CITY OF HUNTINGTON BEACH
PUBLIC WORKS COMMISSION
REQUEST FOR ACTION

Item No. 07-24

SUBMITTED TO: Chairman Siersema and Members of the Commission

SUBMITTED BY: David A. Webb, PE, Acting Director of Public Works Operations

DATE: September 19, 2007

SUBJECT: Public Hearing to Consider Acceptance of Public Works Utilities Division Public Health Goals Report

Statement of Issue: SB 1307 (Calderone-Sher; effective 01-01-97) added new provisions to the California Health and Safety Code mandating that a report on Public Health Goals for the cities with more than 10,000 water service connections be prepared by July 1, 1998 and every three years thereafter if any water quality measurements have exceeded Public Health Goals. The report must be presented to the governing body and then be the subject of a public hearing to consider acceptance and hear public comment. The report was presented to the City Council via the attached memo.

Funding Source: Not applicable.

Recommended Action: Motion to:
Accept the Public Works Water Division Public Health Goals Report.

Alternative Action: Do not accept the report and instruct staff on how to proceed.

Analysis: SB 1307 (Calderone-Sher; effective 01-01-97) added new provisions to the California Health and Safety Code mandating that a report on Public Health Goals related to the City's water system be prepared by July 1, 1998 and every three years thereafter if any water quality measurements have exceeded Public Health Goals (PHGs). Public Health Goals are **non-enforceable goals** established by the California EPA Office of Environmental Health Hazard Assessment (OEHHA). If OEHHA does not establish a goal the Federal Maximum Contaminant Level Goal (MCGL) is used. These are not to be confused with Maximum Contaminant Levels (MCLs), which consider practical risk-management factors and are enforceable by law.

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Information required in the report includes: (1) the health risk associated with the goal or standard, (2) the category or type of risk to health that could be associated with each constituent, (3) the best treatment technology available that could be used to reduce the constituent level, and (4) an estimate of the cost to install that treatment if it is appropriate and feasible. Below is a summary of results for the last 3-year period.

Constituent	PHG/MCLG	Actual	MCL/Action Level
Arsenic	.004 ppb	nd to 2.7 ppb	10 ppb
Coliform	0%	0.91%	5%
Lead	.002 mg/l	.008 mg/l	.0015 mg/l
Copper	0.17 mg/l	0.26 mg/l	1.3 mg/l
Uranium	0.5 pCi/l	1.24 to 8.47 pCi/l	20 pCi/l
Gross Alpha	0 pCi/l	nd to 9.67 pCi/l	15 pCi/l

All City wells already meet all State and Federal drinking water standards set to protect public health. Treatment processes to reduce the levels of constituents shown above, which are well below the MCL, to the levels set forth in the public health goals, would cost millions of dollars annually. In addition, it is not certain these processes would be effective in reducing the already low levels to the PHG. Therefore, no action is proposed at this time.

Attachments:

1. June 25, 2007 Memo to Mayor and City Council
2. 2007 Public Health Goals Report

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ATTACHMENT #1

CITY OF HUNTINGTON BEACH

INTER-DEPARTMENT COMMUNICATION

To: Honorable Mayor and City Council Members

Via: Penelope Culbreth-Graft, DPA, City Administrator

From: Robert F. Beardsley, P.E., Director of Public Works

Subject: Required Report on Public Health Goals

Date: June 25, 2007

SB 1307 (Calderone-Sher; effective 01-01-97) added provisions to the California Health and Safety Code mandating that a report on Public Health Goals (PHGs) be prepared by July 1, 1998, and every three years thereafter. The attached report is intended to provide information to the public in addition to the annual Consumer Confidence Report mailed to each customer.

SUMMARY

The law requires that the governing body receive this report before July 1, 2007; as such, this memo serves that purpose. Once presented to the governing body, a public hearing must be held for the purpose of accepting and responding to public comment on the report. The City Attorney has opined that this matter may be delegated to the Public Works Commission. This was the procedure followed in 2004; therefore, a public hearing will be scheduled as part of the regular Public Works Commission meeting scheduled for August 15, 2007, and will be noticed as required for public hearings.

Attached for your information is the final report prepared by staff comparing our Utilities Division's drinking water quality with PHGs adopted by California EPA's Office of Environmental Health Hazard Assessment (OEHHA) and with maximum contaminant level goals (MCLGs) adopted by the USEPA. It is emphasized that these goals are targets for ultimate achievement rather than enforceable standards.

RFB/KD:jg

Attachments

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ATTACHMENT #2

CITY OF HUNTINGTON BEACH UTILITIES DIVISION
2007 REPORT ON THE CITY'S WATER QUALITY RELATIVE TO PUBLIC HEALTH GOALS

Background:

Provisions of the California Health and Safety Code Section 116470 (b) specify that public water systems serving more than 10,000 service connections must prepare a special report by July 1, 2007, if their water quality measurements have exceeded any Public Health Goals (PHGs). PHGs are non-enforceable goals established by the Cal-EPA's Office of Environmental Health Hazard Assessment (OEHHA). The law also requires that where OEHHA has not adopted a PHG for a constituent, the water suppliers are to use the Maximum Contaminant Level Goals (MCLGs) adopted by USEPA. Only constituents which have a California primary drinking water standard and for which either a PHG or MCLG has been set are to be addressed.

If a constituent was detected in the City's water supply between 2004 and 2006 at a level exceeding an applicable PHG or MCLG, this report provides the information required by the law. Included is the numerical public health risk associated with the MCL, and the PHG or MCLG, the category or type of risk to health that could be associated with each constituent, the best treatment technology available that could be used to reduce the constituent level, and an estimate of the cost to install that treatment if it is appropriate and feasible.

Recommendations for Further Action:

The drinking water quality of the City of Huntington Beach meets all State of California, Department of Health Services and USEPA drinking water standards set to protect public health. To further reduce the levels of the constituents identified in this report that are already significantly below the health-based Maximum Contaminant Levels established to provide "safe drinking water," additional treatment processes would be required. The effectiveness of the treatment processes to provide any significant reductions in constituent levels at these already low values is uncertain. The health protection benefits of these further reductions also are not clear and may not be quantifiable; however, substantial additional costs for such treatment would be expected. Therefore, no action is proposed. As noted within the discussion of each constituent below, no further action is contemplated at this time.

What are PHGs?

PHGs are set by the California Office of Environmental Health Hazard Assessment (OEHHA), which is part of Cal-EPA, and are based solely on public health risk considerations. None of the practical risk-management factors that are considered by the USEPA or the California Department of Health Services (CDHS) in setting drinking water standards (MCLs) are considered in setting the PHGs. These factors include analytical detection capability, treatment technology available, benefits and costs. The

PHGs are not enforceable and are not required to be met by any public water system. MCLGs are the Federal equivalent of PHGs.

Water Quality Data Considered:

All of the water quality data collected by our water system between 2004 and 2006 for purposes of determining compliance with drinking water standards was considered. This data was summarized in the annual Consumer Confidence Reports for 2004, 2005 and 2006. The report was mailed to every address in the City each year by July 1.

Guidelines Followed:

The Association of California Water Agencies (ACWA) formed a work group that prepared guidelines for water utilities to use in preparing PHG reports. The City used these guidelines. No such guidelines are currently available from state regulatory agencies.

Best Available Treatment Technology and Cost Estimates:

Both the USEPA and CDHS have adopted Best Available Technologies (BATs), which are the best-known methods of reducing contaminant levels to the MCL. Costs can be estimated for such technologies. However, since many PHGs and all MCLGs are set much lower than the MCL, it is not always possible or feasible to determine what treatment is needed to further reduce a constituent downward, to or near, the PHG or MCLG, many of which are set at zero. Estimating the costs to reduce a constituent to zero is difficult, if not impossible, to verify by analytical means that the level has been lowered to zero. In some cases, installing treatment systems to attempt to further reduce very low levels of one constituent may have adverse effects on other aspects of water quality.

Constituents Detected That Exceed a PHG or a MCLG:

The following is a discussion of constituents that were detected in one or more of our drinking water sources at levels above the PHG, or if no PHG, above the MCLG.

Arsenic:
Arsenic is an element that occurs in the earth's crust; accordingly, there are natural sources of exposure. Exposure to arsenic at high levels can pose serious health effects, as it is known to cause skin cancer and other cancers of the internal organs. In addition, it has been reported to affect the vascular system and has been associated with the development of diabetes.

The PHG set by OEHHA for arsenic is 0.004 parts per billion (ppb). The U.S. Environmental Protection Agency (USEPA) established a maximum contaminant level (MCL) for arsenic of 50 ppb in 1975. In January 2002, USEPA adopted a new standard for arsenic in drinking water that requires water suppliers to reduce arsenic to 10 ppb by January 2006. Arsenic was detected in some Huntington Beach wells at levels up to 2.7 ppb, which is significantly below the MCL.

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The Best Available Technologies treatment to lower arsenic levels is reverse osmosis. Since the level of arsenic in each of the City wells is already below the MCL, the reverse osmosis treatment method would likely be used to attempt to lower the arsenic level below the 0.004 ppb PHG. The U.S. EPA has estimated that a centralized treatment plant of this type would cost approximately $27 million per year, including initial construction costs (annualized) and additional operations and maintenance costs. This would result in an estimated increased cost of about $550 per customer annually.

Coliform Bacteria:
During 2004, 2005 and 2006, six thousand (6000) samples were collected for coliform analysis. In January 2005, two samples were found to be positive for coliform bacteria. Re-check samples were collected and found to be negative. These two samples represent less than 1% of the samples for this specific month. All other samples for this three year period were negative for coliform.

The MCL for coliform is 5% positive samples of all samples per month and the MCLG is zero. The reason for the coliform drinking water standard is to minimize the possibility of the water containing pathogens, which are organisms that may cause waterborne disease. Because coliform is only a surrogate indicator of the potential presence of pathogens, it is not possible to state a specific numerical health risk. While USEPA normally sets MCLGs "at a level where no known or anticipated adverse effects on persons would occur," they indicate that they cannot do so with coliforms.

Coliform bacteria are indicator organisms that are ubiquitous in nature and are not generally considered harmful; they are used because of their effectiveness in monitoring and analysis. If a positive sample is found, it indicates a potential problem that needs to be investigated and follow-up sampling conducted. It is not unusual for a system to have an occasional positive sample; it is difficult, if not impossible, to ensure that a system will never get a positive sample. Our follow-up samples were negative, which indicate no potential problem and support to the determination that no further investigation is necessary.

Huntington Beach adds chlorine at its sources to ensure that the water served is microbiologically safe. The chlorine residual levels are carefully controlled to provide the best health protection without causing the water to have undesirable taste and odor or increasing the disinfection byproduct level. This careful balance of treatment processes is essential to continue supplying our customers with safe drinking water.

Other equally important measures that Huntington Beach has implemented include: an effective cross-connection control program, maintenance of a disinfectant residual throughout the system, an effective monitoring and surveillance program and maintaining positive pressures in the distribution system. The City has already taken all of the steps described by CDHS as Best Available Technology for coliform bacteria in Section 64447, Title 22, CCR.

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Lead and Copper:
Lead and copper generally do not occur in significant amounts in source waters but, rather, occur as the result of corrosion of lead and copper plumbing materials in contact with the water. Since most lead and copper-bearing materials are located in household plumbing, State and Federal regulations require public water systems to periodically collect a representative number of water samples at taps inside homes of residential customers.

There is currently no MCL for lead or copper. Instead, the CDHS has set a health-based advisory level called an Action Level. The 90th percentile value of all samples from household taps in the distribution system cannot exceed an Action Level of 0.015 mg/L for lead and 1.3 mg/L for copper. If 10 percent of the tap water samples collected are over the Action Level, then treatment may be required to inhibit corrosion, or to adjust the mineral content of the water.

The PHG for lead is 0.002 mg/L and for copper is 0.17 mg/l. The category of health risk for lead is damage to the kidneys or nervous system of humans. The category of health risk for copper is gastrointestinal irritation. Numerical health risk data on lead and copper have not yet been provided by OEHHA.

All of Huntington Beach source water samples taken from wells in 2004, 2005 and 2006 were less than the PHG for lead and copper. Based on extensive sampling of our distribution system via household testing in 2006, our 90th percentile value for lead was 0.008 mg/L and for copper was 0.45 mg/L, both of which are significantly below the Action Level.

Huntington Beach's water system is in compliance with the Federal and State Lead and Copper Rule. Based on our extensive sampling, it was determined, according to State regulatory requirements, that we meet the Action Level for copper. We will be conducting additional monitoring in the summer of 2007 to further demonstrate that the water system has optimized corrosion control, as CDHS has continuously deemed in the past.

In general, optimizing corrosion control is considered to be the Best Available Technology to deal with corrosion issues and with any lead or copper findings. Huntington Beach continues to monitor water quality parameters that relate to corrosivity, such as the pH, hardness, alkalinity and total dissolved solids. Action will be taken, if necessary, to maintain our system in an "optimized corrosion control" condition.

When a water system is meeting the "optimized corrosion control" requirements, it is not prudent to initiate additional corrosion control treatment as it involves the addition of other chemicals which could raise additional water quality issues. Therefore, no estimate of cost has been included in this report.

Uranium:
The PHG set by OEHHA for uranium is 0.5 picocuries per liter (pCi/L); the CDHS has set the MCL for uranium at 20 pCi/L. Uranium was detected in all Huntington Beach wells at levels between 1.24 to 8.57 pCi/L, significantly below the MCL.

The category of health risk associated with uranium and the reason that a drinking water standard was adopted is that people who drink water containing uranium above the MCL throughout their lifetime could experience an increased risk of cancer. CDHS says that "drinking water that meets this standard (the MCL) is associated with little to none of this risk and should be considered safe with respect to uranium."

The Best Available Technology treatment for uranium to lower the level below the PHG is Ion Exchange/Water Softening treatment. The U.S. EPA has estimated that a centralized treatment plant of this type would cost approximately $10 million per year per well site, including initial construction costs and additional operations and maintenance costs. This would result in an estimated increased cost for each water customer of about $1800 per year.

Gross Alpha:
Gross Alpha is the measurement of radioactive particle activity for a group of radionuclides which include: uranium, combined radium, and radon. The CDHS has established the MCL for Gross Alpha as 15 pCi/L (excluding uranium and radon), which is used as a screening standard to determine if further radionuclide monitoring is necessary.

There is no PHG set by OEHHA, but the USEPA has an MCLG for Gross Alpha of zero. We have detected Gross Alpha in some of our wells at levels up to 9.67 pCi/L. However, the level of Gross Alpha detected is mainly contributed to the uranium content. After the uranium content is deducted, the net Alpha is less than the minimum detectible level for regulatory reporting. Therefore, no health risks or estimates of treatment are included in this report.

Summary

Constituent	PHG/MCLG	Actual	MCL/Action Level
Arsenic	.004 ppb	ND to 2.7 ppb	10 ppb
Coliform	0%	0.91%	5%
Copper	0.17 mg/l	0.45 mg/l	1.3 mg/l
Lead	0.002 mg/l	0.008 mg/l	0.015 mg/l
Uranium	0.5 pCi/l	1.24 to 8.47 pCi/l	20 pCi/l
Gross Alpha	0 pCi/l	ND to 9.67 pCi/l	15 pCi/l *

* Excluding Uranium and Radon content.

Source data: State Department of Health Services
Orange County Water District
City of Huntington Beach sampling program

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Public Health Goals Report

Public Works Utilities Division

August 15, 2007

Public Health Goals (PHGs)

- SB 1307 (Calderone-Sher)
  - Effective 01-01-97
  - For systems with over 10,000 service connections
  - Report to be prepared by July 1, 1998 and every three years after if PHG is exceeded – 2001, 2004, 2007….
  - Report is submitted to governing body and then taken to public hearing

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PHGs and MCGLs

- Target for ultimate achievement rather than enforceable standard
  - Established by California EPA Office of Environmental Health Hazard Assessment
- Maximum Contaminant Level Goal (MCGL)
  - Federal equivalent if no State PHG is adopted
- Not to be confused with Maximum Contaminant Levels (MCLs) enforceable by law and based on practical risk-management factors
- PHGs and MCGLs typically far below MCL or "action level" standards.

Report Requirements

- Identify any levels exceeding PHG or MCLG
- Include information on:
  - Health risk
  - Best treatment to reduce constituent
  - Estimated cost of treatment

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Huntington Beach Water System – arsenic monitoring

- Arsenic occurs naturally in the earth's crust
- PHG is set at .004 parts per billion (ppb)
- MCL is 50 ppb
- Huntington Beach highest level during the monitoring period was 2.7 ppb

Huntington Beach Water System – arsenic monitoring

- Best Available Treatment (BAT) for arsenic is reverse osmosis at an estimated cost of $27M/year
- Arsenic levels are well below the MCL
- System is in full compliance - no additional treatment necessary

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Huntington Beach Water System – coliform monitoring

- Over 6000 samples taken from 2004 through 2006
- Two samples in January 2005 tested positive for coliform (indicator bacteria)
- Follow-up samples taken at sample point and upstream and downstream were negative
- Likely a sample or lab error

Huntington Beach Water System – coliform monitoring

- The two samples represent .91% of the samples taken during the month
- MCLG is 0%
- MCL is 5% positive samples within a month

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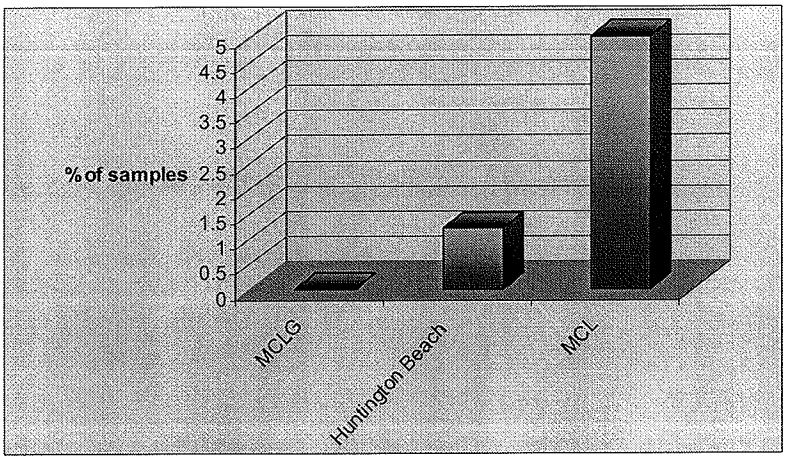
Coliform Monitoring



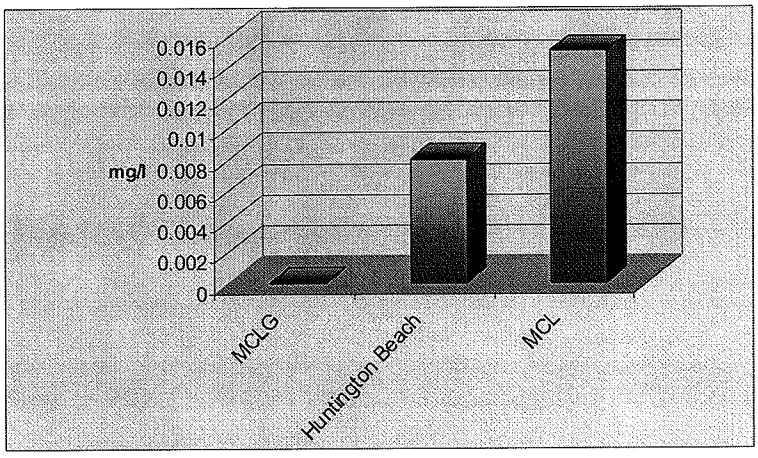
Huntington Beach Water System – coliform monitoring

- Best available treatment for coliform is chlorine added at water sources, which is already in place – no additional costs
- Residual is carefully controlled and monitored
- City maintains an effective cross connection control program

Huntington Beach Water System – lead and copper monitoring

- Year 2006 lead and copper 90th percentiles exceeded PHGs of 0.002 mg/liter and 0.17/mg/l
- Values for Huntington Beach were .008 mg/l for lead and .45 mg/l for copper
- Samples taken from household taps
- Far below "action levels" of 0.015 mg/l and 1.3 mg/l

Lead Monitoring



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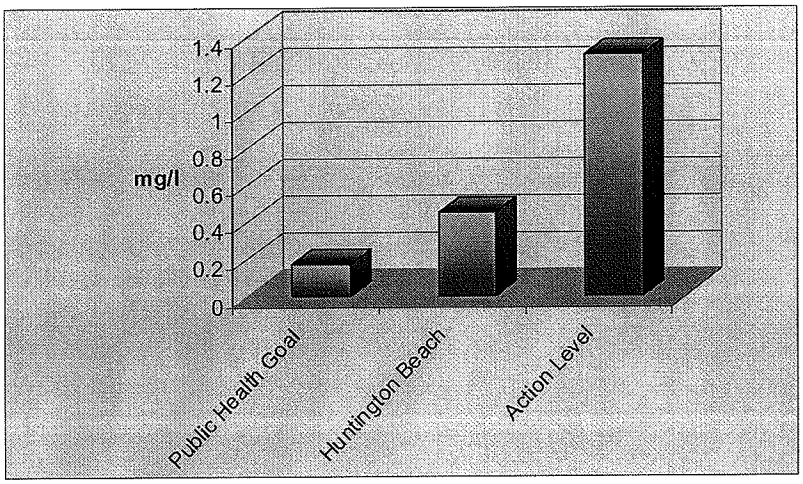
Copper Monitoring



Huntington Beach Water System – lead and copper monitoring

- BAT for lead and copper is "optimized corrosion control"
- Additional monitoring will be conducted this summer to further demonstrate our system has optimized corrosion control
- System is in full compliance with Federal and State Lead and Copper Rule – no additional treatment necessary

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Huntington Beach Water System – uranium monitoring

- PHG of 0.5 picocuries per liter (pCi/L) for uranium
- Uranium level in each of the wells ranged between 1.24 to 8.57 pCi/L
- Maximum contaminant level is 20 pCi/L
- California DOHS states: "Drinking water that meets the MCL is associated with little to no risk and should be considered safe with respect to uranium

Huntington Beach Water System – uranium monitoring

- BAT to lower uranium level is ion exchange/water softening treatment
- US EPA estimates a centralized treatment plant of this type would cost $10M per year to construct and operate

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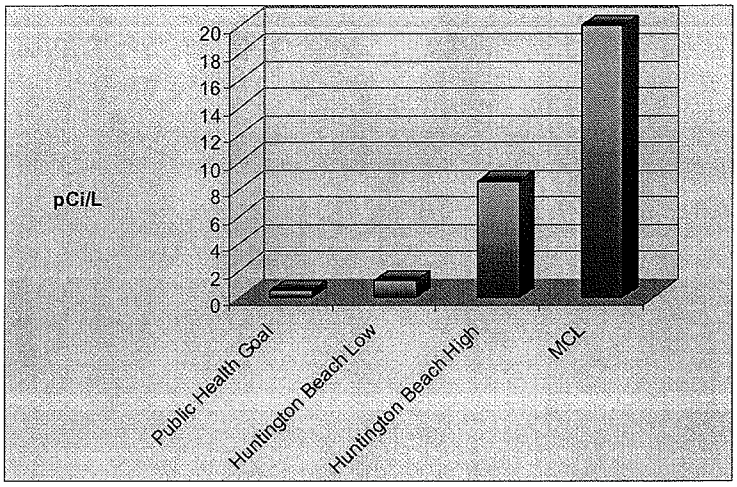
Uranium Monitoring



Huntington Beach Water System – gross alpha monitoring

- Gross alpha is the measurement of radioactive particle activity
- No PHG set – USEPA has MCLG of 0 pCi/l
- MCL is 15 pCi/l excluding uranium and radon content
- Huntington Beach ranges from non-detect to 9.67 pCi/l
- After uranium is deducted the net gross alpha is less than the minimum level for reporting

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Summary of Results

Constituent	PHG/MCLG	Actual	MCL/Action Level
Arsenic	.004 ppb	nd to 2.7 ppb	10 ppb
Coliform	0% samples	.91 %	5%
Copper	0.17 mg/l	0.45 mg/l	1.3 mg/l
Lead	0.002 mg/l	0.008 mg/l	0.015 mg/l
Uranium	0.5 pCi/l	1.24 to 8.57 pCi/l	20 pCi/l
Gross Alpha	0 pCi/l	nd to 9.67 pCi/l	15 pCi/l

PHG Report Action

- City wells already meet all State and Federal drinking water standards set to protect public health
- Costly treatment processes to reduce PHG constituents; already below the health-based MCL
- Effectiveness of treatment processes to reduce levels of constituents at already low values is uncertain
- Health protection benefits of hypothetical reductions are not clear and may not be quantifiable
- No action is proposed

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Public Hearing

- Required by law
  - State's objective is to provide full public disclosure of water quality information
- Hear public comment and receive/accept report

Public Health Goals Report

Public Works Utilities Division
August 15, 2007

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