TWIN FALLS ATHLETIC CLUB (PWS # 5420075)
SOURCE WATER ASSESSMENT FINAL REPORT

April 17, 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.

This report, *Source Water Assessment for Twin Falls Athletic Club: Public Water System (PWS) #5420075* 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 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.**

The Twin Falls Athletic Club drinking water system consists of one well. The system serves approximately 25 people through 1 connection.

Final susceptibility scores are derived from System Construction scores, Hydrologic Sensitivity scores, and Potential Contaminant/Land Use scores. 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 wells can be subject to various contamination settings, separate scores are given for each type of contaminant.

In terms of overall susceptibility, the system rated automatically high susceptibility for IOCs, VOCs, SOCs, and microbial contaminants. System construction rated moderate and hydrologic sensitivity rated high. Land use scores rated moderate for IOCs, VOCs, SOCs, and microbial contaminants. The automatically high ratings are due to a building existing within the 50 foot sanitary setback of the well (Sanitary Survey, 1995).

No VOCs, SOCs, or total coliform have ever been detected in tested water. The well's delineation intersects a priority area for the IOC nitrate. Water tests have detected nitrates in concentrations as high as 9.73 parts per million (ppm), which is approaching EPA's maximum contaminant level (MCL) of 10 ppm. The well exists within a county of high nitrogen fertilizer use, high herbicide use, and high Ag-chemical use.

Based on the initial computer generated contaminant source inventory conducted by the DEQ, there is one potential contaminant sources located within the 1,000-foot boundary. This information has been summarized and included in Table 1. A copy of the susceptibility analysis worksheet for your system along with a map showing any potential contaminant sources is included with this summary.

Table 1. Twin Falls Athletic Club, Potential Contaminant Inventory

SITE #	Source Description[1]	Source of Information	Potential Contaminants[2]
1	Seed and Bulb Wholesaler	Database Search	IOC, SOC, microbial

[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: hydrologic characteristics, physical integrity of the well, 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 well 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.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and whether an aquitard (a 50-foot thick fine-grained zone above the producing zone of the well) is present. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

The hydrologic sensitivity rated high for the well. Regional soil data indicates the presence of moderately- to well-drained soils surrounding the well bore. Points were also added to the hydrologic sensitivity score because the well log illustrated that the vadose zone is composed of predominantly permeable materials, the water table is less than 300 feet deep, and an aquitard is not present above the producing zone of the well.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

The Twin Falls Athletic Club drinking water well rated moderate susceptibility for system construction. The well is not located within a 100-year floodplain and the sanitary survey noted that the surface seal and wellhead are maintained. The rating was increased because the well log illustrated that the casing and annular seal do not extend into low permeability units and the highest production does not comes from more than 100 feet below static water levels.

The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all Public Water Systems (PWSs) to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. Some of the requirements include casing thickness, well tests, and depth and formation type that the surface seal must be installed into. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. Well tests are required at the design pumping rate for 24 hours or until stabilized drawdown has continued for at least six hours when pumping at 1.5 times the design pumping rate. Because the well did not meet all current construction standards it was assessed an additional point for system construction.

Potential Contaminant Source and Land Use

The well rated moderate for IOCs (e.g., arsenic, nitrate), VOCs (e.g., petroleum products), SOCs (e.g., pesticides), and microbial contaminants (e.g., bacteria). The potential contaminant sites and the large amount of irrigated agriculture within the delineation contributed the most to the scores.

Final Susceptibility Rating

An IOC detection above a drinking water limit, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well, despite the land use of the area, because a pathway for contamination already exists. Additionally, having potential contaminant sources within 50 feet of the wellhead will give an automatic high susceptibility rating.

If an automatic high rating is not received, overall system ratings are derived by equally weighting hydrologic sensitivity and system construction scores. Potential contaminant sources in the 0- to 3-year time-of-travel zone (Zone 1B) also contribute greatly to the overall ranking.

In this case, the Twin Falls Athletic Club water system rated automatically high for IOCs, VOCs, SOCs, and microbial contaminants due to a building existing within 50 feet of the well.

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 Twin Falls Athletic Club, drinking water protection activities should focus on ensuring compliance with the 1999 sanitary survey and minimizing spills or releases associated with the agricultural and urban activity within the designated source water area. In addition, a more favorable rating could be achieved if the system was confirmed to be compliant with the Idaho regulations for Public Drinking Water Systems. 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 the agricultural and urban activity.

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. 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 Idaho 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

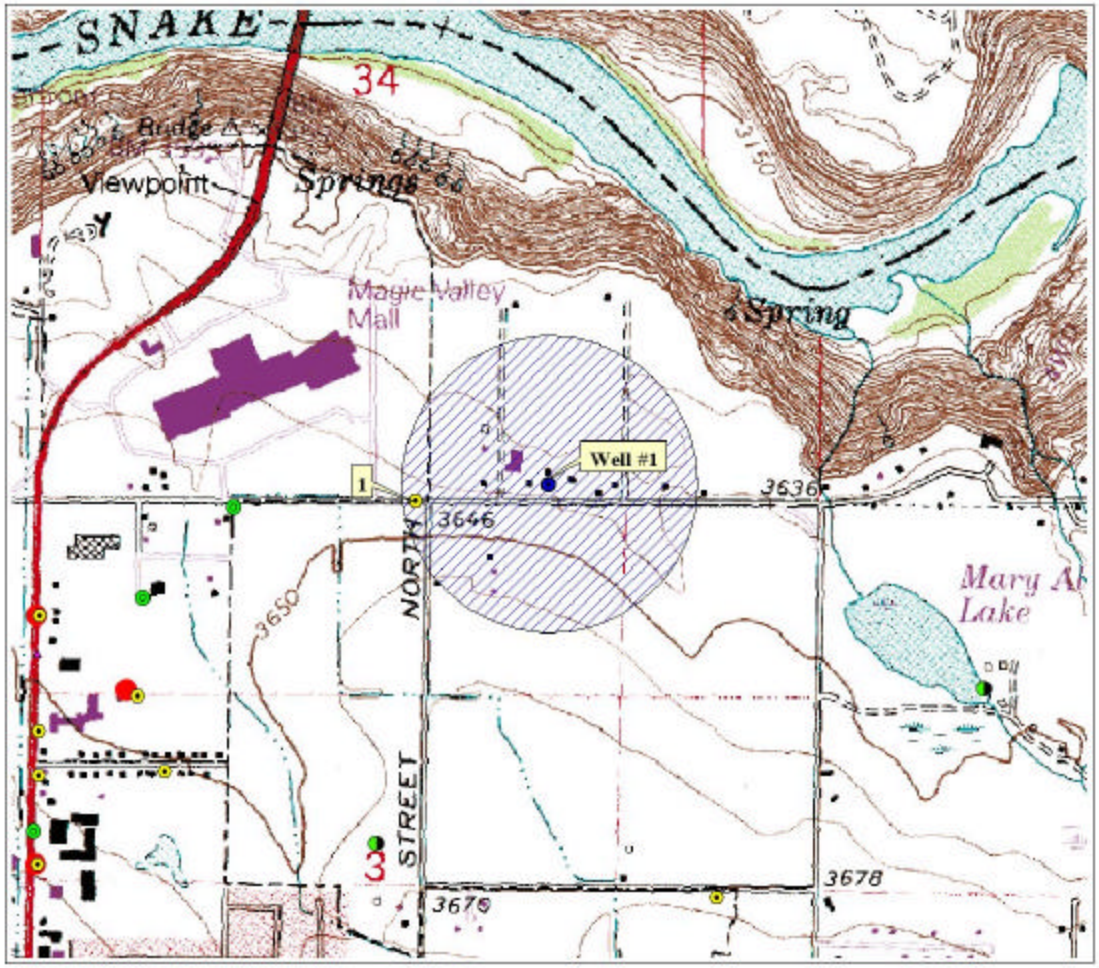
Public water suppliers and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

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.

Twin Falls Athletic Club: Well #1
PWS Number: 5420075



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

N

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 ASuperfund≅ 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 5mg/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 58.01.08.550.01.

Idaho Department of Water Resources, 1993. *Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules*. IDAPA 37.03.09.

South Central District Health Department, 1995. Public Water System Sanitary Survey Report for Twin Falls Athletic Club.

Well Drillers Report for Twin Falls Athletic Club, 1992.

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

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.273)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report Public Water System Name : TWIN FALLS ATHLETIC CLUB Well# : WELL #1

Public Water System Number 5420075 03/04/2003 1:56:01 PM

1. System Construction		SCORE
Drill Date	03/20/1992	
Driller Log Available	YES	
Sanitary Survey (if yes, indicate date of last survey)	YES	1995
Well meets IDWR construction standards	NO	1
Wellhead and surface seal maintained	YES	0
Casing and annular seal extend to low permeability unit	NO	2
Highest production 100 feet below static water level	NO	1
Well located outside the 100 year flood plain	YES	0
	Total System Construction Score	4

2. Hydrologic Sensitivity		
Soils are poorly to moderately drained	NO	2
Vadose zone composed of gravel, fractured rock or unknown	YES	1
Depth to first water > 300 feet	NO	1
Aquitard present with > 50 feet cumulative thickness	NO	2
	Total Hydrologic Score	6

3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	2	2	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	YES	YES	YES	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A		4	4	4	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	1	0	1	1
(Score = # Sources X 2) 8 Points Maximum		2	0	2	2
Sources of Class II or III leacheable contaminants or	YES	4	0	0	
4 Points Maximum		4	0	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Greater Than 50% Irrigated Agricultural Land	4	4	4	4
Total Potential Contaminant Source / Land Use Score - Zone 1B		10	4	6	6
Cumulative Potential Contaminant / Land Use Score		14	8	10	8
4. Final Susceptibility Source Score		14	12	13	13
5. Final Well Ranking		High	High	High	High