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AUG 13 2009

DEPARTMENT OF ADMINISTRATION
OFFICE OF THE DIRECTOR
BUDGET AND PLANNING DIVISION

FARR WEST
ENGINEERING

LETTER OF TRANSMITTAL

TO: Nevada State Clearing House
 Nevada Department of
 Administration
 209 E. Musser Street
 Carson City, NV 89701

DATE: 8/12/09

JN: 0255
 SSMWC

FROM: Susan Jorgensen

SUBJECT: SSMWC Water Treatment Plant
 UEPA Permit Application

WE ARE SENDING: VIA HAND DELIVERY PICK-UP VIA MAIL Other

QTY	Date	Description
1	8/12/09	UEPA Permit Application

For approval For your use For review and comment

REMARKS:

To Whom It May Concern,

Enclosed please find a copy of the UEPA Permit Application for the Silver Springs Mutual Water Company Water Treatment Plant, Dedicated Transmission Main and Consolidation of Five Star Mobile Home Park. This application is being submitted for review in compliance with NAC 703.421 Item 5.

Sincerely,

Susan Jorgensen
Farr West Engineering

COPY TO:

RECEIVED BY: _____ DATE: _____ TIME: _____

PUBLIC UTILITIES COMMISSION OF NEVADA
DRAFT NOTICE
(Applications, Tariff Filings, Complaints, and Petitions)

Pursuant to Nevada Administrative Code (“NAC”) 703.162, the Commission requires that a draft notice be included with all applications, tariff filings, complaints and petitions. Please complete and include **ONE COPY** of this form with your filing. (Completion of this form may require the use of more than one page.)

A title that generally describes the relief requested (see NAC 703.160(5)(a)):

Silver Springs Mutual Water Company Water Treatment Plant, Dedicated Transmission Main, and Consolidation of the Five Start Mobile Home Park

The name of the applicant, complainant, petitioner or the name of the agent for the applicant, complainant or petitioner (see NAC 703.160(5)(b)):

Applicant is Silver Springs Mutual Water Company, Don Allen – General Manager (with the assistance of their engineer, Farr West Engineering – Susan Jorgensen, 775-851-4788)

A brief description of the purpose of the filing or proceeding, including, without limitation, a clear and concise introductory statement that summarizes the relief requested or the type of proceeding scheduled **AND** the effect of the relief or proceeding upon consumers (see NAC 703.160(5)(c)):
Silver Springs Mutual Water Company (SSMWC) will be installing a water treatment plant and dedicated transmission main to connect the three existing wells to the water treatment plant. The treatment plant is necessary for SSMWC to comply with the federal rule for arsenic concentrations in drinking water. The new rule, effective January 2006, states that drinking water must contain less than 10 parts per billion (ppb) of arsenic. All three of SSMWC’s wells exceed 10 ppb of arsenic and therefore water treatment for arsenic removal is required. The environmental impact will be minimal for the construction of the project. All construction will take place in previously disturbed areas either within existing rights-of-way or SSMWC owned property. All waste created by the treatment plant will be disposed of in the existing sanitary sewer.

Additionally, SSMWC will be installing a water line to connect the existing Five Star Mobile Home Park (MHP) to the SSMWC water system. The project will result in the installation of approximately 3 miles of water line and the expansion of the service area to include the MHP. By consolidating the MHP with the SSMWC system, it will ensure that the residents of the MHP will be provided water that meets all drinking water standards. The project will be completed without any burden being placed on the existing SSMWC customers due to the fact that the project is being funded by the Drinking Water State Revolving Fund through funds from the American Recovery and Reinvestment Act.

A statement indicating whether a consumer session is required to be held pursuant to Nevada Revised Statute (“NRS”) 704.069(1)¹:

Based on the requirement of NRS 704.069, it is not believed that a consumer session is required as the proposed project is in a service area where the rates are not regulated by the PUC, and it will not result in an increase to the gross annual operating revenue of more than \$50,000 or 10% of the annual gross operating revenue.

If the draft notice pertains to a tariff filing, please include the tariff number AND the section number(s) or schedule number(s) being revised.

N/A

¹ NRS 704.069 states in pertinent part:

1. The Commission shall conduct a consumer session to solicit comments from the public in any matter pending before the Commission pursuant to NRS 704.061 to 704.110 inclusive, in which:
 - (a) A public utility has filed a general rate application, an application to recover the increased cost of purchased fuel, purchased power, or natural gas purchased for resale or an application to clear its deferred accounts; and
 - (b) The changes proposed in the application will result in an increase in annual gross operating revenue, as certified by the applicant, in an amount that will exceed \$50,000 or 10 percent of the applicant’s annual gross operating revenue, whichever is less.

SILVER SPRINGS MUTUAL WATER COMPANY
WATER TREATMENT PLANT,
DEDICATED TRANSMISSION MAIN
AND CONSOLIDATION OF FIVE STAR MOBILE HOME PARK

Contact:
Don Allen, General Manager
P.O. Box 285
Silver Springs, NV 89429
775-577-2223

Silver Springs Mutual Water Company (SSMWC) will be installing a water treatment plant and dedicated transmission main to connect the three existing wells to the water treatment plant. The treatment plant is necessary for SSMWC to comply with the federal rule for arsenic concentrations in drinking water. The new rule, effective January 2006, states that drinking water must contain less than 10 parts per billion (ppb) of arsenic. All three of SSMWC's wells exceed 10 ppb of arsenic and therefore water treatment for arsenic removal is required. The environmental impact will be minimal for the construction of the project. All construction will take place in previously disturbed areas either within existing rights-of-way or SSMWC owned property. All waste created by the treatment plant will be disposed of in the existing sanitary sewer.

Additionally, SSMWC will be installing a water line to connect the existing Five Star Mobile Home Park (MHP) to the SSMWC water system. The project will result in the installation of approximately 3 miles of water line and the expansion of the service area to include the MHP. By consolidating the MHP with the SSMWC system, it will ensure that the residents of the MHP will be provided water that meets all drinking water standards. The project will be completed without any burden being placed on the existing SSMWC customers due to the fact that the project is being funded by the Drinking Water State Revolving Fund through funds from the American Recovery and Reinvestment Act.

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Summary

The proposed utility facilities for Silver Springs Mutual Water Company (SSMWC) include a water treatment plant and a dedicated transmission main to connect the existing wells to the water treatment plant. All of the infrastructure will be installed within previously disturbed areas and limited natural resources will be affected. The materials necessary for the dedicated transmission main include PVC pipe and natural fill (depending on the location of the transmission main and fill requirements it may be necessary to import bedding material and fill material for the transmission main). The materials necessary for the treatment plant include a steel building with a concrete foundation, as well as the treatment equipment itself which includes steel pressure filters, chemical storage and feed equipment, and a steel backwash water tank set on a concrete foundation. Both the tank and the building will be located on property that is owned by SSMWC while the transmission main will be installed within existing utility rights-of-way.

The proposed utility facilities to connect the MHP and expand the service area include a water line from zone 2 of the SSMWC to the MHP. All of the infrastructure will be installed within previously disturbed area. The materials necessary for the water line are the same as those listed previously for the dedicated transmission main, and all construction will take place within existing utility rights-of-way.

A map indicating the general location of the facilities required for the water treatment plant is included in Appendix A, which includes Figures 1, 2 & 3. The parcel owned by SSMWC is APN 18-432-04. Maps indicating the location of the water line to connect the MHP will be submitted at a later date upon completion of the survey.

Detailed Description of the Proposed Utility Facility

The location of the facility, with a scaled site map and vicinity map, is shown in Appendix A. Details illustrating general installation of the transmission main are also included in Appendix A. The map showing the water line to the MHP will be submitted upon completion of the survey.

Environmental Statement

The environmental impact of the proposed facilities will be limited to that of general construction practices. All utilities will be installed in previously disturbed areas, and all waste from the facility once it is operation will be disposed of in the existing sanitary sewer. The proposed facility will have the minimum adverse effect on the environment possible by constructing only a single facility and ensuring that the minimal waste that is created by the facility is non-hazardous.

All reasonable alternatives have been considered for the proposed project. The proposed project is to be located within property owned by SSMWC or existing utility rights-of-way. The other alternatives that were considered were the drilling of new wells, or the installation of multiple well-head treatment facilities. The chosen alternative, a single treatment plant and connecting transmission main, will have the least impact.

The connection of the MHP to the SSMWC system has also been determined to be the preferred alternative to bring the MHP into compliance with the Arsenic Rule. Other alternatives including

drilling a new well or installing wellhead treatment have been considered, but the consolidation of the system is the preferred alternative of the Drinking Water State Revolving Fund and the Board for Financing Water Projects.

The chosen location for the water treatment plant is ideal as it is previously disturbed property that is owned by SSMWC. The chosen alignment for the transmission main as well as the water line to connect the MHP will follow existing roads and be installed within existing rights-of-way.

A previous environmental study for the water treatment plant and transmission main was completed by Farr West Engineering (Dan Sommers) as a requirement for receiving funding for the proposed project. A copy of the study is included as Appendix B. The environmental study includes a section regarding the analysis and comparison of the various alternatives considered. Additionally, the Nevada Division of Environmental Protection has issued a "Finding of No Significant Impact" regarding the project. A copy of the notice from NDEP is included with environmental report in Appendix B

The natural resources required for the project will be limited to soil to fill around the newly installed transmission main and water line to connect the MHP, and soil for the base of the treatment building.

In the event that the Commission was to deny SSMWC's application, SSMWC and the MHP would not be able to comply with the Federal Mandate to reduce arsenic concentrations in the water that is being provided to customers. As a public water system, SSMWC is required by State and Federal law to comply with all drinking water standards. Based on the evaluation of alternatives, the proposed project is the best alternative for SSMWC and the MHP to cost effectively achieve compliance.

Explanation of the extent to which the proposed utility facility will ensure reliable service to customers in the State

The proposed facility will ensure that customers within the SSMWC service area as well as the MHP receive water that meets all the State and Federal requirements for drinking water.

An explanation of how the need for the proposed facility balances any adverse effect on the environment

The facility is required for SSMWC to comply with the Federal Rule regarding arsenic concentrations in drinking water. There will be no adverse effect on the environment beyond normal construction of a building and installation of the transmission main.

The consolidation of the MHP with SSMWC is the most cost effective way for the MHP to achieve compliance, it will also have the least impact on the customers.

A list of all federal, state, regional and local agencies whose approval of the proposed facility have been or must be obtained.

Nevada Department of Transportation
Encroachment Permit for Jack & Bore
Phone: 775-834-8330
310 Galletti Way
Sparks, NV 89431

*This permit will be obtained prior to the bidding process. The survey has been completed, and it is anticipated that the permit application for the jack & bore will be submitted to NDOT by July 1, 2009. As long as the proposed jack & bore meets all NDOT requirements it is not anticipated that there should be any problems in obtaining the encroachment permit from NDOT.

Nevada Division of Environmental Protection
Bureau of Safe Drinking Water
Bert Bellows
Phone: 775-687-9525
901 South Stewart Street, Suite 4001
Carson City, NV 89701

*This approval/permit will be obtained upon completion of the design of the facilities. It is anticipated that the completed plans will be submitted to NDEP no later than October 31, 2009. Approval should be obtained from NDEP no later than November 30, 2009.

Silver Springs General Improvement District
Sanitary Sewer Connection Permission
Mike Workman, Lyon County Utilities
Phone: 775-246-6220
34 Lakes Blvd, Ste. 103
P.O. Box 1699
Dayton, Nevada 89403

*This permission has been discussed with Mike Workman of Lyon County Utilities. The final request and permission will be obtained in August, 2009 once it is known what the anticipated flow to the sanitary sewer will be. At this time, the flows are only estimates and Lyon County has requested that further information be given once additional studies have been completed.

Information demonstrating that the proposed utility facility will serve the public interest.

The proposed facilities will bring SSMWC and the MHP into compliance with the new arsenic rule. By completing the installation of the facilities, SSMWC will be able to serve their customers water that meets all State and Federal requirements regarding drinking water.

A reference to the fact that the required copy of each application has been filed with the Administrator of the Division of Environmental Protection and the State Department of Conservation and Natural Resources.

All applications to the appropriate parties will be submitted in a timely fashion.

Proof of service of a copy of the application on the clerk of each local government in the area in which any portion of the facility is to be locate, both as primarily and as alternatively proposed.
The SSMWC and Lyon County officials are aware and in support of the proposed project

Proof that public notice of the application was given to persons residing in the municipalities entitled to receive notice by the publication of a summary of the application in newspapers published and distributed in the area in which the utility facility is proposed to be located.

The public has been notified of the proposed project on a number of different occasions. Specifically for the application of CDBG grant funds, for the completion of a Preliminary Engineering Report, for the Request for Qualifications for treatment plant equipment providers, and through the approval of the loan funds from the State Revolving Fund for the completion of the project. If additional public notice is required, it will be completed as necessary.

Fulfillment of the requirements for the permit as outlined in NRS 704.890, NAC 703.423, NAC 703.421 and NAC 703.427 are outlined in the following paragraphs.

NRS 704.890 Grant or denial of application: Required findings; conditions and modifications.

1. Except as otherwise provided in subsection 3, the Commission may not grant a permit for the construction, operation and maintenance of a utility facility, either as proposed or as modified by the Commission, to a person unless it finds and determines:
 - a. The nature of the probable effect on the environment;
The effect of the proposed project on the environment will be limited to that of normal construction activities.
 - b. The extent to which the facility is needed to ensure reliable utility service to customers in this State;
The facility is required for compliance with the Federal arsenic rule which limits the amount of allowable arsenic in drinking water to 10 parts per billion (ppb). The water served to customers currently exceeds this limit and the facilities are needed to bring the water system into compliance and serve acceptable water to the customers within the service area.
 - c. That the need for the facility balances any adverse effect on the environment;
There is no expected adverse effect on the environment beyond that related to normal construction activities in previously disturbed areas. NDEP has issued a public notice stating a "Finding of No Significant Impact" for the proposed project.
 - d. That the facility represents the minimum adverse effect on the environment, considering the state of available technology and the nature and economics of the various alternatives;
The chosen alternative for project for the existing SSMWC service area is limited to construction of 1.5 miles of transmission main and a single treatment building structure. The only waste created by the proposed facility will be disposed of in the existing sanitary sewer. Other alternatives considered included the installation of multiple treatment buildings, or the drilling of new wells. Neither alternative was determined to be cost effective.

The chosen alternative to connect the MHP to the SSMWC system was based on cost and input from the State of Nevada Board for Financing Water Projects. Other alternatives considered were drilling a new well or installing wellhead treatment.
 - e. That the location of the facility as proposed conforms to applicable state and local laws and regulations issued thereunder and the applicant has obtained, or is in the process of obtaining, all other permits, licenses and approvals required by federal, state and local statutes, regulations and ordinances; and
All permits will be obtained prior to advertising the project for bids. The permits that will need to be obtained include; an NDOT encroachment permit, a Lyon County Building Permit, permission from SSGID to connect to the sanitary sewer, approval/permit from NDEP Bureau of Safe Drinking Water.

- f. That the facility will serve the public interest.

The proposed facility will ensure that customers within the existing service area as well as the expanded service area are receiving safe drinking water at all times.

2. If the Commission determines that the location of all or a part of the proposed facility should be modified, it may condition its permit upon such a modification. If the applicant has not obtained all the other permits, licenses and approvals required by federal, state and local statutes, regulations and ordinances as of the date on which the Commission decides to issue a permit, the Commission shall condition its permit upon the applicant obtaining those permits and approvals.
3. The requirements as set forth in paragraph (f) of subsection 1 do not apply to any application for a permit which is filed by a state government or political subdivision thereof.

NAC 703.423 Application for permit when no federal agency required to conduct environmental analysis; amended application after final environmental assessment or environmental impact statement issued by federal agency. (NRS 703.025, 704.210, 704.870) An application filed with the Commission pursuant to subsection 1 of NRS 704.870 for a permit to construct a utility facility where no federal agency is required to conduct an environmental analysis of the proposed utility facility, or an amended application filed with the Commission pursuant to paragraph (b) of subsection 2 of NRS 704.870 for a permit to construct a utility facility where a federal agency has issued its final environmental assessment or environmental impact statement relative to the construction of the proposed facility, must contain the following information in the order listed:

1. A description of the location of the proposed utility facility as required by subsection 1 of NRS 704.870, including:

- a. A general description of the location of the proposed utility facility, including a regional map that identifies the location of the proposed utility facility;

The proposed water treatment plant will be located at the Lake Street well site. The property at the Lake Street well, 1.23 acres, is owned by Silver Springs Mutual Water Company. The site is surrounded by vacant land on the south and east, an industrial building is located to the west, and there is a single family home to the north. The dedicated transmission main will be located within existing rights-of-way generally along Idaho Street, Bowers Street, Lake Street, and Rawhide Street. A vicinity map is included in Figure 1.

The proposed water line to connect the MHP to the SSMWC system will be submitted upon completion of the necessary survey.

- b. A legal description of the site of the proposed utility facility, with the exception of electric lines, gas transmission lines, and water and wastewater lines, for which only a detailed description of the site is required; and

The water treatment plant is to be located on the parcel located at the corner of Tallapoosa and Lake Streets, APN 18-432-04. Maps illustrating the location of the water treatment plant and dedicated transmission main are included in Figures 2 & 3.

- c. Appropriately scaled site plan drawings of the proposed utility facility, vicinity maps and routing maps.
The maps are included in Figures 1, 2 & 3. Additional maps of the expanded service area will be submitted upon completion of the necessary survey.
2. A description of the proposed utility facility, including:
- a. The size and nature of the proposed utility facility;
The size of the treatment plant building will be approximately 60'x60'. The backwash water containment tank will be approximately 30,000 gallons. The length of the 12" transmission main will be approximately 7,500'. The length of the water line to connect the MHP park will be approximately 3 miles.
 - b. The natural resources that will be used during the construction and operation of the proposed utility facility;
Limited natural resources will be used for construction. The transmission main and water line to the MHP will require backfill material, and the treatment building and backwash tank will require base material for the placement of foundations.
 - c. Layout diagrams of the proposed utility facility and its associated equipment; and
A diagram of the treatment facility is included in Figure 2.
 - d. Scaled diagrams of the structures at the proposed utility facility.
A scaled diagram of the structures (building and tank) is included in Figure 2.
3. A copy and summary of any studies which have been made of the environmental impact of the proposed utility facility as required by subsection 1 of NRS 704.870.
A copy of the environmental assessment which was completed for the State Revolving Fund program is included in Appendix B It should also be noted that NDEP issued a public notice of "No Significant Impact" for the proposed project (water treatment plant and transmission main).
4. A description of any reasonable alternate locations for the proposed utility facility, a description of the comparative merits or detriments of each location submitted, and a statement of the reasons why the location is best suited for the proposed utility facility, as required by subsection 1 of NRS 704.870.
The alternative locations considered for the water treatment plant were either of the other two well sites, Idaho well or Deodar well, where SSMWC also owns property. Based on the fact that there is a 10" distribution main near the Lake Street well, which will limit the amount of distribution main that needs to be installed, it was determined that the Lake Street well is the best location for the treatment plant.
5. A copy of the public notice of the application or amended application and proof of the publication of the public notice, as required by subsection 4 of NRS 704.870.
Public notice of the application will be completed and submitted as necessary.
6. Proof that a copy of the application or amended application has been submitted to the Nevada State Clearinghouse within the Department of Administration to enable agency review and comment.
Plans will be submitted for State review when they are completed.
7. An explanation of the nature of the probable effect on the environment, including:
- a. A reference to any studies described in subsection 3, if applicable; and
An environmental report was completed in April 2009 for the water treatment plant and transmission main. It is included in Appendix B.

- b. An environmental statement that includes:
- 1) The name, qualifications, professions and contact information of each person with primary responsibility for the preparation of the environmental statement;
The primary person responsible for the completion of the environmental report that was completed in April 2009 for the State Revolving Fund was Dan Sommers at Farr West Engineering, 5442 Longley Lane, Suite B, Reno, NV 89511 (775)851-4788.
 - 2) The name, qualifications, professions and contact information of each person who has provided comments or input in the preparation of the environmental statement;
Adele Basham, Drinking Water State Revolving Fund, 901 South Stewart Street, Suite 4001, Carson City, NV 89701 (775) 687-9488.
 - 3) A bibliography of materials used in the preparation of the environmental statement; and
See the environmental report included in Appendix B.
 - 4) A description of:
 - I. The environmental characteristics of the project area existing at the time the application or amended application is filed with the Commission;
See Appendix B.
 - II. The environmental impacts that the construction and operation of the proposed utility facility will have on the project area before mitigation; and
See Appendix B.
 - III. The environmental impacts that the construction and operation of the proposed utility facility will have on the project area after mitigation.
See Appendix B.
 - ↪ The data and analyses in the descriptions must be commensurate with the degree of the anticipated impacts.
8. An explanation of the extent to which the proposed utility facility is needed to ensure reliable utility service to customers in this State, including:
- a. If the proposed utility facility was approved in a resource plan or an amendment to a resource plan, a reference to the previous approval by the Commission; or
 - b. If the proposed utility facility was not approved in a resource plan or an amendment to a resource plan, a description of the extent to which the proposed utility facility will:
 - 1) Provide utility service to customers in this State;
SSMWC will continue to supply water service to its customers. The proposed project will improve the quality of the water supplied to the customer and will allow the residents of the expanded service area to also receive quality water.
 - 2) Enhance the reliability of utility service in this State; and
The proposed project will enhance the reliability of the utility service in that SSMWC will be in full compliance with State and Federal drinking water requirements. They will no longer be subject to fines or administrative orders because of their failure to comply with the arsenic rule. The expansion of the service area will eliminate the need for an expensive well or treatment system and continual maintenance for a very small water system. The customers will become part of the SSMWC system and be provided safe and reliable drinking water.

- 3) Achieve interstate benefits by the proposed construction or modification of transmission facilities in this State, if applicable.

N/A

9. An explanation of how the need for the proposed utility facility as described in subsection 8 balances any adverse effects on the environment as described in subsection 7.
There is no anticipated adverse effect on the environment beyond the initial construction period of the proposed project.
10. An explanation of how the proposed utility facility represents the minimum adverse effect on the environment, including:
- a. The state of available technology;
The technology that has been chosen for the water treatment facility has been in use at other sites for many years. The use of coagulation/filtration technology has historically been for iron and manganese reduction, however it works equally well for arsenic removal. The waste created by the process has been tested multiple times at other facilities and passes the TCLP test and can be disposed of in a sanitary sewer or landfill.
 - b. The nature of various alternatives; and
The various alternatives involved either the drilling of a new well or other types of treatment. The drilling of a new well could not be guaranteed to result in a well with water quality that met all drinking water standards. Therefore it was decided that treatment was the best alternative for SSMWC
 - c. The economics of various alternatives.
The cost of drilling a new well could initially less expensive than a treatment facility, however it could potentially result in the spending of addition funds and result in becoming more costly than a treatment facility. While it is likely that a production well could be constructed, it is unlikely that an arsenic free water source would be found within the service area. All of the wells within the service area exceed the current arsenic rule.
11. An explanation of how the location of the proposed utility facility conforms to applicable state and local laws and regulations, including a list of all permits, licenses and approvals required by federal, state and local statutes, regulations and ordinances. The explanation must include a list that indicates:
- a. All permits, licenses and approvals the applicant has obtained, including copies thereof; and
 - b. All permits, licenses and approvals the applicant is in the process of obtaining to commence construction of the proposed utility facility. The applicant must provide an estimated timeline for obtaining these permits, licenses and approvals.

Nevada Department of Transportation
Encroachment Permit for jack & bore
Phone: 775-834-8330
310 Galletti Way
Sparks, NV 89431

**This permit will be obtained prior to the bidding process. The survey has been completed, and it is anticipated that the permit application for the jack & bore will be submitted to NDOT by July 1, 2009. As long as the proposed jack & bore meets all*

NDOT requirements it is not anticipated that there should be any problems in obtaining the encroachment permit from NDOT.

***Nevada Division of Environmental Protection
Bureau of Safe Drinking Water
Bert Bellows
Phone: 775-687-9525
901 South Stewart Street, Suite 4001
Carson City, NV 89701***

****This approval/permit will be obtained upon completion of the design of the facilities. It is anticipated that the completed plans will be submitted to NDEP no later than October 31, 2009. Approval should be obtained from NDEP no later than November 30, 2009.***

***Silver Springs General Improvement District
Sanitary Sewer Connection Permission
Mike Workman, Lyon County Utilities
Phone: 775-246-6220
34 Lakes Blvd, Ste. 103
P.O. Box 1699
Dayton, Nevada 89403***

****This permission has been discussed with Mike Workman of Lyon County Utilities. The final request and permission will be obtained in August, 2009 once it is known what the anticipated flow to the sanitary sewer will be. At this time, the flows are only estimates and Lyon County has requested that further information be given once additional studies have been completed.***

***Lyon County Building Permit
Building Permit for the water treatment building
Nick Malarchik
Phone: 775-463-6591
27 So Main Street
Yerington, NV 89447***

****Once the final footprint for the building has been determined, a meeting will be held with Lyon County to discuss details of obtaining a permit and what, if any, special conditions there would be for the permit. The meeting will be held in July, and a permit will be obtained prior to bidding the project.***

12. An explanation of how the proposed utility facility will serve the public interest, including:
- a. The economic benefits that the proposed utility facility will bring to the applicant and this State;
There are no direct economic benefits associated with the completion of the project; however, it will allow SSMWC to avoid fines and administrative orders which would be imposed in the future if SSMWC failed to comply with the arsenic rule. It will also allow the MHP to avoid the same fines and relieve them of current costs of operating their own water system.

- b. The nature of the probable effect on the environment in this State if the proposed utility facility is constructed;
The effect on the environment will be limited to normal construction activities.
- c. The nature of the probable effect on the public health, safety and welfare of the residents of this State if the proposed utility facility is constructed; and
The public health, safety and welfare of the residents within the SSMWC service area and the expanded service area will be improved as a result of the project. The water treatment plant will reduce the arsenic concentration in the drinking water.
- d. The interstate benefits expected to be achieved by the proposed electric transmission facility in this State, if applicable. (Added to NAC by Pub. Utilities Comm'n by R076-07, eff. 10-31-2007)
N/A

NAC 703.421 Application for permit when federal agency required to conduct environmental analysis. (NRS 703.025, 704.210, 704.870) An application filed with the Commission pursuant to paragraph (a) of subsection 2 of NRS 704.870 for a permit to construct a utility facility where a federal agency is required to conduct an environmental analysis of the proposed utility facility must contain the following information in the order listed:

1. A general description of the location of the proposed utility facility, including:
 - a. A regional map that identifies the location of the proposed utility facility;
Included in Figures 1, 2 & 3.
 - b. Any alternative locations for the proposed utility facility; and
The alternative locations for the water treatment plant are the Idaho Street well or the Deodar Street well. SSMWC owns sufficient property at either of these sites to construct the water treatment plant in the event that the Lake Street well site cannot be used.
 - c. The reasons why the location identified in paragraph (a) is best suited for the proposed utility facility.
The proposed site, the Lake Street well, has sufficient room as well as a 10" distribution main within 50 feet of the proposed building. The proximity of the distribution main as well as the vacant land on 2 sides of the site makes this an ideal location for the water treatment plant.
2. A general description of the proposed utility facility as required by subsection 2 of NRS 704.870, including:
 - a. The size and nature of the proposed utility facility; and
The proposed water treatment building will be approximately 40'x60'
 - b. The natural resources that will be used during the construction and operation of the proposed utility facility.
The natural resources that will be used will be limited to the backfill necessary for the transmission main and water line to the MHP, and the structural fill necessary for the building pad.
3. A summary of any studies which the applicant anticipates will be made of the environmental impact of the proposed utility facility as required by subsection 2 of NRS 704.870, including a copy of all corresponding studies filed with appropriate federal agencies.
The environmental report that was completed for SRF is included in Appendix B.

4. A copy of the public notice of the application and proof of the publication of the public notice, as required by subsection 4 of NRS 704.870.

The public notice will be completed and submitted as necessary.

5. Proof that a copy of the application has been submitted to the Nevada State Clearinghouse within the Department of Administration to enable agency review and comment.

(Added to NAC by Pub. Utilities Comm'n by R076-07, eff. 10-31-2007)

Plans will be submitted for review by the State as they are completed.

NAC 703.427 Expiration and renewal of permit. (NRS 703.025, 704.210)

1. Any construction permit issued pursuant to NAC 703.415 to 703.427, inclusive, expires 5 years after the date of final action by the Commission unless during that period the applicant has commenced to construct the utility facility and has diligently pursued that construction. In computing the 5-year period, the time the construction of the utility facility is delayed or made impractical because of legal action against the applicant will be excluded.

2. The applicant may apply for renewal of a construction permit at any time before its expiration. The Commission will renew the permit upon a showing of good cause.

(Added to NAC by Pub. Service Comm'n, eff. 3-19-87; A by Pub. Utilities Comm'n by R188-03, 7-16-2004; R076-07, 10-31-2007)

APPENDIX A

DATE	NOV 1988
SCALE	AS SHOWN
PROJECT	TRANSMISSION MAIN
OWNER	SILVER SPRINGS WATER TREATMENT PLANT
DESIGNER	FAIRBANKS CONSULTANTS



LAKE AVENUE WELL
1800 LAKE AVENUE
TREATMENT FACILITY LOCATION
(SEE FIGURE 2)

FORT CHURCHILL WELL
2800 FORT CHURCHILL ROAD
(SEE FIGURE 2)

IDaho STREET WELL
3014-14-13
IDaho STREET
(ACCESS OFF OF MAIN STREET)

ODOR STREET WELL
400 ODOR STREET
(SEE FIGURE 2)



0 100 200 300 400
FEET

APPENDIX B



STATE OF NEVADA

Department of Conservation & Natural Resources

Jim Gibbons, Governor

Allen Biaggi, Director

DIVISION OF ENVIRONMENTAL PROTECTION

Leo M. Drozdoff, P.E., Administrator

Public Notice

FINDING OF NO SIGNIFICANT IMPACT DRINKING WATER STATE REVOLVING FUND LOAN

The Nevada Administrative Code (NAC) in Sections NAC 445A.6758 to 445A.67612, inclusive, outlines the environmental review procedures to be followed by the Division of Environmental Protection (NDEP) to meet the requirements of the National Environmental Policy Act (NEPA). In accordance with these procedures, NDEP intends to issue a finding of no significant impact for the Silver Springs Mutual Water Company water project. The project, if approved, will utilize funds from the American Recovery and Reinvestment Act (ARRA).

Project Name: Arsenic Treatment

Project No.: No. 8 ARRA Funds Year 2009 Priority List

Applicant: Silver Springs Mutual Water Company

Estimated Drinking Water State Revolving Fund Assistance: \$2.9 million

The community of Silver Springs is located near the junction of US ALT 95 and US 50 in Lyon County, Nevada. The Silver Springs Mutual Water Company water supply exceeds the maximum contaminant level (MCL) for arsenic. The proposed project includes the design and installation of a water treatment plant and associated pipeline to connect the existing wells to the treatment plant. The proposed treatment plant will be located at the Lake Street well site on property currently owned by the Mutual Water Company. Water from the Deodar, Idaho and Ft. Churchill wells will be piped to the treatment plant.

The project is eligible for a finding of no significant impact (FONSI) because it is unlikely to have a negative effect on the quality of the environment since the proposed water lines are located in existing street right-of-ways and the treatment facility will be located on already disturbed land at the Lake Street well site owned by Mutual Water Company. Best management practices will be utilized during construction. The project will have a beneficial effect by ensuring the customers receive water that is safe to drink. Consultation with the State Historic Preservation Office has been initiated. Compliance with section 106 of the National Historic Preservation Act will occur before construction begins.

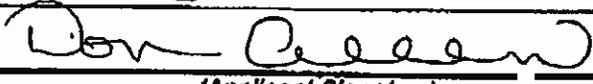
Documentation to support these conclusions is available for public examination at the office of the Division of Environmental Protection, 901 S. Stewart St., Suite 4001, Carson City, Nevada.

Comments for consideration on this proposed decision must be submitted by June 12, 2009 to:

Adele Basham
Drinking Water State Revolving Fund Program
901 S. Stewart St., Suite 4001
Carson City, NV 89701-5405

Comments may be submitted by FAX to (775) 687-9510 or by e-mail to abasham@ndep.nv.gov. Questions regarding this notice may be directed to Adele Basham at (775) 687-9488.

**REQUEST FOR ENVIRONMENTAL INFORMATION
DRINKING WATER STATE REVOLVING FUND
Nevada Division of Environmental Protection**

Name of Project:	Silver Springs Mutual Water Company Water Treatment Plant Project						
Location:	1880 Lake Street, Silver Springs, Nevada						
<p>Item 1.a. Has a Federal, State, or Local Environmental Analysis or an Environmental Impact Statement been prepared for this project? Yes <input type="checkbox"/> Copy attached as EXHIBIT I-A. No <input checked="" type="checkbox"/></p> <p>Item 1.b. If answer to Item 1.a. is "No," provide the information requested in Instructions</p> <p>Item 2. Are any of the following land uses or environmental resources either to be affected by the proposal or located within or adjacent to the project site(s)? (Check appropriate box for every item of the following checklist).</p>							
	Yes	No	Un- known		Yes	No	Un- known
1. Industrial	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12. Steep slopes	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Commercial	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13. Wildlife Refuge	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Residential	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14. Wetlands	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Agricultural	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15. Floodplains	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Grazing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	16. Wilderness (designated or proposed under the Wilderness Act)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Mining/Quarrying	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	17. Wild or Scenic River (designated or proposed under the Wild and Scenic Rivers Act)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Forests	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	18. Historical, Archeological Sites	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Recreational	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	19. Critical Habitats (endangered or threatened species)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Transportation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	20. Natural Landmark (Listed on National Register of Natural Landmarks)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Parks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	21. Aquifer Recharge Area	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Open Spaces	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	22. Other (Specify below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Explanation of "Other" from No. 22:</p> <p>_____</p> <p>_____</p>							
<p>Item 3. Are any facilities under your ownership, lease or supervision to be utilized in the accomplishment of this project, either listed or under consideration for listing on the Environmental Protection Agency's list of Violating Facilities? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>							
 (Applicant Signature)				4-28-09 (Date)			

(1) Community or Area Impacts

The arsenic levels in all of the SSMWC wells exceed the newly imposed MCL. Arsenic has been determined by the USEPA to pose a threat to human health if exposed over a period of time. Because of this the new water treatment plant will benefit the community at large.

(2) Area Description

(a) The approximate size of the treatment facility will be 60 x 60 feet. The terrain is flat and desert like in the area and the present use is commercial. There is an existing well house on the lot that is fenced with chainlink. The property currently owned by SSMWC to be used for the project is approximately 1.5 acres. There is sufficient space on the property to accommodate staging areas and all construction activities.

(b) None of the resources listed in Item 2 will be affected by the project.

(c) Please see the following attached Items:

- A U.S. Geological Survey topographic map delineating the area and the location of the project elements;
- The Federal Emergency Management Administration's floodplain map(s) for the project area.
- Site photos of proposed project site and photos taken from the project site looking out to the north, south, east and west; and
- An aerial photograph of the site.

(3) Wetlands

There are no wetlands located in or near the project area. See Attachment 8 "Wetlands". The map was taken from the US Fish and Wildlife website.

(4) Floodplain

The project will be constructed in a 100 year floodplain. The floodplain designation for this area is AE which is defined by the following:

Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. In most instances, base flood elevations derived from detailed analyses are shown at selected intervals within these zones.

See the attached flood Insurance rate map (FIRM).

(5) Land Use

No impacts to inhabited areas or changes in land use are anticipated.

(6) Wild and Scenic Rivers

According to the National Wild and Scenic Rivers website there are no wild and scenic rivers in Nevada.

(7) Air Quality

The proposed project is not expected to result in any significant regional or local air quality impacts. The following practices will be observed, as appropriate, to minimize potential fugitive dust particulate matter releases associated with the Project.

1. All clearing, grading, earth moving, or excavation activities shall cease during periods of high winds to prevent excessive amounts of fugitive dust.
2. All unpaved on-site roads shall be periodically watered or treated with environmentally-safe dust suppressants to prevent excessive amounts of dust.
3. The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized to prevent excessive amounts of fugitive dust.
4. All active portions of the site shall be either periodically watered or treated with environmentally-safe dust suppressants to prevent excessive amount of dust.
5. On-site vehicle speeds shall not exceed 15 miles per hour.
6. Construction equipment engines shall be maintained in good condition and in proper tune as per manufacturers' specifications.

The project will not require that more than five (5) acres is disturbed at any time. For this reason a surface area disturbance permit will not be required.

(8) Water Quality

- (a) The project will not have any impact on surface and/or groundwater.
- (b) Water quality data for well in the Silver Springs area is as follows:

SSMWC Water Quality

Constituent	Lake Street W02	Idaho Street W03	Deodar Street W04	Drinking Water Standards
Measured in Parts Per Million (PPM)				
<i>TDS @ 180° C</i>	340	650	540	1000
<i>Hardness</i>	86	171	299	-
<i>Calcium</i>	23	47	80	-
<i>Magnesium</i>	7.6	24	21	150
<i>Sodium</i>	50	72	59	-
<i>Potassium</i>	5	6	9	-
<i>Sulfate</i>	82	220	160	-
<i>Chloride</i>	18	85	59	400
<i>Nitrate as N*</i>	0	4.2	5.7	10
<i>Nitrite as N*</i>	0	0	0	1
<i>Alkalinity</i>	112	106	100	-
<i>Bicarbonate</i>	137	129	122	-
<i>Carbonate</i>	0	0	0	-
<i>Fluoride</i>	0.4	0.24	0.23	2
<i>Iron</i>	0.14	0	0.06	0.6
<i>Arsenic</i>	0.025	0.016	0.010	0.01
<i>Manganese</i>	0	0.002	0.003	0.1
<i>Copper</i>	0.001	0.002	0.002	1
<i>Zinc</i>	0.006	0.01	0.009	5
<i>Barium</i>	0.029	0.031	0.028	2
<i>Boron</i>	0.3	0.2	0.2	-
<i>Silica</i>	64	62	64	-
Measured in Standard Units (S.U.)				
<i>Color</i>	5	5	5	15
<i>Turbidity</i>	0.2	0.1	0.3	-
<i>pH</i>	7.67	7.46	7.42	6.5-8.5

SSMWC Water Quality Continued

Constituent	Lake Street W02	Idaho Street W03	Deodar Street W04	Drinking Water Standards
Trace Metals (PPM)				
<i>Cadmium</i>	0	0	0	0.005
<i>Chromium</i>	0.003	0.004	0.003	0.1
<i>Lead</i>	0	0	0	0.015
<i>Mercury</i>	0	0	0	0.002
<i>Selenium</i>	0.002	0	0.009	0.05
<i>Silver</i>	0	0	0	0.1
<i>Antimony</i>	0	0	0	0.006
<i>Beryllium</i>	0	0	0	0.004
<i>Nickel</i>	0.001	0.005	0.005	0.1
<i>Thallium</i>	0	0	0	0.002
Radiochemistry				
<i>Gross Alpha</i>	0.657	3.4	0.872	15 (pCi/l)
<i>Gross Beta</i>	5.17	2.9	10.7	15 (pCi/l)
<i>Uranium</i>	0.00149	-	0	.030 ppm

(c) The project will generate a waste stream. The Coagulation with filtration process requires a backwash every 16 to 24 hours of operation to remove the arsenic particles that have collected in the filtration media. The backwash water is collected on-site, decanted, and the thickened waste can be disposed of off-site, or it can be sent to the sanitary sewer for disposal. The waste is non-hazardous. The effluent water typically has an arsenic concentration of 5 ppb after treatment, well below the MCL of 10 ppb.

(9) Transportation

No new transportation patterns will result from the project and consequently no land uses will be affected.

(10) Noise

The only major source of noise during construction will be heavy equipment and will exist only during the beginning portion of the project. There will be no noise associated with the completed project and no existing land uses will be affected.

(11) Historic/Archeological Properties

(a) The National Register of Historical Places lists the following historical sites in Silver Springs:

Historic Place	Historic Significance	Location
Buckland Station	Architecture/Engineering, Person, Event	7 mi. S of jct. of NV 95 and U.S. 50, Stagecoach
Fort Churchill	Architecture, Engineering	U.S. 95A, 8 mi. S of U.S. 50, Weeks
Stockton Well Station	Site	Spruce Avenue, Silver Springs

The only historical place listed that is in the Silver Spring area is the Stockton Well Station. This site is approximately 2 miles away from the proposed project site. The proposed project will have no effect on this site.

(b) To our knowledge no historical/archeological survey has been conducted for the proposed project area.

(12) Wildlife and Endangered Species

To our knowledge, no endangered or threatened species or critical habitat have been identified in the project area or its immediate vicinity.

The attached EA for Silver Springs completed in 2005 includes correspondence from the Nevada Department of Wildlife verifying that projects near the proposed project site would not affect any federally-listed or proposed threatened and endangered species (including plants, animals, fish, or invertebrates), nor any designated critical habitat.

(13) Construction

Where applicable, potentially adverse impacts associated with the construction of the proposed project will be reduced by conformance with the best management practices found in the Nevada Contractors Field Guide for Construction Site Best Management Practices.

(14) Toxic Substances

No radioactive substances will be utilized or produced by the project facility. Toxic and hazardous substances that will be used and stored in the facility include:

Sodium Hydroxide (to be used for pH adjustment) - Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from metals. Corrosives area. Keep away from acids. Store protected from moisture. Containers must be tightly closed to prevent the conversion of NaOH to sodium carbonate by the CO₂ in air. Chemical is to be disposed of according to the MSDS instructions.

Sodium Hypochlorite (to be used for disinfection) - Store in cool place and out of direct sunlight. Store away from foodstuffs and Store incompatible materials. Incompatible materials: Incompatible with acids, metals, metal salts, peroxides, reducing agents, and ethylene diamine tetraacetic acid. Keep containers closed when not in use - check regularly for leaks. Chemical is to be disposed of according to the MSDS instructions.

Feric Chloride (to be used as a coagulant) - Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances. Containers of this material are hazardous when empty since they retain product residues; observe all warnings for the product. Chemical is to be disposed of according to the MSDS instructions.

(15) Public Reaction

The public was notified regarding the design of this project as a requirement of funding provided by the community development block grant program. To date, there have been no objections from the public to this project.

(16) Alternatives to the Proposed Project

NO ACTION ALTERNATIVE

The no action alternative cannot be considered. The water produced by SSMWC is currently out of compliance with the arsenic contaminant level requirements. Something must be done.

NON-TREATMENT ALTERNATIVES

New Source

The wells in SSMWC system are in good condition and have no need to be abandoned except for arsenic compliance (with the exception of the Ft. Churchill well having a low production rate). The cost of drilling a new well is very high and the probability of a new source having below 10 ppb of arsenic in the same area is very unlikely.

SSMWC is considering drilling a new well with a production capacity of approximately 1,000 gpm. Again, it is highly unlikely that the new source would have arsenic levels which would be in compliance and therefore would not help the current situation. An additional well would be intended to increase capacity – not alleviate the arsenic problem. When a new source comes on-line, it is required to be in compliance with the new arsenic rule, thus any new source in the SSMWC service area must have a treatment system in place before water from it can be placed into the system.

Blending

Blending of water from the various sources in the water system can be a viable mitigation strategy for systems with only certain sources which are out of compliance. If, for example, one well which produces 100 gallons per minute (gpm) contains 15 ppb of arsenic is blended with a well which also produces 100 gpm but contains only between 1 and 4 ppb of arsenic, the resulting concentration of arsenic with proper blending would be below 10 ppb and the water system would not be out of compliance. SSMWC cannot consider this option as all of its wells are above the MCL of 10 ppb of arsenic and there is no blending source available.

However, while blending cannot be used as the sole strategy of compliance for SSMWC it can be used in conjunction with a treatment system. Many systems treat only a partial stream of water and blend it with an untreated stream to end with a blend of water that contains less than 10 ppb of arsenic. Other systems treat one well and blend that water with the water from an untreated well to again produce water with less than 10 ppb of arsenic. Therefore, SSMWC should consider the possibility of using a blending strategy in conjunction with treatment to avoid processing more water than necessary or constructing a larger treatment plant than necessary.

Seasonal Use

Seasonal use is also not an option for SSMWC for the same reasons as stated in the blending alternative. There is no source of water within the service area which contains less than 10 ppb of arsenic and therefore no seasonal use of the water can be considered an option.

TREATMENT ALTERNATIVES

Treatment of the water is the best option for SSMWC system. Selection of a treatment alternative involves considering the type of treatment, existing water quality, as well as the location of the treatment system itself.

A number of constituents can adversely affect some arsenic treatments and they must be considered. The parameters considered for determining effective arsenic treatment technologies are:

- Arsenic, Total
- Arsenate [As(V)]
- Arsenite [As(III)]
- Chloride
- Fluoride
- Iron
- Manganese
- Nitrate
- Nitrite
- Orthophosphate
- pH
- Silica
- Sulfate
- Total Dissolved Solids (TDS)
- Total Organic Carbon (TOC)

Specifically, silica adversely affects certain types of arsenic treatment such as an adsorptive media due to the fact that the silica will compete with the arsenic for space on the media itself. This results in a shorter life for the media, and the necessity for more frequent replacement of the media. The pH level can also have adverse affects on arsenic treatment and certain types of treatment require a specific pH range in order for the treatment to be effective. Chlorine residual can result in the fouling of a membrane if a reverse osmosis system is used. For C/F technology, the amount of soluble iron in the water can affect the amount of additional iron that must be added for successful treatment of the water. These parameters are examples of why a comprehensive analysis of the water must be completed and why it is not enough to merely look at the arsenic concentration in the water.

The speciation of the arsenic itself is often required to determine if oxidation is necessary. Soluble, inorganic arsenic exists in two forms; Arsenate (also known as pentavalent arsenic or As(V)) and Arsenite (also known as trivalent arsenic or As(III)). As(III) is not easily removed at pH levels of 6-9 when its net charge is neutral. Therefore the conversion of As(III) to As(V) is a critical step in removing arsenic from water. The

conversion of As(III) to As(V) is done by oxidizing the As(III), which can be accomplished by adding chlorine or permanganate to the water. The appropriate oxidizing agent should however be chosen based on other factors, such as cost, integration with any existing treatment, secondary effects and disinfection requirements.

Speciation of the water was performed on the Idaho Street well in January of 2007 in order to determine if As(III) is present in the water. Results indicated that the levels of As(III) were non-detect and all or nearly all of the arsenic present in the water appears to be As(V).

The need for treatment is evident in that the level of arsenic in all of the wells is above the current MCL of 10 ppb as shown in tables 2 and 3. A form of treatment must be implemented in order to bring the arsenic level below 10 ppb.

Treatment Location:

Various types of treatment exist, and the ways to implement the treatment are also varied. Ways to implement water treatment include the following: centralized, wellhead, point of entry and point of use.

1. **Wellhead** treatment is an alternative that can be considered when a system is only required treatment of one or two of its water sources or when logistics do not allow for centralized treatment. For example, a water system with 10 wells of which only 2 need treatment has no need for a centralized water treatment plant. The cost to treat all of the water in the system is much more than the cost to treat the water at 2 of the wells individually. Wellhead treatment is not typically economically viable in comparison to centralized treatment when the majority of the water in the system requires treatment; this is due to the fact that wellhead treatment is essentially a small centralized treatment plant at each well.
2. **Point of Entry (POE)/Point of Use (POU)** treatment is a solution that many small communities are considering. The POE is located outside of each home and treats the water for the individual residence, the POU system is typically located beneath the kitchen sink and treats only the water which is used for consumption. However, these systems are typically only economically feasible for water systems with 150 connections or less. Due to the size of the service area of SSMWC this is not an economical option.
3. **Centralized treatment** is the most common form of water treatment. It is ideal for larger water systems because even though capital costs can be extensive, the operation and maintenance (O&M) costs are generally very affordable. Also, a centralized treatment plant is the most effective way to treat large amounts of water in a short period of time in order to keep up with the demands of the water system. This type of treatment location is a good option for SSMWC.

SSMWC has explored two scenarios regarding location of treatment facilities: a centralized water treatment facility with dedicated pipeline from each of the wells to the treatment plant, or two separate treatment facilities with one located at the Lake Street well and the other near the Deodar and Idaho Street wells for the treatment of the combined flow of the two wells. The following scenarios will be presented with their associated cost estimates:

Scenario 1 – Centralized Treatment Facility

This facility would be used to treat all of the wells in the system. It would require dedicated water lines from each of the wells be installed from each of the wells to the treatment facility. This treatment plant would be designed to treat 1,100 gpm thereby allowing all of the flow from any one of the wells to be treated at a time. In the event that the Lake Street well and either of the other two wells needed to be running simultaneously, the water from the Lake Street well could be treated and then combined with the untreated water from either the Idaho or Deodar Street wells to produce an effluent with less than 10 ppb arsenic.

Scenario 2 – Treatment Facility at Lake Street and Treatment Facility at Idaho/Deodar Street

This would involve construction two separate treatment facilities, one on the east side of the system and one on the west side of the system. The facility on the east side of the system would be a wellhead treatment facility for the Lake Street well, treating 100% of the flow from that well. The facility on the west side of the system would be a “centralized” plant for the Deodar and Idaho Street wells. This second facility would be designed to treat a maximum of 800 gpm, which would allow it to treat 100% of the flow from either of the two wells. It may also be designed to allow both wells to run simultaneously – treating all of the flow from the Idaho Street well and mixing the treated effluent with the untreated water from the Deodar Street well to produce a stream of water with an overall concentration of less than 10 ppb while maintaining the capability of running both wells at once.

Other Considerations – New Source and Additional Capacity

SSMWC must also consider the possibility of expanding their water treatment capacity due to the fact that they are a growing community and are considering drilling a new well in the future. As was stated previously, it is unlikely that any new well drilled will meet the arsenic MCL of 10 ppb or less, therefore, before any new well can be put on-line in a water system it must either meet the MCL or be treated before it will be accepted by the State. SSMWC may want to consider over-sizing their treatment facility for future needs, or at a minimum, construct a building that would house additional treatment capacity.

Treatment Type

Upon considering the existing water quality, the different treatment options considered are described below. The options considered are generally the Best Available Technologies (BAT's) and each is looked at in depth prior to conducting a pilot study.

1. Iron Modified Activated Alumina

The Fe-AA process is best under acidic conditions. The pH of the water needs to be decreased for effective removal of arsenic and then increased for supply. There are a number of parameters which interfere with the effectiveness of Fe-AA treatment, such as silica, pH, iron, and sulfates. In order to determine the effectiveness of the treatment technology it is necessary to perform a pilot study.

The estimated capital and O&M costs are based on a treatment capacity of 1,100 gpm or 1.6 MGD. The costs are based on information from various systems of different sizes. The treatment system would be composed of 2 treatment vessels configured in a lead-lag scenario. Acid and caustic facilities would be required for pH adjustment to 6.5 and readjustment after treatment. The media would be backwashed monthly and the

backwash volume is generally 8 bed-volumes. It is necessary to collect the backwash water in a tank for disposal to a sewer system or to recycle it back into the water system. The spent media can be disposed of in a landfill as it is not considered to be hazardous. Generally the effluent water will have an arsenic concentration of 4ppb, well below the current MCL.

Capital costs estimated include booster pumping (as there is no storage near the chosen treatment site and the water must be boosted back into the system), residuals handling, Fe-AA system facilities, chemical feed facilities, building, piping etc., as well as contingency. The total estimated capital cost for the facility is \$2,450,000 for a facility with 1.6 MGD capacity.

O&M costs for the facility are based on power, chemical, and media costs, as well as media disposal, labor and equipment costs. Based on a 50% utilization rate the estimated O&M costs for this option are approximately \$150,000 annually.

2. Granular Iron Media (GIM)/Adsorptive Medias

There are various types of GIM. Generally, GIM works well at ambient pH levels of 8 and below. Water recovery rates for GIM are high and the media is used until exhaustion at which time it is replaced. In the case of very high pH an adjustment is necessary in order to maximize the life of the media and limit O&M costs.

As with the Fe-AA option, costs are based on a treatment capacity of 1,100 gpm or 1.6 MGD. The backwash water from adsorptive media, if backwashing is necessary, can be disposed of in the sanitary sewer or collected and recycled back through the treatment system leaving only sludge that can be disposed of at the landfill as it is non-hazardous. The amount of backwash water is typically 13 bed volumes for this treatment system. The media can also be disposed of in a landfill as it is not hazardous. The arsenic concentration is typically 4ppb after treatment of the water.

Capital costs are with the same parameters as the Fe-AA system and the total estimated cost for the system is \$2,300,000.

O&M costs are based on the same parameters as the Fe-AA except the GIM does not require additional chemicals for the pH adjustment. Also the media itself in this case is generally more expensive. The overall O&M costs are estimated to be \$193,000 annually.

3. Coagulation/Filtration

Coagulation with filtration is a slightly more chemical intensive form of treatment than adsorptive media. It involves adding a coagulant into the stream of water to be treated, causing the arsenic to form particles that can be filtered out using a filtration media. Approximately 5mg/L ferric chloride would be added to form the floc and precipitate the arsenic. As the media collects the particles it is necessary to backwash every 16 to 24 hours of operation to remove the arsenic particles that have collected in the filtration media. The backwash water is collected on-site, decanted, and the thickened waste can be disposed of off-site, or it can be sent to the sanitary sewer for disposal. The waste is non-hazardous. The effluent water typically has an arsenic concentration of 5 ppb after treatment, well below the MCL of 10 ppb.

In general, coagulation/filtration is considered to be a more complicated treatment process than adsorptive media due to the chemicals that must be used to create the floc, and the amount of backwash waste that can be created depending on the type of

filter media utilized and the raw water quality. However, there is cost savings involved in the O&M portion of the system due to the fact that the media does not need to be replaced.

Based on initial research for SSMWC it was decided to perform a pilot study utilizing C/F technology, therefore costs for this type of system are based on the pilot study results. The capital costs for the system prior to completing the pilot study estimated to be \$1,750,000. This cost is assumed to include booster pumping, rapid mixing, pressure filters, chemical feed system, building, piping, solids handling and a contingency factor. It does not include the cost of a clear well or blending vault in the event the SSMWC would want to blend treated and untreated water.

Annual O&M costs for the system are estimated to be \$88,000 for a 50% utilization rate. This estimate includes costs for power, chemicals, residuals disposal, labor and equipment.

Based on the conservative cost information available along with the results of the pilot study, coagulation/filtration would be the most economical solution for SSMWC. The level of certification of the operators of the system would need to be increased to use a coagulation filtration system – state regulations for the required level must be followed. According to the state regulations stated in NAC 445A a coagulation/filtration treatment system would change the water system to a Treatment-2 classification. According to NAC 445A.6267 for a Treatment-2 facility:

- (1) A person in responsible charge must have at least Treatment-2 certification;
- (2) A supervisor or foreperson must have at least Treatment-2 certification; and
- (3) A shift operator must have at least Treatment-1 certification.

Currently for SSMWC the person in responsible charge has a Treatment-2 certification. The other two employees would be required to upgrade their certifications to a Treatment-1 for a C/F treatment system to be used.

arsenic is adsorbed on the ferric hydroxide and will not leach. The amounts of these constituents that must be disposed of, based on an estimated backwash water quantity of 37,500 gallons from a full sized system treating 1,100 gpm, would be 54.4 pounds of solids. In a backwash tank this would be 5,625 gallons of sludge. This amount of sludge (5,625 gallons) would contain approximately 946 mg/L of iron as ferric hydroxide, less than 0.65 mg/L of manganese and 10.1 mg/L of arsenic.

In summary, the pilot study demonstrated that coagulation/filtration is a viable option for treatment at SSMWC. Cost estimates for a full scale treatment facility using this technology can be made using the results for filter loading rate and chemical dosing.

OPTIONS AND COST ESTIMATES

As stated previously, SSMWC has explored two options for configuration of their treatment system. The first option is a centralized treatment plant to be used for all three of the wells, while the second option is to construct two separate treatment facilities where one would serve the Lake Street well and the other would serve the Idaho and Deodar Street wells. Based on pilot study results, the best treatment technology option available to SSMWC appears to be coagulation/filtration. This technology has shown to

be effective with the water in the system and is in use in various treatment facilities in the State of Nevada thereby making it a well-known, effective treatment technology.

The following will explore the advantages and disadvantages of both options for SSMWC. The capital and O&M costs for each option will also be outlined.

Option 1 – Centralized Treatment Facility for All Wells

Description

This option would involve the construction of a centralized treatment facility to serve all three of the wells in the SSMWC system.

Design Criteria

This system would be designed to treat 1,100 gpm by using three separate filters, each with the capability of treating 380 gpm during normal operations and 570 gpm during the backwash cycle. This allows for one filter to be backwashed while the other two are in use, thereby ensuring that 1,100 gpm can always be treated and creating redundancy in the system. The treatment plant would also be designed by taking future expansion into consideration. The chemical feed system and loading rate, along with the filter size, will be designed to produce an effluent with less than 5 ppb arsenic at all times.

The controls in the water treatment facility will be designed to ensure that all of the water produced by the Lake Street well will be treated. In the event that more than one well is required to be in use at once, the controls will ensure that if the Lake Street well is in operation – all of its water will be treated, and water from the second well will bypass the treatment facility and blend with the treated effluent prior to distribution. While the Idaho Street well could feasibly be the second well in service, this would cause the blended stream of treated and non-treated effluent to contain approximately 9 ppb of arsenic assuming that the treated effluent contains 5 ppb of arsenic and the untreated stream from the Idaho Street well contains 16 ppb of arsenic. Therefore the controls will be set to ensure that the second well to turn on while the Lake Street well is on will be the Deodar Street well. This will ensure a blend of treated and untreated water that contains less than 8 ppb of arsenic and allowing a window of safety to keep the concentration below 10 ppb arsenic at all times.

The controls will also allow the Lake Street well to be off while both the Deodar and Idaho Street wells are in operation. If all of the water from the Idaho Street well receives treatment, and is blended with the untreated stream from the Deodar Street well it will result in 1,400 gpm for distribution containing only 8 ppb arsenic – again a desirable concentration of arsenic that is in compliance and allows for a 2 ppb safety net.

The proposed location of this facility is shown on Figure 2 in Appendix B, near the Lake Street well where SSMWC owns enough property for a treatment facility site. The necessary pipeline to connect each of the wells to the treatment plant is also illustrated in this figure.

Environmental Impacts

All of the areas that would be impacted by this construction project have been previously disturbed and are generally located near roads. The waste created by the treatment facility can be disposed of at the local wastewater treatment facility. Therefore the environmental impact of this project is very limited and the main concern will be dust control due to the weather and location of the project.

Land Requirements

The water treatment facility will be constructed on property already owned by SSMWC and all pipelines will be placed in current rights of way, or on property owned by the water system.

Construction Problems

None are anticipated.

Cost Estimate

The cost estimate for this option assumes that up to 1,100 gpm will be treated. The configuration of a centralized facility of this size would consist of three filters, each capable of treating 550 gpm. This creates redundancy in the system and allows one filter to be backwashed while the other two are continuing to be in service. This redundancy also allows for repairs to be made to a filter without interrupting service to the system. When the system is in operation, the filters will be rotated in use. For example, during the first run, filters 1 and 2 will be used while during the second run filters 2 and 3 would be used. The loading rate used for each of the filters in this scenario is 4 gpm/ft² with a media surface area of 95 ft². The cost estimate for this option is outlined in Table 13.

Advantages/Disadvantages

The only disadvantage to this system in comparison with the system outlined in Option 2 is the necessary dedicated pipelines that must be installed from each of the wells to the treatment facility. The amount of pipe necessary is approximately 7,500 feet more than is necessary in Option 2.

The advantages include a lower capital cost, less intense maintenance due the fact that there is only one facility and building to maintain instead of two and less property to be disturbed during construction of the treatment facility itself (pipeline excluded). The O&M cost of this will generally be slightly lower due to the fact that only one set of chemical pumps will need to be maintained and chemical usage is anticipated to be slightly lower than Option 2.

Option 2 – Separate Treatment Facilities

Description

This option would involve one treatment facility to be constructed at the Lake Street well and a second treatment facility to be constructed near the Deodar Street well to serve both the Deodar and Idaho Street wells. The treatment facilities would use the same technology, coagulation/filtration, as presented in Option 1.

Design Criteria

The treatment facility at the Lake Street well for this option would be identical to the facility presented in Option 1.

The facility at the Deodar site would consist of 3 filters, each capable of treating 270 gpm and produce a treated effluent containing a maximum of 5 ppb. This capacity will allow treatment of all of the water from either of the two wells served by it, or up to 800 gpm of the 1,400 gpm produced if both wells were running at once. Due to the lower arsenic concentrations in the water at the Idaho and Deodar Street wells, it would not be necessary to treat 100% of the water if both wells were running at once. Instead, a blending vault should be installed to allow for partial stream treatment and subsequent blending prior to distribution.

The controls at the Deodar/Idaho facility should be designed for all of the water to be treated from the Idaho Street well if it is use. Whereas if the Deodar Street well is in use, only one of the filters need be used to treat 300 gpm of the 600 gpm produced by the well. With a blending vault installed prior to distribution, 300 gpm of treated water and 300 gpm untreated from the Deodar Street well will result in an effluent stream for distribution with an arsenic concentration of approximately 8.5 ppb. Additionally, if both wells are running at once the controls must be designed to treat all of flow from the Idaho well. The treated effluent will blend with the untreated water from the Deodar well to create 1,400 gpm for distribution with an arsenic concentration of approximately 8 ppb.

This treatment scenario will ensure that customers are always receiving water with less than 10 ppb, and typically less than 8 ppb.

Environmental Impacts

All of the land involved in this option has been previously disturbed. As in the first option the greatest concern during construction will generally be dust control, but the overall environmental impact will be limited, if any.

Land Requirements

Also as in the first option, all property that will be necessary for this option is currently owned by SSMWC or in rights-of-way.

Construction Problems

None are anticipated.

Cost Estimate

The cost estimates for the two separate facilities are outlined in Table 14.

Advantages/Disadvantages

The main advantage of this option is that there is no need to construct such a large quantity of dedicated pipeline to the Lake Street well for a centralized treatment facility. This option also provides more redundancy for operation than the first option.

The disadvantages of this option include higher capital costs, the necessity to maintain two facilities on separate sites and higher O&M costs (though this difference is assumed to be limited).

SELECTION OF AN ALTERNATIVE

The chosen treatment alternative for SSMWC, based on pilot study results and cost estimates, is to install a centralized water treatment facility to serve all three of the wells in the system. The building should either be built with additional room for treatment capacity or designed with future expansion in mind. The additional room will be necessary in the future if an additional well is constructed for the water system. The use of coagulation/filtration technology is considered to be the best option for SSMWC based on the water chemistry and the size of the facility needed for the water system. It is also a proven technology being used at other water systems in the State of Nevada.

Cost Comparison

In the previous section cost estimates were made for both treatment configuration scenarios. Based on those cost estimates it was determined that a single treatment facility will be the most cost effective solution for SSMWC. This option does require the installation of dedicated water lines from each of the three wells to the chosen location of the treatment facility. The tentative location of this facility is shown in Figure 2, near the Lake Street well. This location was chosen due to its proximity to the largest well and also because the water system owns property in this area – thereby eliminating the need to purchase additional property which would increase the overall cost of the treatment facility.

The cost estimates are based on the design and construction of other treatment facilities of similar size in Nevada and other western states. Additionally information from the Arizona Arsenic Master Plan includes cost estimates and tables for various technologies and different size treatment facilities. The O&M costs are also based the same sources. The actual O&M costs that will be experienced by SSMWC will be dictated by the amount of chemical that is utilized to operate the treatment system correctly, the energy consumption due to booster pumping and other items that will need repair and replacement within the facility during any given year. They will not be affected by the amount of time spent at the facility by personnel due to the fact that SSMWC already employs people to maintain the water system and the treatment facility will become part of their duties; new personnel will not be hired and the budget should not increase. With the results of the pilot, it is assumed that the amount of chemical that will be necessary can be estimated, however, it will vary depending on the amount of water that is actually used by the system as a whole throughout any given year. If demand rises, so will O&M costs due to the fact that more water will require treatment.

(17) Mitigation Measures

No environmental consequences are anticipated thus no mitigation will be required.

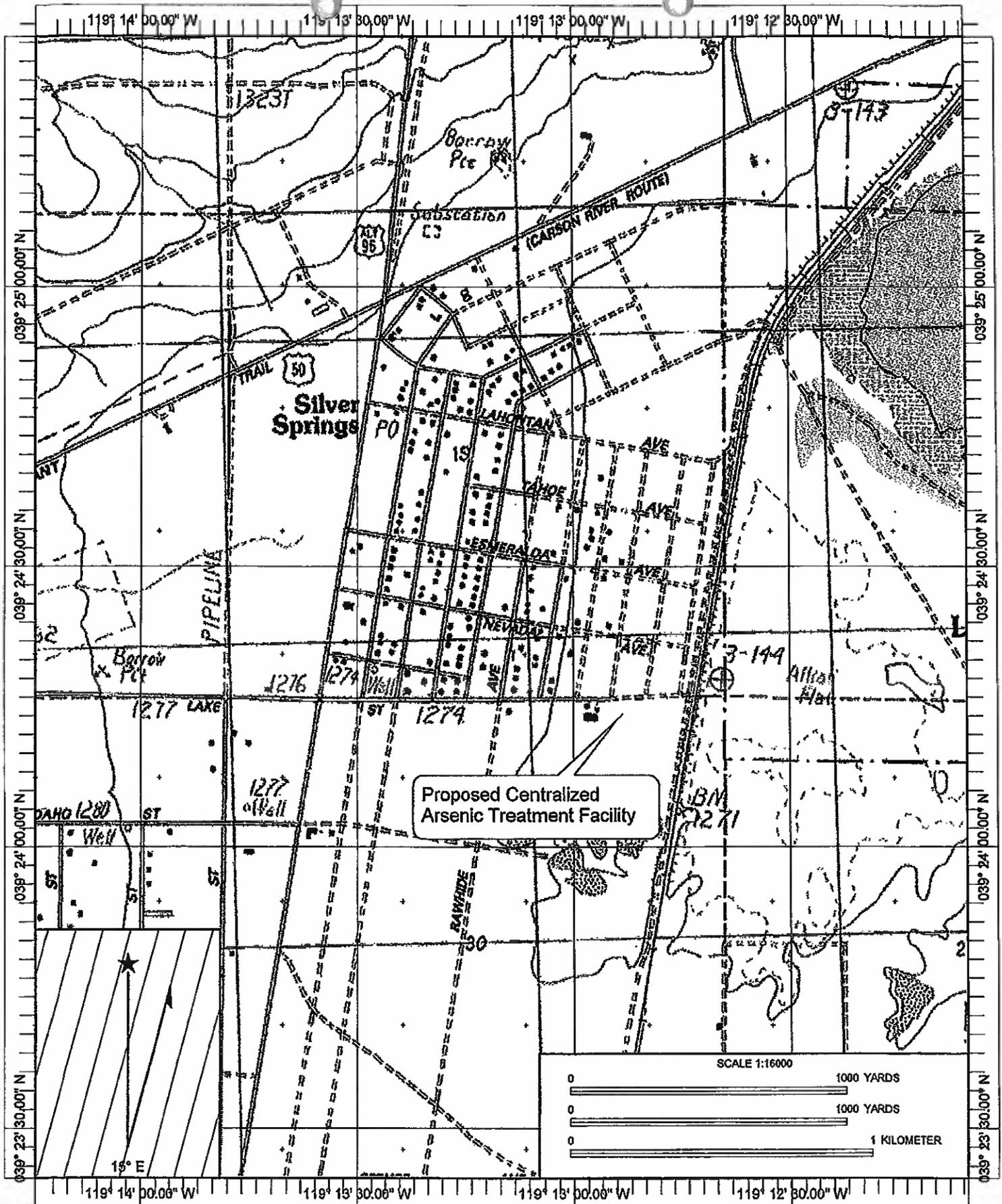
(18) Permits

Other than construction related permits, no additional permits should be needed.

(19) Other Federal Actions

There are no other Federal actions associated with this project. There have been other Federally funded (USDA) projects in the area. The project is water system improvements including pipeline, hydrant and valve replacement.

ATTACHMENT 1: USGS TOPO MAP



Name: SILVER SPRINGS NORTH
 Date: 4/9/2009
 Scale: 1 Inch equals 1333 feet

Location: 039° 24' 25.67" N 119° 13' 09.97" W
 Caption: Location of Proposed Silver Springs Arsenic Treatment Facility

ATTACHMENT 2: PHOTOGRAPHS OF PROJECT AREA



Figure 1 – Looking south east toward proposed project site



Figure 2 – Looking north from the northeast corner of the fence



Figure 3 – Looking west from northwest corner of fence



Figure 4 – Looking east from southeast corner of fence



Figure 5— Looking south from southwest corner of fence

ATTACHMENT 3: AERIAL PHOTOGRAPH OF PROJECT SITE



ATTACHMENT 4: FLOODPLAIN DESIGNATION

The Flood Insurance Study report for this jurisdiction.
 ce is available in this community, contact your insurance
 d Insurance Program at 1-800-638-6620.



MAP SCALE 4 IN = 1 MILE

0 150 300 METERS

PANEL 0214E

FIRM
FLOOD INSURANCE RATE MAP
LYON COUNTY,
NEVADA
AND INCORPORATED AREAS

PANEL 214 OF 1375

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:
 COMMUNITY NUMBER 0214
 LYON COUNTY NUMBER 0214 E

holder is user. The map number shown below should be
 used in conjunction with the community number shown
 above should be used on insurance applications for the subject
 community.



MAP NUMBER
 32019C0214E
 EFFECTIVE DATE
 JANUARY 16, 2009

Federal Emergency Management Agency

19° 13' 07.50" N
 99° 24' 22.50" W

060m N



This is an official copy of a portion of the above referenced flood map. It
 was extracted using FIRM On-Line. This map does not reflect changes
 or amendments which may have been made subsequent to the date on the
 title block. For the latest product information about National Flood Insurance
 Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

ATTACHMENT 5: SENSITIVE BIOLOGICAL RESOURCES

Home Pages About Us Data Services Publications Reports & Data Forms Contact Us



State of Nevada
 Department of Conservation & Natural Resources
Natural Heritage Program



901 South Stewart Street, suite 5002 • Carson City, Nevada 89701-5245, U.S.A.
 tel: (775) 684-2900 • fax: (775) 684-2909 • <http://heritage.nv.gov>

LYON COUNTY RARE SPECIES LIST

(18 March 2004)

As of the date above, this list provides information for the 80 Lyon County plants and animals included on the Nevada At-risk Animal and At-risk Plant and Lichen tracking lists and on the Nevada Plant and Animal Watch List. These data reflect only what was entered in our computer databases as of the above date; additional information for some species may await processing in paper files, or may have been entered subsequently.

Information provided for each taxon in the columns below include the various agency status and rank designations, sand and wetland habitat indicators, and endemic status within Nevada. A new Occurrence Status (OCC) column has been added to the left side of the list to show any special status within the county: ?=possible or predicted in the county but not yet confirmed, e=endemic in-state (known in Nevada only from this county), E=endemic (known worldwide only from this county), and I=only introduced or re-introduced occurrence(s) present in this county.

More detailed state-wide information for these taxa is available in our Detailed Rare Plant and Lichen and Detailed Rare Animal lists, and in the Nevada Rare Plant Atlas, which provides comprehensive information on habitat, life-history, description, threats, survey status, literature sources, and known locations for most plant taxa. Further information may be available on-line for some taxa in other lists or reports, or as maps or images, and general information is available for nearly all taxa on the NatureServe Explorer web site.

Click on a column heading for an explanation of that column. You may need to scroll horizontally in your browser to see all columns. You may also jump to the at-risk taxa or the watch-list taxa.

OCC RANKS..... ESA. BLM FS. TAXON NAME AND (VERNACULAR NAME)..... NV. 2N HAB END

AT-RISK TAXA TRACKED

***** Plants - Pteridophytes (fern allies)

?	G3		xC2	n	si	Botrychium crenulatum		W	W
		S1?				(dainty moonwort)			

***** Plants - Flowering Dicots

	T2G5					Astragalus convallarius var. margaretiae		D	Y
		S2				(Margaret's rushy milkvetch)			

	T2G4 S2	xC2	n	sw	Astragalus oophorus var. lavinii (Lavin eggvetch)	W		
?	G2Q S2		c	w	Astragalus pseudiodanthus (Tonopah milkvetch)	n	S	
	G2 S2	xC2	nc	sw	Cusickiella quadricostata (Bodie Hills draba)	W		
	G2G3 S1?				Cymopterus cinerarius (gray wavewing)	W		
E	G1 S1		n		Eriogonum diatomaceum (Churchill Narrows buckwheat)	CB#	T	Y
?	G2G3Q S2				Helianthus deserticola (dune sunflower)	W	S	
	G4 S2S3				Opuntia pulchella (sand cholla)	CY	D	S
	G3Q S3	xC2	nc	si	Phacelia monoensis (Mono County phacelia)		T	
	G2Q S2		sc	i	Polycytenium williamsiae (Williams combleaf)	CE	T	W
?	G2 S1			w	Senecio pattersonensis (Mono ragwort)	W		
	G3 S2	xC2	nc	si	Streptanthus oliganthus (Masonic Mountain jewelflower)	W		
E	G2 S2	xC2	n		Stroganowia tiehmii (Tiehm peppergrass)	W		Y

***** Insects

	T3?G5 S1	xC2	n		Euphydryas editha monoensis (Mono checkerspot)			
	T1T2G5 S1S2	xC2			Limenitis archippus lahontani (Nevada viceroy)			Y
	T2G3 S2				Speyeria nokomis apacheana (Apache silverspot butterfly)			

***** Mammals

	G4 S3B		nc	si	Corynorhinus townsendii (Townsend's big-eared bat)			
	G4 S1S2	xC2	s	s	Euderma maculatum (spotted bat)	yes		
	G5 S2		n		Lontra canadensis (river otter)	yes		
	G5 S3B		n		Myotis californicus (California myotis)			
	G5 S3B	xC2	nc		Myotis ciliolabrum (western small-footed myotis)			
	G5 S1S2		n		Myotis lucifugus (little brown myotis)			
	G4G5 S2B	xC2	nc		Myotis thysanodes (fringed myotis)			

***** Birds

G5 S3	xC2	n	si	Accipiter gentilis (Northern Goshawk)	yes	
TUG4 S3B	xC2	nc		Athene cunicularia hypugaea (Western Burrowing Owl)	yes	
G4 S3	xC2	n		Buteo regalis (Ferruginous Hawk)	yes	
G5 S2B		n	i	Buteo swainsoni (Swainson's Hawk)	yes	
G4 S3S4B		nc		Centrocercus urophasianus (Sage Grouse)	yes	
T3G4 S1B	LTNL	n		Charadrius alexandrinus nivosus (Western Snowy Plover)	yes	W
G4 S2S3B	xC2	n		Chlidonias niger (Black Tern)	yes	W
T3G5 S1B	C	s	i	Coccyzus americanus occidentalis (Western Yellow-billed Cuckoo)	yes	W
G4 S2	LENL	n	e	Falco peregrinus (Peregrine Falcon)	yes	
G4 S1B	LTPD L	s	t	Haliaeetus leucocephalus (Bald Eagle (contiguous US pop))	yes	W
G4 S4?B		n	s	Otus flammeolus (Flammulated Owl)	yes	
G5 S3B	xC2	p		Plegadis chihi (White-faced Ibis)	yes	W
T3G3 S1N	xC2	c	si	Strix occidentalis occidentalis (California Spotted Owl)	yes	

WATCH-LIST TAXA

***** Plants - Flowering Dicots

T3G3G4 S3		w		Arabis fernaldiana var. stylosa (stylose rockcress)		P
G3? S3?				Astragalus porrectus (Lahontan milkvetch)	D	Y
G3 S3				Camissonia nevadensis (Nevada suncup)	D	Y
G3? S3?				Eriogonum lemmonii (Lemmon buckwheat)	D	Y
G3 S3				Eriogonum rubricaula (Lahontan Basin buckwheat)	D	Y
T2T3G5 S1S2		c		Loeflingia squarrosa ssp. artemisiarum (sagebrush pygmyleaf)		S
G3? S3?				Lupinus malacophyllus (soft lupine)	D	Y
? G4?				Perideridia lemmonii		

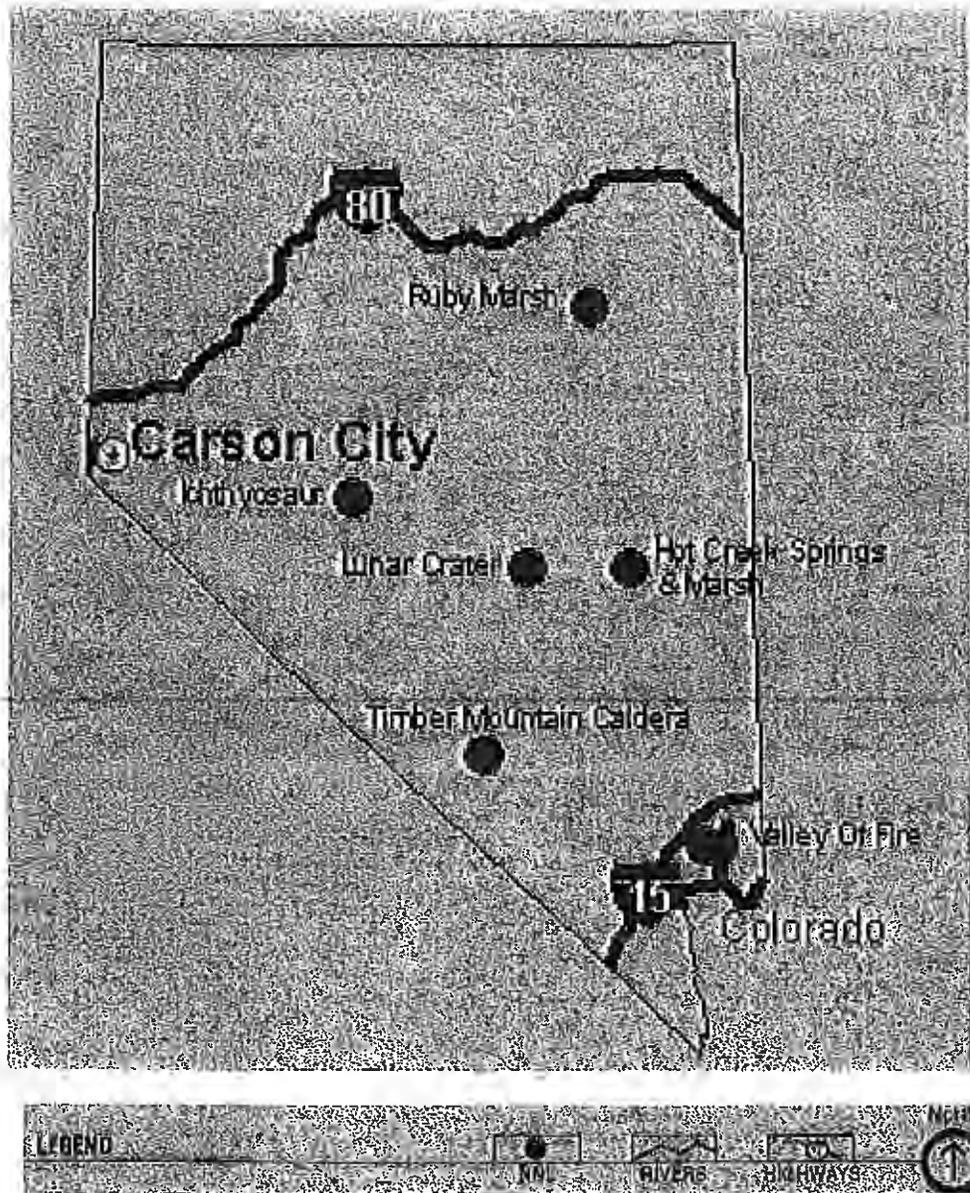
	S3?			(tuni)		
?	G3			Plagiobothrys salsus	W	W
	S2S3			(salt marsh allocarya)		
***** Amphibians						
	T4G4			Bufo boreas halophilus		W
	S2S3			(California toad)		
	G5		n il	Rana pipiens		W
	S2S3			(northern leopard frog)		
***** Reptiles						
	G5			Charina bottae		
	S4			(rubber boa)		
	T3T4G3G4	xC2	c	Emys marmorata marmorata		W
	S3			(northwestern pond turtle)		
***** Mammals						
	G5		nc i	Antrozous pallidus		
	S3B			(pallid bat)		
	G5		n	Lasiurus cinereus		
	S3?			(hoary bat)		
	G3			Microdipodops pallidus		s
	S2			(pale kangaroo mouse)		
?	G5	xC2	nc	Myotis evotis		
	S4B			(long-eared myotis)		
	G5	xC2	n	Myotis volans		
	S4B			(long-legged myotis)		
	G5	xC2	nc	Myotis yumanensis		
	S4B			(Yuma myotis)		
	G5			Ochotona princeps	yes	
	S3			(American pika)		
	G3G4			Sorex tenellus		
	S2			(Inyo shrew)		
	G5		n	Tadarida brasiliensis		
	S4B			(Brazilian free-tailed bat)		
***** Birds						
	G3	xC2	nc	Agelaius tricolor	yes	W
	S2B			(Tricolored Blackbird)		
	G5		n	Aquila chrysaetos	yes	
	S4			(Golden Eagle)		
	G5		n	Asio flammeus	yes	
	S4			(Short-eared Owl)		
	G5		n	Asio otus	yes	
	S4			(Long-eared Owl)		
	G5		n	Baeolophus griseus	yes	
	S5B			(Juniper Titmouse)		

G2 S2N	PT	s	Charadrius montanus (Mountain Plover)	yes	
G5 S3B		p	Dendroica petechia (Yellow Warbler)	yes	W
G5 S4		n	Falco mexicanus (Prairie Falcon)	yes	
G5 S3B		p	Geothlypis trichas (Common Yellowthroat)	yes	W
G5 S4		n	Gymnorhinus cyanocephalus (Pinyon Jay)	yes	
G5 S3B		n	Icteria virens (Yellow-breasted Chat)	yes	
G4 S3	xC2N L	n	Lanius ludovicianus (Loggerhead Shrike)	yes	
G4 S4		n	Melanerpes lewis (Lewis' Woodpecker)	yes	
G5 S37B		n	Numenius americanus (Long-billed Curlew)	yes	W
G5 S4B		p	Oporornis tolmiei (Macgillivray's Warbler)	yes	
G5 S2B		p	Pandion haliaetus (Osprey)	yes	W
G3 S2B		p	Pelecanus erythrorhynchos (American White Pelican)	yes	W
G5 S4B		n	Poocetes gramineus (Vesper Sparrow)	yes	
G5 S4S5B		n	Sphyrapicus nuchalis (Red-naped Sapsucker)	yes	
G5 S4B		p	Vermivora celata (Orange-crowned Warbler)	yes	
G5 S47B		p	Wilsonia pusilla (Wilson's Warbler)	yes	W

Last updated on 03/18/2004

[Return to Nevada Natural Heritage Program home page](#)

ATTACHMENT 7: NATIONAL NATURAL LANDMARKS



National Natural Landmarks in Nevada

1. Hot Creek Springs and Marsh
2. Lunar Crater
3. Ruby Marsh
4. Timber Mountain Caldera
5. Valley of Fire
6. Ichthyosaur Sit

ATTACHMENT 8: WETLANDS





Wetland Types

-  Estuarine and Marine Deepwater
-  Estuarine and Marine Wetland
-  Freshwater Emergent Wetland
-  Freshwater Forested/Shrub Wetland
-  Freshwater Pond
-  Lake
-  Other
-  Riverine

Proposed Arsenic Treatment Facility

Status: Map

-  Digital (vector data)
-  Scanned (raster data)
-  Non-Digital (hardcopy only)
-  No Data