of these wells and before any could be used as monitoring wells permission from the owner must be obtained and all well data field verified.

The data loggers will be set to record every 60 minutes. The frequency of data recording may be revised by the TRP. The data loggers will initially be downloaded at a minimum of quarterly, and if the data warrant, on a monthly basis during confirmatory manual measurements to assess potential drift in the transducer data. An appropriate frequency of supplemental manual measurement and data logger downloading will be established after an initial 6-month period of data collection.

The term "as is feasible" as used in this Plan shall relate to mechanical failures or other events/reasons outside the control of LCWD/VWC that do not permit data collection.

Proposed Production Wells

- Discharge rates and pumpage volumes will be measured in production wells on a basis determined by the TRP and as approved by the NSE, using a McCrometer Totalizing flow meter or similar device. Groundwater measurements will be made initially to collect a minimum of one-year's worth of data. Operational water level

measurements will be made as appropriate for the operations of the production wells.

- All monitoring data will be entered into a project database as new data are collected.

Proposed Monitor Wells

- A network of monitor wells will be proposed to measure groundwater levels over time. Monitor wells would be located in Clover Valley as determined and recommended by the TRP.
- Groundwater levels will be measured, as feasible, using permanent recording devices in selected monitor wells. For those monitor wells without continuous monitoring instruments, water levels will be measured initially on a quarterly basis to establish baseline variations, followed by semi-annual or annual measurements as recommended by the TRP, after a minimum of one-year's data have been established and if possible two-years of data will be collected.
- The TRP may recommend that LCWD/VWC install up to two new monitor well(s) in key areas where there are no existing wells available for monitoring. These new wells could be located and constructed in a cost-effective manner, while meeting the objectives of early-warning detection of impacts, if any, from proposed groundwater extraction. Total cost of drilling and construction of the two monitor wells will not exceed \$300,000. Consideration shall be given to completing nested wells that monitor individual aquifers at a single location.
- LCWD/VWC currently has eleven (11) sites permitted for drilling. If it is recommended by the TRP that a site outside the existing permitted LCWD/VWC permitted areas to construct a monitor well(s), then the TRP's member agencies will aid in permitting a new site(s).
- Initiation of groundwater level monitoring will commence as soon as possible after the wells are installed, recognizing the need to obtain baseline data prior to any Project groundwater pumping.
- Locations and monitoring frequency of the monitor well network will be reviewed by the TRP on an annual basis following the establishment of an initial monitoring strategy by the TRP, and may be reduced or expanded in scope upon the recommendation of the TRP following the implementation of the strategy.

- All groundwater level monitoring data will be entered into the project database on a regular basis.

Elevation Control

- Ground surface and measuring point elevations shall be established using survey-grade GPS instrumentation at production, monitor, and private wells used as part of this Plan. Elevations for surface water and spring monitoring locations shall also be established. The common datum would allow a comparative base for all elevation associated data; including the possibility of the occurrence of subsidence due to groundwater extraction. All elevation measurements will be added to the project database.

Monitoring Clover Creek Streamflow, Springs, and Riparian Areas

Two springs, Sheep Spring, and East Spring, are proposed to be monitored before any pumping begins and during the pumping (see Figure 1). A weir and continuous data logger/transducer will be installed at each spring location to record and collect springflow data. LCWD/VWC will also sample these springs for water quality data. Water quality samples will be analyzed for major ions, trace elements, and isotopes as shown in Table 2 with the exception of Carbon-14.

These springs were chosen to be monitored due to their location within the basin. Both Sheep Spring and East Spring discharge in the southern part of Clover Valley and are located south of the proposed well field.

- A gaging station will be installed along a reach of Clover Creek in between Big Spring and Meadow Valley Wash. This gaging station will be used to measure streamflows within the creek on a continuous and peak-stage basis, as feasible. The cost of this effort is not to exceed \$20,000.00. This effort will be coordinated with the USGS. The exact location of the gaging station will be determined with a site visit however, the general area for this gage location is shown on Figure 1.
- Selected springs and associated riparian areas located in Clover Valley will be monitored on a quarterly basis (Figure 1). Monitoring will consist of measuring flow rate and photo-documenting general site conditions. A weir and continuous data logger/transducer will be installed, where feasible, at each spring location to record and collect springflow data. Flow can be estimated for low flow conditions or where flow is diffuse on the ground surface. Monitoring frequency may be reduced or expanded later as recommended by the TRP.

- Initiation of monitoring for selected springs and the surrounding riparian areas shall commence as soon as possible, recognizing the desire to obtain baseline data prior to any Project groundwater pumping. Monitoring data will be recorded using a standard format to be used for each monitoring event.
- Springs proposed to be monitored under this plan are subject to approval by the land/spring owner, and pending field verification of access to the spring site. If these springs aren't available other springs maybe proposed as part of this plan.

Water Quality

LCWD/VWC will sample groundwater in Clover Valley wells consistent with this monitoring and mitigation plan. Water quality samples will be analyzed for major ions, trace elements, and isotopes at all production and monitor wells used as part of this plan. The frequency of sampling and analysis is semi-annually for one and one-half years, and then every five years thereafter. The samples will be collected, analyzed, and reported using standard methods. Spring sampling will be done on the same schedule as groundwater sampling.

The groundwater samples will be analyzed for the parameters listed in Table 2. In addition, field parameters will also be measured and recorded at the time of sample collection. These field parameters include temperature, pH, conductivity, dissolved oxygen, and oxidation-reduction potential.

Table 2: Water Quality Parameters	
General mineral and selected metals:	
	Calcium (EPA 200.7)
	Sodium (EPA 273.1)
	Potassium (EPA 258.1)
	Chloride (EPA 300.0)
	Sulfate (EPA 300.0)
	Carbonate alkalinity (SM2320B)
	Alkalinity (SM2320B)
	Silica (EPA 200.7)
	Iron (EPA 200.7)
	Manganese (EPA 200.7)

Magnesium (EPA 200.7)
Arsenic
Isotopes:
Deuterium
Oxygen 16/18
Carbon 13/14
Field parameters:
Temperature
pH
Electrical conductivity
Dissolved Oxygen
Oxidation-Reduction potential

- Sampling locations will be determined by the TRP and reviewed on an annual basis for appropriate reductions or expansions.

Precipitation Stations

- A precipitation station will be established in the southern portion of Clover Valley. Existing precipitation stations may be used where possible. The purpose of collecting precipitation data is to support conclusions regarding changes in groundwater levels with corresponding changes in precipitation, if it occurs. Any new precipitation/weather stations installed as part of this Plan will not exceed \$10,000.00.
- All precipitation data will be entered into the project database.

Quality of Data

- LCWD/VWC shall ensure that the entity or entities that collect water resources data follow standard protocols of data collection, recording and analysis (e.g., USGS and US Environmental Protection Agency [EPA]), unless otherwise agreed to by the TRP.
- The water quality sampling program will include standard field and laboratory quality control procedures (e.g., USGS and EPA).

Reporting

An annual report will be produced and made available to the TRP by March 31 of the following year. The same annual report will be submitted to the NSE's office in compliance with any Monitoring, Mitigation, and

Management Plan approved by the State of Nevada for this Project. The report will summarize the monitoring and sampling activities and results of the previous year.

- All data collected under or as described in this Plan, will be fully and cooperatively shared among interested parties, and made available to the public after appropriate QA/QC evaluation procedures have confirmed its accuracy.
- The TRP will have timely access to all data gathered related to the Plan. Data gathered will be entered into the project database as collected and will be made accessible to the TRP via a project website.
- All water resources information collected for the Project will be uploaded to a project database and updated periodically on a website or other public access forum that is accessible to the TRP.
- In addition to updating the water resources project database on a regular basis, an annual summary report shall be prepared by the LCWD/VWC that summarizes all information collected during the previous calendar year, including an analysis of any trends. These reports will be used by the TRP to perform annual assessments of any impacts, or the potential impacts to water resources resulting from groundwater extraction in Clover Valley.