

**Responses to Comments from the California Department of Public Health (CDPH)  
Revised Draft Optimization Work Plan, NASA Jet Propulsion Laboratory, Pasadena, CA**

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**Comments Received May 1, 2014 from Karen Wong**

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1	-	-	When the new MHTS well comes online, only three of four wells (new MHTS well, Arroyo, Ventura, and Well 52) can be operated at the same time because the Ventura Booster Station has a maximum rated capacity of 5,600 gpm. Operating all four wells would exceed the maximum rated capacity of the Ventura Booster Station. The MHTS treatment capacity will remain the same at 7,000 gpm. Page 6 stated that the modeling estimates indicated a 40% increase in mass removal when including the new well with Arroyo, Well 52 and Ventura as compared to the current MHTS well configuration of Arroyo, Well 52, Ventura, and Windsor. This seems to suggest that the new configuration will not include Windsor Well. What will be the future status of the Windsor Well?	<p>CDPH is correct. Once the new MHTS well comes online, only three of the four wells in the Arroyo Seco could be operated at one time due to the pumping capacity at the Ventura Booster Station.</p> <p>The Windsor Well is not currently operated by PWP due to the nitrate concentrations. Post well development samples collected in August 2010 and analyzed for Nitrate (as Nitrogen) were detected as high as 12 mg/L or approximately 53 mg/L as Nitrate NO<sub>3</sub>. Future operation of the Windsor Well will depend upon nitrate concentrations in the other three existing (i.e., Arroyo, Well 52, and Ventura) and the proposed MHTS well.</p>
2	6, 8	Figure 2-1	Page 8 stated that monitoring wells MW-18, MW-12, MW-3, and MW-11 as well as Arroyo Well should be considered in assessing chemicals and trends that might be expected in the new MHTS extraction well. This is clearly illustrated in Figure 2-1 where MW-18, MW-12, MW-3, and Arroyo Well are shown in the vicinity of the new MHTS extraction well. How about MW-8? Should MW-8 be included? Can you show MW-11 in Figure 2-1?	<p>MW-8 data were not included in the assessment when the optimization work plan was generated because concentrations of VOCs and perchlorate from July/August 2010 through July 2013 were non-detect. In addition, MW-8 is a shallow standpipe well that does not extend into the deeper portion of the aquifer that is more representative of the production zones of the proposed MHTS well.</p> <p>During the last two groundwater sampling events (i.e., October/November 2013 and January/February 2014), perchlorate was detected above the MCL in MW-8 at concentrations of 71 µg/L and 93 µg/L. Even so, NASA believes that MW-3, MW-11, MW-12, MW-18, and Arroyo data provide the most appropriate data set to estimate concentrations in the proposed new MHTS</p>

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				<p>well.</p> <p>MW-11 has been added to Figure 2-1.</p>
3	14	2.1.2.5	<p>Three of the existing MHTS wells have high levels of nitrate with two of the wells (Ventura and Windsor) showing levels in the 50s mg/L range. Currently nitrate blending is used at the Windsor Reservoir to ensure compliance with the nitrate MCL. Nitrate level at the new MHTS well may be expected to be in the similar range as that of Arroyo Well which has been consistently detected at around 15 mg/L for the past six months. The Work plan should include a discussion on how nitrate compliance is expected to achieve by blending when the high nitrate wells (Ventura and/or Windsor Wells) are in operation. Also, if nitrate treatment is not expected to be part of the wastewater treatment at the Behner facility, then it should be mentioned as such.</p>	<p>A new section has been added to address nitrate blending, as follows:            “Three of the existing MHTS wells (i.e. Well 52, Ventura, and Windsor) contain nitrate levels which require blending to ensure treated water is in compliance with the drinking water MCL for nitrate of 45 mg/L. Nitrate concentrations at the new MHTS well are expected to be similar to nitrate concentrations in the Arroyo Well (approximately 15 mg/L). The City of Pasadena currently performs blending at the Windsor Reservoir in compliance with the city’s existing MHTS drinking water permit (Permit Amendment: 1910124PA-003). The permit requires that “if any of the Monk Hill Wells exceeds 40 mg/L nitrate, PWP shall implement nitrate blending treatment in accordance with the approved Operations, Monitoring, and Maintenance Plan (OMMP).” PWP’s current blending plan uses daily blending projections based on the most recent wellhead water quality analysis results to determine the proper flowrate is produced from each well. The flow is controlled to ensure that the blended effluent is reliably below 80% of the nitrate MCL. Compliance samples are collected at the Windsor Reservoir (PS Code: 1910124-025) on a weekly basis. Provisions are in place to ensure that if one result or the average of an initial and a confirmation result exceeds 45 mg/L, that CDPH notification and Tier 1 public notification occurs.”</p> <p>A statement has been added to Section 2.1.2.5 that</p>

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				nitrate treatment is not expected to be needed at the Behner facility.
4		Table 2-1	Table 2-1 includes recent concentrations of perchlorate, PCE, TCE, and CTC detected at Arroyo Well. When were these samples taken? According to our records, these levels were observed at least a year ago.	Analytical results presented in table 2-1 for Arroyo were from August 2012. A footnote has been added to Table 2-1 to reference this date.
5	13		Page 13 stated that the system annually generates approximately 1.5 MG of wastewater during startup of each well (between 5 and 10 MG for all four wells) and over 4 MG of wastewater annually during media backwashing. However Table 2-6 shows a much less amount of wastewater generated annually (5.3 MG).	The section has been revised to reflect values presented in Table 2-6.
6	-	-	Behner facility was previously used as a treatment plant for drinking water for the City of Pasadena. Now that Behner facility will be converted to a wastewater treatment plant for the MHTS, have the pipelines previously used for the drinking water treatment plant been destroyed permanently and disconnected from the raw water sources? Also, will there be backflow prevention devices installed to prevent wastewater from entering the wells or MHTS?	<p>The pipeline that previously conveyed water from the Behner surface water treatment plant to the Windsor Reservoir was the 30-inch hume line. Prior to the MHTS construction, water was able to flow to the sandbox and then into the Windsor Reservoir. In 2010, the sandbox was reconfigured by installing a water tight concrete wall that hydraulically isolated the two sides of Windsor’s sandbox: MHTS discharge water (north side) from MHTS treated water (south side). MHTS discharge water flows into the north side of the sandbox via 24-inch and 10-inch discharge pipes with an air gap. The discharge water then drains from the sandbox through the 30-inch hume line to spreading basin #5. Treated water enters the south side of the sandbox via a below grade 24-inch pipeline. Treated water then flows into the Windsor Reservoir via a weir opening between the sandbox and the reservoir.</p> <p>Backflow prevention devices will be installed to prevent wastewater from entering the wells, these will be</p>

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				depicted at a later date in the proposed engineering design drawings.
7	38	3.2.9	On page 38, the fifth line says water will be pumped directly from the well into four 21,000 gallon containment tanks. It should say two 21,000 gallon containment tanks instead.	The text has been changed to correct the number of 21,000 gallon containment tanks.