3. Limitations and Monitoring Requirements:

Effluent Characteristic	Instantaneous Maximum	Monitoring Location	Monitoring Frequency	Sample Type
Settleable Solids, ml/L	0.2	effluent	once per day each day of discharge	Grab
Turbidity, NTU	5 NTUs above natural conditions****	effluent	three times per week	Grab
		upstream	three times per week*	Grab
Arsenic, µg/L	50	effluent	once per season**	Grab
Flow, gpm	-	effluent	Daily***	Instantaneous

* See Part II.C.2. for details.
** See Part II.C.3. for details.
*** See Part II. C.5. for details.
****See Part II.B.5 for details

Those who receive a site-specific turbidity limit, described below, may not be required to take background turbidity samples. Samples for arsenic and turbidity monitoring must be taken during sluicing at a time when the operation has reached equilibrium. For example, samples should be taken when sluice paydirt loading and effluent discharge are constant.

4. Permittees may request a modified turbidity limit based upon a mixing zone approved by the Alaska Department of Environmental Conservation (ADEC) pursuant to 18 AAC 70.260. EPA will approve a modified turbidity limit proposed by ADEC under this General Permit if the modified limit and resulting mixing zone are consistent with the Clean Water Act, EPA's regulations, 18 AAC 70.250 and 255, and provided that:

   a. the modified turbidity limit does not exceed 1500 NTUs;

   b. the modified turbidity limit does not cause turbidity levels to exceed 100 NTUs in more than one-half of the cross-sectional area of resident and anadromous fish migration corridors;

   c. the modified turbidity limit is calculated using the 7-day, 10-year low flow (7Q10) as the chronic criterion design flow for the protection of aquatic life, see Permit Part VI.W.;

   d. the modified turbidity limit does not result in a mixing zone in an area of anadromous fish spawning or resident fish (as defined in Permit Part VI.T.) spawning redds when eggs or alevins are present;

   e. approved mixing zones do not overlap and the availability and extent of approved mixing zones is limited as necessary to avoid potentially harmful cumulative effects on the receiving environment; and,

   f. the public was provided reasonable notice of, and an opportunity to comment on, the modified turbidity limit and associated mixing zone, including site-specific assessments used to calculate the limit and zone.

prior to their approval by ADEC.

If ADEC issues a mixing zone and turbidity modification to a waterbody reclassified in the Alaska Water Quality Standards (AWQS), EPA will approve the turbidity modification and include it in a facility's GP if it meets the conditions of b. through f. above.

5. The volume of discharge shall not exceed the volume reported by the permittee on the NOI (Appendix A). If the permittee exceeds that volume, EPA will not consider the permittee in violation of the flow limit if:

   a. the permittee submits to EPA turbidity samples, flow measurements/seepage estimates for the discharge, and flow and turbidity measurements for the upstream receiving water taken during the period of the flow exceedence; and,

   b. those samples show that the permittee's discharge did not cause the standard of 5 NTU above background to be exceeded at the edge of the mixing zone.

   The permittee must report all exceedences of the flow limit, together with any turbidity and flow/seepage data that the permittee intends to use to avoid being considered in violation of the flow limit, pursuant to the reporting requirements in Part III.G.

   Pending decision on the modified turbidity limit, the limit in Permit Part II.B.2. applies.

6. Arsenic Modifications

   a. Permittees may request a modified arsenic limit reflecting the arsenic concentrations naturally present in the receiving waters as determined by ADEC. EPA will approve a modified arsenic limit proposed by ADEC under this General Permit provided:

      (1) the modified limit is consistent with the Clean Water Act, EPA's regulations, and state water quality standards regulations;

      (2) The arsenic concentration naturally present in the receiving waters is determined upstream from any human-caused influence on, discharge to, or addition of material to, the waterbody; and

      (3) the public was provided reasonable notice of, and an opportunity to comment on, the modified arsenic limit, including all data and other information used to calculate the limit, prior to its approval by ADEC.

   Pending decision on the modified arsenic limit, the limit in Permit Part II.B.2. applies.

b. An affected community or individual may request a modified arsenic limit in conjunction with a request that the State evaluate the need for a more stringent site specific criterion.

C. Other Monitoring Requirements

The following requirements apply to all facilities covered by this permit.

1. Inspection Program

The Permittee shall institute a comprehensive inspection program to facilitate proper operation and maintenance of the recycle system and the wastewater treatment system. The Permittee shall conduct a visual inspection of the site once per day, while on site, during the mining season. The Permittee shall maintain records of all information resulting from any inspections in accordance with part III.F. of this permit. These records shall include an evaluation of the condition of all water control devices such as diversion structures and berms and all solids retention structures including, but not limited to, berms, dikes, pond structures, and dams. The records shall also include an assessment of the presence of sediment buildup within the settling ponds. The Permittee shall examine all ponds for the occurrence of short circuiting.

2. Turbidity Monitoring

The Permittee shall monitor visually for turbidity at the edge of the mixing zone or at the point of discharge if no mixing zone is approved, at least once each day a discharge occurs. The Permittee shall maintain records of all information resulting from this observation in accordance with Permit Part III.F.

Discharge (effluent) and upstream samples shall be taken within a reasonable time frame of each other. All samples should be taken and stored in the manner set forth in Attachment 1. The sample results shall be reported in the Annual Report (AR). Monitoring shall be conducted in accordance with accepted analytical procedures. See Attachment 1 for sampling protocol.

3. Arsenic Monitoring

Arsenic samples shall be representative of the discharge and shall be taken at a *point prior to entering the receiving stream*. Sampling should be concurrent with a turbidity sample. Monitoring shall be conducted in accordance with accepted analytical procedures. All samples should be taken and stored in the manner set forth in Attachment 2. The Permittee shall report the sample results in the AR. See Attachment 2 for sampling protocol.

4. Settleable Solids Monitoring

   Settleable solids samples shall be representative of the discharge and shall be taken daily each day of discharge at a point *prior to entering the receiving stream.* Monitoring shall be conducted in accordance with accepted analytical procedures (Standard Methods, 18th Edition, 1992). The Permittee shall report the monthly average and daily maximum results in the AR. See Attachment 3 for sampling and analysis protocol.

5. Flow Monitoring

   Effluent flow shall be measured at the discharge *prior to entering the receiving water.* Effluent flow shall be measured at least once per day each day a discharge occurs. The operator must also make a good faith effort to estimate seepage discharging to waters of the United States each day that seepage occurs. Effluent flow and seepage flow shall be reported in gallons per minute (gpm). The flow measurements and seepage estimates, the number of discharge events, and the duration of each discharge event shall be reported in the AR for each day of the mining season.

D. Best Management Practices (BMP)

The following BMPs apply to all facilities covered by this permit.

1. The flow of surface waters (i.e., creek, river, or stream) into the plant site shall be interrupted and these waters diverted around and away to prevent incursion into the plant site

2. Berms, including any pond walls, dikes, low dams, and similar water retention structures shall be constructed in a manner such that they are reasonably expected to reject the passage of water.

3. Measures shall be taken to assure that pollutant materials removed from the process water and wastewater streams will be retained in storage areas and not discharged or released to the waters of the United States.

4. The amount of new water allowed to enter the plant site for use in material processing shall be limited to the minimum amount required as makeup water.

5. All water control devices such as diversion structures and berms and all solids retention structures such as berms, dikes, pond structures, and dams shall be reasonably maintained to continue their effectiveness and to protect from failure.

6. The operator shall take whatever reasonable steps are appropriate to assure that, after the mining season, all unreclaimed mine areas, including ponds, are in a condition that will not cause degradation to the receiving waters over those

resulting from natural causes.

7. During each mining season, a permittee may not discharge into the receiving water within three hundred feet of any other upstream or downstream placer mining operation which is discharging or from which it is visually apparent by the permittee that a discharge has occurred. Nor may a permittee discharge at a point within three hundred feet of the downstream edge of a mixing zone granted for any other upstream placer mining operation.

8. Care shall be taken by the operator during refueling operations to prevent spillage into surface waters or to groundwater. Any spills shall be cleaned up using materials such as sorbent pads and booms. All spills shall be reported to ADEC by calling 1-800-478-9300.

E. Other Requirements

The operator shall maintain fuel handling and storage facilities in a manner that will prevent the discharge of fuel oil into the receiving waters or on the adjoining shoreline. A Spill Prevention Control and Countermeasure Plan (SPCC Plan) shall be prepared and updated as necessary in accordance with provisions of 40 CFR Part 112 for facilities with the capacity to store 660 gallons in a single container above ground, 1320 gallons in the aggregate above ground, or 42,000 gallons below ground.

The Permittee shall indicate in the AR if an SPCC Plan is necessary and in place at the site and if changes were made to the Plan over the previous year.

F. Storm Exemption

A non-discharging facility may qualify for a storm exemption from the technology-based effluent limitation for settleable solids and the flow requirements in Permit Parts II.B.1. and II.B.2. of this NPDES general permit if the following conditions are met:

1. The treatment system is designed, constructed and maintained to contain

   a. the maximum volume of untreated process wastewater which would be discharged, stored, contained and used or recycled by the beneficiation process into the treatment system during a 4-hour operating period without an increase in volume from precipitation or infiltration, plus

   b. the maximum volume of water runoff (drainage waters) resulting from a 5-year, 6-hour precipitation event.

   In computing the maximum volume of water which would result from a 5-year, 6-hour precipitation event, the operator must include the volume which should result from the plant site contributing runoff to the individual treatment facility.

2. The operator takes all reasonable steps to maintain treatment of the wastewater and minimize the amount of overflow.

3. The operator complies with the notification requirements of Permit Parts III.G. and III.H.

III. MONITORING AND REPORTING REQUIREMENTS

A. Representative Sampling. All samples for monitoring purposes shall be representative of the monitored activity. To determine compliance with permit effluent limitations, "grab" samples shall be taken as established under Permit Part II.B. Specifically, effluent samples for settleable solids, turbidity, and arsenic shall be collected from the settling pond outlet or other treatment system's outlet prior to discharge to the receiving stream. Additionally, turbidity background samples shall be taken at a point that is representative of the receiving stream just above the permittee's mining operation.

B. Reporting of Monitoring Results. If sampling occurs, monitoring results shall be summarized each month and reported on EPA Form 3320-1 (DMR, OMB #2040-0004, expiration date 5/31/98) as part of the Annual Report (AR). The AR shall be submitted to the Environmental Protection Agency, Region 10, 1200 Sixth Avenue, NPDES Compliance Unit OCE-133, Seattle, Washington 98101-3188, **no later than January 31 for the previous calendar year**.

If there is no mining activity during the year or no wastewater discharge to a receiving stream, the Permittee shall notify EPA of these facts no later than January 31 for the previous calendar year.

The AR shall also be sent to the ADEC office located in Fairbanks. The address can be found in Permit Part I.F.5.

C. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

D. Additional Monitoring by the Permittee. If the Permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the AR. Such increased frequency shall also be indicated.

E. Records Contents. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements;
2. The individual(s) who performed the sampling or measurements;
3. The date(s) analyses were performed;
4. The individual(s) who performed the analyses;

5. The analytical techniques or methods used; and
6. The results of such analyses.

F. **Retention of Records**. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five years from the date of the sample, measurement, report or application. This period may be extended by request of the Director or ADEC at any time. Data collected on-site, copies of the Annual Reports (ARs), and a copy of this NPDES permit must be maintained on-site during the duration of activity at the permitted location.

G. **Notice of Noncompliance Reporting**.

1. Any noncompliance which may endanger health or the environment shall be reported as soon as the Permittee becomes aware of the circumstance. A written submission shall also be provided in the shortest reasonable period of time after the Permittee becomes aware of the occurrence.

2. The following occurrences of noncompliance shall also be reported in writing in the shortest reasonable period of time after the Permittee becomes aware of the circumstances:

   a. Any unanticipated bypass which exceeds any effluent limitation in the permit (See Permit Part IV.G., Bypass of Treatment Facilities.); or

   b. Any upset which exceeds any effluent limitation in the permit (See Permit Part IV.H., Upset Conditions.).

   c. Any violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the Permit.

3. The written submission shall contain:

   a. A description of the noncompliance and its cause;

   b. The period of noncompliance, including exact dates and times;

   c. The estimated time noncompliance is expected to continue if it has not been corrected; and

   d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

4. The Director may waive the written report on a case-by-case basis if an oral report has been received by the NPDES Compliance Unit in Seattle, Washington, by phone, (206) 553-1846.

5. Reports shall be submitted to the addresses in Permit Part II.B., Reporting of Monitoring Results.

H. **Other Noncompliance Reporting.** Instances of noncompliance not required to be reported in Permit Part III.G., above, shall be reported at the time that monitoring reports for Permit Part II.B. are submitted. The reports shall contain the information listed in Permit Part III.G.3.

IV. COMPLIANCE RESPONSIBILITIES

A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

B. Penalties for Violations of Permit Conditions.

1. Civil and Administrative Penalties. Pursuant to 40 CFR Part 19 and the Act, any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed the maximum amounts authorized by Section 309(d) of the Act and the Federal Civil Penalties Inflation Adjustment Act (28 U.S.C. § 2461 note) as amended by the Debt Collection Improvement Act (31 U.S.C. § 3701 note) (currently $32,500 per day for each violation).

2. Criminal Penalties.

a. Negligent Violations. The Act provides that any person who negligently violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act shall be punished by a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than 1 year, or by both.

b. Knowing Violations. The Act provides that any person who knowingly violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act shall be punished by a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or by both.

c. Knowing Endangerment. The Act provides that any person who knowingly violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or

imprisonment of not more than 15 years, or both. A person which is an organization shall, upon conviction of violating this subparagraph, be subject to a fine of not more than $1,000,000.

d. False Statements. The Act provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under this Act or who knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required to be maintained under this Act, shall upon conviction, be punished by a fine of not more that $10,000, or by imprisonment for not more than 2 years, or by both.

Nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.

C. **Need to Halt or Reduce Activity not a Defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. **Duty to Mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. **Proper Operation and Maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit.

F. **Removed Substances.** Solids, sludges, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner so as to prevent any pollutant from such materials from entering waters of the United States.

G. **Bypass of Treatment Facilities.**

1. Bypass not exceeding limitations. The Permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2 and 3 of this section.

2. Notice:

a. Anticipated bypass. If the Permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.

b. Unanticipated bypass. The Permittee shall submit notice of an unanticipated bypass as required under Permit Part III.G., Notice of

Noncompliance Reporting.

3. Prohibition of bypass.

   a. Bypass is prohibited and the Director or ADEC may take enforcement action against a Permittee for a bypass, unless:

      i. The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

      ii. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

      iii. The Permittee submitted notices as required under paragraph 2 of this section.

   b. The Director and ADEC may approve an anticipated bypass, after considering its adverse effects, if the Director and ADEC determine that it will meet the three conditions listed above in paragraph 3.a. of this section.

H. Upset Conditions.

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph 2 of this section are met. An administrative review of a claim that noncompliance was caused by an upset does not represent final administrative action for any specific event. A determination is not final until formal administrative action is taken for the specific violation(s).

2. Conditions necessary for a demonstration of upset. A Permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

   a. An upset occurred and that the Permittee can identify the cause(s) of the upset;

   b. The permitted facility was at the time being properly operated;

   c. The Permittee submitted notice of the upset as required under Permit Part III.G., Notice of Noncompliance Reporting; and

   d. The Permittee complied with any remedial measures required under Permit Part IV.D., Duty to Mitigate.

3. Burden of proof. In any enforcement proceeding, the Permittee seeking to establish the occurrence of an upset has the burden of proof.

I. **Toxic Pollutants.** The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement

V. GENERAL REQUIREMENTS

A. **Anticipated Noncompliance.** The permittee shall also give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

B. **Permit Actions.** This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

C. **Duty to Reapply.** If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for a new permit by resubmitting the information in Appendix A. The NOI must be submitted at least 90 days before the expiration date of this permit.

D. **Duty to Provide Information.** The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

E. **Other Information.** When the permittee becomes aware that it failed to submit any relavant facts in a permit application, or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts or information.

F. **Signatory Requirements.** All applications, reports or information submitted to the Director shall be signed and certified.

1. All permit applications shall be signed as follows:

   a. For a corporation: by a responsible corporate officer.

   b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively.

   c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official.

2. All reports required by the permit and other information requested by the

Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described above and submitted to the Director, and

b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

3. Changes to authorization. If an authorization under paragraph V.F.2. is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph V.F.2. must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

G. **Availability of Reports**. Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the office of the Director. As required by the Act, permit applications, permits and effluent data shall not be considered confidential.

H. **Oil and Hazardous Substance Liability.** Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.

I. **Property Rights.** The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

J. **Severability**. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

K. **State Laws**. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Act

L. **Paperwork Reduction Act.**

EPA has reviewed the requirements imposed on regulated facilities in this general permit under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 et seq. The information collection requirements of this permit have already been approved by the Office of Management and Budget in submission made for the NPDES permit program under the provisions of the CWA.

VI. DEFINITIONS

A. "*5-Year, 6-Hour Rainfall Event*" means the maximum 6-hour precipitation event with a probable recurrence interval of once in 5 years, as defined by the National Weather Service in Technical Paper Number 40, "Rainfall Frequency Atlas of the United States", May 1961, and subsequent amendments, or equivalent regional or state rainfall probability information developed therefrom.

B. "*Application*" means a written "notice of intent" pursuant to 40 CFR 122.28.

C. "*Best Management Practices*" (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of "waters of the United States". BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, waste disposal, or drainage from mined areas.

D. "*Bypass*" means the intentional diversion of waste streams around any portion of a treatment facility.

E. "*Director*" means the Regional Administrator of the United States Environmental Protection Agency, Region 10 or an authorized representative.

F. "*Drainage Water*" means incidental surface waters from diverse sources such as rainfall, snow melt or permafrost melt.

G. "*Expanding Facility*" means any facility increasing in size such as to affect the discharge but operating within the permit area covered by its general permit.

H. A "*Grab*" sample is a single sample or measurement taken at a specific time.

I. "*Hydraulicking*" means both the hydraulic removal of overburden and the use of

hydraulic power to move raw rock to the point of processing (i.e. to the gate of the sluice or other processing equipment).

J. "*Infiltration Water*" means that water that permeates through the earth into the plant site.

K. "*Instantaneous Maximum*" means the maximum value measured at any time.

L. "*Make-up Water*" means that volume of water needed to replace process water lost due to evaporation and seepage in order to maintain the quantity necessary for the operation of the beneficiation process.

M. "*Mining Season*" means the time between the start of mining in a calendar year and when mining has ceased for that same calendar year."

N. "*New Facility*" means a facility that has not operated in the area specified in the NOI prior to the submission of the NOI.

O. "*New Water*" means water from any discrete source such as a river, creek, lake or well which is deliberately allowed or brought into the plant site.

P. "*NTU*" (Nephelometric Turbidity Unit) is an expression of the optical property that causes light to be scattered and absorbed rather than transmitted in a straight line through the water.

Q. "*Plant Site*" means the area occupied by the mine, necessary haulage ways from the mine to the beneficiation process, the beneficiation area, the area occupied by the wastewater treatment storage facilities and the storage areas for waste materials and solids removed from the wastewaters during treatment.

R. "*Receiving Water*" means waters such as lakes, rivers, streams, creeks, wetlands, or any other surface waters that receive wastewater discharges.

S. "*Recommencing Facilities*" are those facilities that may have let permit coverage lapse but still meet the coverage requirements of the GP.

T. "*Resident Fish*" means Arctic grayling, northern pike, rainbow trout, lake trout, brook trout, cutthroat trout, whitefish, sheefish, Arctic Char (Dolly Varden), burbot, and landlocked coho, king, and sockeye salmon.

U. "*Severe property damage*" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

V. "*Short circuiting*" means ineffective settling due to inadequate or insufficient retention characteristics, excessive sediment deposition, embankment infiltration/percolation, lack of maintenance, etc.

W. "*Turbidity Modification*" means the procedures used to calculate a higher turbidity limit based on a mass balance equation that relates upstream and effluent flow and turbidity to downstream flow and turbidity. The basic form of this equation is:

$$Q_1C_1 + Q_2C_2 = Q_3C_3,$$

where C_1 = effluent turbidity;
C_2 = natural background turbidity
C_3 = receiving water downstream turbidity after mixing where the allowable increase is 5 NTU above background;
Q_1 = effluent flow
Q_2 = receiving water flow upstream from the discharge (i.e., 7Q10)
Q_3 = total receiving water flow downstream from discharge after complete mixing ($Q_1 + Q_2$).

X. "*Upset*" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

Y. "*Wastewater*" means all water used in and resulting from the beneficiation process (including but not limited to the water used to move the ore to and through the beneficiation process, the water used to aid in classification, and the water used in gravity separation), mine drainage, and infiltration and drainage waters that commingle with mine drainage or waters resulting from the beneficiation process.

Z. "*Waters of the United States*." See 40 CFR 122.2.

ATTACHMENT 1

Turbidity Sampling Protocol

1. Grab samples shall be collected.
2. Samples shall be collected in a sterile one liter polypropylene or glass container.
3. Samples must be cooled to 4 degrees Celsius (iced).
4. Samples must be analyzed within 48 hours of sample collection.

ATTACHMENT 2

Arsenic Sampling Protocol

1. Grab samples shall be collected.

2. Samples shall be collected in a sterile one liter polypropylene or glass container.

3. Samples must be acidified promptly with nitric acid (HNO_3), to a pH less than 2 or sent to a laboratory within 48 hours of sample collection. Non-acidified samples must be chilled to 4 degrees Celsius (iced) until acidified at the laboratory.

4. Acidified samples must be analyzed within 180 days of the sample collection date.

5. Samples must be acidified for at least 16 hours prior to analysis.

ATTACHMENT 3

Settleable Solids Sampling Protocol

1. Grab samples shall be collected.
2. Samples shall be collected in a sterile one liter polypropylene or glass container.
3. Samples must be cooled to 4 degrees Celsius (iced), if analysis is not performed immediately.
4. Cooled samples must be analyzed within 48 hours of sample collection.

Settleable Solids Analysis Protocol

1. Fill an Imhoff cone to the liter mark with a thoroughly mixed sample.
2. Settle for 45 minutes, then gently stir the sides of the cone with a rod or by gently spinning the cone.
3. Settle 15 minutes longer, then record the volume of settleable matter in the cone as milliliters per liter. Do not estimate any floating material. The lowest measurable level on the Imhoff cone is 0.1 ml/l. Any settleable material below the 0.1 ml/l mark shall be recorded as trace.

APPENDIX A
MECHANICAL PLACER MINING PERMIT: AK3-37-0000
NOTICE OF INTENT INFORMATION

PERMITTEE NAME			PREVIOUS NPDES PERMIT NUMBER (if any) AKG-37-0
ADDRESS	SUMMER	WINTER	WATER THAT THE FACILITY DIRECTLY DISCHARGES TO (Receiving Water):
PHONE			
OPERATOR NAME ☐ Check if same as Permittee			
ADDRESS	SUMMER	WINTER	
PHONE			
FACILITY NAME:	Is your facility located in an area National Parks System Units (i.e., Parks and Preserves), National Monuments, Sanctuaries, Wildlife Refuges, Conservation Areas, Wilderness Areas, or Critical Habitat Areas. ☐ Y ☐ N *If yes, Which?*	LATITUDE	
NEAREST TOWN:		LONGITUDE	
MINING DISTRICT:		New Source? __Y __N (e.g. virgin ground)	
QUAD MAP, TOWNSHIP, RANGE, SECTION		MERIDIANS: __Umiat __Kateel __Fairbanks __Seward __Copper River	

For Mixing Zone information please contact: ADEC, 610 University Avenue, Fairbanks, Alaska 99709

Type of Operation:	Mechanical __No discharge __Discharge or Hydraulicking __No discharge only	Amount of Material Processed:
SIGNATURE:		DATE:
PRINTED NAME:		

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Permittee Name:	Previous Permit No. (if any) AKG-37-0
Receiving Water:	

Drawing:

STATE OF ALASKA

FRANK H. MURKOWSKI, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION

555 Cordova Street
Anchorage, AK 99501-2617
PHONE: (907) 269-7599
FAX: (907) 334-2415
http://www.state.ak.us/dec/

DIVISION OF WATER
DIRECTOR'S OFFICE

April 10, 2006

The Honorable Paul Seaton
House of Representatives
Alaska State Capitol, Room 102
Juneau, AK 99801-1182

RE: Request for mixing zone information

Dear Representative Seaton:

On April 6 Louie Flora of your office requested additional information related to spawning fish and mixing zones. His questions are below and the Department of Environmental Conservation (DEC) has provided answers with assistance from the Departments of Natural Resources (DNR) and Fish and Game (F&G) on those questions dealing with fish, spawning, and habitat.

1. **The old Mixing Zone regulations at 18 AAC 70.255(h) stated that mixing zones will not be authorized in an area of anadromous fish spawning or resident fish spawning redds. While we understand that the practice has been to authorize mixing zones on a temporal as well as spatial basis, for the purposes of this question we would like to stick just to the spatial. Can you please clarify the DEC, DNR and ADF&G interpretation of what an "area of anadromous fish spawning" and a "resident fish redd" is spatially?**

OHMP (formerly ADF&G-Habitat) considers an area "anadromous fish spawning" if anadromous fish species are known to utilize the stream segment for spawning. Since run strength varies by year and this in turn influences how much of traditional spawning habitat is used from year to year, multiple years of record are considered. Information sources include personal knowledge, ADF&G local area biologist information, other state or federal resource agency information, the anadromous waters catalog, and local knowledge. The working knowledge for anadromous fish spawning areas isn't perfect but most locations and stream reaches are known.

"Resident fish redds" are determined in a similar fashion except that they include both stream segments with actual redds for depositional spawners and known areas used by broadcast spawners. Information sources are similar to those for anadromous species. Agency working knowledge for resident fish spawning areas is less extensive than for anadromous species but it is augmented by best professional judgment based on the known habitat types and areas different species prefer for spawning.

In both instances, if the agencies lack necessary information, a permittee may be required to gather data on spawning. Also, OHMP's determinations are subject to revision should new information indicate that an area supports spawning (see 18 AAC 70.240(m) and DEC determines that an approved mixing zone is causing a significant adverse environmental effect.

2. **There has been concern expressed that under the flat prohibition a broadcast spawning species could in effect shut down entire watersheds to the permitting of wastewater discharges. Generally what is the length of a "broadcast" when a broadcast spawner spawns, and do they spawn in a specific type of river habitat?**

The length of a "broadcast" is dependent on the water velocity present at the time of spawning. As the name implies, broadcast spawners do not construct a nest or "redd" but rather passively discharge their eggs (which are then mixed with sperm in the water column). The fertilized eggs then drift to the stream bottom where they either adhere to rocks and vegetation or lodge between the gravels. Different species use a variety of habitats. For example, northern pike prefer to spawn in grassy margins of lakeshores, slow moving streams or sloughs. Arctic grayling will utilize a variety of habitats for spawning but tend to prefer slow water margins of streams or rivers and adjacent ponds or wetland complexes that warm up quicker in the spring.

3. **Has a river system where grayling or other broadcast spawning species inhabit been placed off limits to discharges and can you provide us with a number of instances when a mixing zone permit was denied in an area because of broadcast spawning?**

No river systems have been "placed off limits to discharges" because broadcast spawning species reside in the system. DEC has authorized mixing zones in river systems that are inhabited by broadcast spawners, but has placed timing restrictions on the discharges to avoid times when spawning fish, eggs, and alevins are present, based on a determination made by DNR or F&G (depending upon which agency has jurisdiction over a particular water body).

DEC can not track those potential dischargers that change their project once they learn that they would not be eligible for a mixing zone based on a prohibition on mixing zones due to spawning. Nor has DEC consistently tracked in the past, permits that were denied because the discharge could not avoid spawning (from either a temporal or a spatial basis). However, listed below are a few examples of mixing zone authorizations that were denied.

Nyac Placer Mine	Tuluksak River	Anadromous and Resident	No MZ granted. DNR/Habitat said no time when wastewater can be discharged. Applicant must meet WQS at end of pipe.
Nyac Placer Mine	Bear Creek	Anadromous and Resident	No MZ granted. DNR/Habitat said no time when wastewater can be discharged. Applicant must meet WQS at end of pipe.
Nyac Placer Mine	California Creek	Anadromous and Resident	No MZ granted. DNR/Habitat said no time when wastewater can be discharged. Applicant must meet WQS at end of pipe.
Moose Creek Apartments	Moose Creek	Anadromous and Resident	No MZ granted. Built a septic tank/leach field system and eliminated the wastewater treatment plant.
Golden Heart Utilities Drinking Water facility – filter backwash	Chena River	Resident	Existing continuous discharge to a grayling spawning area. Facility could not comply with discharge timing restrictions to avoid spawning. The discharge has been eliminated at significant initial and ongoing expense.

4. **Are all the placer mine discharges currently permitted for seasonal discharges into spawning streams for turbidity alone? In testimony before the House Resources Committee on April 5th a statement was made that "the bill eliminates any opportunity for a mixing zone for any other water quality criteria. Turbidity is one of many constituents that must be addressed before a mixing zone can be issued. Turbidity has been determined to be an indicator or surrogate such that if turbidity limits are met, the criteria for the other constituents will also be met" Is this a correct statement? Does DEC currently measure water quality criteria limits for metals based on the criteria for turbidity? It is our understanding that 5 Nephelometric Turbidity Units above background is the most stringent criteria to be met at the edge of a turbidity mixing zone. In the case of Toxic and Other Deleterious Organic and Inorganic Substances (18 AAC 70.020 (b) (11)) has it been the common practice to assume that 5 NTUs provides an adequate surrogate measurement when issuing a mixing zone permit?**

A copy of the current general permit for mechanical placer mining is attached. Placer mines authorized to operate under this general permit have effluent limitations for turbidity, settleable solids (sediment), and arsenic (see page 11). Water quality monitoring requirements under the permit include those three parameters and flow rates. The permit allows for a modified turbidity limit based upon a mixing zone authorized by DEC.

Placer mining is a physical process to extract metals and therefore, the metals are left in a particulate form. The decision to base the mixing zones for placer mine discharges on turbidity was based on a significant body of water quality data associated with the placer mining industry. The data indicate a relationship between turbidity and metals -- the water quality criteria for metals are met at or before the edge of the mixing zone where turbidity criteria are also

met. Water quality criteria for metals might be exceeded in these mixing zones, but the permit does not require monitoring for specific metals (except for arsenic in certain situations). This current permitting approach and mixing zone calculation (for turbidity) includes a requirement to use a more conservative low flow calculation (normally used for toxic substances), rather than the less conservative flow that would be used for conventional or non-toxic substances such as turbidity.

In most other types of discharges (e.g. mining with chemical metals extraction, municipal wastewater treatment), turbidity would not be a good indicator for metals because most of the metals are dissolved in the water and would not show up as turbidity. Most permits for these other dischargers require metals to be measured directly and do not use turbidity.

Sincerely,

Lynn J. Tomich Kent

Lynn J. Tomich Kent
Director

Enclosure: NPDES General Permit for Mechanical Placer Mining in Alaska

cc: Representative Ramras, Co-Chair, House Resources Committee
Representative Samuels, Co-Chair, House Resources Committee

American Fisheries Society
ALASKA CHAPTER

17 December 2005

Nancy Sonafrank
Division of Water - Section Manager
Department of Environmental Conservation
610 University Drive
Fairbanks, Alaska 99709

Dear Ms. Sonafrank,

The American Fisheries Society (AFS) is the oldest and largest international scientific organization of fisheries professionals, with nearly 8,000 members. The Alaska Chapter of AFS (AFS-AK) represents over 400 fishery scientists, biologists and managers employed in government, academia and the private sector throughout Alaska. AFS is not an advocacy group but we do provide science-based opinions on policy matters that we believe affect the conservation and sustainability of fishery resources and aquatic ecosystems.

The AFS-AK strongly opposes the Department of Environmental Conservation's (DEC) proposed amendments to the mixing zone provisions of the state's Water Quality Standards regulations codified in 18 AAC 70. Of greatest concern is DEC's proposal to allow exemptions from the current absolute prohibition on mixing zones in streams, rivers, and other flowing fresh waters where anadromous or select resident fish spawn. This proposal's justification is questionable. Weakening the state's water quality standards compromises the long-term health and sustainability of its fishery resources, as well as the subsistence, sport, and commercial fisheries that depend on them. The authors of the State Constitution recognized the fundamental importance of protecting Alaska's rich fishery resources against the avoidable problems plaguing other states. That forward-thinking commitment to a renewable natural resource has paid large dividends to Alaska's people, communities, and industries that rely on strong, healthy fish stocks.

Positive attributes of DEC's 2005 proposal are overshadowed by allowing exemptions. Given the present health of Alaska's water quality and fish stocks, the proposed amendment to Alaska's water quality regulations is unjustified. DEC's current water quality standards, with their absolute prohibition on mixing zones in spawning areas, were created to protect Alaska's fishery resources. The AFS-AK would endorse DEC's proposed amendments if they were limited to merging the regulations from six sections into one, expanding protected spawning areas to include lakes, and adding protections for shellfish. However, these select positive attributes of DEC's 2005 proposal are strongly overshadowed by the provision to allow exemptions from the current absolute prohibition on mixing zones in fish spawning areas.

We strongly caution DEC against relying upon mitigation plans [18AAC 70.240.(f).3-4] to minimize, repair, rehabilitate, restore, replace, or compensate for lost/impacted environments caused by permitted mixing zones in fish spawning areas. The effectiveness of various proposed mitigation measures cannot be assumed and must be shown by an objective analysis of the actual long term benefits. This is especially true in light of the many examples of failed mitigation measures, particularly in regards to maintaining healthy fish populations (e.g., Pacific Northwest salmon/bull trout declines despite multi-million dollar mitigation efforts). Using human engineered mitigation projects to replace naturally evolved, complex systems that are not fully understood is a tenuous, failure-prone approach. History has made clear that it is much easier and far less expensive in the long-term to simply maintain clean water and healthy habitats for fish than to attempt to restore them. Alaska should learn from others mistakes, not repeat them.

We have reviewed DEC's proposed regulatory changes, including those purporting to ensure that approved mixing zones will not adversely affect an area's ability to support present and future spawning, incubation and rearing [18 AAC 70.240(c-f)]. **The proposed regulations neither assure sufficient knowledge of pre-permit conditions (baseline data) nor assure effective, unbiased monitoring during permitted activities, both of which are essential to identifying non-compliance**. Experience has shown that even the best-intentioned and well-written regulations are ineffective without unbiased monitoring and timely and consistent enforcement in the face of non-compliance.

DEC intends to base its permitting decision on "practicable" available evidence provided by the applicant and "other credible sources." **"Credible sources" remain undefined, nor is it clear whether or not DEC considers comprehensive baseline studies "practicable."** Baseline data on pre-activity water quality, sediment, and biotic conditions (e.g., species diversity and productivity, population structure, incidence of disease, background levels of key pollutants, etc.) are essential for ensuring compliance with the proposed regulations. However, DEC repudiates this responsibility and asserts that the "burden of proof" is on the applicant to provide all available evidence with their permit application, implying that DEC has no intention of conducting baseline studies itself. Indeed, with the current administration's emphasis on reduced government, DEC does not have the resources to ensure consistent monitoring and enforcement. DEC further maintains that termination of an approved permit for non-compliance will normally rely upon evidence provided by the permitee ["Burden of Proof" link on www.state.ak.us/dec/water/wqsar/trireview/trireview.htm]. **This creates a clear conflict of interest and an opportunity for unethical permittee to mis-report monitoring data that would demonstrate non-compliance.** The responsibility for ensuring compliance with DEC regulations clearly lies with the state, and that responsibility requires unbiased and consistent state-sponsored monitoring oversight and enforcement.

Except in the rare case of mixing zones occurring in legislatively designated special areas (e.g., critical habitat areas), the proposed water quality standards do not require DEC to consult with ADF&G on mixing zone applications or proposed mitigation plans. Only DNR is required to be involved in permit application and mitigation plan review. It is incongruous and ill-advised for the state to exclude its own fishery professionals from permit decisions with the potential to affect the health of the state's fishery resources.

Collectively, these proposals demonstrate a dramatic and fundamentally short-sighted policy shift away from Alaska's heretofore forward-thinking commitment to maintaining its strong and healthy

renewable fisheries resources. We **strongly urge DEC to apply a precautionary principle approach and reconsider "opening the door" to aquatic resource degradation by eliminating the current prohibition on mixing zones.** We do not believe the proposed amendments to DEC's mixing zone regulations are in the long-term best interest of the fishery resources of the State of Alaska.

Thank you for the opportunity to comment. The AFS-AK is committed to the conservation and sustainable use of Alaska's fishery resources. Please let us know if our membership of fisheries professionals can aid you in crafting regulations that ensure the long-term health and sustainability of Alaska's fishery resources (CarolW@AlaskaLife.net).

Sincerely,

Jamal Moss
President-Elect, AFS-AK
NOAA Fisheries
Auke Bay Laboratory
11305 Glacier Hwy.
Juneau, AK 99801

cc: Kurt Fredriksson, Commissioner DEC
McKie Campbell, Commissioner ADF&G
Michael L. Menge, Commissioner DNR

Alaska Professional Design Council • PO Box 100515 • Anchorage AK 99510-0515

HB 328 Comment Letter

April 12, 2006

Representative Jay Ramras and Representative Ralph Samuels
Co-Chairs, House Resources Committee
Alaska State Legislature
State Capitol
Juneau, AK 99801-1182

Re: House Bill 328 — Ban Mixing Zones in Spawning Areas

Dear Representatives Ramras and Samuels:

On behalf of the Alaska Professional Design Council (APDC), I am writing to express our opposition of House Bill 328 and concern as to the need for this legislation.

APDC is organized as a not-for-profit corporation in the State of Alaska and is composed of Alaska's professional design societies. APDC serves to coordinate and complement the efforts of the design professional societies in Alaska. APDC's professional design societies objectives are organized toward our common interests by:

1. Combining efforts so as to enhance the aesthetic, scientific, and practical efficiency of the design professions;
2. Advancing the art and science of planning and building by advancing the standards of education, training, and practice of design professions;
3. Coordinating the building industry and the design professions, to advance the quality of living through improved environment;
4. Encouraging the design professions to be of ever-increasing service to society; and
5. Providing dialog with legislative and administrative agencies on matters concerning the design professions and public interest.

The Alaska Professional Design Council wishes to express our concern with the proposed legislation because (a) it eliminates the possible use of good science in determining the applicability of mixing zones in certain areas, and (b) there are

existing regulations and statues that pertain to water quality standards, fish and game, and natural resources that appropriately address mixing zones.

It is also important to note that the current regulations do not undermine the ultimate responsibility of Alaska's resource agencies have to protect rivers, lakes and streams important to anadromous and resident fish. Under Alaska's current regulations, mixing zones in spawning areas are the exception rather than the rule.

HB 328 as it is currently proposed, takes an overly conservative approach to mixing zones. The bill's prohibition precludes the state resource agencies from working with communities and industrial users to develop creative solutions to permitting challenges.

Given favorable circumstances and proper management and oversight, mixing zones and healthy fish stocks can coexist. Alaska's resource agencies have the regulatory framework, technical expertise and resources in place to make sound and good science determinations on a case-by-case basis. The current regulations will protect Alaska's fisheries without unduly burdening other legitimate uses of the state's water.

APDC encourages the House Resources Committee not to move HB328 forward.

Thank you for considering APDC's position on this important issue.

Sincerely,
Alaska Professional Design Council

Robert J. Lang

Rob Lang, P.E.
President

HB

360

HOUSE COMMITTEE REPO

(9)

Date Referred to Committee: January 13, 2006 **FURTHER REFERRALS: Finance**

Date of Committee Action: 02/06/06

The RESOURCES Committee considered: **HB 360**

HOUSE BILL NO. 360 **REGULATION OF PUBLIC DRINKING WATER**

"An Act relating to the regulation of public accommodation water supply systems."

Recommends it be replaced with [ ] HCS *or* [ ] CS *for* _____(_____)
For Senate Bills with new title: [ ] Technical Title [ ] New Title: HCR_____ [ ] Same Title [ ] New Title

[ ] attach amendments
[ ] add new referral to _____Committee
[ ] Letter of Intent_____Committee

List of Abbrev for Depts.:
ADM
CED
COR
CRT
EED
DEC
DFG
GOV
HSS
LEG
LAW
LWF
MVA
DNR
DPS
REV
DOT
UA

NEW **FISCAL NOTES** *Assigned by Chief Clerk's Office				
List by Dept(s):	*FN#	Fiscal	Indet.	Zero
DEC		535.1		

PREVIOUS **FISCAL NOTES**				
List by Dept(s):	FN#	Fiscal	Indet.	Zero

Signing with recommendations	**Printed Last Name**	**DP**	**DNP**	**NR**	**AM**
	GATTO			X	
	OLSON			X	
	ELKINS	✓			
				V	
	CRAWFORD			✓	
Chair:	SAMUELS			X	
Chair:	RAMRAS	X			

REPRESENTATIVE KEVIN MEYER

HOUSE DISTRICT 30

SPONSOR STATEMENT

HB 360

"An Act relating to the regulation of public accommodation water supply systems."

House Bill 360 directs the Department of Environmental Conservation to regulate small public water systems to ensure that the public's water supply is safe and clean.

Approximately 100,000 Alaskans get their water from small public water systems. These public water systems are too small to be regulated by EPA but are bigger than a private well. Approximately 3,000 of these small public water systems serve public facilities like day care or residential care facilities and office buildings.

According to the Center for Disease Control (CDC), the number of water borne outbreaks related to water sources not covered under the National Safe Drinking Water Act has increased 50% since 1993. The increase is attributed to rapid community growth, on-site waste disposal systems and faulty well design. A national study of 5,000 small water systems showed 42% contaminated with fecal colifrom. Drinking Water can be contaminated with a variety of things that potentially are fatal including fecal coliforms, nitrates, E. Coli and Cryptosporidium.

While Alaskans may assume that the water they drink is safe and sanitary, the water used in many restaurants, day care facilities and other public places is often untested and could be contaminated. By monitoring and establishing standards for small public water systems the Department of Environmental Conservation will be able to respond to complaints from the public, ensure drinking water is safe and be prepared to respond to an emergency.

Email: Representative_Kevin_Meyer@legis.state.ak.us • **Toll Free:** (866) 465-4945
Session: State Capitol, Juneau, Alaska 99801-1182 • Phone: (907) 465-4945 Fax: (907) 465-3476
Interim: 716 W. 4th Ave., Anchorage, Alaska 99501-2133 • Phone: (907) 269-0199 Fax: (907) 269-0197

REPRESENTATIVE KEVIN MEYER

HOUSE DISTRICT 30

MEMORANDUM

DATE: January 16, 2006

TO: Representative Kevin Meyer

FROM: Mike Pawlowski

RE: Sectional Analysis for HB 360
(Version No. 24 – LS1468\A)

As a preliminary matter, note that a sectional summary of a bill should not be considered an authoritative interpretation of the bill and the bill itself is the best statement of its contents. If you would like an interpretation of the bill as it may apply to a particular set of circumstances, please advise.

Section 1. Adds a new section requiring the Department of Environmental Conservation to adopt regulations establishing minimum drinking water standards and standards for the construction, improvement, and maintenance of water supply systems serving a place of public accommodation. Defines "public accommodation" and "water supply system."

Section 2. Requires plans be submitted to the Department of Environmental Conservation prior to the construction, extension, installation or operation of a water supply system as defined in section 1.

Sectional

Email: Representative_Kevin_Meyer@legis.state.ak.us • Toll Free: (866) 465-4945
Session: State Capitol, Juneau, Alaska 99801-1182 • Phone: (907) 465-4945 Fax: (907) 465-3476
Interim: 716 W. 4th Ave., Anchorage, Alaska 99501-2133 • Phone: (907) 269-0199 Fax: (907) 269-0197

FISCAL NOTE

STATE OF ALASKA
2006 LEGISLATIVE SESSION

Fiscal Note Number:
Bill Version: HB 360
() Publish Date:

Revision Date/Time (Note if correction):
Dept. Affected: Dept of Environmental Conservation

Title	Regulation of public accomodations water supply systems	RDU	Environmental Health
		Component	Drinking Water
Sponsor	Representative Kevin Meyer		
Requester	House Resources Committee	Component No.	2066

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Personal Services	379.7	428.9	428.9	428.9	428.9	428.9
Travel	17.0	17.0	17.0	17.0	17.0	17.0
Contractual	95.9	45.9	45.9	45.9	45.9	45.9
Supplies	8.0	5.0	5.0	5.0	5.0	5.0
Equipment	34.5	1.0	1.0	1.0	1.0	1.0
Land & Structures	0.0	0.0	0.0	0.0	0.0	0.0
Grants & Claims	0.0	0.0	0.0	0.0	0.0	0.0
Miscellaneous	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL OPERATING	**535.1**	**497.8**	**497.8**	**497.8**	**497.8**	**497.8**
CAPITAL EXPENDITURES						
CHANGE IN REVENUES ( )	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts	0.0	0.0	0.0	0.0	0.0	0.0
1003 GF Match	0.0	0.0	0.0	0.0	0.0	0.0
1004 GF	485.1	447.8	447.8	447.8	447.8	447.8
1005 GF/Program Receipts	0.0	0.0	0.0	0.0	0.0	0.0
1037 GF/Mental Health	0.0	0.0	0.0	0.0	0.0	0.0
Other (1007 Interagency)	50.0	50.0	50.0	50.0	50.0	50.0
TOTAL	**535.1**	**497.8**	**497.8**	**497.8**	**497.8**	**497.8**

Estimate of any current year (FY2006) cost: 0.0
Mark this box (X) if funding for this bill is included in the Governor's FY 2007 budget proposal:

POSITIONS

Full-time	5	5	5	5	5	5
Part-time	0	0	0	0	0	0
Temporary	0	1	1	1	1	1

ANALYSIS: *(Attach a separate page if necessary)*

This legislation would require the DEC Drinking Water program to regulate public accommodations drinking water systems that serve 24 people or less for at least 60 days of the year. It excludes private homes and duplexes. The water systems that would qualify are not federally regulated and are classified by the state as "Class C" public water systems. The legislature, through the budget process, recently directed the department to eliminate services to Class C public water systems. This legislation would restore DEC's responsibility for a portion of the Class C systems in the state. There is no definitive inventory or data source for the total number of systems that could be regulated under this legislation but based on information from other agencies (DHSS, DEED, DEC Food Safety) on public accommodations, there is an estimated 3,000 systems that would be regulated.

(Continued on page 2)

Prepared by: Kristin Ryan, Director — Phone (907) 269-7644
Division: Environmental Health — Date/Time 2/4/06 11:00 AM
Approved by: Kurt Fredriksson — Date 2/4/2006
Agency: Department of Environmental Conservation

STATE OF ALASKA
2006 LEGISLATIVE SESSION

BILL NO. HB 360

ANALYSIS CONTINUATION

(Continued from page 1)

Regulations will be promulgated that will require Class C systems to conduct annual tests for fecal coliform bacteria and nitrates with results sent to DEC. If the system has a surface water source, filtration and/or disinfection will be required. The legislation requires systems to submit plans to DEC for review and approval for construction, extensions, installations and operation.

- **Personal Services** - Funds are for 5 permanent FT positions and one non-permanent seasonal College Intern. The full time positions will develop regulations, implement the regulations, perform compliance monitoring, provide technical assistance, conduct plan reviews and enforcement. Funds are included in the second year and beyond for a seasonal College Intern that will be employed to assist the engineer's plan review process. This position will be used to support the program during seasonal peaks and to enhance recruitment of engineering positions for the Drinking Water program.

- **Travel** - Support travel for inspections and complaint investigations.

- **Contractual** - RSA to Dept. of Law for legal assistance with regulations development, professional services contracts to develop registration and compliance monitoring database, public notices, and position support costs in the first year. Thereafter, contractual funding is for position support costs.

- **Supplies** - Additional supplies are needed in the first year of start up and thereafter standard office supplies.

- **Equipment** - One time costs for office furniture and computers for all new permanent staff thereafter ongoing office equipment and computer replacement costs and inspection equipment costs (such as personal safety gear, field equipment, cameras).

- **Other Fund Source** - Interagency authority is included for an RSA with DHSS. A small subset of Class C systems; facilities that provide child care and/or assisted living, are currently provided limited services by DEC through an RSA from DHSS that began in FY2006 as an unbudgeted RSA. This RSA funding is expected to continue and is therefore included in this fiscal note.

HB 360 Fiscal Note Detail

Regulation of Class C (public accomodation) water systems

	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012
Expenditures						
Personal Services						
New PCNs						
EPS IV	86.4	86.4	86.4	86.4	86.4	86.4
EE I	91.6	91.6	91.6	91.6	91.6	91.6
EEA II	76.6	76.6	76.6	76.6	76.6	76.6
EPS II	68.0	68.0	68.0	68.0	68.0	68.0
EPT	57.1	57.1	57.1	57.1	57.1	57.1
College Intern IV	0.0	49.2	49.2	49.2	49.2	49.2
Total PS	379.7	428.9	428.9	428.9	428.9	428.9
Travel	17.0	17.0	17.0	17.0	17.0	17.0
Contractual						
DB/IT	30.0	0.0	0.0	0.0	0.0	0.0
DOL RSA	20.0	0.0	0.0	0.0	0.0	0.0
Position support	45.9	45.9	45.9	45.9	45.9	45.9
Sub-total	95.9	45.9	45.9	45.9	45.9	45.9
Supplies	8.0	5.0	5.0	5.0	5.0	5.0
Equipment						
PC/Wk Stn	34.5	0.0	0.0	0.0	0.0	0.0
Other	0.0	1.0	1.0	1.0	1.0	1.0
Sub-total	34.5	1.0	1.0	1.0	1.0	1.0
Total Operating	535.1	497.8	497.8	497.8	497.8	497.8
Fund Sources						
1002 Fed	0.0	0.0	0.0	0.0	0.0	0.0
1003 GFM	0.0	0.0	0.0	0.0	0.0	0.0
1004 GF	485.1	447.8	447.8	447.8	447.8	447.8
1005 GF/PR	0.0	0.0	0.0	0.0	0.0	0.0
1007 IA	50.0	50.0	50.0	50.0	50.0	50.0
Total Fund Sources	535.1	497.8	497.8	497.8	497.8	497.8

Appendix D Glossary

Cryptosporidium

A protozoan associated with the disease cryptosporidiosis in humans. The disease can be transmitted through ingestion of drinking water, person-to-person contact, or other exposure routes. Cryptosporidiosis may cause acute diarrhea, abdominal pain, vomiting, and fever that last 1-2 weeks in healthy adults, but may be chronic or fatal in immunocompromised people.

Exposure

Contact between a person and a chemical. Exposures are calculated as the amount of chemical available for absorption by a person.

Giardia lamblia

A protozoan, which can survive in water for 1 to 3 months, associated with the disease giardiasis. Ingestion of this protozoan in contaminated drinking water, exposure from person-to-person contact, and other exposure routes may cause giardiasis. The symptoms of this gastrointestinal disease may persist for weeks or months and include diarrhea, fatigue, and cramps.

Maximum Contaminant Level (MCL)

Maximum permissible level of a contaminant in water which is delivered to any user of a public water system.

Nitrates

Inorganic compounds that can enter water supplies from fertilizer runoff and sanitary wastewater discharges. Nitrates in drinking water are associated with methemoglobinemia, or blue baby syndrome, which results from interferences in the blood's ability to carry oxygen.

Organics

Chemical molecules that contain carbon and other elements such as hydrogen. Organic contaminants of concern to drinking water include chlorohydrocarbons, pesticides, and others.

Per capita

Per person; generally used in expressions of water use, gallons per capita per day (gpcd).

Point-of-Use Water Treatment

Refers to devices used in the home or office on a specific tap to provide additional drinking water treatment.

Point-of-Entry Water Treatment

Refers to devices used in the home where water pipes enter to provide additional treatment of drinking water used throughout the home.

Radionuclides

Elements that undergo a process of natural decay. As radionuclides decay, they emit radiation in the form of alpha or beta particles and gamma photons. Radiation can cause adverse health effects, such as cancer, so limits are placed on radionuclide concentrations in drinking water.

Risk

The potential for harm to people exposed to chemicals. In order for there to be risk, there must be hazard and there must be exposure.

Treatment Technique

A specific treatment method required by EPA to be used to control the level of a contaminant in drinking water. In specific cases where EPA has determined it is not technically or economically feasible to establish an MCL, EPA can instead specify a treatment technique.

Total Coliform

Bacteria that are used as indicators of fecal contaminants in drinking water.

Toxicity

The property of a chemical to harm people who come into contact with it.

Volatile Organics

Chemicals that, as liquid, evaporate into the air.

Appendix A: National Primary Drinking Water Standards

Contaminants	MCLG (mg/L)	MCL (mg/L)	Potential Health Effects from Ingestion of Water	Sources of Contaminant in Drinking Water
Fluoride	4.0	4.0	Skeletal and dental fluorosis	Natural deposits, fertilizer, aluminum industries, water additive
Volatile Organics				
Benzene	zero	0.005	Cancer	Some foods, gas, drugs, pesticide, paint, plastic industries
Carbon Tetrachloride	zero	0.005	Cancer	Solvents and their degradation products
p-Dichlorobenzene	0.075	0.075	Cancer	Room and water deodorants, and "mothballs"
1,2-Dichloroethane	zero	0.005	Cancer	Leaded gasoline, fumigants, paints
1,1-Dichloroethylene	0.007	0.007	Cancer	Plastics, dyes, perfumes, paints
Trichloroethylene	zero	0.005	Cancer	Textiles, adhesives and metal degreasers
1,1,1 Trichloroethane	0.2	0.2	Liver, Nervous system effects	Adhesives, aerosols, textiles, paints, inks, metal degreasers
Vinyl Chloride	zero	0.002	Cancer	May leach from PVC pipe, formed by solvent break down
Coliform and Surface Water Treatment				
Giardia Lamblia	zero	TT	Gastroenteric disease	Human and animal fecal waste
Legionella	N/A	TT	Legionnaire's disease	Indigenous to natural waters, can grow in water heating systems
Standard Plate Count	N/A	TT	Indicates water quality, effectiveness of treatment	
Total Coliform *	zero	<5%+	Indicates gastroenteric pathogens	Human and animal fecal waste
Turbidity *	N/A	TT	Interferes with disinfection, filtration	Soil runoff
Viruses	zero	TT	Gastrointenic disease	Human and animal fecal waste
Inorganics				
Antimony	zero	0.006	Cancer	Fire retardants, ceramics, electronics, fireworks, solder
Asbestos (>10um)	7MFL	7MFL	Cancer	Natural deposits, asbestos cement in water systems
Barium *	2	2	Circulatory system effects	Natural deposits, pigments, epoxy sealants, spent coal
Beryllium	0.004	0.004	Bone, lung damage	Electrical, aerospace, defense industries
Cadmium *	0.005	0.005	Kidney effects	Galvanized pipe corrosion, natural deposits, batteries, paints
Chromium * (total)	0.1	0.1	Liver, kidney, circulatory disorders	Natural deposits, mining, electroplating, pigments
Cyanide	0.2	0.2	Thyroid, nervous system damage	Electroplating, steel, plastics, mining, fertilizer
Mercury * (inorganic)	0.002	0.002	Kidney, nervous system disorders	Crop runoff, natural deposits, batteries, electrical switches
Nitrate *	10	10	Methemoglobulinemia	Animal waste, fertilizer, natural deposits, septic tanks, sewage
Nitrite	1	1	Methemoglobulinemia	Same as nitrate, rapidly converted to nitrate
Selenium *	0.05	0.05	Liver damage	Natural deposits, mining, smelting, coal/oil combustion
Thallium	0.0005	0.002	Kidney, liver, brain, intestinal	Electronics, drugs, alloys, glass
Organics				
Acrylamide	zero	TT	Cancer, nervous system effects	Polymers used in sewage/wastewater treatment
Adipate, (di(2-ethylhexyl))	0.4	0.4	Decreased body weight	Synthetic rubber, food packaging, cosmetics
Alachlor	zero	0.002	Cancer	Runoff from herbicide on corn, soybeans, other crops
Atrazine	0.003	0.003	Mammary gland tumors	Runoff from use as herbicide on corn and non-cropland
Carbofuran	0.04	0.04	Nervous, reproductive system effects	Soil fumigant on corn and cotton, restricted in some areas
Chlordane *	zero	0.002	Cancer	Leaching from soil treatment by termites
Chlorobenzene	0.1	0.1	Nervous system and liver effects	Waste solvent from metal degreasing processes
Dalapon	0.2	0.2	Liver and kidney effects	Herbicide on orchards, beans, coffee, lawns, roadsideways
Dibromochloropropane	zero	0.0002	Cancer	Soil fumigant on soybeans, cotton, pineapple, orchards
o-Dichlorobenzene	0.6	0.6	Liver, kidney, blood cell damage	Paints, engine cleaning compounds, dyes, chemical wastes
cis-1,2-Dichloroethylene	0.07	0.07	Liver, kidney, nervous, circulatory	Waste industrial extraction solvents

Notes: *Contaminants with interim standards which have been revised TT= Special treatment techniques required
MFL=million fibers per liter +=less than 5% positive samples

Contaminants	MCLG (mg/L)	MCL (mg/L)	Potential Health Effects from Ingestion of Water	Sources of Contaminant in Drinking Water
Organics (continued)				
trans-1,2-Dichloroethylene	0.1	0.1	Liver, kidney, nervous, circulatory	Waste industrial extraction solvents
Dichloromethane	zero	0.005	Cancer	Paint stripper, metal degreaser, propellant, extraction
1,2-Dichloropropane	zero	0.005	Liver, kidney effects. Cancer	Soil fumigant, waste industrial solvents
Dinoseb	0.007	0.007	Thyroid, reproductive organ damage	Runoff of herbicide from crop and non-crop applications
Dioxin	zero	0.00000003	Cancer	Chemical production by-product, impurity in herbicides
Diquat	0.02	0.02	Liver, kidney, eye effects	Runoff of herbicide on land & aquatic weeds
2,4-D *	0.07	0.07	Liver and kidney damage	Runoff from herbicide on wheat, corn, rangelands, lawns
Endothall	0.1	0.1	Liver, kidney, gastrointestinal	Herbicide on crops, land/aquatic weeds, rapidly degraded
Endrin	0.002	0.002	Liver, kidney, heart damage	Pesticide on insects, rodents, birds, restricted since 1980
Epichlorohydrin	zero	TT	Cancer	Water treatment chemicals, waste epoxy resins, coatings
Ethylbenzene	0.7	0.7	Liver, kidney, nervous system	Gasoline, insecticides, chemical manufacturing wastes
Ethylene dibromide	zero	0.00005	Cancer	Leaded gasoline additives, leaching of soil fumigant
Glyphosate	0.7	0.7	Liver, kidney damage	Herbicide on grasses, weeds, brush
Heptachlor	zero	0.0004	Cancer	Leaching of insecticide for termites, very few crops
Heptachlor epoxide)	zero	0.0002	Cancer	Biodegradation of heptachlor
Hexachlorobenzene	zero	0.001	Cancer	Pesticide production waste by product
Hexachlorocyclopentadiene	0.05	0.05	Kidney, stomach damage	Pesticide production intermediate
Lindane	0.0002	0.0002	Liver, kidney, nerve, immune, circul	Insecticide on cattle, lumber, gardens, restricted 1983
Methoxychlor	0.04	0.04	Growth, liver, kidney, nerve effects	Insecticide for fruits, vegetables, alfalfa, livestock, pets
Oxamyl (Vydate)	0.2	0.2	Kidney damage	Insecticide on apples, potatoes, tomatoes
PAHs (benzo(a)pyrene)	zero	0.0002	Cancer	Coal tar coatings, burning organic matter, wastewaters, fossil fuels
PCBs	zero	0.0005	Cancer	Coolant oils from electrical transformers, plasticizers
Pentachlorophenol	zero	0.001	Liver and kidney effects, and cancer	Wood preservatives, herbicide, cooling tower wastes
Phthalate, di (2 ethylhexyl)	zero	0.006	Cancer	PVC and other plastics
Picloram	0.5	0.5	Kidney, liver damage	Herbicide on broadleaf and woody plants
Simazine	0.004	0.004	Cancer	Herbicide on grass sod, some crops, aquatic algae
Styrene	0.1	0.1	Liver, nervous system damage	Plastics, rubber, resin, drug industries, leachate from city landfills
Tetrachloroethylene	zero	0.005	Cancer	Improper disposal of dry cleaning and other solvents
Toluene	1	*	Liver, kidney, nervous, circulatory	Gasoline additive, manufacturing and solvent operations
Toxaphene	zero	0.003	Cancer	Insecticide on cattle, cotton, soybeans, cancelled 1982
2,4,5-TP	0.05	0.05	Liver and kidney damage	Herbicide on crops, right-of-way, golf courses, cancelled 1983
1,2,4-Trichlorobenzene	0.07	0.07	Liver, kidney damage	Herbicide production, dye carrier
1,1,2-Trichloroethane	0.003	0.005	Kidney, liver, nervous system	Solvent in rubber other organic products, chemical production wastes
Xylenes (total)	10	10	Liver, kidney, nervous system	By-product of gasoline refining, paints, inks, detergents
Lead and Copper				
Lead *	zero	TT+	Kidneys, nervous system damage	Natural/industrial deposits, plumbing, solder, brass alloy faucets
Copper	1.3	TT#	Gastrointestinal irritation	Natural/industrial deposits, wood preservatives, plumbing
Other Interim Standards				
Beta/ photon emitters	zero	4 mrem/yr	Cancer	Decay of radionuclides in natural and man-made deposits
Alpha emitters	zero	15 pCi/L	Cancer	Decay of radionuclides in natural deposits
Combined Radium 226/228	zero	5 pCi/L	Bone cancer	Natural deposits
Arsenic*	0.05	0.05	Skin, nervous system toxicity	Natural deposits, Smelters, glass, electronics wastes, Orchards
Total Trihalomethanes	zero	0.10	Cancer	Drinking water chlorination by-products

Notes: *Contaminants with interim standards which have been revised. TT= Special treatment techniques required
+ = Action Level 0.015mg/L. # = Action Level 1.3mg/L. pCi= picocuries

University of Idaho
College of Agriculture

Cooperative Extension System
Agricultural Experiment Station

Quality Water for Idaho
Current Information Series No. 873

Water Testing

Ernestine Porter, Roy Taylor and Robert L. Mahler

Should You Have Your Water Tested?

Whether to have your water tested is a serious question that concerns your health and that of your family. Your water should be safe to drink and acceptable for all other household uses. Contaminated water can cause illness and perhaps even death. In addition, a variety of less serious problems such as bad taste, off-color, odor and staining of clothes or fixtures are symptoms of water quality problems.

Even water that appears problem-free and crystal clear may not be safe or acceptable. Even so, not all people need to test their water. Testing for all possible contaminants is impractical and unnecessary.

When Should You Test Your Water?

Whether you have a public or private water supply, you should have your water tested if the following situations arise:

Situation	Test
Family members or house guests have recurrent incidents of gastrointestinal illness.	Test for coliform bacteria, nitrate and sulfate.
Household water plumbing contains lead pipes, fittings or solder joints.	Test for pH, corrosion index, lead, copper, cadmium and zinc.
You are buying a home and wish to assess the safety and quality of the existing water supply.	Test for coliform bacteria, nitrate, lead, iron, hardness, pH, sulfate, total dissolved solids (TDS), corrosion index and other parameters depending on proximity to potential sources of contamination.
You need a water softener to treat hard water.	Test for iron and manganese, which decrease the efficiency of cation exchange softeners, before purchase and installation.
You wish to monitor the efficiency and performance of home water treatment equipment.	Test for the specific water problem being treated upon installation, at regular intervals after installation and if water quality changes.
Water stains plumbing fixtures and laundry.	Test for iron, manganese and copper.
Water has an objectionable taste or smell.	Test for hydrogen sulfide, pH, corrosion index, copper, lead, iron, zinc, sodium, chloride and TDS.
Water appears cloudy, frothy or colored.	Test for color, turbidity and detergents.
Pipes or plumbing show signs of corrosion.	Test for corrosion index, pH, lead, iron, manganese, copper and zinc.
Water leaves scaly residues and soap scum and decreases the cleaning action of soaps and detergents.	Test for hardness.
Water supply equipment (pump, chlorinators, etc.) wears rapidly.	Test for pH, corrosion index.

Public vs. Private Water Supplies

Many homeowners get water simply by turning on the faucet and making a monthly payment to a municipal or other local water system. They use public water supplies in which individual households are connected to the same water system. Public systems draw water from rivers, reservoirs, springs and groundwater wells.

In private systems, individuals or individual households provide their own systems. Most private drinking water comes from wells, sometimes from springs and ponds.

If your water comes from a public water system, your water is tested regularly for contaminants that are covered by federal and state standards. These contaminants include pathogens, radioactive elements and certain toxic chemicals. However, some public water supplies may have water quality problems caused by inadequate treatment facilities or distribution systems. Some rural water supply districts do not have enough money to hire trained specialists or to comply immediately with expanding government requirements. In addition, corrosive water or deteriorating household pipes may add contaminants to drinking water after it enters the house.

If your drinking water comes from your own well, you alone are responsible for ensuring its safety. Routine testing for a few of the most common contaminants is highly recommended. Even if your water supply currently is pure and safe, regular testing can be valuable because it establishes a record of water quality. This record can be helpful in solving any future problems and in establishing or assessing damages to your water supply.

Testing Private Water Supplies

Routine Tests -- The following testing frequencies are guidelines. Test more often if you suspect a problem with the quality of your water supply.

- **Once each year,** test for coliform bacteria, nitrate, pH and total dissolved solids (TDS). The best times to test for these contaminants are during spring or summer following a rainy period. These tests also should be conducted after repairing or replacing an old well or pipes and after installing a new pump.
- **Every 3 years,** test for sulfate, chloride, iron, manganese, lead, hardness and corrosion index.
- **If a new baby is expected** in the household, it is a good idea to test for nitrate in the early months of pregnancy, before bringing the infant home and again during the first 6 months of the baby's life.

Special Situations -- Where you live, and what is next to where you live, can sometimes affect the quality of your water. If someone in your family becomes ill or if the taste, odor or color of your water changes, your water supply may be contaminated.

Situation	Test
Your well is in an area of intensive agricultural use.	Test for pesticides commonly used in the area, coliform bacteria, nitrate, pH and TDS.
You live near a mining operation.	Test for iron, lead, arsenic, manganese, aluminum, pH and corrosion index.
Your well is near a gas drilling operation.	Test for chloride, sodium, barium and strontium.
Your water smells of gasoline or fuel oil and your well is located near an operating or abandoned gas station or near buried fuel storage tanks.	Test for fuel components or volatile organic compounds (VOC).
Your well is near a road salt storage site or a heavily salted roadway and the water tastes salty or corrosion appears on pipes.	Test for chloride, TDS and sodium.

Collecting Test Samples

Most testing laboratories or services provide their own sample containers. Use the containers and carefully follow the laboratory's instructions for collecting, preserving and handling water samples. Samples for coliform bacteria testing must be collected in sterile containers under sterile conditions. Some collection procedures call for water to run from an inside tap for several minutes before you fill the sample containers. Other instructions ask you to collect samples in the morning, after water has been confined in the pipes overnight. Samples should arrive at a laboratory within 24 hours of collection.

Laboratories may sometimes send a trained technician to collect the sample or to analyze the sample in your home. Ask if this service is available. You may obtain better samples and therefore more reliable test results.

Record all your water test results as a reference for future testing. Even slight changes in contaminant concentrations are good indicators of new water problems. By comparing recent test results with past results, you may discover you need a change in treatment or that a treatment device is working poorly.

Testing Services

- Public water supply systems are tested regularly for primary contaminants, monitored for levels of sodium and certain unregulated chemical contaminants and examined for corrosion in the water distribution system. They will provide water quality reports upon request.
- Private testing laboratories are listed in the yellow pages of the telephone book. Make sure they are certified by your state health department.
- County and state health laboratories, departments of health and local hospital laboratories often provide water testing services.
- Water treatment companies and plumbing supply stores may offer certain free tests in your home.
- Local engineering firms may test water for certain contaminants.
- The University of Idaho offers water testing services.
- Be wary of companies offering "free home water testing." Some of them may be interested only in selling you a water treatment device, whether or not you need it.

Contact the Extension agent in your county for information about water testing in your area.

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This publication was adapted from Water Quality Fact Sheet 4, Home Water Testing, *Produced by Cornell University and the University of Maryland.*

This publication is one of a series on water quality issues produced by the University of Idaho Cooperative Extension System for the people of Idaho. The material is based upon work supported by the U.S. Department of Agriculture, Extension Service, under special project number 90-EWQUI-1-9216.

Issued in furtherance of cooperative extension work in agriculture and home economics, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, LeRoy D. Luft, Director of Cooperative Extension System, University of Idaho, Moscow, Idaho 83844. The University of Idaho provides equal opportunity in education and employment on the basis of race, color, religion, national origin, gender, age, disability, or status as a Vietnam-era veteran, as required by state and federal laws.

8M 9-90, 5M 1-91 (reprint)
Printed with special grant funds from USDA

Comments to author: karenl@uidaho.edu

Revised: January 3, 2002

EPA 810-F-99-017
December 1999

Drinking Water Standards & Health Effects

SAFE DRINKING WATER ACT • CELEBRATING 25 YEARS • PROTECT OUR HEALTH FROM SOURCE TO TAP

Drinking water standards are set by the U.S. Environmental Protection Agency (USEPA) to control the level of contaminants in the nation's drinking water. The Safe Drinking Water Act (SDWA) requires USEPA to set these standards, which public water systems in the U.S. are required to meet. USEPA has set standards for 90 chemical, microbiological, radiological, and physical contaminants in drinking water. Seven of these are new standards which will be enforceable January 1, 2002. USEPA and others are currently conducting research and collecting information to determine which currently unregulated contaminants pose the greatest public health risk and will therefore be regulated in the future.

USEPA also sets Secondary Drinking Water Regulations, which are non-enforceable guidelines for contaminants that may cause cosmetic effects (such as skin and tooth discoloration) or aesthetic effects (such as taste or odor). Water systems are not required by USEPA to adopt these secondary standards, but states may choose to adopt and enforce them.

Public Water Systems Must Meet National Drinking Water Standards

Drinking water standards apply to **public water systems**, which provide water to at least 15 connections or 25 persons at least 60 days out of the year (most cities and towns, schools, businesses, campgrounds, and shopping malls are served by public water systems).

Private Wells

The 10 percent of Americans whose water comes from private wells (individual wells serving fewer than 25 persons) are not required to be protected by these federal standards. People with private wells are responsible for making sure that their own drinking water is safe. Some states do set standards for private wells, so well owners should check their state requirements. USEPA recommends testing your water once per year to see if it meets federal and state standards. Call the Safe Drinking Water Hotline at **1-800-426-4791** or see the Safewater home page at www.epa.gov/safewater/faq/sco.html to find out how to get a list of certified testing labs in your state.

Bottled Water

Bottled water is regulated by the U.S. Food and Drug Administration as a food product, and is required to meet standards equivalent to those USEPA sets for tap water. For information on bottled water regulations, call the FDA at 1-800-463-6332.

Steps in Drinking Water Standard Setting:

USEPA uses the following steps to set enforceable, health-based drinking water standards.

1. **Determine whether a contaminant should be regulated based on peer-reviewed science,** including data on: how often the contaminant occurs in the environment; how humans are exposed to it; the health effects of exposure, (particularly to vulnerable subpopulations); how easily the contaminant can be detected in drinking water; whether technology exists to remove it from drinking water; and the likely impact of regulation on water systems, public health, and the economy.

2. Set a **Maximum Contaminant Level Goal (MCLG)** (the level of a contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety). These goals take into account the risks of exposure for certain sensitive populations, such as infants, the elderly, and persons with compromised immune systems. These goals are not enforceable levels because they do not take available technology into consideration, and therefore are sometimes set at levels which public water systems cannot meet.

Standards v. Health Effects

3. **Propose an enforceable standard in the form of a Maximum Contaminant Level (MCL)** (the maximum amount of a contaminant allowed in water delivered to a user of any public water system) **or a Treatment Technique (TT)** (required procedure or level of technological performance set when there is no reliable method to measure a contaminant at very low levels). MCLs are set as close to MCLGs as feasible, considering available technology and cost. Examples of rules requiring treatment techniques are the Surface Water Treatment Rule (requires disinfection and filtration) and the Lead and Copper Rule (requires optimized corrosion control). Water samples that contain lead or copper exceeding the **action level** trigger additional treatment or other requirements that a water system must follow. Required testing (monitoring) schedules are part of the enforceable standard.

   After determining a proposed MCL or TT that is as close to the MCLG as possible based on affordable technology, USEPA must complete an economic analysis to determine whether the benefits of that standard justify the costs. If not, USEPA may adjust the MCL for a particular class or group of systems to a level that "maximizes health risk reduction benefits at a cost that is justified by the benefits." USEPA may not adjust the MCL if the benefits justify the costs to large systems and small systems that are unlikely to receive variances.

4. **USEPA sets an enforceable MCL or TT.** After considering comments on the proposed standard and other relevant information, USEPA makes final an enforceable Maximum Contaminant Level or Treatment Technique, including required testing and reporting schedules.

5. States are authorized to grant **variances** from standards for systems serving up to 3,300 people if the systems cannot afford to comply with a rule (through treatment, an alternative source of water, or other restructuring) and the systems install EPA-approved variance technology. States can grant variances to systems serving 3,301 - 10,000 people with USEPA approval. SDWA does not allow small systems to have variances for microbial contaminants. Under certain circumstances **exemptions** from standards may be granted to allow extra time to seek other compliance options or financial assistance. After the exemption period expires, the public water system must be in compliance. The terms of variances and exemptions must ensure no unreasonable risk to public health.

Determining Whether Standards Are Needed for Other Contaminants – the Contaminant Candidate List

The 1996 Amendments to SDWA require USEPA to establish every 5 years a list of contaminants which are known or anticipated to occur in public water systems, and may require future regulations under SDWA. In establishing this contaminant candidate list USEPA has divided the contaminants among those which are priorities for additional research, those which need additional occurrence data, and those that are priorities for consideration in rulemaking. The list was developed with significant input from the scientific community and other interested parties. The next steps for USEPA are to determine which contaminants to address first in all categories, and to outline plans of action for making regulatory decisions for five or more contaminants by the year 2001.

In order to support this decision-making, USEPA has also established a National Contaminant Occurrence Database (NCOD), which stores data on the occurrence of both regulated and unregulated contaminants. USEPA is also required to list and develop regulations for monitoring certain unregulated contaminants. This monitoring data will provide the basis for identifying contaminants that may be placed on future Contaminant Candidate Lists and support the USEPA Administrator's decisions to regulate contaminants in the future.

COOPERATIVE EXTENSION AZ1008

Health Effects of Drinking Water Contaminants

Arizona Water Series: Number 5

The University of Arizona • College of Agriculture • Tucson, Arizona 85721 Revised 5/98

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Chemical contaminants occur in drinking water supplies throughout the United States, ranging from barely detectable amounts to levels that could possibly threaten human health. Determining the health effects of these contaminants is difficult, especially since researchers are still learning how chemicals react in the body to damage cells and cause illness.

Acute and Chronic Health Effects

Toxic doses of chemicals cause either acute or chronic health effects. An acute effect usually follows a large dose of a chemical and occurs almost immediately. Examples of acute health effects are nausea, lung irritation, skin rash, vomiting, dizziness and even death.

The levels of chemicals in drinking water, however, are seldom high enough to cause acute health effects. They are more likely to cause chronic health effects — effects that occur long after exposure to small amounts of a chemical. Examples of chronic health effects include; cancer, birth defects, organ damage, disorders of the nervous system, and damage to the immune system.

Evidence relating chronic health effects to specific drinking water contaminants is limited. In the absence of exact scientific information, scientists predict the likely adverse effects of chemicals in drinking water using laboratory animal studies and, when available, human data from clinical reports and epidemiological studies. **The possible chronic health effects of the chemicals listed in this fact sheet are conservative estimates, rarely based on documented human health effects.**

Setting Standards

In setting standards for drinking water contaminants, regulators estimate the concentration of a contaminant that a person can drink safely over a lifetime. These calculations are based on all available toxicological information and allow a generous safety margin. The following chart lists contaminants currently regulated by U.S. Environmental Protection Agency (EPA) standards.

The EPA standard for drinking water, the **Maximum Contaminant Level (MCL)**, is the highest amount of a contaminant allowed in drinking water supplied by municipal water systems. Although MCLs are set primarily to protect health, they also take into consideration the feasibility and cost of analysis and treatment of the regulated contaminant.

Contaminants are regulated when they occur in drinking water supplies and are expected to threaten public health. The EPA will continue to set standards for many other drinking water contaminants not listed in this fact sheet which meet these criteria.

National Primary Drinking Water Standards

ORGANIC CHEMICALS	MCL (mg/L)[1]	HEALTH EFFECTS
Acrylamide	TT[2]	probable cancer, nervous system
Adipate (diethylhexyl)	0.4	liver damage, reduced bone mass
Alachlor	0.002	probable cancer
Atrazine	0.003	reproductive and cardiac
Benzene	0.005	cancer, chromosome changes

[1] Milligrams per liter (mg/L) = one part per million (ppm) or 1 ounce in 7800 gallons.
[2] TT = Treatment technique requirement in effect.

Issued in furtherance of Cooperative Extension work acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, James A. Christenson, Director, Cooperative Extension, College of Agriculture, The University of Arizona.

ORGANIC CHEMICALS	MCL (mg/L)[1]	HEALTH EFFECTS
Benzo(a)pyrene (PAH)	0.0002	developmental and reproductive effects
Carbofuran	0.04	nervous and reproductive system
Carbon tetrachloride	0.005	cancer, liver damage
Chlordane	0.002	probable cancer
2,4-D	0.07	liver, kidney, nervous system
Dalapon	0.2	increased kidney-to-body weight
Di[2-ethylhexyl]adipate	0.4	liver damage, reduced bone mass
Dibromochloropropane (DBCP)	0.0002	probable cancer
o-Dichlorobenzene	0.6	liver, kidney, nervous system, blood cells
p-Dichlorobenzene	0.075	liver, anemia, skin lesions
1,2-Dichloroethane	0.005	probable cancer
1,1-Dichloroethylene	0.007	liver/kidney effects, cancer, toxicity to fetus
cis-1,2-Dichloroethylene	0.07	nervous and circulatory systems, liver
trans-1,2-Dichloroethylene	0.1	nervous and circulatory systems, liver
Dichloromethane	0.005	probable cancer, liver damage
1,2-Dichloropropane	0.005	probable cancer, liver, lungs, kidney
Di(2-ethylhexyl)phthalate (PAE)	0.006	possible cancer, liver, reproductive effects
Dincseb	0.007	decreased body and thyroid weight
Dioxin (2,3,7,8-TCDD)	3.0×10^{-8}	liver damage, birth defects, probable cancer
Diquat	0.02	cataracts
Endothall	0.1	increased organ weight
Endrin	0.002	nervous system, kidney effects
Epichlorohydrin	TT[2]	probable cancer, changes in blood and chromosomes
Ethylbenzene	0.7	liver, kidney, nervous system, eyes
Ethylene dibromide (EDB)	0.00005	probable cancer
Glyphosphate	0.7	lung congestion
Heptachlor	0.0004	probable cancer
Heptachlor epoxide	0.0002	probable cancer
Hexachlorobenzene (HCB)	0.001	skin lesions, nerve and liver damage
Hexachlorocyclopentadiene (HEX)	0.05	damage to liver, kidney, stomach, heart
Lindane	0.0002	liver, kidney
Methoxychlor	0.04	liver, kidney, nervous system, heart
Monochlorobenzene (Chlorobenzene)	0.1	liver, kidney, nervous system

[1] Milligrams per liter (mg/L) = one part per million (ppm) or 1 ounce in 7800 gallons.

[2] TT = Treatment technique requirement in effect.

ORGANIC CHEMICALS	MCL (mg/L)[1]	HEALTH EFFECTS
Oxamyl (Vydate)	0.2	decreased body weight
Pentachlorophenol	0.001	probable cancer, liver, kidney, reproductive effects
Picloram	0.5	liver damage
Polychlorinated byphenyls (PCBs)	0.0005	possible cancer, nose and throat irritation, liver function
Simazine	0.004	possible cancer, tremors, liver, kidney, nervous system
Styrene	0.1	liver, nervous system, cancer
Tetrachloroethylene	0.005	probable cancer, liver, kidney, nervous system
Toluene	1.0	kidney, liver, nervous system (memory, speech, hearing)
Toxaphene	0.003	possible cancer, liver, kidney, nervous system
2-4-5-TP (Silvex)	0.05	liver, kidney
1,2,4-Trichlorobenzene	0.07	increased adrenal gland weight
1,1,1-Trichloroethane	0.2	nervous system
1,1,2-Trichloroethane	0.005	liver, kidney, cancer
Trichloroethylene (TCE)	0.005	possible cancer, liver damage
Vinyl chloride	0.002	cancer, liver, nervous system
Xylenes (Total)	10.0	liver, kidney, cancer, bladder, respiratory tract

[1] Milligrams per liter (mg/L) = one part per million (ppm) or 1 ounce in 7800 gallons.
[2] TT = Treatment technique requirement in effect.

RADIONUCLIDES	MCL	HEALTH EFFECTS
Beta particle and photon activity	4 mrem/yr[1]	cancer
Gross alpha particle activity	15 pCi/L[2]	cancer
Combined radium 226 + 228	5 pCi/L[2]	bone cancer

[1] "Rem" (Roentgen Equivalents in Man) means a dosage of ionizing radiation that gives the same biological effect as one roentgen of X-ray or gamma-ray radiation. A millirem (mrem) is 1/1000 of a rem.
[2] "Picocurie" (pCi) is the quantity of radioactive material producing 2.22 nuclear transformations per minute.

An Explanation of Treatment Technique

Treatment Technique requirements vary with each contaminant. In general, depending upon the size of the population served by a water supplier, a predetermined number of samples must be taken within a specific time period. Only a certain percentage of these samples may exceed a specified level for each contaminant. For example, a water supplier serving more than 100,000 people must sample for lead from 100 household taps every six months. If more than 10% of these samples exceed 0.015 mg/L of lead, the water supplier must begin treatment. Treatment may consist of reducing the corrosivity of the water (highly corrosive water tends to leach lead out from pipe fittings), or removing the lead from the supply source, or replacing water lines that contain lead compounds. For microbes, treatment standards should reduce the risk of infection to less than one in 10,000 per year.

INORGANIC CHEMICALS	MCL (mg/L)[1]	HEALTH EFFECTS
Antimony	0.006	possible cancer
Arsenic[2]	0.05	dermal and nervous system toxicity
Asbestos	7 MFL (million fibers per liter, >10 microns long)	lung disease, cancer
Barium	2.0	circulatory system (high blood pressure)
Beryllium	0.004	bones, lung, cancer
Cadmium	0.005	kidney, liver, bones, blood
Chromium (total)	0.1	liver/kidney, skin, circulatory system, nerve tissues
Copper (at tap)	TT[3]	stomach and intestinal distress, liver, kidney, anemia
Cyanide	0.2	weight loss, thyroid, nerve damage
Fluoride	4.0	skeletal damage
Lead (at tap)	TT[3]	central and peripheral nervous system damage, kidney, highly toxic to infants and pregnant women
Mercury (inorganic)	0.002	kidney, nervous system
Nickel	0.1	heart and liver damage, skin irritation
Nitrate-Nitrogen	10.0	spleen hemorrhage, methemoglobinemia
Nitrite (as N)	1.0	spleen hemorrhage, methemoglobinemia
Nitrate + Nitrite (both as N)	10.0	spleen hemorrhage, methemoglobinemia
Selenium	0.05	nervous and circulatory system, liver, kidney, hair loss
Thallium	0.002	blood changes, liver, kidney, hair loss

[1] Milligrams per liter (mg/L) = one part per million (ppm) or 1 ounce in 7800 gallons.
[2] Under review
[3] TT = Treatment Technique requirement in effect.

MICROBIOLOGICAL	MCL	HEALTH EFFECTS
Giardia lamblia	TT[1]	stomach and intestinal distress
Legionella	TT[1]	Legionnaire's disease (pneumonia)
Standard Plate Count	TT[1]	varies with organism
Turbidity	PS[2]	interferes with disinfection
Viruses	TT[1]	intestinal distress, infectious hepatitis

[1] Treatment Technique requirement in effect.
[2] PS (Performance Standard) 0.5 NTU - 1.0 NTU, (Nephelometric Turbidity Unit).

National Secondary Drinking Water Standards

CONTAMINANTS	SUGGESTED LEVELS	EFFECTS
Aluminum	0.05-0.2 mg/l	discoloration of water
Chloride	250 mg/l	taste, corrosion of pipes
Color	15 color units	aesthetic
Copper	1 mg/l	taste, staining of porcelain
Corrosivity	non-corrosive	aesthetic and health related (corrosive water can leach lead from pipes into drinking water).
Fluoride	2.0 mg/l	brownish discoloration of teeth
Foaming agents	0.5 mg/l	aesthetic
Iron	0.3 mg/l	taste, staining of laundry
Manganese	0.05 mg/l	taste, staining of laundry
Odor	3 (Threshold Odor Number)	aesthetic
pH	6.5 - 8.5	water is too corrosive
Silver	0.1 mg/l	discoloration of the skin (argyria)
Sulfate	250 mg/l	taste, laxative effects
Total Dissolved Solids (TDS)	500 mg/l	taste and possible relation between low hardness and cardiovascular disease, also an indicator of corrosivity (related to lead levels in water), can damage plumbing and limit effectiveness of detergents.
Zinc	5 mg/l	taste

Note: Copper and fluoride appear on both the Primary and Secondary Standards lists. The effects of each contaminant at the lower levels found on the Secondary list are aesthetic only. At higher concentrations each can cause adverse health reactions and are therefo[illegible]sted as Primary Standards. "Aesthetic" refers to effects of contaminants that may make water look, taste, or smell unpleasant, yet are not necessarily harmful to health.

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This material is based upon work supported by the Extension Service, U.S. Department of Agriculture, under special project number 91-EWQI-1-9277. Adapted from a publication written by Judith C. Stewart and Ann T. Lemley, Cornell University.

Water Testing and Interpreting Your Results

by Meg Burgett
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If you're like many Alaskans, your family's drinking water comes from a private, on-site well-your well. The health and well-being of your family depends in a large part on the quality of water from that well. Daily activities of those near your well have a direct impact on the quality of drinking water. To protect that water, your actions should minimize any risk to any surrounding wells. Periodically checking your water supply will assure you that your efforts have been successful and the water your family is drinking is safe.

Which Tests?

Water tests come in a variety of sizes and options. You can test your water for just a few indicators, or for a comprehensive analysis. As with all things, the more you ask for, the more it will cost you.

When deciding which tests are appropriate for you, make sure the most important indicators for your situation are selected, and that costs are kept reasonable. Frequently, labs will group the most common household tests into a "package" for convenience. For an accurate assessment of the quality of your water, have it tested by a certified testing lab.

The following four tests address the most common and serious health concerns, and indicated the possibility of a contaminated water supply.

NITRATES

What is it? Nitrates are a major component of fertilizer and wastewater. They also result from the breakdown of organic matter buried in the soil. Excess nitrates in drinking water could be the result of a number of things: the overuse of fertilizers close to the well; the presence of septic effluent in the groundwater supplies caused by a failed or failing septic system or inadequate dilution or separation between the system and the well; or runoff containing animal wastes close to the well.

Drinking water that has high levels of nitrate can cause a serious illness in infants under the age of six months. This condition is called methemoglobinemia or "blue baby" syndrome, and can result in death.

Methemoglobinemia
"Blue Baby Syndrome"
When infants ingest nitrate, the nitrate is converted to nitrite in the body. Nitrites interfere with the blood's ability to carry oxygen, and the infant appears slightly "blue."

Acceptable Levels? Water with nitrate levels above 10 parts per million (ppm) nitrate as nitrogen (mg/l NO3-N), should not be given to children under the age of six months, or pregnant women. If your water has nitrate levels above 10 ppm, consult your physician before using the water for any drinking water purposes.

Treatment Options? Nitrate is not readily removed by filtration or other common home water treatment systems. The best method for limiting nitrate in well water is by controlling nearby sources of nitrate.

BACTERIA

What is it? Bacteria occur naturally in the environment. While some are not harmful to human health, others such as fecal bacteria present a very serious health risk. Fecal bacteria belong to a group of bacteria called coliform bacteria. Labs routinely test for coliform bacteria to determine if your drinking water has been contaminated with surface runoff wastewater. Wastewater not only contains bacteria, but may also contain other microorganisms such as viruses and protozoa that are associated with severe illnesses.

Since not every bacteria can be reasonably tested, labs routinely test for coliform bacteria as an indicator of the presence of

Surface Water

A few Alaskans, especially in rural areas, use surface water for their family's source of water. If you use surface water, you need to have a good water treatment system that includes disinfection and filtration, to be sure your water is safe to drink. Check with your local water treatment companies for different kinds of surface water systems, or contact the U.S. EPA for a copy of their publication, "Manual of Individual and Non-Public Water Supply Systems," for a description of surface water treatment methods.

Sometimes, a well can also have surface water influence. This means that the water on the surface is in direct contact with the groundwater supply. There are no hard and fast guidelines for determining when a well is surface water influenced. However, shallow wells (less than 30 feet) and wells close to surface water sources (less than 100 feet to the lake or creek) are more at risk of contamination by disease-causing micro-organisms frequently found in surface water. The quality of surface water supplies fluctuates much more than that of groundwater (well water) supplies. It is affected by changes in temperature, algal blooms, amount of rainfall and runoff, and the activities in the watershed. If your well is shallow or close to a surface water source, you should have it tested by a certified laboratory to determine if it is surface water influenced, or install a water treatment system that includes disinfection and filtration.

this type of contamination. This test is used to indicate the "potability" of drinking water. Coliform bacteria enter the environment through the discharge of untreated waste or runoff containing animal and/or human wastes.

Bacteria is most commonly a problem in surface waters. Bacteria, protozoa and viruses can cause severe illness if ingested. Generally not a problem in groundwater sources (i.e. wells), it's presence could signal a real threat.

Acceptable Level? If your drinking water tests positive for coliform bactera, other organisms may be present also. You should take immediate steps to treat your water. To prevent illness, drinking water should be completely free of coliform bacteria.

Treatment Options? Bacteria can only be killed by disinfection (such as chlorine-more for cloudy water, less for clear, 8-10 drops/gallon), or boiling the water for several minutes (3-5 minutes) prior to drinking. Filtration can help improve the performance of disinfectants by reducing the numbers of micro-organisms, and by removing sediments that interfere with the disinfection process. Filtration alone cannot generally remove all microorganisms and should not be considered completely effective.

ARSENIC

What is it? Natural ore deposits of arsenopyrite, a gold bearing mineral, may release arsenic to groundwater under anaerobic (no oxygen) conditions. Some stream sediments have also been found to contain arsenic, particularly those draining through placer mine tailings deposits.

Naturally occurring arsenic has been found in groundwater wells in the Fairbanks area, on the Seward and Kenai Peninsulas and Southcentral Alaska around Wasilla. It is a highly toxic contaminant and listed as a hazardous material. A suspected carcinogen, it is also a teratogen—capable of crossing the placental membrane into the metabolic system of unborn children. The actual toxicity to humans varies. Because it is slow to leave the body, arsenic is a cumulative substance.

Acceptable Levels? The maximum level for arsenic in drinking water is set at 0.05 (parts per million).

Treatment Options? Arsenic can be removed from drinking water by a number of available technologies, the choice of which depends on the amount of water to be treated, the amount of arsenic present, and the presence of other contaminants.

Other water problems.

Your water may contain other substances that while not dangerous to your health, can cause objectionable tastes or odors, or staining of appliances and fixtures. If these qualities are not desirable to your family, home treatment systems can eliminate any of these problems. To ensure that you select the appropriate equipment for your home, the level of a number of minerals needs to be determined.

IRON

What is it? Excess iron in groundwater supplies comes from the parent material of the soil around the well. It can cause a metallic taste, stain clothing and fixtures, and promote the growth of iron bacteria in the water system.

Iron is not considered toxic, but affects the appearance and palatability of the drinking water.

Acceptable Levels? An upper limit of 0.3 ppm of iron has been set for drinking water.

Treatment Options? Depending upon concentrations, iron can be removed by water softeners, or an iron filter with a greensand media and potassium permanganate as a regenerant.

MANGANESE

What is it? Like iron, manganese originates from the soil around a well. It typically produces black staining and can give water an off-taste. Manganese is not considered toxic but does affect the appearance and palatability of the water.

Acceptable Levels? An upper limit of 0.05 ppm manganese has been set for drinking water supplies.

Treatment Options? Again, depending upon concentrations, manganese can be removed by water softeners, or an iron filter as described above.

HARDNESS

What is it? Hard water comes from elevated levels of calcium, magnesium and other similar substances found in the soil around a well. Hard water will tend to deposit calcium carbonate (limestone) scale in plumbing systems, particularly on hot water or boiler heating elements. Soft water tends to be corrosive, dissolving metal pipes and fittings.

Acceptable Levels? There is no toxicity associated with hardness and no health standard has been established by the environmental regulatory agencies.

Treatment Options? Water softeners offer the best treatment method for hard or soft water.

HYDROGEN SULFIDE

What is it? Hydrogen sulfide can be present in ground water containing sulfur under anaerobic (no oxygen) conditions. It is also the product of a bacterial reaction in the presence of sulfate.

Hydrogen sulfide gives water a "rotten egg" taste and odor and is often more noticeable in hot water than cold water. In drinking water supplies it is normally present only at "nuisance" levels.

Acceptable Levels? Like hardness, no health standard has been established by the environmental regulatory agencies for this element.

Treatment Options? Hydrogen sulfide can be converted back to sulfate by any oxidant such as dissolved air, chlorine, or potassium permanganate used to regenerate iron filters. If air is used, the water must be detained in a tank and aerated with a diffuser similar to an aquarium. If the hydrogen sulfide is being produced by bacteria growing in the plumbing or treatment system, a thorough disinfection with chlorine is normally required to eliminate the growths.

Testing Frequency

Drinking water supplies should be tested for bacteria and nitrate at least once a year. The other tests discussed here, should be made regularly (every three years or so).

Events that occur near your drinking water well may indicate a need to have additional tests performed on your water. If your well is located near a fuel oil spill (this would also include any petroleum products), it would be advisable to have your water tested for Volatile Organic Chemicals (VOCs). A less expensive test, Total Petroleum Hydrocarbon or TPH, will also detect the presence of spilled fuel oil. Have your water supply checked if you have drilled a second well or changed the pump or plumbing. Also have the water supply tested if there is new, or increased activity in your area that has the potential to contaminate a water supply.

For more information:

If you have more questions concerning your drinking water or would like more information on this subject, contact your local offices of the Alaska Cooperative Extension (ACE) or the Alaska Department of Environmental Conservation (ADEC). For a listing of certified water test labs in Alaska, check the ADEC website at:
http://www.state.ak.us/dec/deh/water
For an excellent reference on this topic, check out Plain Talk About Drinking Water: Questions and Answers about the Water you Drink by Dr. James Symons.

Units of Measure
The most commonly used unit of measure for water tests is milligrams per liter (mg/l). Generally speaking, this is equal to one part per million (ppm)—one part contaminant to one million parts water. Some toxins are reported in even smaller units, parts per billion (ppb).

(For a little perspective, one ppm would be approximately equal to one or two grains of sugar dissolved in a bath tub full of water)

The following table gives a subjective interpretation of relative hardness levels using the two most common units of measure for hardness.

Relative Hardness	ppm (as $CaCO_3$)	grains/ gallon
soft	0 - 75	0 - 4.39
mod. hard	75 - 150	4.39 -8.77
hard	150 - 300	8.77-17.54
very hard	>300	>17.54

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USGS
science for a changing world

Arsenic in Ground-Water Resources of the United States

Arsenic is a naturally occurring element in rocks, soils, and the waters in contact with them. Recognized as a toxic element for centuries, arsenic today also is a human health concern because it can contribute to skin, bladder, and other cancers (National Research Council, 1999). Recently, the National Research Council (1999) recommended lowering the current maximum contaminant level (MCL) allowed for arsenic in drinking water of 50 µg/L (micrograms per liter), citing risks for developing bladder and other cancers. The U.S. Environmental Protection Agency (USEPA) will propose a new, and likely lower, arsenic MCL during 2000 (U.S. Environmental Protection Agency, 2000). This fact sheet provides information on where and to what extent natural concentrations of arsenic in ground water exceed possible new standards.

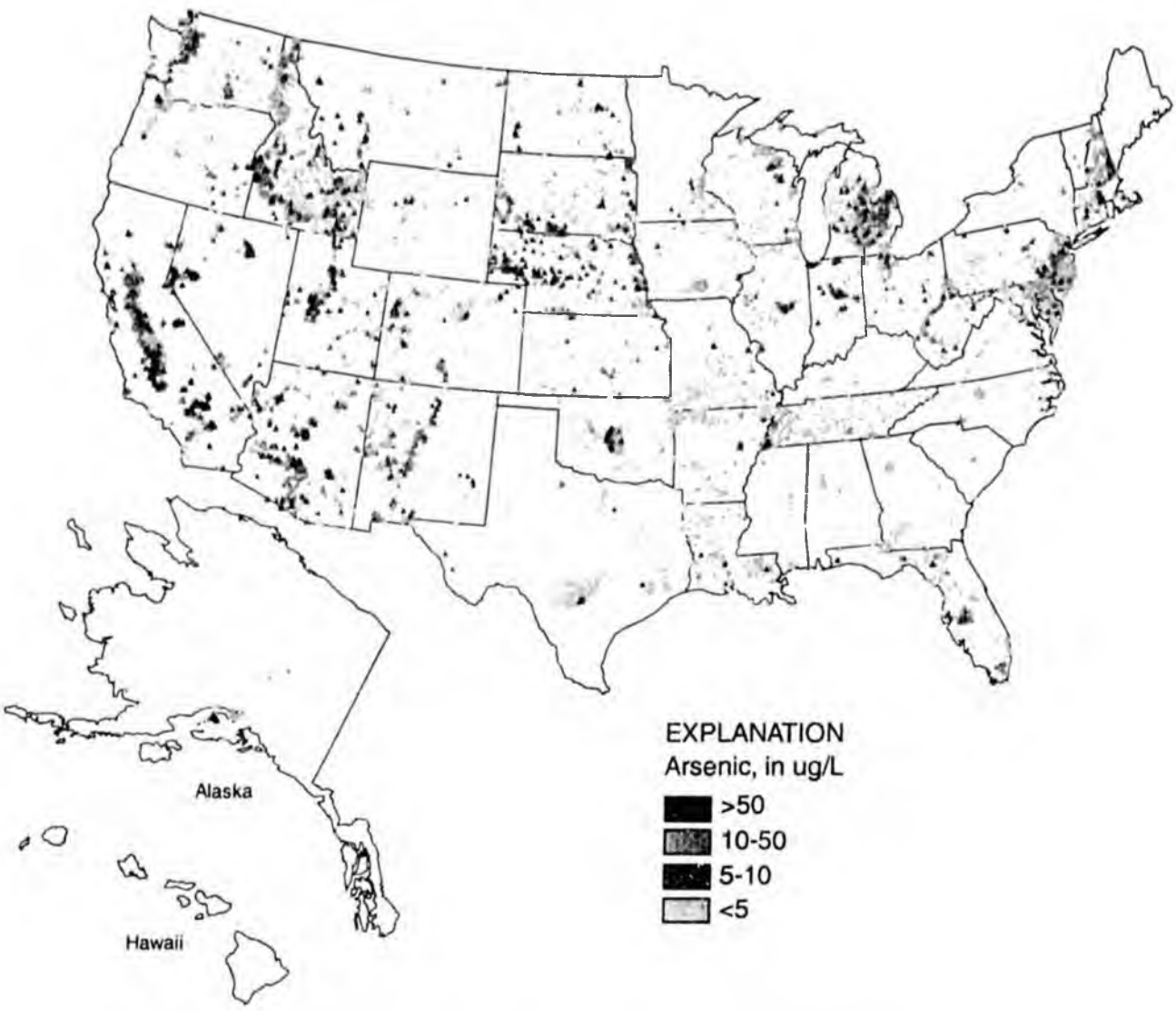

Figure 1. *Arsenic concentrations in ground water of the United States.*

U.S. Department of the Interior
U.S. Geological Survey

Fact Sheet FS–063–00
May 2000

USGS Arsenic

The U.S. Geological Survey (USGS) has collected and analyzed arsenic in potable (drinkable) water from 18,850 wells in 595 counties across the United States during the past two decades. These wells are used for irrigation, industrial purposes, and research, as well as for public and private water supply. Arsenic concentrations in samples from these wells are similar to those found in nearby public supplies (see Focazio and others, 1999). The large number of samples, broad geographic coverage, and consistency of methods produce a more accurate and detailed picture of arsenic concentrations than provided by any previous studies.

Where do high concentrations of arsenic in ground water occur in the United States?

Arsenic concentrations in ground water generally are highest in the West. Parts of the Midwest and Northeast also have arsenic concentrations that exceed 10 µg/L, the World Health Organization's (WHO) provisional guideline for arsenic in drinking water (World Health Organization, 1999). Arsenic concentrations appear to be lower in the Southeast, based on a smaller amount of data. Arsenic concentrations also could be high at locations not shown on figure 1 because data are not available everywhere. Even at sampled locations, concentrations might differ between shallow and deep waters. Nonetheless, these data illustrate how arsenic concentrations vary across broad regions of the country.

How frequently are arsenic concentrations in ground water likely to exceed possible new maximum contaminant levels?

To look at the Nation as a whole, arsenic data were grouped by county and linked to the number of public-supply systems withdrawing ground water in each county (Focazio and others, 1999). Estimates of the percentage of small public water-supply systems which exceed six targeted arsenic concentrations in their ground-water resource are shown in figure 2. Systems were called "small" if they served between 1,000 and 10,000 persons. Focazio and others (1999) provide similar information for both smaller and larger sized systems. The highest concentration evaluated is at the current MCL of 50 µg/L, along with several lower concentrations, one of which may become the new MCL.

As the concentration for a possible new MCL decreases, the likelihood of exceeding that standard increases. Just over 13 percent of small systems used water with arsenic concentrations greater than 5 µg/L, compared to fewer than 1 percent exceeding the current 50 µg/L MCL. Public systems exceeding a new, lower MCL will be required to either treat their water or find alternative sources of supply. This choice undoubtedly will increase costs for consumers while decreasing their exposure to arsenic. Although homeowners with private wells are not regulated, a lower drinking-water standard would mean that more homeowners will be consuming water with concentrations that exceed a standard.

USGS information provides a broad picture of arsenic concentrations in ground water throughout the United States. In 24 percent of the U.S. counties where data were available, at least 10 percent of samples had arsenic concentrations exceeding 10 µg/L, the WHO provisional guideline for arsenic. Water users in these counties (colored darkest brown in fig. 3) are the most likely to have ground water exceeding new standards for arsenic.

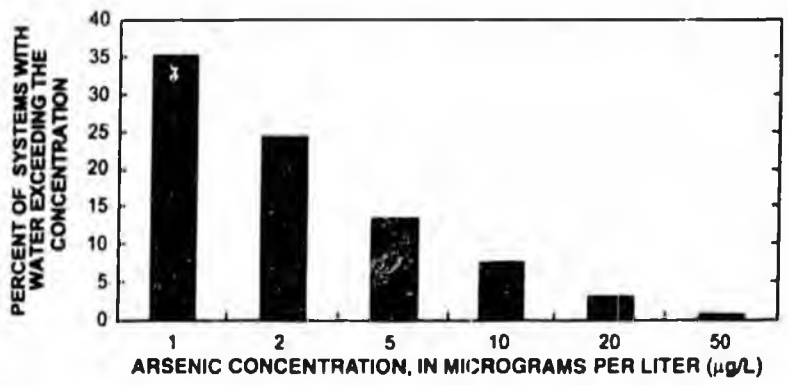

Figure 2. *Percentage of small public water-supply systems estimated to exceed targeted arsenic concentrations in their ground-water resource (µg/L, micrograms per liter).*

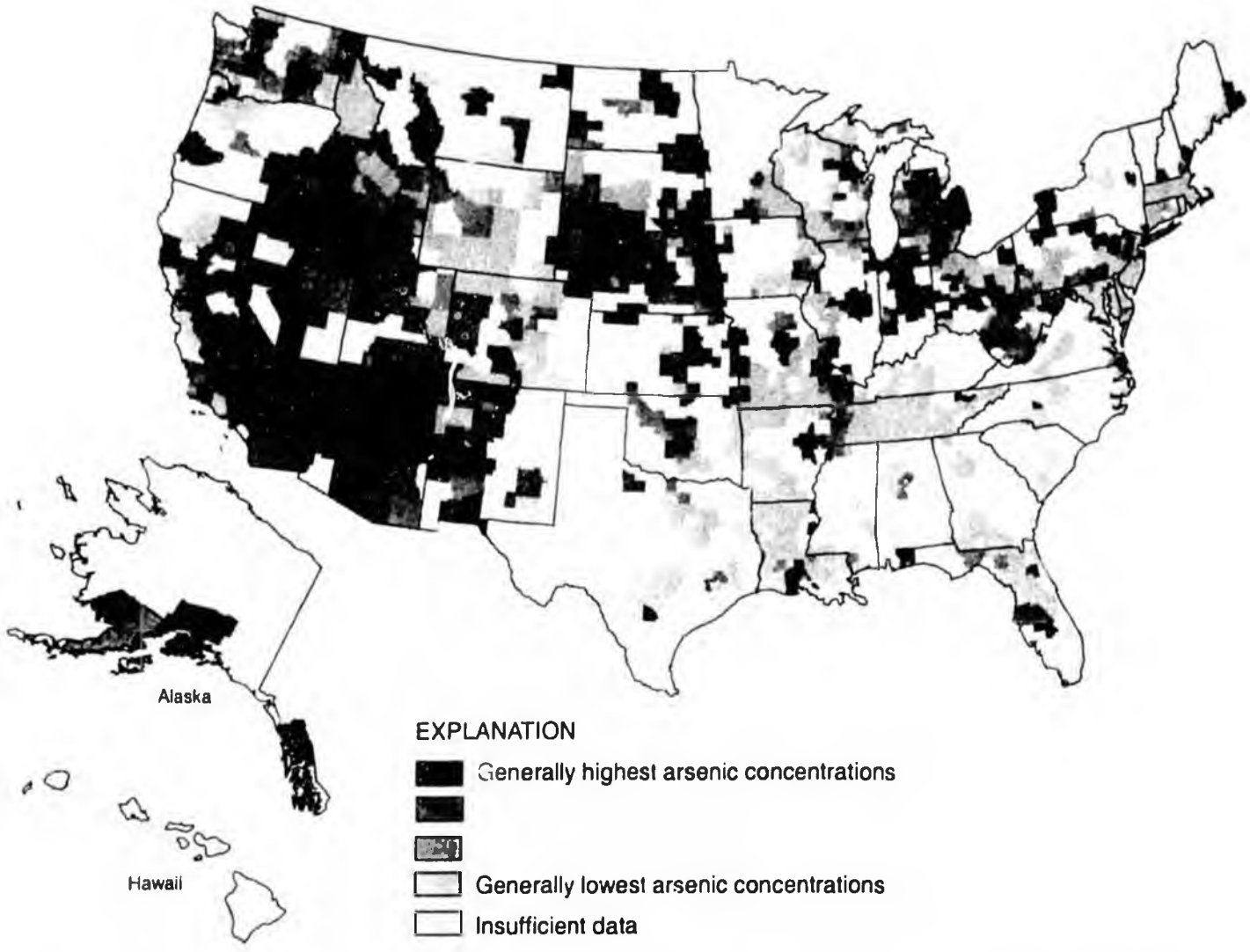

Figure 3. *Counties with arsenic concentrations exceeding possible new MCLs in 10 percent or more of ground-water samples.*

Counties with arsenic concentrations exceeding 10 µg/L in 10 percent or more of samples.

Counties with arsenic concentrations exceeding 5 µg/L in 10 percent or more of samples.

Counties with arsenic concentrations exceeding 3 µg/L in 10 percent or more of samples.

Counties with fewer than 10 percent of samples exceeding 3 µg/L, representing areas of lowest concentration.

Counties with insufficient data in the USGS data base to make estimates.

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HEALTH

Drinking Water Quality and Health no. 9.307

by P. Kendall

Quick Facts...

Water is our most essential nutrient.

Water contains different amounts of dissolved inorganic and organic compounds.

The Environmental Protection Agency regulates public water systems.

The Colorado Department of Health regulates bottled or vended water if the water does not leave Colorado. The Food and Drug Administration regulates if the water is involved in interstate commerce.

People can survive days, weeks or months without food, but only about four days without water. The body uses water for digestion, absorption, circulation, transporting nutrients, building tissues, carrying away waste and maintaining body temperature.

The average adult consumes and excretes about 10 cups of water daily. Adults should drink six to eight cups of liquids per day. Although most of this liquid should come from beverages, food supplies some water. Our bodies make water as a by-product in the breakdown of fats, sugars and proteins to energy.

Water is always two parts hydrogen to one part oxygen. Beyond that, its composition depends on where it comes from, how it is processed and handled. Water can be hard or soft, natural or modified, bottled or tap, carbonated or still. About one-half of our water comes from underground water tables (groundwater) and one-half from surface water in rivers, lakes and reservoirs.

Hard vs. Soft Water

The hardness of water relates to the amount of calcium, magnesium and sometimes iron in the water. The more minerals present, the harder the water. Soft water may contain sodium and other minerals or chemicals; however, it contains very little calcium, magnesium or iron. Many people prefer soft water because it makes soap lather better, gets clothes cleaner and leaves less of a ring around the tub. Some municipalities and individuals remove calcium and magnesium, both essential nutrients, and add sodium in an ion-exchange process to soften their water. The harder the water, the more sodium that must be added in exchange for calcium and magnesium ions to soften the water. This process has drawbacks from a nutritional standpoint.

First, soft water is more likely to dissolve certain metals from pipes than hard water. These metals include cadmium and lead, which are potentially toxic. Second, soft water may be a significant source of sodium for those who need to restrict their sodium intake for health reasons. Approximately 75 milligrams of sodium is added to each quart of water per 10 g.p.g. (grains per gallon) hardness. Finally, there is epidemiological evidence to suggest a lower incidence of heart disease in communities with hard water. The Environmental Protection Agency (EPA) doesn't set a mandatory upper limit for sodium in water, but suggests an upper limit of 20 milligrams per liter (quart) to protect individuals on sodium-restricted diets.

If you use a water softener, two ways to avoid excess sodium in drinking water are: 1) use low sodium bottled water, and 2) install a separate faucet in the kitchen for unsoftened water.

Colorado State University Cooperative Extension

Giardia and Other Microorganisms

Along with differences in mineral composition, water contains different levels of microorganisms. Bacteriological tests are available to determine if water is bacteriologically safe for human consumption. Contact the county health department for information on how and where such tests are performed.

Chlorination and filtration are effective controls for most bacteria. However, a tiny one-celled parasite not readily killed by chlorination, *Giardia lamblia*, deserves special discussion. Over the past several years, giardia has become an increasingly common problem in rural and mountain communities with inadequate filtration systems. Giardia is mostly found in surface waters such as mountain streams and lakes, not groundwater. Because one cannot see, taste, or smell giardia, it is best not to drink water directly from mountain streams or lakes.

Once ingested, the giardia cyst develops into a trophozoite that attaches to the wall of the small intestine. Disease symptoms usually include diarrhea with cramping and gas, dehydration, weakness and loss of appetite. Symptoms may take seven to 10 days to appear and last up to six weeks. Most people are unaware at the time of ingestion that they have been infected.

Laboratory identification can confirm the disease by diagnosis of the organism in the stool. The disease is curable with prescribed medication. If untreated, the symptoms may disappear on their own and reoccur intermittently over a period of months.

Treatment also can help prevent spread of the disease between people and between pets and people. For example, in a Colorado Department of Health study person-to-person contacts within families or between small children in day care centers were responsible for 46 percent of the 360 cases investigated. In fact, only 15 percent of the respondents had ingested stream or lake water in the three weeks prior to the onset of symptoms.

Prevention is the best solution. Always wash your hands after changing diapers and performing other hygiene activities. Wash children's hands frequently. Thoroughly clean change surfaces after diapering.

It's best to carry your own water on camping or backpacking trips. If this is not practical, the next best solution is to boil the water. Although giardia cysts are killed at temperatures of 131 degrees F, boiling for one minute at sea level and up to five minutes at 10,000 feet is recommended to eliminate other microorganisms that might be more heat resistant than giardia. Giardia also will not survive in water held at 59 degrees F for 30 minutes if one iodine tablet has been added per quart. Filters are available, but are expensive and inconvenient. Furthermore, many products marketed for backpackers are not effective in filtering out the tiny giardia cysts.

Protection is the key to the control of giardiasis. Since feces can contain the organism, bury waste 8 inches deep and at least 100 feet away from natural waters. Dogs, like people, can get infected with giardia. Unless carefully controlled, dogs can contaminate the water and continue the chain of infection from animals to humans.

Fluoride

Fluoride is found naturally in Colorado water supplies in different amounts. The dental benefits of fluoridated water are well documented. Fluoride concentrations of 1.0 milligrams per liter or greater will reduce the incidence of dental cavities. However, concentrations over 2.0 milligrams per liter can darken tooth enamel causing fluorosis.

The American Dental Association and the American Medical Association endorse fluoridation. Yet, after more than 40 years of fluoridation, nearly 40 percent of tap water remains unfluoridated. Opponents have long argued that

fluoridation violates individual rights, certain religious beliefs that ban medications, and does not prevent tooth decay. They also claim it promotes a variety of ills. A recent study in which male (but not female) rats given water with high levels of sodium fluoride developed a rare bone cancer, added fuel to their concerns. Proponents counter that fluoridation is not a form of medication, but an adjustment of an essential nutrient to a level favorable to health. What that level is and whether or not it should come from fluoridated drinking water will be at the crux of the next round of debates.

Tooth decay is on the decline in the United States (50 percent decline in the last 20 years). The decline is occuring in fluoridated and to a lesser extent in non-fluoridated areas. Fluoride treatments, fluoridated toothpaste, better diets and improved oral hygiene are all factors.

Like most elements, fluoride appears to be both beneficial to health and potentially toxic. The goal is to determine the optimum level and then decide how best to achieve that level. The EPA currently sets the maximum allowable level of sodium fluoride in drinking water (natural or added) at 4 milligrams per liter (4 parts per million) and the maximum recommended level at 2 milligrams per liter. The EPA reviews drinking water standards every three years.

Lead

Lead is a toxic heavy metal known to turn up in drinking water. Recent data indicate that levels formerly safe may threaten health, especially among infants and children. In an 1986 EPA survey, an estimated 40 million Americans (one in five) were using drinking water that contained potentially hazardous levels of lead.

Acute lead poisoning can cause severe brain damage and death. The effects of chronic, low-level exposure, however, are more subtle. The developing nervous systems of fetuses, infants, and children are particularly vulnerable. Recent studies show that lead exposure at a young age can cause permanent learning disabilities and hyperactive behavior. Low-level lead exposure also is associated with elevated blood pressure, chronic anemia, and peripheral nerve damage.

Natural water usually contains very little lead. Contamination generally occurs in the water distribution system or in the pipes of a home or facility. Lead pipes, brass faucets and lead solder used to join copper pipes are the culprits. If your home was built before 1986 when a nation-wide ban on lead pipes and lead solder went into effect, it is likely to have lead-soldered plumbing.

The severity of lead contamination depends in part on how "corrosive" your water is. Soft or acidic water is more likely to corrode plumbing and fixtures, leaching out lead. According to the EPA, about 80 percent of public water utilities deliver water that is moderately or highly corrosive.

The EPA is changing the focus of its lead regulation from a maximum contaminant level of 50 parts-per-billion at the tap to imposed treatment if more than 10 percent of collected samples from a water system exceed 15 parts-per-billion lead. Water systems that exceed such levels will be required to implement corrosion control measures to reduce leaching of lead into water. Techniques such as adding lime (calcium oxide) to reduce water acidity can greatly reduce lead levels at the tap. A number of other simple practices also can help reduce the level of lead at the tap.

1. Cook with and drink only cold water. Hot water tends to dissolve more lead from pipes.
2. Don't drink the first water out of your tap in the morning. Let the water run for about one minute until a change in temperature occurs.
3. For private wells, consider water treatment devices such as calcite filters that reduce acidity and make water less corrosive. Certain

point-of-purchase treatment devices (e.g., some ion-exchange filters, reverse osmosis devices and distillation units) also can remove lead.

4. If lead levels remain high, consider bottled water for drinking and cooking purposes.

Nitrate

Nitrates may be found naturally in water or may enter water supplies through a number of sources (fertilizers, animal wastes, septic systems). High nitrate-containing water is a serious health concern for pregnant women and infants under the age of 6 months. Bacteria in the infants' digestive tracts may convert the relatively harmless nitrate to nitrite. In turn, the nitrite combines with some of the hemoglobin in blood to form methemoglobin that cannot transport oxygen. To protect those at risk, the Maximum Contaminant Level (MCL) for nitrate in water is 45 mg/l as nitrate (NO_3) or 10 mg/l as nitrogen (N). The MCL for nitrite is 1 mg/l.

Sulfate

Sulfates occur naturally in groundwater combined with calcium, magnesium and sodium as sulfate salts. Sulfate content in excess of 250 to 500 ppm (mg/l) may give water a bitter taste and have a laxative effect on individuals not adapted to the water.

Water that smells like rotten eggs has a high level of hydrogen sulfide gas. The gas may occur naturally in water near oil or gas fields or as the result of bacterial contamination. To test for bacterial contamination contact the county health department or a commercial testing lab.

Organic Chemicals

The term "organic chemical" includes such products as pesticides, herbicides, petroleum products and industrial solvents. Although most have not been routinely monitored, hundreds of different organic chemicals have been found in drinking water from accidental spills, improper disposal or non-point movement through soils to groundwater. Today, municipalities are required to monitor an increasing list of organic chemicals under the Safe-Drinking-Water Act.

As with other contaminants, the danger from organic chemicals in water is hard to assess. In high doses and pure form some of these chemicals may promote cancer, impair the nervous system or damage the heart. In low doses, organic chemicals may have cumulative effects, but so far not much is known about their nature or magnitude.

Once groundwater is contaminated, cleanup of that groundwater is extremely difficult. If the water is unsuitable for human use, it also may be unsuitable for agricultural uses and alternative sources of water may need to be found. Organic chemicals and groundwater contamination is an area where much research is needed. In the meantime, the prudent use and disposal of all chemicals (agricultural, industrial, home and garden) can go a long way to protect the environment and groundwater from contamination.

Radon

Radon is a radioactive gas, a decay product of uranium, that can dissolve into water supplies. The gas also is found in rocks and soils that contain granite, shale, phosphate, and pitchblende. It is odorless, colorless and tasteless.

The EPA considers radon to be a major potential health threat, causing an estimated 10,000 to 40,000 lung-cancer deaths each year. While most deaths are from radon accumulated in houses from seepage through cracks and holes in

the foundation, 30 to 1,800 deaths per year are attributed to radon from household water. Showering, dish-washing and laundering agitate water and release radon into the air.

The EPA estimates that at least 8 million people may have high radon levels in their water supply. Radon is most likely to be present in water from private wells or from small community systems. Large systems usually provide some kind of water treatment that aerates the water and disperses any radon gas that may be present.

Before you test your water for radon, test the air. If your indoor radon level is high and you use groundwater, test your water. If the air level is low, there is no need to test your water. Test results are expressed in picocuries of radon per liter of water (pCi/l). In general 10,000 pCi/l of radon in water contributes roughly 1 pCi/l of airborne radon throughout the house. EPA currently advises consumers to take action at total household air levels of 4 pCi/l. For waterborne radon, a simple step is to make sure your bathroom, laundry and kitchen are well ventilated. At moderate levels, this may adequately reduce your exposure to waterborne radon. However if you use a private well that has high levels of radon, water treatment devices such as granular activated carbon units and home aerators may be warranted.

Bottled vs Tap Water

Sales of bottled water have increased dramatically over the last few years. Bottled-water companies and public water systems often battle over the relative merits of their products. EPA regulates public water systems. FDA regulates bottled water that crosses state lines. Bottled or vended water that stays in Colorado falls under the jurisdiction of the Colorado State Department of Health.

Public water systems generally are disinfected with chlorine. Bottled water is commonly disinfected by ozone treatment. Ozone is a high-strength oxygen that quickly reverts to normal oxygen. It is a strong oxidant, like chlorine, but does not add taste like chlorine does. The length of time chlorine and ozone remain active in water depends on many factors, including temperature. Chlorine usually provides residual disinfection throughout the public-water distribution system. Ozone provides a residual disinfection for a limited time. However, bottled water may be in distribution for several weeks and storage conditions, especially temperature, may adversely affect quality. In term: of bacterial content, it is questionable as to whether bottled water is better than most municipal tap water.

Bottled water often is purchased for its good taste. However, taste does not always indicate safeness. At the concentrations present in drinking water, most harmful substances (including some disease-causing microorganisms, nitrates, trace amounts of lead and mercury, and some pesticides and organic materials) have no taste. Differences in taste among bottled waters generally are due to differing amounts of carbon dioxide, calcium, iron compounds, sodium, and other minerals and mineral salts. Differences also may be due to the amount and type of processing.

Mineral-free water or distilled water is treated to remove the minerals that occur naturally in water. Almost all sodium is removed by these processes. The resulting water is rather flat and tasteless for drinking because of the lack of minerals.

Drinking water comes from municipal water systems, wells or springs. It often is treated by reverse osmosis to remove bacteria and other pathogens and most pesticides. The resulting water is purified but still contains some dissolved solids.

Natural water comes from unprotected well or spring systems and is bottled without extensive treatment. Because it is almost exclusively groundwater, it usually contains a range of minerals and is, therefore, quite flavorful. **Spring water** is ground water that has risen naturally to the surface. **Artesian spring water** also rises under its own pressure, but only after it has been reached by drilling.

Mineral water is simply water that contains minerals - which is true of virtually all water except distilled water. **Natural mineral water** contains just the minerals present in the water as it comes from the ground. Mineral water can be still or sparkling. The carbon dioxide that causes carbonation also can be natural or added during bottling.

As for contaminants, bottled water generally rates as good as but no better than municipal water supplies used for comparison purposes. If you do purchase bottled or vended water, purchase from a quality retailer who handles enough volume to rotate stock. If you have concerns about locally vended water, contact your county health department or the Colorado Department of Health, (303) 692-2000.

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[1]Colorado State University Cooperative Extension food science and human nutrition specialist and professor, food science and human nutrition.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Milan A. Rewerts, Director of Cooperative Extension, Colorado State University, Fort Collins, Colorado. Cooperative Extension programs are available to all without discrimination. No endorsement of products mentioned is intended nor is criticism implied of products not mentioned.

HB

378

REPRESENTATIVE BILL THOMAS

ALASKA STATE LEGISLATURE DISTRICT 5

e-mail: Representative.Bill.Thomas@legis.state.ak.us webpage: www.akrebulicans.org/thomas/

State Capitol

Juneau AK, 99801-1182

907-465-3732

888-461-3732

FAX 907-465-2652

Date: 4-11-06

To: Representative Ramras, Co-Chair House Resources Committee
Representative Samuels, Co-Chair House Resources Committee

From: Representative Thomas

Re: Sponsor Statement for CSHB 378 An act designating a representative of a Haines nonprofit recreational group as an ex officio member of the Alaska Chilkat Bald Eagle Preserve Advisory Council and removing the mayor of the City of Haines as an ex officio member of the council.

The Alaska Chilkat Bald Eagle Preserve was created by the State of Alaska in 1982. The preserve, located along the Haines Highway, was created to protect the world's largest concentration of Bald Eagles and their habitat. Along with the large eagle population, the preserve is home to five species of salmon that spawn in the surrounding streams and tributaries.

At the heart of the Eagle Preserve, between 18 and 24 mile of the Haines Highway, is the main viewing area for eagle watchers. This area hosts a particularly large concentration of eagles due to the availability of salmon and open water in the winter months.

In order to protect the sanctity and utility of the Eagle Preserve, the Alaska Bald Eagle Preserve Advisory Council was created. The council consists of 12 seats representing local, state, environmental, traditional, and commercial interests. One of these seats is dedicated to the Haines City Mayor. However, the City of Haines and the Haines Borough have since consolidated leaving the seat for the Haines City Mayor open. CSHB 378 designates this open seat to a person who is a member of the Haines Borough Assembly, who has been recommended by the Borough Assembly, and appointed by the governor.

I respectfully request your support of CSHB 378.

adopted

24-LS1486\S
Kane
4/19/06

CS FOR HOUSE BILL NO. 378( )

IN THE LEGISLATURE OF THE STATE OF ALASKA

TWENTY-FOURTH LEGISLATURE - SECOND SESSION

BY

Offered:
Referred:

Sponsor(s): REPRESENTATIVE THOMAS

A BILL

FOR AN ACT ENTITLED

"An Act providing for selection of a member of the Haines Borough Assembly to serve as an ex officio member of the Alaska Chilkat Bald Eagle Preserve Advisory Council and removing the mayor of the City of Haines as an ex officio member of the council."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* **Section 1.** AS 41.21.625(c) is amended to read:

(c) The [MAYOR OF THE CITY OF HAINES, THE] mayor of the Haines Borough, the president of Klukwan, Inc., the **chair** [CHAIRMAN] of the Council of the Chilkat Indian Village, and the **chair** [CHAIRMAN] of the Chilkoot Indian Association are ex officio members of the Alaska Chilkat Bald Eagle Preserve Advisory Council. **A member of the Haines Borough Assembly who has been selected by the Haines Borough Assembly is also an ex officio member of the advisory council. For this selection, preference shall be given to those members of the Haines Borough Assembly who do not also sit on boards that are already represented on the advisory council.** The mayor of the Haines Borough may

recommend to the governor for appointment to the advisory council the name of a resident of the Haines Borough for the representation of commercial or industrial interests.

not taken up

24-LS1486\L
Kane
2/16/06

CS FOR HOUSE BILL NO. 378( )

IN THE LEGISLATURE OF THE STATE OF ALASKA

TWENTY-FOURTH LEGISLATURE - SECOND SESSION

BY

Offered:
Referred:

Sponsor(s): REPRESENTATIVE THOMAS

A BILL

FOR AN ACT ENTITLED

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advisory council. The mayor of the Haines Borough may recommend to the governor for appointment to the advisory council the name of a resident of the Haines Borough for the representation of commercial or industrial interests.

FISCAL NOTE

STATE OF ALASKA
2006 LEGISLATIVE SESSION

Fiscal Note Number:
Bill Version: HB378-DNR-Parks-02-0E
() Publish Date:

Revision Date/Time (Note if correction):
Dept. Affected: Natural Resources

Title: Chilkat Bald Eagle Preserve Advisory Council
RDU: Resource Development
Component: Parks Management
Sponsor: Rep. Thomas
Requester: (H) CRA
Component No.: 452

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Personal Services						
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
CAPITAL EXPENDITURES						
CHANGE IN REVENUES ( )						

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other (Specify Type--Do not abbreviate)						
TOTAL	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Estimate of any current year (FY2006) cost: 0.0
Mark this box (X) if funding for this bill is included in the Governor's FY 2007 budget proposal:

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: *(Attach a separate page if necessary)*

There is no fiscal impact associated with implementation of this legislation.

Prepared by: Jerry Lewanski, Director
Phone: 907-269-8701
Division: Parks
Date/Time: 2/6/2006
Approved by: Michael Mange
Date: 2/6/2006
Agency: Natural Resources

(Revised 9/7/2005 OMB)

State of Alaska

Office of Boards and Commissions

BALD EAGLE PRESERVE

BOARD: Alaska Chilkat Bald Eagle Preserve Advisory Council

BOARD IDENTIFICATION NUMBER: 009

DEPARTMENT: DEPARTMENT OF NATURAL RESOURCES

AUTHORITY: AS 41.21.625; Chapter 95, SLA 1982

STATUS: Active

SUNSET DATE:

REQUIREMENTS: No Legislative Confirmation or Financial Disclosure required

PROHIBITIONS: None

TERM: 2 years

DESCRIPTION: 12 member council. Governor appoints a resident of the Haines Borough representing a conservation organization, a representative of the U.S. Fish and Wildlife Service, and a member of the Upper Lynn Canal fish and game advisory committee. The Mayor of the City of Haines, the Mayor of the Haines Borough, the President of Klukwan, Inc., the chairman of the Council of the Chilkat Indian Village, and the chairman of the Chilkoot Indian Association serve as ex officio members. The Mayor of the Haines Borough may recommend to the Governor for appointment to the council a resident of the Haines Borough for representation of commercial or industrial interests. The commissioner of Fish and Game, the director of the Division of Parks, and the director of the Division of Forestry, or their designees also serve ex officio. Members may select alternates to act as members in their absence.

FUNCTION: Assists the department in the development and monitoring of a management plan for the Alaska Chilkat Bald Eagle Preserve.

CHAIR: No provisions.

SPECIAL FACTS: Advisory.

COMPENSATION: Standard Travel and Per Diem.

MEETINGS: 7 times per year; 7 days total; September through March.

FOR FURTHER INFORMATION CONTACT:

Mr. Michael Eberhardt
Southeast Area Superintendent
Division of Parks and Outdoor Recreation
DNR, 400 Willoughby Avenue, Fifth Floor M/S 1000
Juneau, AK 99801
Phone: (907) 465-4563, FAX: (907) 455-5330

Chilkat Bald Eagle Preserve Advisory Council Members
February 2006

Kimberley Strong	Chilkat Indian Village P.O. Box 210, Haines, Ak 99827 kstrong@aptalaska.net
Gary Hess	Upper Lynn Canal Fish and Game Advisory Committee P.O. Box 125, Haines Ak 99827 gdhess@aptalaska.net
Fred Shields	Mayor, Haines Borough **Co-Chair** P.O. 1209, Haines Ak 99827 fshields@haines.ak.us
Mike Jacobson	U.S. Department of the Interior Fish and Wildlife Service/Raptor Management 3000 Vintage Blvd #240 Juneau, Ak 99801 Mike_Jacobson@fws.gov
Travis Reid	Business and Industry P.O. Box 267, Haines Ak 99827 travisreid@chilkatguides.com
Lori Crupi	Conservation Organization P.O. Box 1606, Haines Ak 99827 Cassadie22@yahoo.com
Bill Thomas	Chilkoot Indian Association P.O. Box 490 (CIA business office), Haines Ak 99827 Thomasgroup@aptalaska.net
Roy Josephson	Division of Forestry P.O. Box 263, Haines Ak 99827 Roy_Josephson@dnr.state.ak.us
Les Katzeek	Klukwan, Inc P.O. Box 104, Haines Ak 99827
Randy Bachman	Department of Fish and Game P.O. Box 330, Haines Ak 99827 Randy_Bachman@fishgame.state.ak.us
Jerry Lewanski, Director or Joel Telford	Department of Parks and Outdoor Recreation P.O. Box 430, Haines Ak 99827
Vacant	City Mayor

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February 2006

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Les Katzeek	Klukwan, Inc P.O. Box 104, Haines Ak 99827
Randy Bachman	Department of Fish and Game P.O. Box 330, Haines Ak 99827 Randy_Bachman@fishgame.state.ak.us
Jerry Lewanski, Director or Joel Telford	Department of Parks and Outdoor Recreation P.O. Box 430, Haines Ak 99827
Vacant	City Mayor

8 Feb 04

Dear Rep. Thomas.

The Chilkat eagle preserve is a spectacular + very special place, with one of the largest (perhaps THE largest) aggregations of eagles ever known. Feeding on the late chum run is undoubtedly important to their winter survival + the maintenance of the great eagle concentrations in SE Alaska. People come from all over to see this spectacle without disturbing either the fish or the eagles. We should protect the entire preserve in order to protect an area of great ecological importance and an important tourist draw.

HB 378 - or any attempt to reduce protection for the Preserve - is a really bad idea + should not be supported.

M A Wilkes
5230 Terrace Pl.
Juneau

ALASKA CHILKAT

ALASKA STATE PARKS

Alaska Department of NATURAL RESOURCES

Photo Courtesy of K.L. Ramseyer

BALD EAGLE PRESERVE, Haines, Alaska

The Preserve

The Alaska Chilkat Bald Eagle Preserve was created by the State of Alaska in June of 1982. The preserve was established to protect and perpetuate the world's largest concentration of Bald Eagles and their critical habitat. It also sustains and protects the natural salmon runs and allows for traditional uses provided such uses do not adversely affect preserve resources. The Preserve consists of 48,000 acres of river bottom land of the Chilkat, Kleheni, and Tsirku Rivers. The boundaries were designated to include only areas important to eagle habitation. Virtually every portion of the preserve is used by eagles at some time during the year.

The river "flats" of the Chilkat River along the Haines Highway between miles 18 and 21 are the main viewing area for eagle watchers and considered critical habitat in the preserve. Bald eagles are attracted to the area by the availability of spawned-out salmon and open waters in late fall and winter. The natural phenomena responsible for five miles of open water on the Chilkat River during freezing months is called an "alluvial fan reservoir". The Tsirku fan, which is a fan-shaped accumulation of gravel, rock, sand, and glacial debris, at the confluence of the Tsirku, Kleheni, and Chilkat Rivers acts as a large water reservoir.

During the warmer spring, summer and early fall seasons, water from snow and melted glacial ice flows into the alluvial fan. The fan receives water

Photo Courtesy of K.L. Ramseyer

Visitor Guidelines

The following guidelines were developed to insure protection to the eagles and other critical features of the preserve. Please help us protect this area for the eagles and future visitor use.

STAY OFF THE FLATS! This is where the eagles feed. Their energy is better utilized by feeding than by flying away from intruders.

VIEW EAGLES FROM AREA BETWEEN HAINES HIGHWAY AND RIVER. Staying within this area prevents stressful conditions for the eagles. They need their space to roost and feed.

DO NOT DISTURB THE FISH IN ANY WAY. Fish are the eagles' food. Please leave all fish and fish carcasses where nature has placed them.

STOP AND PARK ONLY IN DESIGNATED TURNOUTS. The road is narrow and has many curves. Watch for traffic at all times. Never stop on the roadway. Do not set up tripods on the road.