

## MEMORANDUM

**DATE:** AUGUST 30, 2010  
NEXT MEETING DATE SET FOR SEPTEMBER 30, 2010

**TO:** NORTH DAVIS MEADOWS RESIDENTS AND INTERESTED PARTIES

**FROM:** NORTH DAVIS MEADOWS COUNTY SERVICE AREA, ADVISORY BOARD

**Re:** NORTH DAVIS MEADOWS WATER WELLS OVERVIEW  
**BACKGROUND:**

In August 2008, during regular testing of the North Davis Meadows wells, Well #2 exceeded the maximum nitrate contaminant level (45 mg/L), set by California Department of Public Health (CDPH). After communication with CDPH, the North Davis Meadows CSA Advisory Board (CSA Advisory Board) decided to: 1) install a temporary inflatable packer to Well #2, and 2) determine if permanently sealing off the upper aquifer would eliminate drawing water from the contaminated, upper aquifer thereby creating a reliably clean water source. The inflatable packer was installed in June 2009, worked briefly, failed, and was reinstalled in August 2009. Since then, the nitrate levels have fluctuated between 34 and 44mg/L. The nitrate levels have not tested low enough to satisfy the state's requirements once the ascendance had occurred.

Well #1, which historically has had a low level of nitrates with occasional spikes, exceeded the maximum contaminant level of 45mg/L in August of 2009. Follow up tests revealed that the levels continued to stay above the maximum amount allowed. An unsuccessful attempt was made to flush the well to rid it of a possible plume of contaminated water. Nitrate levels have continued to exceed allowable levels.

In September 2009 the original emergency water notice warning was sent out from the Yolo County Environmental Health Department to all residents via list serve, standard mail, posting at the mailboxes, and on the CSA website. That warning, which is still in effect, states: "The North Davis Meadows public water system has levels of nitrate that may be UNSAFE. As a precaution, DO NOT GIVE THE WATER TO INFANTS UNDER 6 MONTHS OLD OR PREGNANT WOMEN OR USE IT TO MAKE INFANT FORMULA"(see attached). At that time Well # 1 was shut down, but had to be turned back on line due to a lack of water pressure sufficient for Fire Protection standards.

In December 2009, the CDPH issued a compliance order for the North Davis Meadows public water system. The compliance order requires regular testing until a long term solution to the water quality issues is found. It also triggered the need for 100% redundancy as dictated by state regulations. Bacteriological testing is also conducted for both wells on a regular basis. In mid-August 2010 there was a Bacteriological sample taken at Well #1 that tested positively for coliform. Due to the positive sample, the water at Well #1 was retested and the well was taken offline until results were received. The additional sample confirmed the original sample was a false positive, and therefore Well #1 was placed back in active status.

There have been regular meetings of the CSA Advisory Board to discuss the various alternatives. A civil engineering consultant, Lawrence Ernst of Wood Rogers, was hired to help study the options. A report was provided to the advisory board in March 2010. The attached document is a compilation of the alternatives and the advisory board sub-committee's analysis of those alternatives.

All minutes of previous meetings, the state compliance order, the engineering report, and pertinent documents are available on the North Davis Meadows website at: <http://www.yolocounty.org/Index.aspx?page=701>

You may log on and subscribe to receive automatic updates to the website.

## **TIMELINE:**

The state's compliance order requires us to comply and complete all improvements to the water quality and redundancy issues by December 1, 2010. The CSA Advisory Board has notified CDPH that all identified solutions will require additional time, our due diligence is on going, and acknowledged that a failure to comply with any of the provisions may result in additional enforcement actions and penalties of up to \$200/day.

## **The CDPH compliance order states that the study is to include the options of:**

- a) Drilling new well(s);
- b) Rehabilitating existing well(s);
- c) Installing treatment to existing water sources; and
- d) Connecting to other community water system(s).

## **PROPOSITION 218 ELECTION / BONDING:**

Based on the budget for the North Davis Meadows CSA (CSA) and the current economic environment, any option would require a Proposition 218 election. Government Financial Strategies, Inc, a public finance consulting firm, has looked at options for bonding and will include those estimated costs in all scenarios when a preferred alternative is chosen.

## **OUR WELLS / NITRATES:**

North Davis Meadows water supply comes from two ground water wells, designated as NDM Well #1 and NDM Well #2. The current water supply for North Davis Meadows serves 95 families. In addition, water is supplied to the Davis Municipal Golf course clubhouse and bathrooms (equivalent use of 1/3 of one NDM household according to current meter readings). The golf course operator provides ditch maintenance service for NDM 1 perimeter system in exchange for clubhouse water.

The CSA contracts with the city of Davis to maintain our wells. A large portion of the CSA fee covers the expenses associated with maintaining our wells and paying for the electricity necessary to pump our water. It is estimated that the cost of our water for 2009/2010 was \$1,200 per household. The CSA used about 97 million gallons of water in 2008. Annually we are using an average of one million gallons of water per household.

- Well # 1 is 23 years old. It is 490 feet deep and draws water from two aquifers, one between 150-340 feet and the other from 370-490 feet. The average lifespan for a well in Davis is 31 years. Calculated peak flow is between 350-400 gpm.
- Well #2 is 14 years old and draws water from four aquifers, the upper aquifer being from 182-202 feet. The wells have sanitary seals to 65/50 feet. Peak flow pre-packer installment was 520gpm and peak flow post packer installation is 460 gpm.

Well # 2 first exceeded maximum contaminant levels in August of 2008. Follow up testing showed water within limits. The nitrate level for well #2 first became a concern in 2001, when it was observed that nitrate levels were increasing annually. A water subcommittee of the CSA Board was formed and options were reviewed.

Nitrate in drinking water can come from natural, industrial, or agricultural sources (including septic systems, storm water run-off, and fertilizers). Levels of nitrate in drinking water can fluctuate throughout the year.

## NORTH DAVIS MEADOWS WATER SUPPLY ALTERNATIVES:

Over the past year, the CSA Advisory Board has looked into several ways to bring the “community” water supply (providing water to greater than 20 homes) up to CDPH standards. A compliance order is now in place requiring a permanent solution due to the wells being over the acceptable level of nitrates.

Aside from the high levels of nitrates in the water, notification has been received that the North Davis Meadows public water system does not meet the state standard for redundancy. At the end of last summer, NDM Well #1 was shut off because of the high levels of nitrates. However, the fire department found that water pressure was too low and NDM Well #1 was placed back on line to meet fire flow standards. In order to meet the state requirement of 100% redundancy, NDM must be able to shut off one well and the remaining well must pump enough water to maintain water pressure at the required level. Even if both of these wells are fixed, the CSA may still need another larger well to meet the redundancy requirement.

### Redundancy:

North Davis Meadows’ redundancy rate is based on a CDPH formula of average usage. Peak hour demand is calculated as 3.0 times average day demand. The average calculated peak hour demand, using data from 2002 to 2009, is **508 gpm per water source. 100% redundancy would result in a total ability of 1016 gpm.**

Water Production for North Davis Meadows

|      | NDM 1<br>(mg) | NDM 2<br>(mg) | Total<br>(mg) | Calculated<br>Avg Day<br>Demand<br>(gpm) | Calculated<br>Peak Hour<br>(gpm) |
|------|---------------|---------------|---------------|------------------------------------------|----------------------------------|
| 2002 | 39            | 49            | 88            | 168                                      | 504                              |
| 2003 | 40            | 49            | 89            | 169                                      | 508                              |
| 2004 | 66            | 24            | 91            | 172                                      | 517                              |
| 2005 | 60            | 25            | 85            | 163                                      | 488                              |
| 2006 | 36            | 49            | 85            | 162                                      | 486                              |
| 2007 | 43            | 52            | 95            | 180                                      | 540                              |
| 2008 | 38            | 59            | 96            | 184                                      | 551                              |
| 2009 | 36            | 46            | 82            | 156                                      | 469                              |

\*mg=million gallons, \*\*gpm=gallons per minute

### The NDM CSA Advisory Committee Board Goals:

- 1) Improve the water quality to bring NDM CSA system into CDPH compliance.
- 2) Provide system capacity and 100 percent operational redundancy.
- 3) Provide long-term solution.
- 4) Keep capital improvements and long-term costs as low as feasibly possible.

***Our next CSA Advisory Board meeting to disseminate the alternatives reviewed is currently scheduled for September 30<sup>th</sup> at 7 pm at the Yolo County Board of Supervisors’ Chambers at 625 Court Street. All North Davis Meadows residents and interested parties will be receiving this notice. We encourage full participation to receive community feed back on the information we have been able to collect to date.***