

## New Public Water Systems

To aid you in submitting a complete application to the Bureau of Safe Drinking Water (BSDW), here is a brief summary of the information and data requirements that comprise the public water system permitting process. Please keep in mind that this summary, while reasonably complete, may not necessarily enumerate every requirement contained in NAC 445A, "Public Water Systems Design, Construction, Operation and Maintenance". You are encouraged to review this and other regulations to personally ascertain applicable sections.

The process of securing a permit to operate a **transient non-community public water system** in Nevada is three fold:

1. Design and construction of facilities and components of the water system must be in accordance with State requirements, detailed in NAC 445A "Public Water Systems Design, Construction, Operation and Maintenance".
2. Water quality must conform to drinking water standards, per NAC 445A "Public Water Systems Water Quality".
3. The water system owner must demonstrate that he/she has the required technical, managerial and financial capability to operate the water system, as specified by NAC 445A, LCB File No. R073-99. Among other information, this regulation prescribes that the following plans be submitted:
  - a) cross-connection control (backflow)
  - b) emergency
  - c) operation and maintenance
  - d) information related to the policies and procedures of the water system, as well as budgetary and financial plans, must also be submitted for review and approval prior to permitting.

Any existing water system components of an un-permitted water system are not "grandfathered" or exempted from design and construction regulations. A Nevada professional engineer must provide BSDW with plans and specifications of sufficient detail to determine whether or not any "as-built" facilities are adequate. This also applies to well construction, should the well already be fitted with a pump and discharge piping.

Information related to the policies and procedures of the water system, as well as budgetary and financial plans, must also be submitted for review and approval prior to permitting.

Among additional information required is the following:

### Design Report

- a) Provide a design report that describes the proposed water system, the basis of design, criteria for supply and demand, etc.
- b) Provide a network hydraulic analysis of the water system, which serves to size water system components and ensures that performance standards are met.

### Source Water

- a) Provide evidence of water rights of acceptable amount and character.

- b) Provide a well log of any existing wells intended for use to verify the presence or absence of a sanitary seal and to depict casing information. Note that existing facilities are not "grandfathered".
- c) Provide well construction details, drawn as part of the plans, including wellhead piping and equipping details (venting, well-to-waste, valves, piping, sampling tap, access tube, air relief, etc.). Verify that well casing is at least 18 inches above grade or not subject to flooding.
- d) Maintain well separation criteria from sources of pollution or contamination. Provide detail suitable for inclusion in the "Source Water Assessment Program".

### Storage

Provide plans and specifications for any new storage tank that address the requirements of NAC 445A.67065 through 445A.67095 inclusive. Provide calculations used to size tank overflow. Provide lockable access hatch and cage, hand rails, correct sized screening on vents, angled flapper or air gap on discharge and overflow lines, silt stop, sampling tap, staff gauge, 30-inch man ways, NSF approved coating, etc. Specify VOC and total coliform sampling per NAC. Specify telemetry system and controls to monitor, alarm, and regulate storage.

Specify additional design criteria for any new tank:

- a) seismic zone
- b) snow loading
- c) wind loading and exposure
- d) soils report

After conceptual approval of any storage facilities by BSDW, please provide this office with professionally engineered calculations for the tank structure and foundation when they become available after bid award.

### Water Treatment

Are provisions for chlorination proposed? If so, provide design information. An emergency eyewash station would be required, per OSHA. Propose appropriate treatment for any constituents that don't meet State Drinking Water Standards. Submit plans and specifications.

### Pump Station

Provide a design of any pumping facilities/pump house, which complies with NAC 445A.66965 through NAC 445A.6706 inclusive. Provide details of pumping facilities/pump house in plan and profile, which depict components, dimensions, and placement. Provide architectural and structural details of pump house per NAC 445A.66985. Provide an electrical plan. Provide a slab reinforcing detail.

### Distribution System

Provide required isolation valves. Provide plan and profile of water lines. Provide for air releases as required. Maintain required water line/sewer line separations, including those for laterals. Provide a separation standard detail. Specify angle fittings to accomplish pipe bends, rather than bending the pipe beyond the manufacturer's approved bending radius. Provide standard details of corp stops and curb stops or meter stops on the service lines. Include backflow prevention, as

appropriate. Be sure to isolate process, fire and irrigation water from potable water. The distribution system is to be looped, if possible.

Disinfection and Testing

Specify disinfection of distribution lines per AWWA Standard C-651 and pressure testing per AWWA Standard C-605.

Water Quality

Data will need to be provided from the source. Required water quality sampling data are summarized as follows: Secondary Drinking Water Standards, Nitrate, Nitrite, Nitrate + Nitrite, Total Coliform and Fecal Coliform/E. Coli. Water quality samples may be composited by a certified laboratory.

Water Well Location

Plot on a map all potential sources of pollution or contamination within 150 feet of the well.

A copy of "REGULATIONS FOR PUBLIC WATER SYSTEMS" NAC 445A.450 TO 445A.6731 may be downloaded from <http://www.leg.state.nv.us/NAC/NAC-445A.html>.

Please call Jim Balderson at 775-687-9517 for additional information.

Attachments: Application for Approval of a Water Project  
Potential Contamination Sources  
State Certified Methodologies

**NEVADA DIVISION OF ENVIRONMENTAL PROTECTION  
BUREAU OF SAFE DRINKING WATER**

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**APPLICATION FOR APPROVAL OF A WATER PROJECT**

Name of Applicant:	Phone #:
Address:	Email:
	Fax #:

Is this project to permit a privately owned community (residential) system?     Yes     No  
 Is this an expansion of a water system that is regulated by the PUC?     Yes     No  
 Are engineered water system plans & specs submitted with this application?     Yes     No

County in which the public water system will be located:

System Name:	Owner Name:
System Address:	Owner Address:
System Phone:	Owner Phone:
System Emergency Phone:	Owner Emergency Phone:
System Fax #:	Owner Fax #:
	Owner Email:

Public Water System Type:     Community     NTNC     TNC  
 PWS Ownership Type:     Public     Private     Homeowner     Federal     GID     Other:

Population Served:	# of Service Connections:	# of Metered Connections:
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**Fire Flow:**  
 Does the fire authority require fire flow?     Yes     No    If yes, flow rate per hour (gpm):

**Source Type:**

Groundwater well <input type="checkbox"/> Yes <input type="checkbox"/> No	Groundwater Spring <input type="checkbox"/> Yes <input type="checkbox"/> No
Surface Water Intake <input type="checkbox"/> Yes <input type="checkbox"/> No	Spring UDI <input type="checkbox"/> Yes <input type="checkbox"/> No
Purchased Water <input type="checkbox"/> Yes <input type="checkbox"/> No	System has water rights? <input type="checkbox"/> Yes <input type="checkbox"/> No
Source(s) master metered? <input type="checkbox"/> Yes <input type="checkbox"/> No	

**Source Location:**

Meets flood plain requirements?     Yes     No  
 All sources of potential pollution are identified?     Yes     No  
 No sources of contamination within 150 ft?     Yes     No

**Well Characteristics:**

Casing Depth (ft.):	Pump Type:
Casing Diameter (in):	Max. Production (gpm):
Sanitary Seal Depth (ft):	Source Design Capacity (gpm):
Emergency Power Provided? <input type="checkbox"/> Yes <input type="checkbox"/> No	Average Daily Demand (gpm):
Describe Emergency Power:	Emergency Source Capacity (gpm):

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**Source Water Quality:**

Meets all NAC requirements?  Yes  No  
Requires treatment to meet requirements?  Yes  No

Contaminant(s) that require treatment:

Approved treatment process:

Plant production flow rate (gpm):

Please attach a flow diagram from source through treatment to the distribution system.

Emergency, Cross Connection, and Operation and Maintenance Plans have been submitted?  Yes  No

**Storage Characteristics:**

Storage tank type and material:

Tank capacity (gallons):

Storage tank coating material:

**Transmission/Distribution System Characteristics:**

Approved pipe material type:

Distribution main size(s):

Linear feet of pipe:

Distribution system pressure range(s):

Number of pressure zones:

**Booster Pump Stations:**

Pump Type:

# of pumps:

**Inter-Ties:**

Name of other system:

Date of inter-tie:

Is the inter-tie for emergency use only?  Yes  No If No, explain:

**Disinfection:**

Type of disinfectant used:

NSF approved chemicals used?

Yes  No

Disinfection equipment is NSF approved?

Yes  No

Does the system use continuous automatic disinfection?

Yes  No

Where are the disinfection systems located and where are the chemicals stored?

## POTENTIAL CONTAMINATION SOURCES

(\* Denotes GPS location required)

<b>Agricultural</b>		<b>Contaminant Category</b>	<b>Risk Ranking Category</b>		<b>Medical/Educational</b>	<b>Contaminant Category</b>	<b>Risk Ranking Category</b>
1	Animal burial areas	C, D	High	28	Educational institutions (labs, lawns, & chemical storage areas)	B, C	Moderate
2 *	Animal feedlots	B, C, D	High, in Zone A; otherwise moderate				
3	Chemical application (e.g. pesticides, fungicides, & fertilizers)	C, B	High	29	Medical institutions (medical dental, vet offices)	D, E	Low
4 *	Chemical mixing & storage areas (including rural airports)	A, B, C	High	30 *	Research laboratories	A, B, C, D, E	High
5	Irrigated fields	B	Moderate		<b>Storage</b>		
	Irrigation ditches	C	High				
6	Manure spreading & pits	A, C	Moderate	31 *	Aboveground storage tanks	A, B	High
7 *	Unsealed irrigation wells	A, B, C, D	High	32 *	Underground storage tanks	A	High
				33	Public storage	A	Low
				34 *	Radioactive materials storage	E	High
<b>Industrial</b>					<b>Municipal waste</b>		
8 *	Chemical manufacturers, Warehousing/distribution activities	A, B, C	High				
9 *	Electroplaters & fabricators	C	High	35 *	Dumps and landfills (historical/active)	A, B, C, D, E	High
10 *	Electrical products & manufacturing	C	High	36	Municipal incinerators	B, C, D	Moderate
11 *	Machine & metalworking shops	A	High	37 *	Recycling & reduction facilities	C	High
12 *	Manufacturing sites	A, B, C	High	38 *	Scrap & junkyards	A, C	High
13 *	Petroleum products production, Storage & distribution centers	A	High	39 *	Septage Lagoons, wastewater treatment plants, injection wells	A, B, C, D	High
				40 *	Sewer Transfer Stations	A, B, C, D	High
<b>Commercial</b>					<b>Miscellaneous</b>		
14 *	Dry cleaning establishments	A	High	41 *	Airports	A	High
15 *	Furniture & wood stripper & Refinishers	A	High	42 *	Asphalt plants	A	High
				43	Boat yards	A	High
16 *	Jewelry & Metal plating	C	High	44	Cemeteries	D	Moderate
17	Laundromats	C	Low	45	Construction areas	A	Moderate
18 *	Paint shops	A	High	46 *	Dry wells	A, D	High
19 *	Photography establishments & Printers	C	High	47 *	Fuel storage systems	A	High
				48	Golf courses, parks & nurseries (chemical application)	B, C	High
				49	Mining (surface & underground)	A, C	High
20 *	Auto repair shops	A, C	High	50	Pipelines (oil, gas, coal slurry)	A	High
21	Car washes	A, C, D	Moderate	51 *	Railroad tracks, yards & maintenance	A, B, C, D	High
22 *	Gas stations	A, C	High	52	Surface water impoundments, streams/ditches	D	High
23	Road deicing operations: storage & Application areas (e.g. road salt)	C	Moderate				
24 *	Road maintenance depots	A, C	High	53 *	Stormwater drains & retention basins	A, B, C, D, E	High
				54 *	Unplugged abandoned well	A, B, C, D	High
				55 *	Well: operating	A, B, C, D	High→Low
				56	Other – please specify		
<b>Residential</b>							
25	Household hazardous products	A, B, C	Moderate				
26	Private wells	A, B, C, D	Moderate				
27	Septic systems, cesspools	B, C, D	High, if Zone A; otherwise moderate				

### Contaminant Categories:

**A = V.O.C.**  
**B = S.O.C.**  
**C = I.O.C.**  
**D = MICROBIOLOGICAL**  
**E = RADIONUCLIDES**

**SECONDARY DRINKING WATER STANDARDS  
NAC 445A.455**

Contaminant			Method	MCL (mg/L) parts per million
(1)	1002	ALUMINUM	200.7, 200.8, 200.9, 3111D, 3113B, 3120B	0.2
(2)	1017	CHLORIDE	300.0, 4110B, 4500-Cl <sup>-</sup> B/D, D4327-97, D512-89B	400.0
(3)	1905	COLOR	2120B	15.0 (color units)
(4)	1022	COPPER	200.7, 200.8, 200.9, 3111B, 3113B, 3120B, D1688-95A/C	1.0
(5)	1025	FLUORIDE	300.0, 4110B, 380-75WE, D4327-97, D1179-93B, 29-71W, 4500-F <sup>-</sup> B/C/D/E	2.0
(6)	1089	FOAMING AGENTS (MBAS)	5540C	0.5
(7)	1028	IRON	200.7, 200.9, 3111B, 3113B, 3120B	0.6
(8)	1031	MAGNESIUM	200.7, 3111B, 3120B D511-93 A/B, 3500-Mg B/E	150.0
(9)	1032	MANGANESE	200.7, 200.8, 200.9, 3111B, 3113B, 3120B	0.1
(10)	1920	ODOR	2150B	3.0 (TON)
(11)	1925	pH	150.1, 150.2, 4500-H <sup>+</sup> -B, D1293- 95	6.5 – 8.5
(12)	1050	SILVER	200.7, 200.8, 200.9, 3111B, 3113B, 3120B, I-3720-85	0.10
(13)	1055	SULFATE	300.0, 375.2, D4327-97, 4110B, D516-90, 4500-SO <sub>4</sub> <sup>2-</sup> C/E/F	500.0
(14)	1930	TOTAL DISSOLVED SOLIDS (TDS)	2540C	1,000.00
(15)	1095	ZINC	200.7, 200.8, 3111B, 3120B	5.0

**REGULATED INORGANIC CHEMICALS (IOCs)  
40 CFR 141.62 ( b )**

PHASE II				
Contaminant		Method	MCL (mg/L) parts per million	MCL (µg/L) parts per billion
(7)	1040	NITRATE	300.0, 353.2, 4110B, 601, B-1011, 4500-NO <sub>3</sub> <sup>-</sup> D/E/F, D3867-90A/B, D4327-97	10 (as N)
(8)	1041	NITRITE	300.0, 353.2, D4327-97, D3867-90A/B, 4110B, 4500-NO <sub>2</sub> <sup>-</sup> /E/F, B-1011, 4500-NO <sub>2</sub> <sup>-</sup> B	1 (as N)
(9)	1038	TOTAL NITRATE + NITRITE	See above	10 (as N)