



**NORTHERN NEVADA PUBLIC HEALTH
ENVIRONMENTAL HEALTH SERVICES DIVISION**
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**APPLICATION FOR
PERMIT TO CONSTRUCT A SWIMMING POOL / SPA**

Requirements to submit this Application: Payment of appropriate fee(s) and three (3) sets of plans

Pool to Serve: _____

Location of Pool: _____ City: _____

Pool Contractor: _____ Address: _____ Phone: _____

Source of Pool Water Supply: _____ Drinking Water Supply: _____

Size of Pool: Length _____ Width _____ Depth Min _____ Max _____

Pool Surface Area: _____ sq. ft Pool Volume: _____

Supervision By: Lifeguards Owner Method of Waste Water Disposal: _____

Inlets: Quantity _____ Adjustable Type Orifice Plate Type

Pool Structure: Gunite Reinforced Concrete Other _____

Decking: Type _____ Finish _____ Min. width _____ ft.

Slope _____ inch per foot Drains to _____

Depth Markers at _____ ft. _____ ft. _____ ft. _____ ft. _____ ft. _____ ft. _____ ft.

Filter Plant: Mfg. _____ Catalog # _____

Pressure Sand Filter Rapid Sand Filter

Number _____ Diameter _____

Height _____

Total Filter Area _____ sq. ft.

Circulation Rate _____ gpm

Backwash Rate _____ gpm

Turnover Rate _____ hours

Backwash water will empty into _____

Diatomaceous Earth Filters:

Filter Elements: Cloth Metal Stone

Number filters _____

Pressure Type Gravity Vacuum

Total Filter Area _____ sq. ft.

Circulation Rate _____ gpm/hr

Turnover Rate _____ hours

Circulating Pump:

Mfg. _____ Catalog # _____

Size _____

Circulating Rate _____ gpm at _____ ft. hd.

Backwash Rate _____ gpm at _____ ft. hd.

Strainer Size _____ in.

Chlorinator:

Mfg. _____ Catalog # _____

Gas type Electric hypo Erosion type

Other type _____

Capacity _____ lbs/hr

Chemical used _____

Other Equipment

Recirculating Skimmer:	Quantity			Mfg		Catalog no.
Pool Heater:	Type	Rated BTU		Mfg		Catalog no.
Underwater Lights:	Quantity	Watts		Mfg		Catalog no.
Diving Boards:	Quantity	Length		Mfg.		Catalog no.
Ladders:	Quantity	Treads		Mfg		Catalog no.
Life Guard Chairs:	Quantity			Mfg		Catalog no.
Life Line:	Quantity	Length		Mfg		Catalog no.
Ring Buoy:	Quantity	Dia.		Mfg		Catalog no.
Body Hook:	Quantity	Handle	Ft.	Mfg		Catalog no.
Wall Brush:	Quantity	Length		Mfg		Catalog no.
Leaf Skimmer:	Quantity	Length		Mfg		Catalog no.
Vacuum Cleaner:	Quantity			Mfg		Catalog no.

Fill Spout: Above deck Submerged Dia. _____ Air gap _____



CALCULATION OF TOTAL DYNAMIC HEAD IN POOL AND SPA RECIRCULATION SYSTEMS

Pool or Spa Name: _____

Pool or Spa Address: _____

NOTE: Nevada Administrative Code Chapter 444 Public Bathing Places requires a turnover rate of six (6) hours or less immediately prior to washing the filters {NAC 444.152.1 and NAC 444.162.2}.

Turnover rate for spas -- Thirty (30) minutes or less (NAC 444 .484 .1).

Turnover rate for wading pools -- Thirty (30) minutes or less (NAC 444.202.2).

- I. Head loss data for all system components is required.
II. Pump performance curve required {NAC 444.162.4}.
III. Piping must be non-toxic, corrosion-resistant, able to withstand operating pressures. Copper and NSF approved PVC piping are acceptable. Submit specifications for other piping. (NAC 444.160.2).
IV. If multiple pumps and filters are to be used, additional calculations may be required.
V. See last sheet of this form for minimum design criteria worksheet.

Signature of person preparing this form: _____

Print Name: _____

Date: _____

NNPH Approval by: _____

Print Name / #: _____

Date: _____

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MAIN DRAIN PIPING: (include all fittings and pipe from main drain to manifold) Lin. Feet Feet of Head

_____ Lineal feet of _____" dia. Pipe _____

_____ Ell(s) 45 deg. _____" each equivalent to _____ft. of straight pipe, total _____

_____ Ell(s) 90 deg. _____" each equivalent to _____ft. of straight pipe, total _____

_____ Tee(s) _____" each equivalent to _____ft. of straight pipe, total _____

_____ Manifold gate valve(s) _____" each equivalent to _____ft. straight pipe _____

_____ Bushing(s) or adapter(s) if used _____" each equivalent
to _____ft. straight pipe _____

Equivalent length of main suction piping, total _____

Loss of head in ft. due to friction in _____ft. of _____" dia. pipe at a flow of _____GPM _____

 Velocity _____ft./sec. main drain pipe.

 Velocity _____ft./sec. main drain grate.

SKIMMER PIPING: (Manifold to fitting by pool. List all fittings and pipe.)

_____ Manifold gate valve(s) _____" each equivalent to _____ft. of straight pipe _____

_____ Ell(s) 45 deg. _____" each equivalent to _____ft. of straight pipe _____

_____ Ell(s) 90 deg. _____" each equivalent to _____ft. of straight pipe _____

_____ Adapter(s) _____" each equivalent to _____ft. of straight pipe _____

_____ Lineal feet _____" dia. pipe manifold to fitting (by pool) _____

_____ Fitting by pool (tee or ell) _____" dia. equivalent to _____ft. straight pipe _____

_____ Reduction fitting _____" to _____" equivalent to _____ft. straight pipe _____

Equivalent length of skimmer piping _____

Loss of head in ft. due to friction in _____ft. of _____" dia. pipe at a flow of _____GPM _____

 Velocity _____ft./sec., manifold to fitting (by pool)

SKIMMER #: _____ (number each skimmer corresponding to skimmer number on piping drawing)

 Piping to 1st skimmer from fitting by pool

_____ Lineal feet of _____" dia. pipe to 1st skimmer tee (or ell) _____

_____ Tee (or ell) _____" dia. at skimmer each equivalent to
 _____ft. straight pipe _____

_____ Bushing _____" each equivalent to _____ft. of straight pipe _____

Equivalent length of pipe, 1st section _____

Loss of head in ft. due to friction in _____ft. of _____" dia. pipe at a flow of _____ GPM _____

 Velocity _____ft./sec., 1st section skimmer piping

_____ Lineal feet of _____" dia. pipe, line fitting to base of skimmer _____

_____ Ell(s) 45 deg. _____" each equivalent to _____ft. of straight pipe _____

_____ Ell(s) 90 deg. _____" each equivalent to _____ft. of straight pipe _____

_____ Adapter(s) _____" each equivalent to _____ft. of straight pipe _____

Equivalent length of skimmer piping _____

Loss of head in ft. due to friction in _____ft. of _____" dia. pipe at a flow of _____GPM _____

 Velocity _____ft./sec., skimmer to line

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SKIMMER # _____	<u>Lin. Feet</u>	<u>Feet of Head</u>
_____ Lineal feet of _____" dia. pipe, 1st to 2nd skimmer tee (or ell)	_____	_____
_____ Tee (or ell) _____" dia. at skimmer each equivalent to _____ft. straight pipe	_____	_____
_____ Ell(s) _____" each equivalent to _____ft. of straight pipe	_____	_____
_____ Bushing _____" each equivalent to _____ft. of straight pipe	_____	_____
Equivalent length of pipe, 2nd section	_____	_____
Loss of head in ft. due to friction in _____ft. of _____" dia. pipe at a flow of _____ GPM	_____	_____
Velocity _____ft./sec., 2nd section skimmer piping		
_____ Lineal feet of _____" dia. pipe, line fitting to base of skimmer	_____	_____
_____ Ell(s) 45 deg. _____" each equivalent to _____ft. of straight pipe	_____	_____
_____ Ell(s) 90 deg. _____" each equivalent to _____ft. of straight pipe	_____	_____
_____ Adapter(s) _____" each equivalent to _____ft. of straight pipe	_____	_____
Equivalent length of skimmer piping	_____	_____
Loss of head in ft. due to friction in _____ft. of _____" dia. pipe at a flow of _____ GPM	_____	_____
Velocity _____ft./sec., skimmer to line		

SKIMMER # _____		
_____ Lineal feet of _____" dia. pipe, 2nd to 3rd skimmer tee (or ell)	_____	_____
_____ Tee _____" each equivalent to _____ft. straight pipe	_____	_____
_____ Ell(s) _____" each equivalent to _____ft. of straight pipe	_____	_____
_____ Bushing _____" each equivalent to _____ft. of straight pipe	_____	_____
Equivalent length of pipe, 2nd section	_____	_____
_____ Adapter _____" each equivalent to _____ft. of _____" dia.	_____	_____
Loss of head in ft. due to friction in _____ft. of _____" dia. pipe at a flow of _____ GPM	_____	_____
Velocity _____ft./sec., skimmer to line		

FACE PIPING: (Include ail valves, fittings, and piping used to connect filter system together, from manifold to return pipe. Keep face piping and gate or multiport sizes uniform.)

_____ Reduced fitting (at pump, suction side) _____" to _____"	_____	_____
_____ Pump strainer inlet (_____")	_____	_____
_____ Enlarging fitting (at pump, discharge side)	_____	_____
_____ Multiport valve(s) (_____")	_____	_____
_____ Gate valve (s) (_____") each equivalent to _____ft. straight pipe	_____	_____
_____ Reducing fitting _____" to _____" (at multiport or filter)	_____	_____
_____ Filter(s) with _____ p.s.i. loss through filter(s) (clean)	_____	_____
_____ Enlarging fitting _____" to _____"	_____	_____
_____ Lineal feet of _____" dia. pipe	_____	_____
_____ Ell(s) _____" each equivalent to _____ft. straight pipe	_____	_____
_____ Tee (s) _____ each equivalent to _____ft. straight pipe	_____	_____
_____ Adapter _____ each equivalent to _____ft. of straight pipe	_____	_____
Equivalent length of face piping, total	_____	_____
Loss of head in ft. due to friction in _____ft. of _____ dia. pipe at a flow of _____ GPM	_____	_____
Velocity _____ft./sec., face piping		

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HEATER PIPING: (including manual bypass)

	<u>Lin. Feet</u>	<u>Feet of Head</u>
_____ Heater BTU ____ p.s.i. loss through heater	_____	_____
_____ Gate valve(s) _____" each equivalent to _____ft. of straight pipe	_____	_____
_____ Adapter(s) _____" each equivalent to _____ft. of straight pipe	_____	_____
_____ Swing check valve _____" each equivalent to _____ft. of straight pipe	_____	_____
_____ Reducing fitting _____" to _____"	_____	_____
_____ Lineal feet of _____" dia. Pipe	_____	_____
_____ Ell(s) _____" each equivalent to _____ft. straight pipe	_____	_____
_____ Tee(s) _____" each equivalent to _____ft. straight pipe	_____	_____
Equivalent length of face piping, total	_____	_____
Loss of head in feet due to friction in _____ft. of _____" dia. pipe at a flow of _____GPM	_____	_____

RETURN PIPING: (pipe from heater to fitting at pool side)

_____ Lineal feet of _____" dia. pipe from return pipe after heater to fitting	_____	_____
	By pool (ell or tee)	
_____ Tee(s) _____" each equivalent to _____ft. straight pipe	_____	_____
_____ Ell(s) _____" each equivalent to _____ft. straight pipe	_____	_____
_____ Reduction fitting _____" to _____"	_____	_____
Equivalent length of return piping	_____	_____
Loss of head in ft. due to friction in _____ft. of _____" dia. pipe at a flow of _____GPM	_____	_____
Velocity _____ft./sec.		

INLET # _____

_____ Lineal feet of pipe from fitting by pool to 1st inlet tee	_____	_____
_____ Tee _____" each equivalent to _____ft. straight pipe	_____	_____
_____ Ell(s) _____" each equivalent to _____ft. of straight pipe	_____	_____
Equivalent length of return piping	_____	_____
Loss of head in ft. due to friction in _____ft. of _____" dia. pipe at filter flow of _____GPM	_____	_____
Velocity _____ft./sec.		
_____ Lineal feet of _____" dia. pipe, tee to pool wall	_____	_____
Loss of head in feet due to friction in _____ft. of _____" dia. pipe at a flow of _____GPM	_____	_____
Eyeball inlet _____" orifice	_____	_____

INLET # _____

_____ Lineal feet of pipe from 1st inlet tee to 2nd inlet tee	_____	_____
2nd inlet tee _____" each equivalent to _____ft. straight pipe	_____	_____
_____ Ell(s) _____" each equivalent to _____ft. of straight pipe	_____	_____
Equivalent length of return piping	_____	_____
Loss of head in ft. due to friction in _____ft. of _____" dia, pipe at a flow of GPM	_____	_____
Velocity _____ft./sec.		
_____ Lineal feet of _____" dia, pipe, tee to pool wall	_____	_____
Loss of head in ft. due to friction in _____ft. of _____" dia. pipe at a flow of GPM	_____	_____
Eyeball inlet _____" orifice	_____	_____

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	<u>Lin. Feet</u>	<u>Feet of Head</u>
INLET # _____		
_____ Lineal feet of pipe from 2nd inlet tee to 3rd inlet tee	_____	
3rd inlet tee _____" each equivalent to _____ft. straight pipe	_____	
_____ Ell(s) _____" each equivalent to _____ft. of straight pipe	_____	
Equivalent length of return piping	_____	
Loss of head in ft. due to friction in _____ft. of _____" dia. pipe at a flow of GPM		_____
Velocity ft./sec.		
_____ Lineal feet of _____" dia. pipe, tee to pool wall	_____	
Loss of head in ft. due to friction in _____ft. of _____" dia. pipe at a flow of _____GPM		_____
Eyeball inlet _____" orifice		_____

INLET # _____		
_____ Lineal feet of pipe from 3rd inlet tee to 4th inlet tee	_____	
4th inlet tee _____" each equivalent to _____ft. straight pipe	_____	
_____ Ell(s) _____" each equivalent to _____ft. of straight pipe	_____	
Equivalent length of return piping	_____	
Loss of head in ft. due to friction in _____ft. of _____" dia. pipe at a flow of GPM		_____
Velocity _____ft./sec.		
_____ Lineal feet of _____" dia. pipe, tee to pool wall	_____	
Loss of head in ft. due to friction in _____ft. of _____" dia. pipe at a flow of GPM		_____
Eyeball inlet _____" orifice		_____

INLET # _____		
_____ Lineal feet of pipe from 4th inlet tee to 5th inlet tee	_____	
5th inlet tee _____" each equivalent to _____ft. straight pipe	_____	
_____ Ell(s) _____" each equivalent to _____ft. of straight pipe	_____	
Equivalent length of return piping	_____	
Loss of head in ft. due to friction in _____ft. of _____" dia. pipe at a flow of GPM		_____
Velocity _____ft./sec.		
Loss of head in ft. due to friction in _____ft. of _____" dia. pipe at a flow of GPM		_____
Eyeball inlet _____" orifice		_____

INLET # _____		
_____ Lineal feet of pipe from 7th inlet tee to 8th inlet tee	_____	
8th inlet tee _____" each equivalent to _____ft. straight pipe	_____	
_____ Ell(s) _____" each equivalent to _____ft. of straight pipe	_____	
Equivalent length of return piping	_____	
Loss of head in ft. due to friction in _____ft. of _____" dia. pipe at a flow of GPM		_____
Velocity _____ft./sec.		
_____ Lineal feet of 11 dia. pipe, tee to pool wall	_____	
Loss of head in ft. due to friction in _____ft. of _____" dia. pipe at a flow of GPM		_____
Eyeball inlet _____" orifice		_____

If only one-half (1/2) inlet loop indicated above, indicate total head loss for all inlets here.

Do not include first section of return piping. _____ X _____

APPLICATION FOR APPROVAL OF A PERMIT TO CONSTRUCT A PUBLIC SWIMMING POOL

Turnover rate _____ Hours _____ Minutes

Pool capacity _____ gal.

Type of pipe _____

Type filter _____ sq. ft

Pump model # _____

Motor h.p. _____

Flow controller _____

Total Dynamic Head (TDH) _____

Clean filter

Total Dynamic Head (TDH) _____

Dirty filter*

GPM at above TDH – clean filter _____

GPM at above THD – dirty filter _____

*Add to clean filter TDH additional ft.
head due to dirty filter at point which mfr.
recommends cleaning.

MINIMUM DESIGN CRITERIA WORKSHEET

Minimum turnover _____ hours

Minimum gpm* = _____ = _____ • - gpm

Minimum main drain gpm = _____ X _____ = _____ gpm

Minimum skimmer gpm = _____ X _____ = _____ gpm

Minimum gpm per skimmer = _____ = _____ gpm

Minimum gpm per inlet = _____ = _____ gpm

Maximum gpm thru filter = _____ X _____ = _____ gpm

Minimum horsepower = _____ = _____ Hp

*Minimum gpm required by NAC immediately prior to cleaning of filter. System must be designed to provide additional flow above this level when filter clean in order to provide acceptable length of filter run before cleaning.

Design turnover = _____ = _____ hours

Design gpm = _____ = _____ gpm

Design main drain gpm = _____ X _____ = _____ gpm

Design skimmer gpm = _____ X _____ = _____ gpm

Design gpm per skimmer = _____ = _____ gpm

Design gpm per inlet = _____ = _____ gpm

Design horsepower = _____ = _____ Hp