



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Indian Health Service
Rockville MD 20857

FOIA Case: 15-090

JUL 22 2015

Andrea Rodgers
3026 NW Esplanade
Seattle, WA 98117

Dear Ms. Rodgers:

This is a second response to your Freedom of Information Act (FOIA) request dated May 6, in which you requested copies of all records, data, studies reports and communications regarding or resulting from the nitrate contaminations, nitrate contamination of drinking water and the impacts of Concentrated Animal Feeding Operations on and around the Yakama Indian Reservation. Your request was forwarded to me because of my responsibilities under the FOIA.

After further review, we are sending additional records that you have requested. Although the requested information is exempt from disclosure under the FOIA, we are exercising our discretion to release the information.

You have the right to appeal this decision to deny you full access to records within this agency's possession within 30 days from the date you receive this letter. Should you wish to appeal, send your appeal to the Deputy Agency Chief FOIA Officer, Office of the Assistant Secretary for Public Affairs, U.S. Department of Health and Human Services, Parklawn Bldg. RM 19-01, 5600 Fishers Lane, Rockville MD 20857. Your appeal must follow the procedures outlined in Subpart C of the enclosed Regulations. Indicate on your envelope and letter "FOIA Appeal."

Fees for processing your request are minimal and they have been waived. However, you may be charged for future requests. We apologize for the delay in responding to your request.

If you have any questions or need further assistance, please contact Sandra Maclin at (301) 443-1116.

Sincerely,

A handwritten signature in black ink, appearing to read "Carl G. Mitchell".

Carl G. Mitchell
Acting Director, Division of
Regulatory Affairs
and Acting FOIA Officer

Enclosures



DEPARTMENT OF HEALTH & HUMAN SERVICES

Yakama Indian Health Service
Office of Environmental Health and Engineering
341 Fort Road
Toppenish, WA 98948
(509) 865-1776

06/14/2014

Summary

Standard Process and Protocol for Total Nitrate Screening

A well water sample with at least 100mls (approximately 4ozs.) of well water, in a clean water container, can be brought into the Yakama Field Office (YFO) for total nitrates screening using a HACH DR/890 Colorimeter, by appointment. The instrument has a standard error of +/- 1mg/L, i.e. parts per million. We can provide the water bottle to collect the water sample from the tap, if the well user drops by our office. The well water sample test result is for screening the sample only and not a valid laboratory analysis. The YFO uses an action level of 9 parts per million (ppm) total nitrates, which is slightly below the health-based number of 10ppm because the instrument has the potential to be less sensitive than laboratory testing. This screening serves as a tool for the YFO to make suggestions based on total nitrates reading as to whether additional testing or investigation of the water and environment around the well should occur. There are no mandated minimum contamination levels for individually owned water wells, but the MCLs for drinking water systems are usually used as default levels because they are based on health science investigation.

As a general suggestion, an individual should test their individual water well for coliform bacteria annually for informational purposes, and it would be wise to also test for total nitrates when you take a sample for the annual bacteria test, but it is not required for privately owned individual wells serving one residence. Unfortunately, the IHS Yakama Field Office does not have funding to pay for these tests and would be the responsibility of the homeowner or the tribe.

If you have any questions about this, please feel free to contact me at (509) 865-1776.

Sincerely,

Shawn Blackshear, M.S., R.S.
LCDR, United States Public Health Service
Environmental Health Officer
Yakama Service Unit

R. M. [unclear] Sent to [unclear] Richard [unclear]
ENVIRONMENTAL HEALTH AND ENGINEERING
91 AUG 12 AM 9:51
INDIAN HEALTH SERVICE

**CONTAMINATION OF DOMESTIC WELLS BY AGRICULTURAL CHEMICALS
ON INDIAN RESERVATIONS IN THE INLAND NORTHWEST**

Kevin S. Chadwick, P.E., District Environmental Engineer
Portland Area Indian Health Service
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RECEIVED
AUG

INDIAN HEALTH SERVICE
SPOKANE DISTRICT OFFICE

ABSTRACT

Contamination of domestic wells by agricultural chemicals is an issue of concern at several Indian reservations in the Inland Northwest. Routine sampling of wells constructed for residences by the Indian Health Service (IHS) revealed increasing levels of nitrates at several locations. Organic agricultural chemicals were found in some wells. Health impacts of chronic exposure to low levels of these substances is unclear. The paper presents the nature, extent, and possible sources of this contamination. Changes in construction techniques made in response to this problem are discussed. A strategy for reduction of contamination sources, for further study to determine the extent of contamination, and for the study of health effects was developed by one tribe and IHS.

BACKGROUND

The Indian Health Service Sanitation Facilities Construction Program (SFC) provides water and waste water facilities to Indian homes under the authority of Public Law 86-121. Services provided are limited by amounts and types of funding provided by Congress. In most budget years, funding has been available to provide facilities to new or renovated housing, with limited funding for existing homes. Water and waste water services are provided by both community and individual home facilities as appropriate to the location of the home.

The Spokane District Office of the Portland Area Indian Health Service provides engineering services for the SFC Program for ten Indian reservations in the Inland Northwest region of Idaho, Eastern Washington and Eastern Oregon. The region is inland of coastal mountain ranges. The resulting climate is semiarid, with yearly precipitation averaging about 10 inches.

Agriculture, both irrigated and dryland (unirrigated) farming, is an important contributor to the economies of several of the reservations. Irrigated potato and grain farming is prevalent on the one-half million acre Fort Hall Reservation in southeast Idaho, home of the Shoshone-Bannock Tribes. Dryland wheat farming is principal use of land on the 157,000 acre Umatilla Reservation in Northeast Oregon. The 1.3 million acre Yakima Reservation lies in an area of extensive irrigated fruit

and vegetable farming in south central Washington.

Land on the reservations is held in trust by the U.S. Government for the Tribe or individual tribal members. Most agricultural land is leased to large farming operations controlled by non-tribal members. Tribal members typically prefer to locate their homes on scattered, rural sites. These sites are often located adjacent to farming locations due to the location of land held in trust for the individual.

IDENTIFICATION OF THE PROBLEM

Fort Hall Reservation, Idaho

The Shoshone-Bannock Tribes entered into an agreement in 1987 with the United States Geological Survey (USGS) to assess the extent of anomalously high concentrations of dissolved nitrogen in the groundwater on the Fort Hall Reservation. Testing for nitrates from agricultural and domestic wells throughout most of the reservation revealed elevated levels limited to one area of 27 square miles in the north central portion of the reservation. The Tribe designated this area the "vulnerable zone." Approximately 40 Indian residences and 25 non-Indian residences are located within this area. Further testing for nitrates and organic chemicals was begun within the vulnerable zone.

The Fort Hall vulnerable zone is within the Snake River Plain hydrogeologic area. Bedrock in the area consists of basalt which is within 100 to 300 feet of the ground surface. Unconsolidated alluvial deposits of sand, gravel and clay overlie the basalt. Scattered throughout the alluvium are clay lenses that create perched zones in the unconsolidated aquifer. Groundwater is widely available in the alluvium in quantities adequate for domestic use. The basalt bedrock is an extremely productive aquifer, with well yields of 500 gallons per minute and above common.

USGS conducted further testing of samples from 71 wells of all types in the vulnerable zone for nitrate-nitrogen in 1989. Nitrate-nitrogen exceeded the Environmental Protection Agency (EPA) maximum contaminant level (MCL) for 18 samples, with the maximum concentration of 24 mg/l. The EPA MCL for nitrate-nitrogen in regulated water supplies is 10 mg/l, based on the acute effect of interference with oxygen in the blood of infants less than 1 year old.

The USGS laboratory analysis was limited to dissolved nitrogen as nitrate and nitrite. The Tribe entered into an agreement with the State of Idaho in 1989 to obtain analysis of 20 samples for volatile organic chemicals (VOCs) and pesticides. Although the State indicated that laboratory problems would require confirmation testing, initial results detected two volatile organic chemicals at concentrations above EPA Health Advisory levels. 1,2-dichloropropane, a discontinued fumigant, was found in four wells at levels of 1.5 to 9.3 ug/l (micrograms per liter). Methylene chloride was detected in one other well at

a level of 15.6 ug/l. Health Advisory levels for these chemicals are 0.6 ug/l and 5 ug/l, respectively.

Additional testing for VOCs and pesticides was begun by the Tribe in 1990 with funding from the Tribe, EPA and IHS. The first samples, collected in June 1990, were taken from the same wells previously tested. Levels of 1,2-dichloropropane were confirmed. Methylene chloride was not detected in a sample from the well where it was previously found. Ethylene dibromide was found at levels exceeding the Health Advisory level of 0.0004 ug/l in 6 wells, with concentrations ranging from 1.76 to 202 ug/l. The highest concentration was detected in the well where methylene chloride was previously detected. Other compounds identified during sampling at less than Health Advisory levels were chlorobenzene, dacthal, dinoseb, metribuzin, pentachlorophenol, 1,2,3-trichloropropane, and 1,2,4-trimethyl benzene. The Tribe plans to continue this testing program through 1991.

In 1990 USGS made water level measurements to determine the ground water flow direction and gradient in the vulnerable zone before the irrigation season. Results of that study have not been released.

Umatilla Reservation, Oregon

Nitrate-nitrogen levels of 7.55 mg/l and 10.2 mg/l respectively were detected in domestic water wells at two rural homesites on the Umatilla Indian Reservation during IHS construction activities in 1989. The first homesite had an existing well that had been drilled 25 years earlier. IHS sampled the well water at the request of the homeowner when upgrading water supply facilities. IHS records showed that the nitrate level had increased from 5.4 mg/l in 1974 to 7.55 mg/l in 1989. No analysis had been made when the well was drilled in 1966. In response to a request from the homeowner's physician, IHS ran a volatile organic analysis. No contaminants were detected.

The well at the second site was resampled and split sample results from two laboratories were both less than 5 mg/l. IHS concluded that the original nitrate-nitrogen level reported from this new well was in error.

The aquifer underlying the Umatilla Reservation is part of the Lower Umatilla Basin, which encompasses a large area surrounding the reservation. Groundwater is found in the basalt bedrock, 20 to 200 feet from the surface. No water is found in the alluvium overlying the bedrock. Frequently the upper portion of the basalt is also dry.

Yakima Reservation, Washington

The Yakima Tribe has been participating with the USGS in groundwater studies throughout the Yakima Reservation. The aquifer utilized for individual domestic wells is shallow and unconfined. Soils are alluvial and granular, and agriculture is irrigated and intensive on much of the Reservation. However,

these studies have revealed no contamination problems. IHS has investigated several cases of contamination of wells 60-80 feet deep in the years 1988-1990. In each case, a nearby point source of the contaminant was identified and elimination of the contamination source resolved the problem.

INITIAL INVESTIGATION

Existing Domestic Wells

The immediate question the IHS Sanitation Facilities Construction program wanted to explore was whether this contamination at Fort Hall had been overlooked in the past or was due to introduction of contaminants. IHS has extensive files of domestic well records for each of these reservations from 30 years of construction activities. Before 1970, IHS rarely analyzed individual domestic well water at these reservations. In the 1970's to date, newly constructed domestic wells are analyzed for nitrate, coliform bacteria and EPA secondary (aesthetic) contaminants.

Records at Fort Hall showed that 5 of 95 wells sampled at the time of construction exceeded the 10 mg/l MCL for nitrate-nitrogen, with more than 60 percent of IHS constructed wells tested. All five of these wells had been drilled and sampled by one contractor in 1973. These five wells were tested for nitrate-nitrogen in 1989 and all samples had concentrations of 4.5 mg/l or less. Apparently the original results from these wells were reported incorrectly.

At the Umatilla Reservation, 2 of 39 tested wells exceeded the nitrate standard. However, 171 files contained no water quality data. The Umatilla files were comprehensive for every Indian home on the reservation, whether or not the facilities were provided by IHS.

The Shoshone-Bannock Tribes has been very active in quantifying their contamination problem. The problem area for nitrate-nitrogen had been identified, and most domestic wells in that area had been tested. However, the Umatilla records were incomplete and no other study was planned. Therefore, the Portland Area IHS funded nitrate testing for most domestic wells on the Umatilla Reservation that had been drilled by IHS for which no record could be found. Of the 91 wells sampled, 6 yielded nitrate results above 10 mg/l. The highest level of any well was 17.1 mg/l.

A review of extensive records for work performed by IHS on the Yakima Reservation showed no wells with high nitrate levels. The Yakima Tribal Water Resources Department continues to study the reservation ground water. IHS has no formal involvement in this work.

Health Effects

IHS Environmental Health Specialists researched the health effects of nitrate and the identified organic contaminants. The only documented health effect of high nitrate in drinking water

is methemoglobinemia, the acute effect on the oxygen carrying capacity of the blood of infants less than one year of age. No chronic effects have been documented, although elevated levels of nitrate have historically been used as an indicator that other pollutants may be present.

The health effects of organic contaminants are less clear. Excess cancer risk was used to set the EPA Health Advisory Levels, i.e., the estimated risk level for one excess cancer per one million lifetime population. These Health Advisory Levels were used at Fort Hall to determine concentrations at which compounds would be of concern. However, comments received from the EPA Regional Toxicologist included the recommendation "noncarcinogenic endpoints (e.g. liver damage, neurotoxicity, reproductive effects, whatever)" and total environmental exposure to these volatile organic compounds also should be considered.

The local IHS Environmental Health Specialist participated in several public meetings organized by the Tribe to present the initial water quality results. Information on the health effects of nitrate in drinking water was presented, and possible hazards due to organic chemicals were discussed. Residents in the vulnerable zone with individual wells were urged to test for nitrate-nitrogen - a \$20 procedure. Most wells where possible organic contaminants were found serve agricultural rather than domestic uses. Residents of the two Indian homes where samples showed organic contamination were urged to use alternative sources of drinking water. No residents tested their individual supplies for these VOCs and pesticides due to the \$500 price range of analysis.

CHARACTERIZATION OF THE CONTAMINATION:
NATURE, EXTENT AND SOURCES

Fort Hall

USGS nitrate sampling on the Fort Hall Reservation of 163 agricultural and residential wells revealed 21 with levels of nitrate-nitrogen above 10 mg/l. All 21 wells are within the designated vulnerable zone, and 10 of these wells supplied water to residences. Domestic wells in the vulnerable zone are drilled to either 80 feet in alluvium or to approximately 180 feet into basalt. Agricultural wells are usually more than 300 feet in depth with casing perforated throughout to use water from all water-bearing formations. These high capacity (1000+ gpm) wells provide water to mechanical irrigation systems used on most agricultural land in the vulnerable zone.

The Tribe has no well drilling regulations. Until 1989, the state of Idaho well drilling code and other ground water regulations provided little protection for ground water such as prevention of intermixing aquifers and installation of surface seals. Center pivot irrigation systems routinely were installed without check valves. Irrigation systems used siphon systems without backflow prevention devices to apply nitrogen and chemicals. Also, until recently, no system was in place to

require farmers to balance the use of nitrogen fertilizers with the needs of the crops.

Until 1985, the Indian Health Service had followed the local practice of drilling wells for individual homes in this area of the Fort Hall Reservation as shallow as possible to produce adequate yield for domestic service. Wells were typically drilled to 80 feet deep and completed in sand and gravel. In the mid-1980's, IHS encountered difficulties with bacteriological contamination of a few wells of this construction. IHS engineers concluded that irrigation practices, sandy soils and sewage disposal by drainfield all could contribute to the problem. Standard construction practices were changed to drill all wells to the underlying basalt aquifer. Alluvial water is excluded from the well with a 30 to 50 foot deep surface seal around the casing and by seating the casing into the basalt material.

The U.S. Department of Agriculture Soil Conservation Service (SCS) was asked by the Tribe to assess the contamination problem at Fort Hall and develop a course of action to protect the ground water. The 1991 SCS "Preliminary Investigation Report" used existing data to rate the relative contribution of potential sources of contaminants to the ground water. SCS rated application of agricultural chemicals and disposal of agricultural chemicals as high contributors to the problem, and individual septic systems as a medium potential contributor.

The SCS report contains evidence of a direct link between application of nitrogen fertilizer to the elevated nitrate-nitrogen found in ground water in the Fort Hall vulnerable zone. Soils have a high water intake rate, slopes are flat, and center pivot irrigation systems are used almost exclusively. Runoff from sprinkler systems is nonexistent. The report continues, "From producer interviews and reviews of records of agricultural chemical application, a pattern of excess nitrogen fertilizer application was evident. For each acre of potatoes, producers are applying, on the average, 306 lbs of actual nitrogen. This is 44 percent greater than rates recommended..."

The report concludes that over the 28,000 irrigated acres in and around the vulnerable zone, approximately 1,708,000 pounds of excess nitrogen are applied to crops each year. Crop rotation practices in the area are also cited as a contributor to nitrogen leaching.

Umatilla

At Umatilla, the locations of the nitrate contaminated wells are not limited to one area of the Reservation. The density of rural housing on the reservation is less than 1 home per 5 square miles in the agricultural areas. Dryland wheat farming is the main land use over much of the Umatilla Reservation and surrounding area. The lack of other significant sources of nitrogen and the gradual rise over time of nitrate-nitrogen in an extensive and productive aquifer leads to the preliminary conclusion that leaching of nitrogen fertilizers is also causing the problem at this location. The State of Oregon declared the

aquifer underlying the reservation a "Groundwater Management Area" in 1990 based on high nitrate levels found in ground water throughout the Umatilla Basin. The state has begun a multi-year study to identify causes of the contamination and develop economically viable solutions.

Prior to 1987, the Confederated Tribes of the Umatilla Reservation adopted a well drilling code with elements at least as restrictive as the state of Oregon code. The Tribal code has strict regulations for protection of aquifers. All wells on the reservation are constructed like those at Fort Hall, except the tribe requires grouting to continue from the surface through alluvium to the basalt aquifer.

Yakima

No widespread contamination problem is evident for domestic wells at the Yakima Reservation. However, lack of tribal well drilling regulations, combined with coarse soils and intensive agricultural uses of land leaves a persistent contamination threat.

IHS SFC adopted a policy of strict surface sealing requirements in all wells constructed by that program. This included both revised specifications for materials and construction methods and on site inspection of each surface seal as construction occurs. Wells for community systems are designed to extend into a deeper, more protected aquifer. However, existing shallow wells remain vulnerable to contamination from a variety of sources. Therefore, IHS is evaluating the feasibility of constructing community water system extensions to some densely populated areas on the reservation.

COOPERATIVE RESPONSE AT FORT HALL RESERVATION

The Shoshone-Bannock Tribes has taken the lead role in dealing with the ground water problem on the Fort Hall Reservation. A joint project for additional sampling to determine the range and extent of contamination from pesticides and volatile organic chemicals was funded by the tribe, EPA and IHS in 1990. Because most evidence points to agricultural chemical use as the probable cause of much of the contamination, IHS has urged the Tribes to legislate and enforce regulations to control further contamination. The Tribes implemented a "Farm Chemical Groundwater Management Plan" in 1990. They are currently reviewing a draft of a well drilling code and a well head protection program is also being considered. The Tribes have recently issued citations to some farmers for improperly stored pesticides. In response to Tribal regulations, farmers have installed backflow prevention devices on most reservation irrigation wells in the past year.

The Tribes have requested assistance to assess and resolve the ground water problem from a variety of Federal Agencies. EPA has provided funds for ground water analyses and technical assistance to evaluate underground injection wells on the

reservation. The Soil Conservation Service responded to the Tribes' request by committing a staff of 15 to a short-term investigation to develop a course of action to protect the ground water. SCS plans to provide technical assistance to the Tribes to implement farm management actions. SCS has also identified a possible source of funds for additional monitoring of potential contaminant sources.

IHS obtained funding in 1991 to conduct an engineering study through the P.L. 86-121 program as a cooperative project with the Shoshone-Bannock Tribes. The available data will be compiled, including water quality test results and well logs. Test wells will be constructed or analysis of additional water samples will be conducted to assess the nature and extent of contamination. This information will be used to determine if additional measures are needed to reduce the risk of future contamination of domestic wells in the area. Alternative water supply methods for the residences in the vulnerable zone will be assessed for cost and feasibility, including point of use treatment systems, construction of replacement wells, and construction of a community water distribution system.

The engineering study also will include an analysis of the health effects of the contaminants. The goal of the study is to determine if further action by IHS, the Tribe or others is required to address the ground water contamination problem. The results of the above analyses will provide the basis for these recommendations and associated cost estimates.

CONCLUSION

Agriculture is an important contributor to the economies of several Indian reservations in the Inland Northwest area of Idaho, Oregon and Washington. Until recently, the effects of agricultural chemicals on ground water at area reservations has not been considered through regulation or monitoring. The Indian Health Service Sanitation Facilities Construction Program is aware of nitrate or organic chemical contamination in ground water at two reservations, Fort Hall, Idaho and Umatilla, Oregon. The shallow ground water on the Yakima Reservation in Washington also has a high potential for contamination.

The acute health effects of nitrate-nitrogen in drinking water is well known. The organic chemicals found at the Fort Hall Reservation have both acute and chronic effects, although chronic risks are difficult to assess.

IHS has urged the Tribes to prevent the contaminants from reaching the aquifers. The Shoshone-Bannock Tribes on the Fort Hall Reservation are working toward this goal by regulating agricultural chemical use, including nitrogen fertilizer. The Shoshone-Bannock Tribes have also implemented regulation of irrigation equipment and practices, underground injection wells and well drilling. IHS well drilling specifications have been modified to prevent contamination of IHS-constructed wells for Indian residences and communities.

IHS has also changed the design of wells as necessary to provide water from better protected aquifers. This action must be done with accompanying tribal involvement to protect the remaining aquifer from contamination. At some locations, alternative aquifers may be too deep to use.

Dealing with the contamination found on the Fort Hall Indian Reservation taught IHS personnel much about the sources, transport and fate of these contaminants. An IHS engineering study in progress at Fort Hall will be used to determine if further actions are needed to address the ground water contamination problem. There is a potential for this problem at other reservations in the area and nationwide. Much of what is being learned at these Inland Northwest reservations can be applied elsewhere.

References

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4. Rathsam, Michael, Ground Water Quality Facts, Fort Hall Indian Reservation, Fort Hall, Idaho. Personal communication, November 1990.
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6. Draft Preliminary Investigation, Fort Hall Water Quality Project, Bingham County, Idaho. U.S. Department of Agriculture, Soil Conservation Service, Boise, Idaho, April 1991.



DEPARTMENT OF HEALTH & HUMAN SERVICES

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August 06, 2014

FROM: Shawn Blackshear, LCDR, R.S.,
Environmental Health Officer
U.S. Public Health Service

RE: Total nitrates screening in drinking water wells conducted by the Yakima Field Office.

The Yakama Field Office (YFO) has been conducting screening of total nitrates in drink water wells since the Yakama Nation requested help in a letter addressed to CDR Patrick Craney, December 22, 2008. This was above and beyond the normal screening IHS completes with the construction of wells. In response to the request, the YFO conducted a background review of previous information from U.S. Geological Survey, IHS well logs, accessed public health data from the IHS ambulatory clinic, and actively recruited participants from the Tribe to have their drinking water well screened for total nitrates. Participants were gathered by advertising through radio (initially during the beginning phases), flyers, Yakama Nation Review newspaper, word of mouth, IHS clinicians' referral, offering it when staff were called out on a water issue, and public presentations. The environmental health division requested the IHS clinic conduct a health record investigation for methemoglobinemia cases, with results showing one potentially having occurred in 1971, but this result was considered by the investigative physician as inconclusive. The total nitrates screening in drinking water wells has been ongoing for tribal members since 2008 free of charge. The initial investigation focused on shallow wells and in areas that were shown to have high agricultural use and high population within that area, so Toppenish Basin drainage area was the initial point. There were also nitrate levels studies by the USGS that suggested the Satus Basin might contain high groundwater nitrates; so that was also a point of focus in the beginning. A summary and outcome of the special project plan can be obtained from the Sanitation, Facilities, and Construction Division, dated February 2009.

The current method for total nitrates investigation relies on the water well user bringing in a water sample to the office or a staff member can collect a water sample for the tribal member at their request. The sample is then screened with a HACH DR/890 Colorimeter, using the cadmium reduction reaction. Comparisons done during the initial investigations in 2008 showed that the instrument was within +/- 1 part per million accuracy of the laboratory results. Periodic comparisons between the HACH colorimeter and laboratory results are done to ensure this accuracy is still attainable by the screening instrument. There is no standard set by the EPA for minimum contamination levels of nitrates in single-use **privately owned** water wells, but the standard for the minimum contaminate level for public systems is used for screening because this level is considered most protective to health, i.e. to include sensitive populations that maybe using the water well for drinking water. The HACH instrument is a screening tool, therefore if a water sample is within 2 parts per million of the minimum contaminate level of 10 parts per million, YFO suggests that a laboratory test the water for total nitrates. This is done at the owner's expense, as IHS is not funded to provide funds for water testing; it is considered an operational expense.

If the laboratory test confirms nitrates at or above the 10mg/L MCL, the YFO staff conducts further investigation by obtaining the well log, inquiring as to whom is using the water (sensitive populations?), and completing a site visit that involves observing the well and septic system. Staff may also suggest to the water well user that they conduct bacteriological testing, based on the site visit. YFO staff provides fact sheets and information about nitrates in drink water and possible health effects associated with them. YFO staff suggests taking samples monthly to monitor the nitrate level, since the one test is just a snapshot of time. This can be completed with the IHS screening instrument. If the well consistently returns high test results, a second laboratory sample is recommended to confirm the screening results. If the lab readings are above 10mg/L, the tribal member is directed to the SFC program to tell if they are eligible for well treatment with a reverse osmosis system or if they meet the requirements for a new well to be installed. Communication of screening results to well owners is either by telephone if the result was below the adopted action level to resample (8.0mg/L); and by letter and telephone if the adopted action level is exceeded.

Since the IHS Nitrate Sampling Project, 32 water wells have been screened to date, from a wide variety of areas on the reservation. One of these drinking water wells consistently had laboratory confirmed exceedances of 10mg/L MCL. The well served 3 homes. IHS paid for the installation of reverse osmosis systems for these homes with the owners taking responsibility for operation and maintenance of those systems once they were installed. Of the remaining homes, the lowest screening sample measured 0.0mg/L total nitrates and the highest measured 5.0mg/L total nitrates.

Currently when staff is called out to a complaint involving a water well, they offer to screen the well for total nitrates. Flyers are posted in the field office, the Tribal agency building and in the IHS health clinic advertising this service.