PINE DEL LDS LODGE (PWS # 5160038)
SOURCE WATER ASSESSMENT FINAL REPORT

April 16, 2003

State of Idaho
Department of Environmental Quality

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Executive Summary

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Idaho Department of Environmental Quality (DEQ) is completing the assessments for all Idaho public drinking water systems.

The assessment for your particular drinking water source is based on a land use inventory within a 1,000-foot radius of your drinking water source, sensitivity factors associated with the source, and characteristics associated with either your aquifer or watershed in which you live.

The delineation process establishes the physical area around a drinking water source that will become the focal point of the assessment. The arbitrary-fixed radius method was used to delineate transient water systems (Idaho Source Water Assessment Plan, pg. 15 and E5-E6) by drawing a 1000-foot radius circle around the drinking water sources. This distance is the same for every transient drinking water source. It is impractical to develop more intensive delineations for these systems because of limited resources for protection and lack of jurisdiction over land use outside property boundaries.

This report, *Source Water Assessment for the Pine Del LDS Lodge: Public Water System (PWS) #5160038* describes the public drinking water system, the associated potential contaminant sources located within a 1,000-foot boundary around the drinking water source, and the susceptibility (risk) that may be associated with any associated potential contaminants. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this system. **The results should <u>not be</u> used as an absolute measure of risk and is not intended to undermine the confidence in your water system.**

Final susceptibility scores are derived from heavily weighing potential contaminant/land use scores and adding them to the system construction scores. Therefore, a low rating in one category coupled with a higher rating in the other category results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a drinking water source can get is moderate. Potential Contaminants/Land Uses are divided into four categories, inorganic contaminants (IOCs, e.g. nitrates, arsenic), volatile organic contaminants (VOCs, e.g. petroleum products), synthetic organic contaminants (SOCs, e.g. pesticides), and microbial contaminants (e.g. bacteria). As different drinking water sources can be subject to various contamination settings, separate scores are given for each type of contaminant.

The Pine Del LDS Lodge drinking water system consists of one spring that serves approximately 50 people through two connections. The system rated moderate susceptibility to IOCs and SOCs, and it rated low susceptibility to VOCs and microbial contaminants. There was very little information concerning the system construction. Therefore, the moderate system construction score combined with the limited number of contaminants around the spring contributed to the overall susceptibility of the drinking water system.

The initial computer generated contaminant source inventory conducted by DEQ did not identify any potential contaminant sources within the 1,000-foot boundary. However, the Geographic Information System (GIS) map shows that the delineation includes an unimproved road and a creek as potential contaminant sources. These contaminant sources can contribute chemicals and bacteria to the aquifer in the event of an accidental spill or release or in the event of a flood. The table below lists these contaminants. A copy of the susceptibility analysis worksheet for the spring for your system along with a map showing any potential contaminant sources is included with this summary.

Table 1. Pine Del LDS Lodge, Spring, Potential Contaminant Inventory

Site #	Source Description[1]	Source of Information	Potential Contaminants[2]
	Unimproved Road	GIS Map	IOC, VOC, SOC, Microbials
	Creek	GIS Map	IOC, VOC, SOC, Microbials

[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Analysis

The water system's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: the physical integrity of the spring, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each drinking water source is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking.

Spring Construction

Spring construction directly affects the ability of the intake to protect the aquifer from contaminants. The Idaho Administrative Code for Public Drinking Water Systems (IDAPA 58.01.08.04) states those springs, which supply water for a public water system, shall ensure that the following requirements are met:

a. Springs shall be housed in a permanent structure and protected from contamination including the entry of surface water, animals, and dust;

b. A sample tap shall be provided;

c. A flow meter or other flow measuring device shall be provided; and

d. The entire area within one hundred (100) feet of the spring shall be owned by the supplier of water or controlled by a long term lease, fenced to prevent trespass of livestock, and void of buildings, dwellings and sources of contamination. Surface water and drainage ditches shall be diverted from this area.

With regards to this report, spring construction was evaluated by answering two questions: 1. Is the intake structure of the spring located and constructed to Idaho Code; 2. Is the water collected in such a manner that it is not exposed to any surface related contaminants before it enters the distribution system?

The spring rated moderate for system construction. According to the 2000 sanitary survey, water is collected from an underground source before flowing into the spring box. However, it is unknown if the spring box has a watertight, locking lid, if the spring area is fenced and owned by the LDS Lodge, or if there is a diversion ditch above the spring to divert surface water away from the spring collection area.

Potential Contaminant Source and Land Use

The spring rated moderate for IOCs (e.g., arsenic, nitrate) and SOCs (e.g., pesticides), and it rated low for VOCs (e.g., petroleum products) and microbial contaminants (e.g., bacteria). Total coliform bacteria were detected at the spring in July 1994 and July 1995 and in the distribution system from June 1993 to July 2002 with repeat detections in the distribution system in July 1994 and July 1995. Fecal coliform bacteria were also detected in the distribution system in June 1993. Most of the detections in the system occurred in either June or July, indicating a possible seasonal trend.

No VOCs or SOCs have been detected in the system. The IOC nitrate was detected in the spring but at levels far below the maximum contaminant level (MCL) set by the EPA. Though the predominant land use of the area is considered undeveloped, the county in which the spring is located is rated “high” for nitrogen fertilizer use, herbicide use, and total agricultural chemical use.

Final Susceptibility Rating

An IOC detection above a drinking water standard MCL, any detection of a VOC or SOC, or a repeated detection of total coliform bacteria or fecal coliform bacteria at the spring will automatically give a high susceptibility rating to a spring, despite the land use of the area, because a pathway for contamination already exists. Additionally, having potential contaminant sources within 100 feet of the spring area will give an automatic high susceptibility rating. Having multiple potential contaminant sources within the 1000-foot radius of the spring and much agricultural land contribute greatly to the overall ranking. In terms of total susceptibility, the spring rated moderate to IOCs and SOCs, and rated low to VOCs and microbial contaminants. The moderate system construction score combined with the limited number of contaminants around the spring contributed to the overall susceptibility of the drinking water system.

Options for Drinking Water Protection

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For Pine Del LDS Lodge, drinking water protection activities should focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). Actions should be taken to keep a 100 foot-radius around the spring area clear of potential contaminants. Partnerships with state and local agencies and industry groups should be established and are critical to success. You may want to establish a dialog with the relevant state and local agencies related to drinking water protection of spring sources. Drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Providing a spring construction summary to the state and local agencies may assist them in determining your drinking water protection needs.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan because the delineations show large areas of urban land use. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. For areas where transportation corridors transect the delineation, the Department of Transportation should be included in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

Assistance

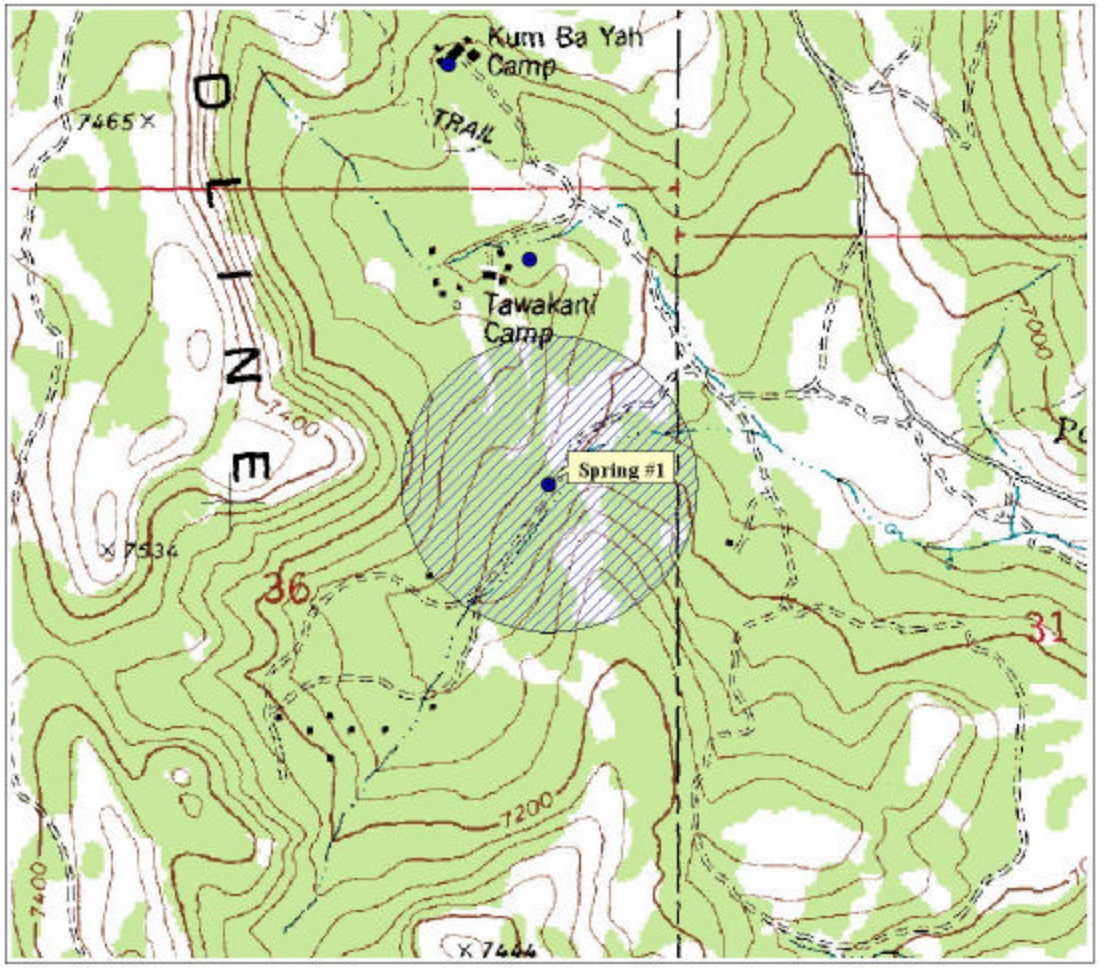
Public water suppliers and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Twin Falls Regional DEQ Office	(208) 736-2190
State DEQ Office	(208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper (mlharper@idahoruralwater.com), Idaho Rural Water Association, at (208) 343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

Pine Del LDS Lodge: Spring #1
PWS Number: 5160038



Legend

- Wellhead
- Enhanced Inventory
- Toxic Release Inventory
- CERCLIS Site
- RICRIS Site
- Business Mailing List
- Dairy
- LUST Site

UST Site

- Closed
- Open
- NPDES Site
- Mine
- AST
- Recharge Point
- SARA Title III Site (EPCRA)
- Injection Well
- Group1 Site
- Cyanide Site
- Boise VOCs
- Landfill
- Wastewater Land App.Site
- Transient Delineation

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0 2000 4000 Feet

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POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (IDEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5 mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by IDEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. "*Recommended Standards for Water Works.*"

Idaho Department of Environmental Quality, 1997. *Design Standards for Public Drinking Water Systems.* IDAPA 58.01.08.04.

Idaho Division of Environmental Quality, 1999, Idaho Source Water Assessment Plan, October.

South Central District Health Department, 2000. Sanitary Survey Inspection and Report for Pine Del LDS Lodge PWS #5160038.

State Drinking Water Information System (SDWIS). IDEQ. 2003.

Susceptibility Analysis Formulas

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = System Construction + (Potential Contaminant/Land Use x 0.818)

2) Microbial Final Score = System Construction + (Potential Contaminant/Land Use x 1.125)

Final Susceptibility Scoring:

0 - 7 Low Susceptibility

8 - 15 Moderate Susceptibility

≥ 16 High Susceptibility

Spring Water Susceptibility Report Public Water System Name : PINE DEL LDS LODGE : SPRING #1

Public Water System Number 5160038 3/5/03 11:36:52 AM

1. System Construction		SCORE
Intake structure properly constructed	NO	1
Is the water first collected from an underground source YES = Spring developed to collect water from beneath the ground; lower score NO = Water collected after it contacts the atmosphere or unknown; higher score	YES	0
Total System Construction Score		1

2. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	RANGELAND, WOODLAND, BASALT	0	0	0	0
Farm chemical use high	YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		2	0	2	0
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	2	2	2	2
(Score = # Sources X 2) 8 Points Maximum		4	4	4	4
Sources of Class II or III leacheable contaminants or	YES	2	2	2	
4 Points Maximum		2	2	2	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		6	6	6	4
Cumulative Potential Contaminant / Land Use Score		8	6	8	4
3. Final Susceptibility Source Score		8	6	8	6
4. Final Well Ranking		Moderate	Low	Moderate	Low