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Refer To File #: 190471-0019

**VIA E-MAIL AND U.S. MAIL**

March 8, 2010

Wayne Praskins  
EPA Project Manager  
U.S. EPA (SFD-7-3)  
75 Hawthorne Street  
San Francisco, CA 94105

**Re: Comments on Remedial Investigation/Feasibility Study ('RI/FS') Report  
BF Goodrich Superfund Site ("Goodrich Site") -- Rialto, California**

Dear Wayne:

On behalf of Fontana Water Company ("FWC"), we appreciate this opportunity to comment on EPA's proposed Groundwater Cleanup Plan for the BF Goodrich Superfund Site ("Proposed Plan"). Attached hereto is a memorandum from Dr. John List which presents technical comments on the Proposed Plan. As a supplement to and context for Dr. List's technical comments, FWC has the following observations and concerns about the Proposed Plan:

1. The RI/FS fails to address the contamination of FWC's wells in the Rialto Colton, No Man's Land, and Northeastern Chino Basins ("the Affected Region").
2. The Proposed Plan is flawed in that it does not comprehensively address the perchlorate and volatile organic compound ("VOC") contamination problems in the Affected Region.
3. The Proposed Plan contains a faulty analysis of water rights in the Affected Region.
4. The EPA's preferred alternative could be improved through use of FWC Plant F49.

**I. The RI/FS fails to address the contamination of Fontana Water Company's wells.**

FWC, a division of San Gabriel Valley Water Company, is the largest water utility in the Rialto Colton, No Man's Land and Northeastern Chino Basins. These Basins provide a critically needed water supply which FWC must rely on to provide water service to a population of approximately 154,000 residents and businesses throughout its 52 square mile service area. This service area encompasses most of the City of Fontana, portions of the Cities of Rialto,



Rancho Cucamonga, and Ontario, as well as adjacent unincorporated areas of the County of San Bernardino ("County").

FWC pumps groundwater from 24 production wells in the Affected Region which is contaminated by perchlorate and VOC contamination. Eight of Fontana Water Company's wells have had perchlorate levels reach or exceed the maximum contaminant level ("MCL") of 6 ppb established by the California Department of Public Health. And all of those wells have been shut down and cannot be used without first treating the water.

In addition to those eight wells, Fontana Water Company has five wells in the Rialto Colton and No Man's Land basins which are also contaminated with perchlorate at varying concentrations below the MCL. All of these wells are down gradient from, and in close proximity to, the Goodrich Site and the Mid-Valley Sanitary Landfill ("MVSL") operated by the County and recognized by the Santa Ana Regional Board and the EPA as a source of perchlorate and VOC contamination.

There is persuasive hydrological and chemical evidence that the perchlorate in the FWC wells comes from the MVSL and the Goodrich Site. Dr. List has submitted reports to the EPA dated October 6, 2008 and December 10, 2009 which validate this conclusion based upon known groundwater flow trajectory data as well as the results of a preliminary perchlorate isotope study. Dr. List's analysis is supported by EPA's own modeling efforts with respect to the Proposed Plan. Figure A-8 from the RI/FS indicates that perchlorate from the Goodrich Site as well as the MVSL is impacting FWC's wells.

FWC acknowledges that the Proposed Plan purports to be interim. Nonetheless, the Remedial Investigation should comprehensively analyze the evident impacts to FWC's wells (or at least present a plan to do so) and provide some assurance that these impacts will be addressed. FWC's 154,000 customers deserve no less.

**II. The Proposed Plan does not comprehensively address required remedial efforts within the Affected Region.**

As Dr. List's report points out, the remedial investigation is flawed in that it does not analyze the remediation efforts required to address the contamination emanating from the MVSL site. EPA incorrectly assumes that contamination from the Goodrich Site can be addressed in isolation from efforts to remediate the contamination at the adjacent MVSL site.

In 1998, FWC entered into a settlement with San Bernardino County wherein FWC pumps and treats the water from three of its wells in the Affected Region that have been contaminated with VOCs from the MVSL. Two of these wells, F10-B and F10-C, are in the No Man's Land Basin and the third well, F49-A, is in the Rialto Colton Basin. Since 1998, pumping and treating these three wells has allowed the County to meet its obligation pursuant to the Regional Board's Cleanup and Abatement Order 98-96 to contain the VOC plume emanating from the MVSL and remediate contamination in FWC's water supplies from those three wells. The RI/FS neglects to even mention this remedial action let alone analyze how the Proposed Plan would impact this RWQCB mandated cleanup.



Moreover, as Dr. List points out, the EPA's own modeling (as reflected in Figure A-8 of the RI/FS) indicates that the County's proposed perchlorate remediation program for the MVSL, utilizing Rialto Well No. 3, will not be effective in containing the perchlorate plume from the MVSL. FWC's wells continue to be exposed to this plume (and already have rising detections of perchlorate). It therefore appears that the EPA approach of focusing solely on the Goodrich Site, without regard for the contamination emanating from the MVSL, will leave FWC without a remedy for either site and continue to leave FWC's wells subject to contamination emanating from both. This artificial and unworkable delineation of responsibility between the EPA and the Regional Board has had the predictable effect of leaving FWC's perchlorate contamination concerns unaddressed.

### **III. The RI/FS does not accurately portray water rights in the Affected Region.**

The RI/FS misconstrues the Rialto Basin Decree. That Decree applies to a legally defined area which does not include the No Man's Land Basin from which Fontana Water Company pumps its F10-B and F10-C wells, among others. The No Man's Land Basin covers an unadjudicated area between the legally defined areas of the Rialto Colton and Chino Basins. FWC has pumped over 3,500 acre feet per year on average over the last five years from No Man's Land Basin as part of the Regional Board approved and mandated groundwater cleanup plan for VOCs migrating from the MVSL. Fontana Water Company enjoys senior appropriative pumping rights with respect to this water production.

Moreover, the RI/FS's discussion of the Rialto Basin Decree inaccurately depicts water production permissible under that Stipulated Judgment. The Decree permits unlimited pumping each water year (October 1 to September 30). In the middle of each water year water level measurements are taken in three key wells (in March, April and May). Depending on those water level measurements, the amount of water available under the Decree can be limited during a period of limitation (June through September). Accordingly, it is incorrect to state, as your RI/FS does on page 2-8, that "Fontana Water Company reports its entitlement is 920 acre feet." FWC has made no such report. As we pointed out by a memorandum from Frederic A. Fudacz, to Wayne Praskins, dated April 15, 2009, that entitlement is only applicable during a period of limitation and not otherwise relevant. That memorandum is attached to this letter.

The fact that the entitlement set forth in the Decree operates as a potential production constraint only during a four-month period of limitation was a critical premise in providing the water rights to support the VOC remediation effort mandated by Cleanup and Abatement Order 98-96. FWC is the beneficiary of a standby water lease between Fontana Union Water Company and the City of Rialto, a party to the Decree, in which Rialto committed to lease FWC up to 1,600 acre feet of its Rialto Basin water rights if and only if production is required to be curtailed under the Decree. The express intent of the Standby Water Lease is to enable FWC to produce 2,000 gpm continuously from its Rialto Colton Basin wells (e.g., F49A) to fulfill the VOC remedy of FWC's water supplies. Rialto and the County both confirmed this interpretation of the Decree, in an agreement dated May 9, 2000, and no party to the Decree has ever objected to the agreement before or after it was approved following a public hearing by the County.



#### **IV. The EPA's preferred alternative could be improved through use of FWC Plant F49.**

EPA's Preferred Alternative 2A contemplates the pumping and treating of 1,500 to 3,200 gpm of contaminated groundwater and using the treated water as a drinking water supply. The alternative assumes that the treated water would be supplied to West Valley Water District even though it is noted that "it may be difficult for WWWD to accept the full 3,200 gpm of treated water that would be generated during high water level conditions." If EPA determines to go forward with its proposed interim remedy notwithstanding the concerns articulated by Dr. List and FWC, FWC believes there would be significant advantages to using FWC's Plant F49 as the site for treating water produced under the interim remedy.

First, FWC already is developing plans for VOC and perchlorate facilities at Plant F49 to treat rising levels of contaminants in the well at that site.

Second, FWC is in a position to commit to use most, if not all of the treated water generated by the interim remedy (both alternative 2a and alternative 3) on a continuous basis and has the ability to deliver portions of that water to other local water purveyors (i.e. Rialto and WWWD) through existing or new interconnection facilities.

Third, FWC can provide ample land free of charge for the construction and proper operation of all necessary treatment facilities. The RI/FS acknowledges that there may not be sufficient room at the City of Rialto owned parcel where Rialto-2 is located to accommodate all necessary treatment facilities. To the extent that the preferred alternative would require additional land acquisition costs, using FWC's F49 site would result in additional savings.

Fourth, the modified preferred alternative would involve groundwater extraction from Rialto Well 2, from the new well EW-1, and would also include Well F49A. A 16-inch raw water delivery pipeline, approximately 11,000 feet in length, could be built from the Rialto 2 well to Plant F49 which has ample room to accommodate a treatment plant which could readily be designed to treat up to 6,000 gpm, which would be sufficient for FWC to treat water from the extraction wells contemplated by the interim remedy as well as for water FWC produces from Well F49A. Treatment would include ion exchange for perchlorate removal, liquid phase granulated activated carbon for volatile organic compound removal and disinfection. In addition, there is sufficient room at the F49 site to accommodate additional treatment modalities should, at a future date, additional contaminants or wells require remediation. Attached to this letter is a diagram showing FWC's proposed water treatment facility at plant F49 which could readily be incorporated within the preferred alternative as proposed by EPA.

Fifth, the additional capital cost to construct a 16-inch raw water pipeline for delivery of water from Rialto 2 and EW-1 to the F49 plant would likely be offset by reduced O&M expenditures. There is an elevation difference of approximately 130 feet between the location of the contemplated treatment plant in alternative 2-A and the location of Plant F49. Accordingly, there should be sufficient head pressure at F49 to substantially reduce power costs.

Sixth, if FWC does not treat the water, EPA should not assume that FWC would be in a position to accept a portion of the water generated by the proposed interim remedy. As a matter of policy, FWC cannot rely on treated water from other purveyors because the company is not in



a position to assure its customers that the water will be treated to fully comply with safe drinking water standards and that the water will be delivered reliably in amounts and to locations required for efficient usage within its water system. However, FWC is, by far, the largest water utility in the Affected Region, with a water system master plan to serve 250,000 customers, and is able to commit to use most if not all of the water it treats at the treatment facility if the F49 option is adopted. To the extent that either West Valley Water District or Rialto require or desire a portion of the water treated by the Plant 49 option, existing interconnections between FWC's system and those adjacent water systems would allow for delivery of such treated water.

Finally, in lieu of utilizing plant F49, the preferred alternative could also be modified to utilize Plant F13 for the location of the treatment plant and distribution of treated water. This plant has the advantage of being closer to the Rialto 2 well, requiring a shorter raw water pipeline. Figure 3-9 in the RI/FS already shows a proposed route for a treated water pipeline between Rialto 2 and the F13 site. This same alignment could be utilized readily for a raw water pipeline if F13 were the treatment site. However, the F13 site does not enjoy the elevation advantage of Plant F49, but has ample available land for FWC to construct and operate treatment facilities to support the proposed interim remedy.

FWC would be happy to meet with EPA to discuss these proposals in more detail.

Very truly yours,

A handwritten signature in black ink that reads "Frederic A. Fudacz". The signature is written in a cursive style with a long horizontal flourish at the end.

Frederic A. Fudacz  
of Nossaman LLP

FAF/vcd  
Enclosures

**Flow Science Incorporated**

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**MEMORANDUM**

**Date:** March 8, 2010

**To:** Wayne Praskins  
EPA Project Manager  
USEPA (SFD-7-3)

**From:** E. John List, Ph.D., P.E.  
Principal Consultant

**Re: RI/FS And Proposed Cleanup Plan  
B.F. Goodrich Superfund Site  
Rialto, California**



This memorandum is prepared on behalf of Fontana Water Company (FWC), whose production wells in the Rialto-Colton and Chino groundwater basins, and in the No Man's Land Basin, have been impacted by perchlorate and other contaminants. It provides technical comment on perceived inadequacies in the RI/FS Study Report and the EPA's Proposed Cleanup Plan.

The RI/FS and proposed cleanup plan are incomplete and premature for several reasons:

- 1) They ignore the best scientific knowledge that is available related to the Rialto-Colton Groundwater Basin.
- 2) They ignore the effects of the adjacent source of perchlorate -- the County's MVSL -- and the remediation proposed for that site.
- 3) They fail to propose any remedy for the perchlorate contaminating numerous FWC wells southwest of the Goodrich and County sites.
- 4) The proposed remediation plan leaves a large fraction of the existing perchlorate in the ground with the potential to impact downstream water supply wells.
- 5) They rely upon a groundwater model that is demonstrably in error and flawed.

**1. Contrary to Best Scientific Knowledge**

Although the RI/FS references (page 1-7) the seminal research paper by Anderson *et al*<sup>1</sup> that

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<sup>1</sup> Anderson, M., J. Matti, and R. Jachens. 2004. "Structural Model of the San Bernardino Basin, California, from Analysis of Gravity, Aeromagnetic, and Seismicity Data." *Journal of Geophysical Research*. Volume 109, B04404, doi:10.1029/2003JB002544.

describes the structure of the Rialto-Colton Basin and the bounding faults, it contradicts the basic finding of the Anderson paper in relationship to the location and structure of the Rialto-Colton Fault (RCF). All of the figures in the RI/FS, and the description of the groundwater flow modeling performed for the RI/FS, show the RCF as a continuous impervious barrier to groundwater flow, which the Anderson *et al.* study shows is incorrect, both with respect to the fault location and structure. Furthermore, according to the seismic profiling of the fault area performed by the USGS (Gandhok *et al.*<sup>2</sup>): “Our seismic reflection images show that the Rialto-Colton fault consists of an approximately 1-km-wide zone of small-offset (approximately 20 to 30 m) faults in the upper 1 km depth. No single large-offset fault was imaged along any of the seismic profiles.”

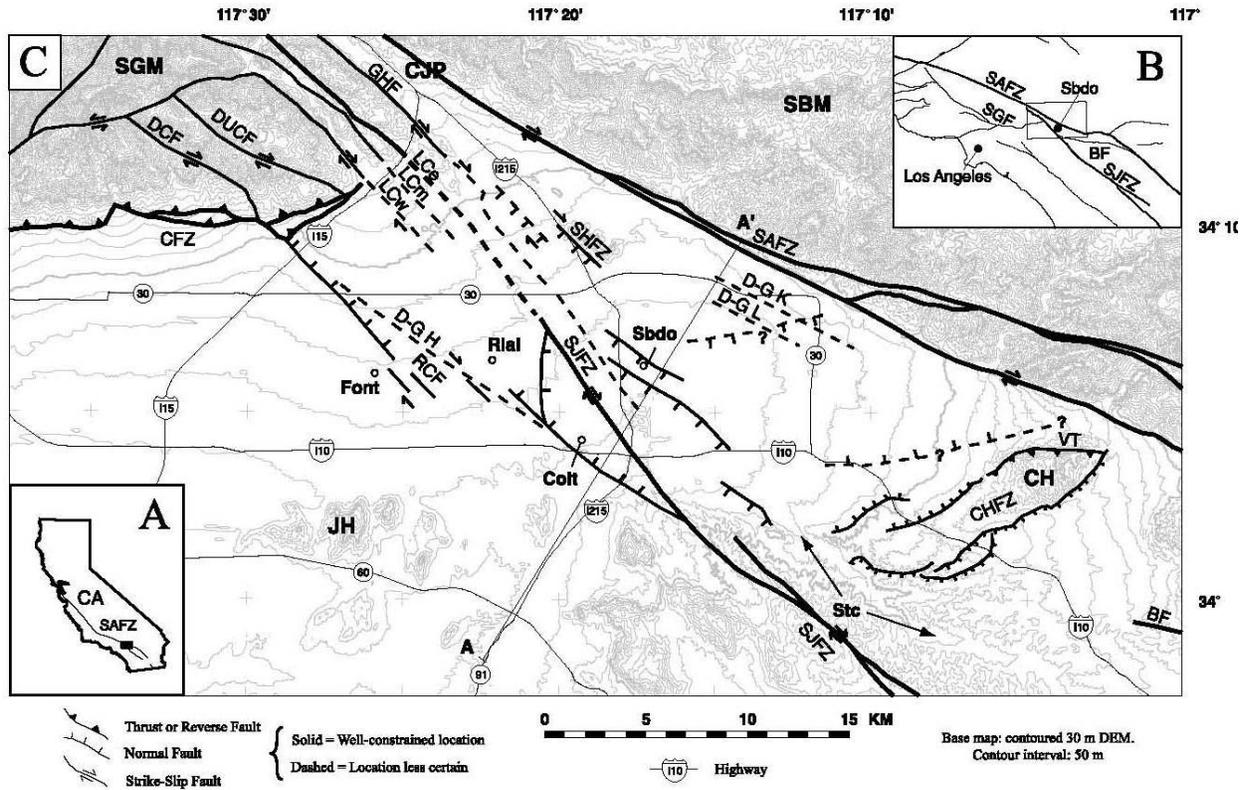
**Figure 1**, below, is extracted from the Anderson paper and illustrates clearly the difference in location of the RCF Zone, as determined by the Gandhok and Anderson work and the prior location of the fault, as depicted by Dutcher and Garrett<sup>3</sup>. A review of Plate 1 from Dutcher and Garrett actually shows that the Rialto-Colton Fault and Barrier H form a fault zone (in congruence with the findings of Gandhok *et al.*), as opposed to a single continuous RC fault and shorter Barrier H, as depicted in the RI/FS. The basic difference between Anderson *et al.* and Dutcher and Garrett is in the location of Barrier H and the structure of the Rialto Colton Fault (see further discussion below regarding the placement of Barrier H).

In addition to the misrepresentation of the Rialto-Colton Fault Zone (RCFZ) and Barrier H, the EPA modeling assumes that the northwestern section of the RCFZ is impervious, which is contrary to the fact that at least four hydrogeological maps of groundwater contours in the northern Chino Basin indicate flow through this section of the RCF Zone.

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<sup>2</sup> Gandhok, G.; Catching, R. D.; Rymer, M. J.; Goldman, M. R. 2003 “Shallow Geometry and Velocities Along the Rialto-Colton Fault, San Bernardino Basin, California” American Geophysical Union, Fall Meeting 2003, abstract #S21F-0393

<sup>3</sup> Dutcher, L.C., and Garrett, A.A., 1963 [1964], Geologic and hydrologic features of the San Bernardino area, California—with special reference to underflow across the San Jacinto fault: U.S. Geological Survey Water-Supply Paper 1419, 114 p.



**Figure 1.** (a) Index map showing study area location within California. (b) Index map showing location of the study area relative to major faults. (c) Topographic map showing San Bernardino basin and vicinity. Fault and geographic feature names are given in Table 4. Sources for fault locations are: RCF, SHFZ, graben bounding faults, and dotted faults in the eastern portion of the basin, this study; DCF/ DUCF, Morton [1976]; all other faults, Matti and Morton [1993]. Profile labeled A-A' is shown in Figure 6. Normal faults in the center of the map are inferred in the subsurface, and outline the edges of the San Bernardino graben shown in Figure 5a.

**Figure 1 – Extracted from Anderson *et al* and illustrating the location of the Rialto-Colton Fault Zone as determined by Anderson *et al* (RCF) and Dutcher and Garrett (D-G H)**

EPA also failed to use the results obtained from its own multi-port sampling wells that were installed and sampled in 2009. None of the contaminant sampling data from these six EPA wells installed in 2009 have been included in the document, but the results of the well survey in 2009 (excluding EPA well data) are used to plot Figure 1-4. It is not clear why the data from the EPA sample wells were excluded from the RI/FS.

The results of the sampling to date from these EPA wells and others (Goodrich's PW-9; Colton's CPW-16 and CPW-17) provide an important confirmation of the existence of two deep plumes of perchlorate that are separated vertically by more than 100 feet of uncontaminated aquifer. In that the source of the lower plume has not yet been identified, it could be the Goodrich site, but it also could be from the County's former BROCO Facility (EPA ID NO. CAT080022148). Until the

sources are known, the efficacy of the proposed remedial plan is uncertain and remedy selection is premature.

## **2. Adjacent Source and Treatment of Perchlorate are Ignored**

The proposed Cleanup Plan does not address perchlorate contamination from the County Mid Valley Sanitary Landfill (MVSL) and the interactions between this proposed remedy and the proposed clean up operations employing Rialto #3 for the County site. It is clear from the modeling results presented in the RI/FS that the impact of the proposed remediation wells and the operation of the Fontana Water Company wells in the Rialto-Colton Basin have a very substantial impact on the remediation planned for the County's Landfill site.

According to Figure A-8 of the RI/FS, included below here as **Figure 2**, (and all of the other RI/FS figures that address 2004 groundwater flow conditions) the operation of the Fontana Water Company wells, particularly its well F49A treating County VOCs, appear to impact the groundwater streamline patterns. Since these are the conditions that will likely be in place for the foreseeable future this is a very important finding. If the modeling is to be believed (and there is good reason to doubt that it can be, as discussed below), this figure and all the others for 2004 conditions show that the streamline patterns for flow into the County planned remediation well Rialto #3 actually do not derive from the County site and that this well will not remediate the County's contamination. The original figure from which **Figure 2** was derived (RI/FS Figure A-8) does not plot streamline patterns that pass through the MVSL and so to illustrate the point streamline patterns based on the groundwater contours have been sketched onto the map, together with the location of the MVSL. From this figure it can be seen that no streamlines through the MVSL enter Rialto #3 and furthermore, it appears that the most effective remediation wells for the County site will likely be the five FWC wells F13A/B, F10B/C and F49A. Conclusion: both the EPA and County's proposed treatment systems at Rialto #2 and Rialto #3 may remove some of the perchlorate emanating from the Goodrich site, but little or no perchlorate from the County landfill.

EPA's cleanup plan and maps all assume and depict a separate perchlorate plume emanating from the Goodrich site, completely separate from the plume from the adjacent County landfill. But EPA's modeling refutes this untenable separate plume theory. The streamline patterns and particle paths shown in the model results are quite simply incompatible with two distinct contaminant plumes.

While it is understood that the streamline patterns drawn are representative of "steady state" flow conditions, and that in a situation where the flows are changing year-by-year, particle paths do not always coincide with streamlines, the results plotted in **Figure 2** (and the other 2004 remediation scenarios plotted in the RI/FS Appendix A) make it very clear that a proper analysis of the remediation effort must analyze the transient flow conditions and the remediation of the County site in the Cleanup Plan.

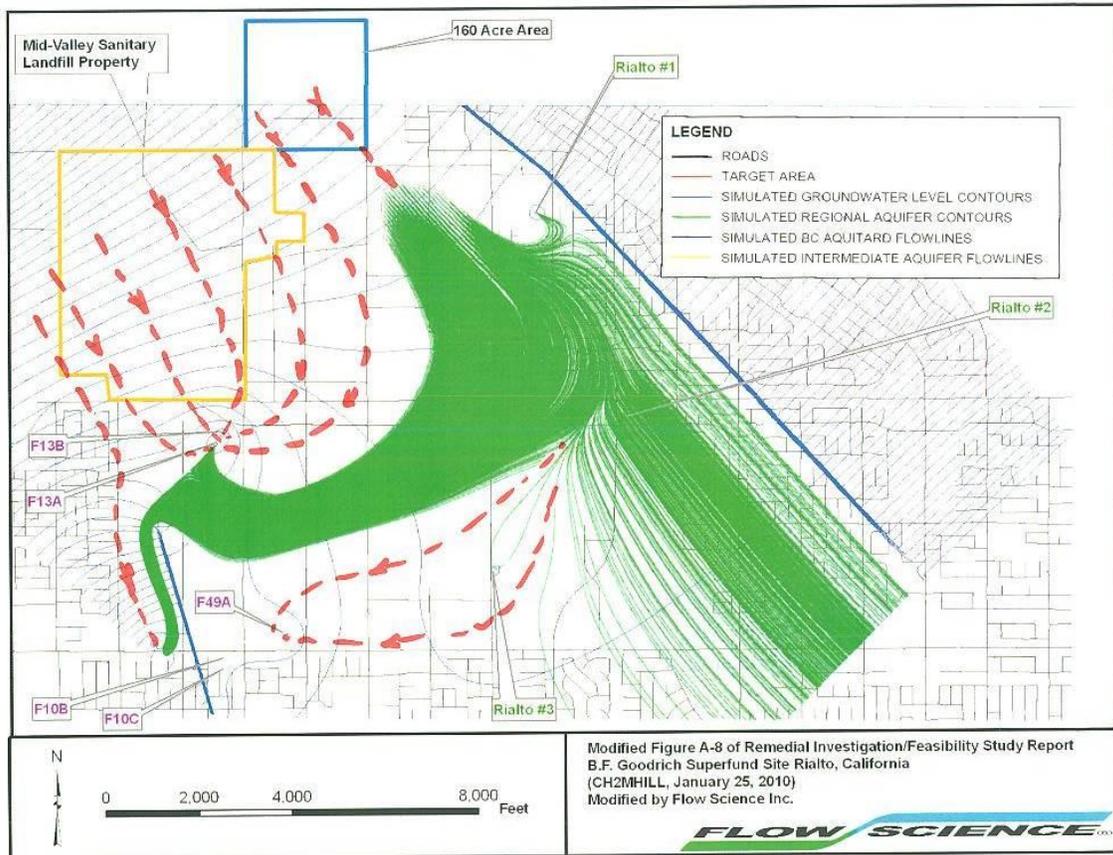
### **3. The Plan Fails to Propose Any Remedy for the Perchlorate Contamination Flowing to the Southwest from the Goodrich and County Sites**

The recent data report<sup>4</sup> for the Regional Aquifer southeast of the County site shows that in the area traversed by streamlines to the FWC wells, the Regional Aquifer contains high concentrations of perchlorate. For example, Sampling Well N-9 has a concentration of 79 ppb of perchlorate; Well N-10 has 230 ppb. The streamlines implied by the computed groundwater contours in the Regional Aquifer (plotted in red in **Figure 2**) show that flow to the FWC wells passes through this area. These wells also appear to intercept streamlines that pass through the Goodrich site. However, there are few sampling wells at the Goodrich site that extend into the Regional Aquifer so it is not known what concentrations of perchlorate actually exist in this aquifer at this site (see RI/FS Figure 1-5).

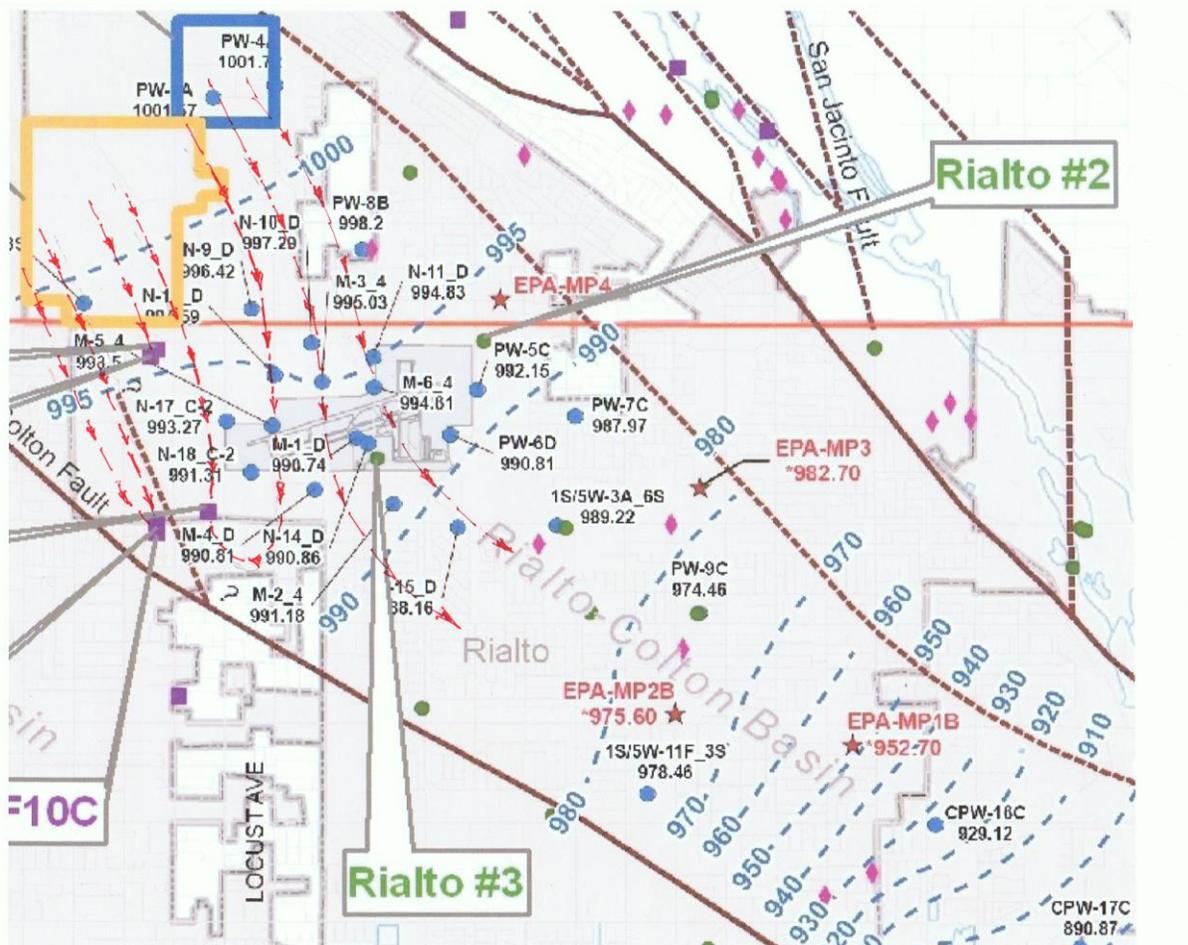
The southwesterly flow of perchlorate is further indicated by the streamline directions implied by the groundwater elevation contours plotted in RI/FS Figure 1-4. **Figure 3** below has been extracted from EPA Figure 1-4 to emphasize the groundwater contours not plotted between elevation 990 and 995. Streamlines inferred from these groundwater contours (plotted in red in Figure 3) clearly show transfer of perchlorate from the County site to FWC 13A/B, which is confirmed by the high fraction of synthetic perchlorate observed in well F13A during the recent preliminary chlorine and oxygen isotope studies. The plotted streamlines also indicate possible transfer of perchlorate from the Goodrich site to FWC well F49A. (Note that this figure also indicates the correct positions of FWC wells F10B/C, which are incorrectly placed in RI/FS Appendix figures, as discussed in more detail below.)

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<sup>4</sup> Groundwater Monitoring Report Third Quarter Summer 2009 Prepared by Geologic Associates on behalf of County of San Bernardino and submitted to Regional Water Quality Control Board (Santa Ana Region).



**FIGURE 2 – Extracted from RI/FS Figure A-8 and modified to show Goodrich and County Landfill sites and correct positions of Wells F10B/C. Schematic streamlines added in red.**



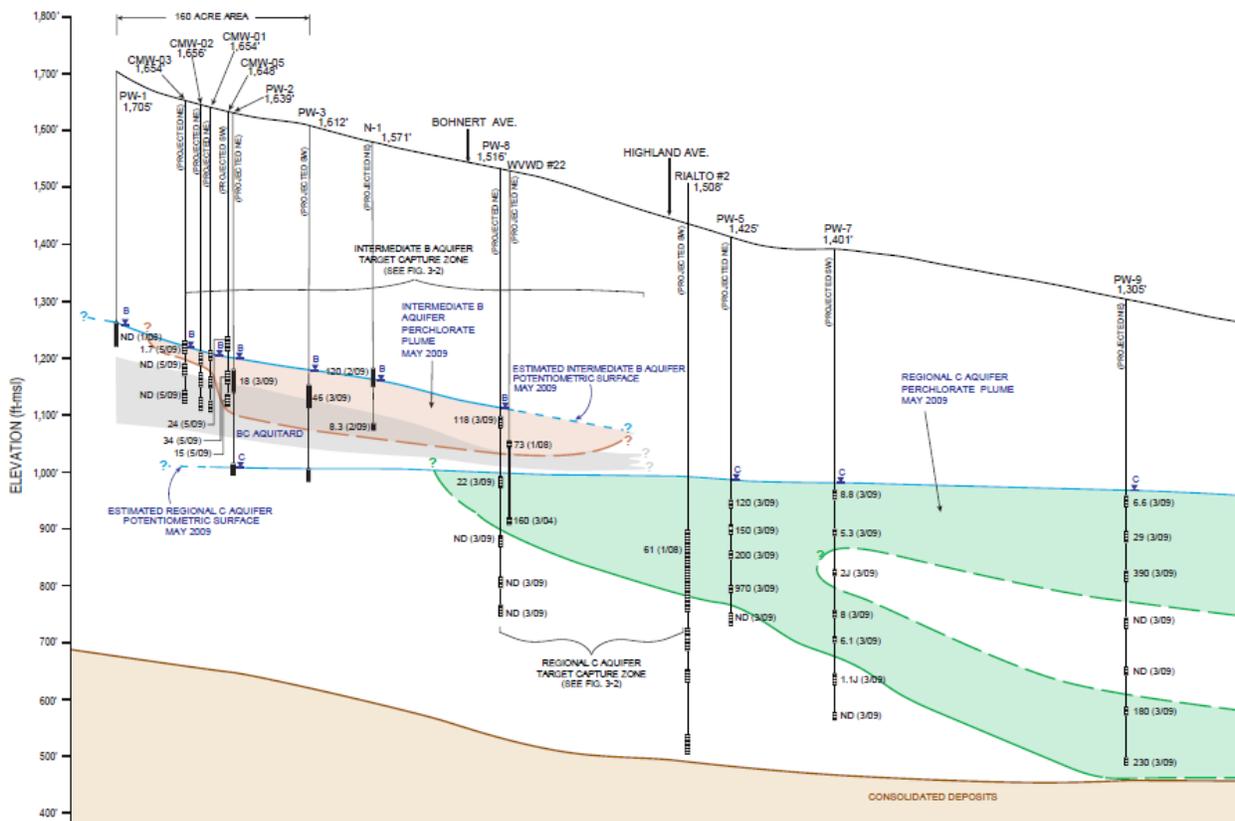
**FIGURE 3 – Extracted from RI/FS Figure 1-4. Schematic streamlines added in red.**

Note also in **Figure 3** that the measured groundwater contours, and their associated streamlines that transport perchlorate to the FWC wells F13A/B, F10B/C and F49A (the purple squares on the map), agree in general form to those streamlines and contours in the same area shown in **Figure 2**.

The conclusion that perchlorate in FWC's wells derives from the County and possibly Goodrich sites is also supported by prior groundwater contours prepared by USGS, the studies by Anderson *et al.* and Gandhok *et al.*, the initial isotope study of perchlorate in FWC wells, and a wealth of other data discussed in my prior reports to EPA beginning in October 2008. Unless this conclusion is refuted by the new perchlorate isotope and hydrogeologic studies now being conducted by the ESTCP and USGS, any perchlorate remediation plan for the Goodrich and/or County sites should also remediate perchlorate contamination in FWC's wells.

### 3. A Large Fraction of Perchlorate Will Remain in the Ground

The proposed Cleanup Plan relies upon two interception wells Rialto #2 and a new well EW-1, located to the west of Rialto #2, as shown in RI/FS Figure 3-6. However, referring to RI/FS Figure 1-5, included here as **Figure 4**, it is clear that a huge volume of perchlorate contaminated groundwater lies hydrogeologically downstream of Rialto #2 and that the Cleanup Plan will have no impact on the removal of this polluted groundwater flow stream. Concentrations of perchlorate in this downstream plume exceed 300 ppb of perchlorate (Rialto #6). The Cleanup Plan should address how this plume of perchlorate is going to be intercepted and treated.



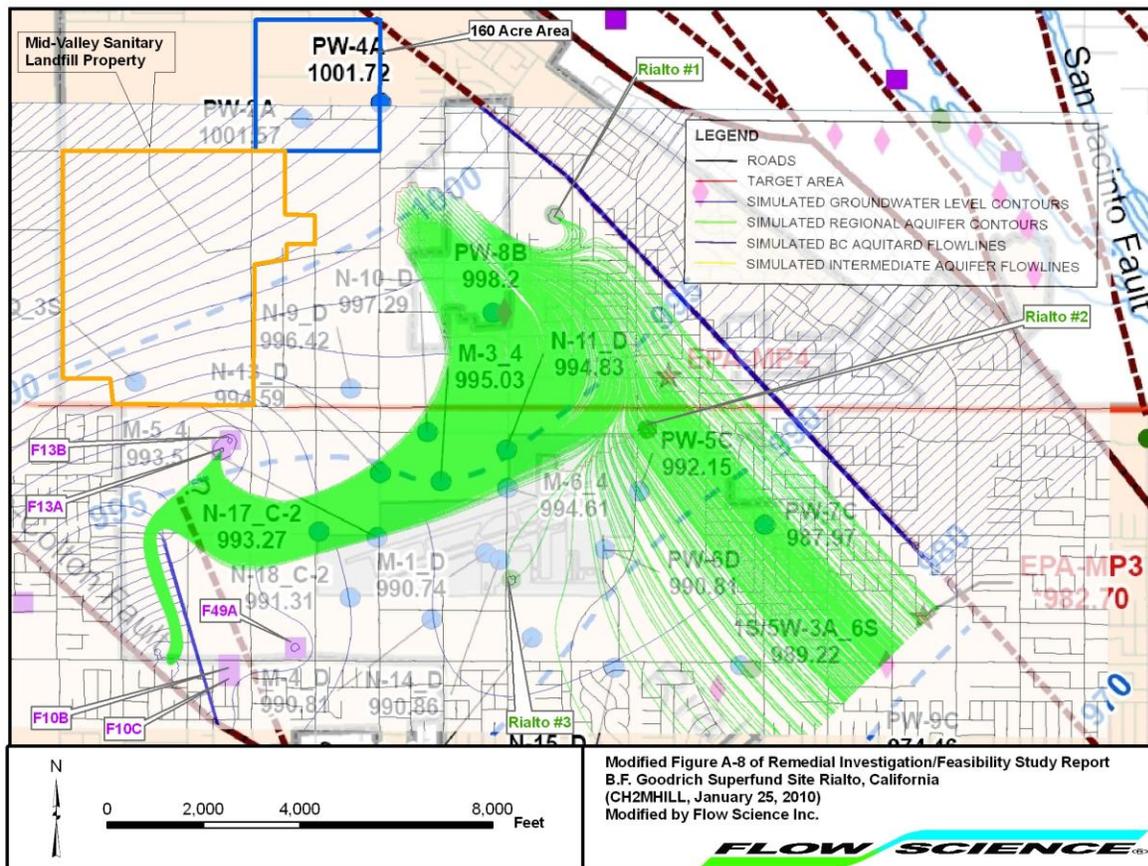
**FIGURE 4 – Extracted from RI/FS Figure 1-5 to show extent of plume east of Rialto #2.**

### 4. Reliance on a Demonstrably False Groundwater Model

The model employed in the RI/FS is a slightly adjusted version of the Geologic Associates ground water model of the Rialto-Colton Basin. It presumes the existence (for which there is scant evidence) of a shortened section of the Dutcher and Garrett Barrier H (interpreted as an impermeable branch off the RCF into the Rialto-Colton Basin), and it assumes an impervious and contiguous RCF fault, contrary to the findings of Anderson *et al.* and Gandhok *et al.* (see §1 above). The most important failings of the modeling are:

(i) The presumed position of Barrier H and the locations of FWC wells F10B and F10C are incorrectly positioned in the groundwater model. **Figure 5** below is an overlay map created by Flow Science with a GIS system using Figures 1-4 and A-8 from the RI/FS. In the lower left hand corner of this figure two different locations for Barrier H can be seen. One shown as a dark blue solid line, as in Figure A-8, and the other a dotted light brown line, as in Figure 1-4. Wells F10B/C are not explicitly called out in Figure A-8, but their location is implied by the apex of the green particle paths. In Figure 1-4 these two wells are shown as overlapping light purple squares. Flow Science has checked the actual locations of Wells F10B/C and has marked these locations on **Figure 5**; they coincide with the locations shown in RI/FS Figure 1-4. The fact that Barrier H and the Wells F10B/C are apparently mislocated in the groundwater model will obviously change the computed groundwater contours and streamlines; how significant the change will be is difficult to assess without rerunning the model with the correct geometrical data.

Perhaps even more important than the mislocation of Barrier H is the presumption of its shape and impermeability. Given the uncertainty associated with both the location and structure of this “barrier” it would have been entirely appropriate to have performed model sensitivity analyses that omitted the barrier altogether.



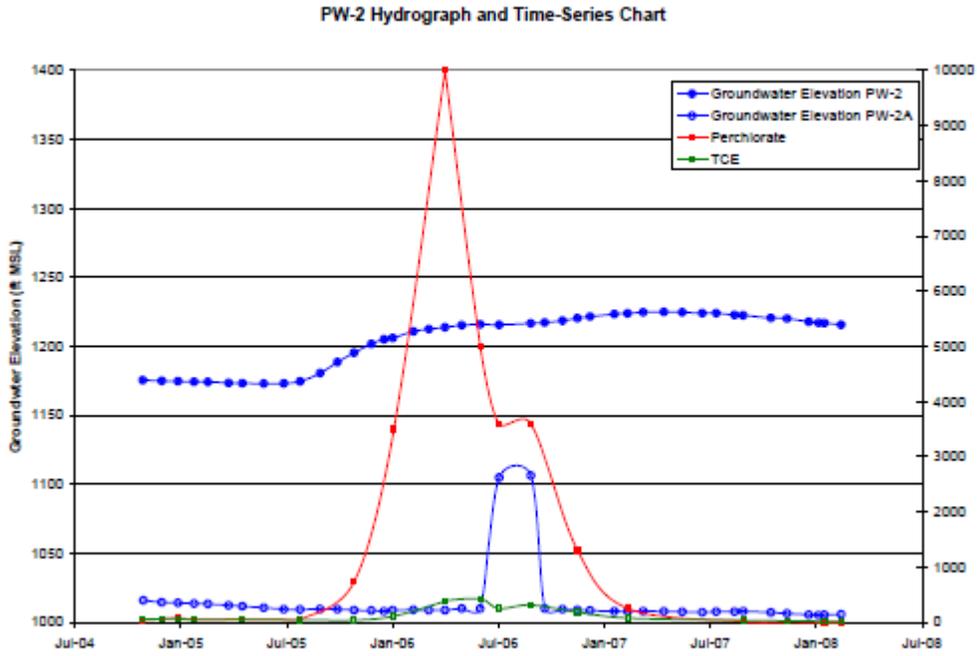
**FIGURE 5 -- Sections of RI/FS Figures 1-4 and A-8 in an overlay showing misplacement of Wells F10B/C and Barrier H. Figure also includes County and BROCO sites.**

(ii) There is a failure to impose upstream boundary conditions that show a rapid rising and falling of the Intermediate Aquifer water table in response to major stormwater flows in Lytle Creek. Field work at the Goodrich site and County sites has shown that these very rapid rises in water table elevation are responsible for major influxes of perchlorate into the groundwater system through flushing of the vadose zone (see **Figures 6a and 6b** for the Goodrich site below; similar charts exist for the County site). Lytle Creek had exceptionally high flows in late 2004 and early 2005, which are reflected in the changing water table elevations at the Goodrich site later in 2005. The USGS<sup>5</sup> has also noted the extreme variability in the inflows to the Rialto-Colton Basin from the Lytle Basin (see Figure 40 of the USGS WRIR 00-4243).

(iii) The attempted validation of the modeling as represented by RI/FS Figure A-6 (see **Figure 7** below) shows a poor correlation with measured groundwater surface elevations in City of Rialto wells with elevation discrepancies of as much as 70 ft and also indicating groundwater slopes during the 1980's that are not present in the well data. In fact, the RI/FS concedes that the model even indicated flows out of the northwest boundary of the modeling region in the late 1980's and 1990's —basically saying that groundwater ran uphill! (See RI/FS Figure A-7a included here as **Figure 8.**)

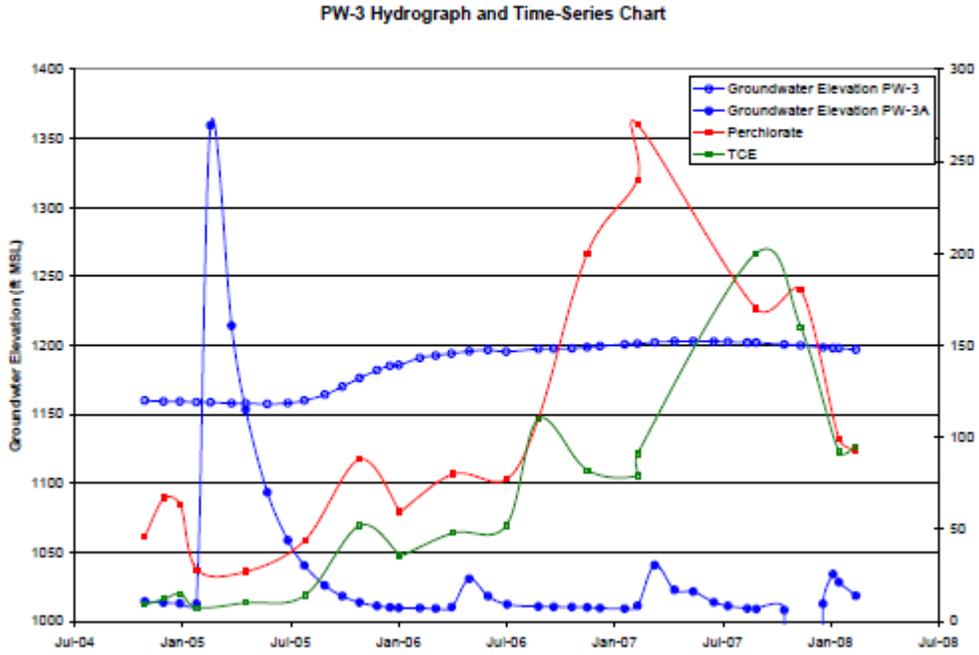
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<sup>5</sup> USGS Water Resources Investigation Report 00-4243, 2001.



**Figure 6a – Groundwater elevation and perchlorate in sample well PW-2 Goodrich site.**

Source:  
Goodrich Corporation Progress Report for the Month of February 2008  
160-Acre Parcel, Rialto, California  
Geosyntec Project No. HA0938

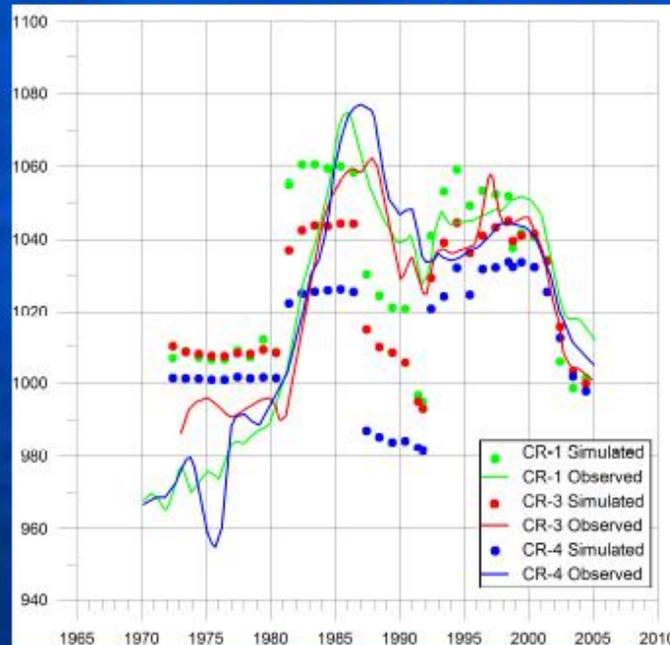


**Figure 6b– Groundwater elevation and perchlorate in sample well PW-3 Goodrich site.**

Source:

Goodrich Corporation Progress Report for the Month of February 2008  
160-Acre Parcel, Rialto, California  
Geosyntec Project No. HA0938

## Figure A-6: Comparison of Observed and Simulated Groundwater Levels City of Rialto Wells CR-1, CR-2, and CR-3



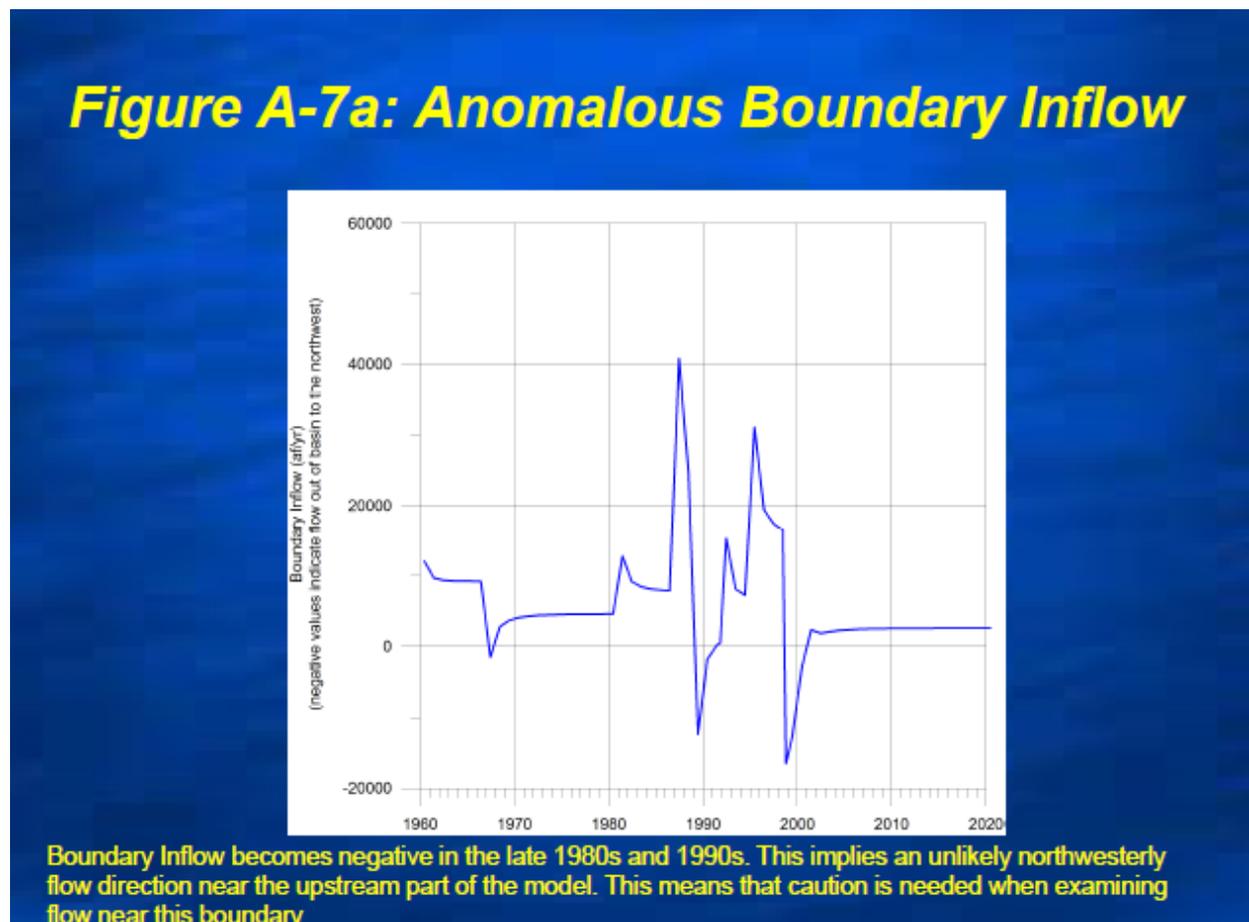
**FIGURE 7 – Validation of the model versus City of Rialto wells.**

(iv) It is acknowledged that the modeling does not show any transfer of perchlorate from the Intermediate Aquifer to the Regional Aquifer: “Simulations of downward movement through the Intermediate Aquifer with the larger target area provided results that may not be representative of actual conditions. The particles are shown either moving into the BC Aquitard, or they become stranded in portions of the Intermediate Aquifer where the saturated thickness was limited during low to intermediate water level conditions. These simulations assume that the specified water levels continue unchanged for a period of tens or hundreds of years.”

However, as shown in the field data from the Goodrich site (**Figures 6a and 6b**) the water levels do not remain constant, and it is these changing water levels that give rise to the pulses of high concentration perchlorate in the groundwater. In the absence of any transfer from the Intermediate to the Regional Aquifer, where do the high concentrations in the Regional Aquifer come from?

## 5. Misrepresentations in Figure 2 of Public Notice of Comment

Figure 2 of the document entitled “**EPA Seeks Public Comment on Groundwater Cleanup Plan**” completely misrepresents the extent of the contamination in the Rialto-Colton and Chino Basins. The legend to this figure: “**Figure 2.** Approximate extent of perchlorate and/or trichloroethene (TCE) contamination”, and the depiction of the contaminated ground water plume, have entirely omitted the contributions to the groundwater contamination emanating from the County Landfill and BROCO sites. Furthermore, the depiction of a single plume streaming to the southeast is contrary to EPA’s own modeling results that show, in all of the figures in Appendix A for 2004 conditions, that such a uniformly streaming plume cannot be present. The figures also depict the Rialto-Colton Fault as a single entity, when in fact geological evidence developed by the USGS (discussed in Section 1 above) has shown that the fault is anything but contiguous and actually occupies a zone of at least a kilometer in width.



**FIGURE 8 – Extracted from RI/FS Figure A-7a showing negative boundary flows at the “upstream” northwest boundary to the model.**

## **SUMMARY AND CONCLUSIONS**

Before EPA spends tens of millions of dollars on a remedy that is incomplete and premature, it should wait for and carefully consider the results of the comprehensive studies of groundwater hydrology and isotopes being performed under the aegis of the ESTCP by Shaw Environmental and the USGS. These studies will provide the information needed to develop the most effective cleanup plan for perchlorate generated from the two adjacent sites in the Rialto-Colton Basin.



**TO:** Wayne Praskins  
**FROM:** Frederic A. Fudacz  
**DATE:** April 15, 2009  
**RE:** Rialto Basin Decree  
1904710019

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The Rialto Basin Decree (“Decree”) is not a fully litigated water rights adjudication. It is a stipulated, consent decree which, under applicable law, is interpreted in accordance with rules of construction for contracts. The past practices of and course of dealings between the Parties are therefore important in defining their rights and responsibilities. The Decree permits **unlimited pumping** each water year (October 1 to September 30). Pursuant to the Decree, Fontana Water Company, as agent for Fontana Union, has produced between 5,700 acre-feet and 8,100 acre-feet per year over the last 5 years.

The average water level measurements are taken in three key wells in March, April, and May. Depending on those water level measurements, the amount of water allocated to Fontana Union pursuant to Sections 5 and 9 of the Decree during a period of limitation (June – September) can be 920 acre-feet. In addition, in case there is any limitation on pumping as the result of the spring water level measurements, Fontana Union is the beneficiary of a standby water lease with the City of Rialto entitling it to pump an additional 1,600 acre-feet to assure continuous and uninterrupted extractions

as part of Regional Board-approved groundwater cleanup plan for contaminants migrating from the Mid-Valley Sanitary Landfill site.

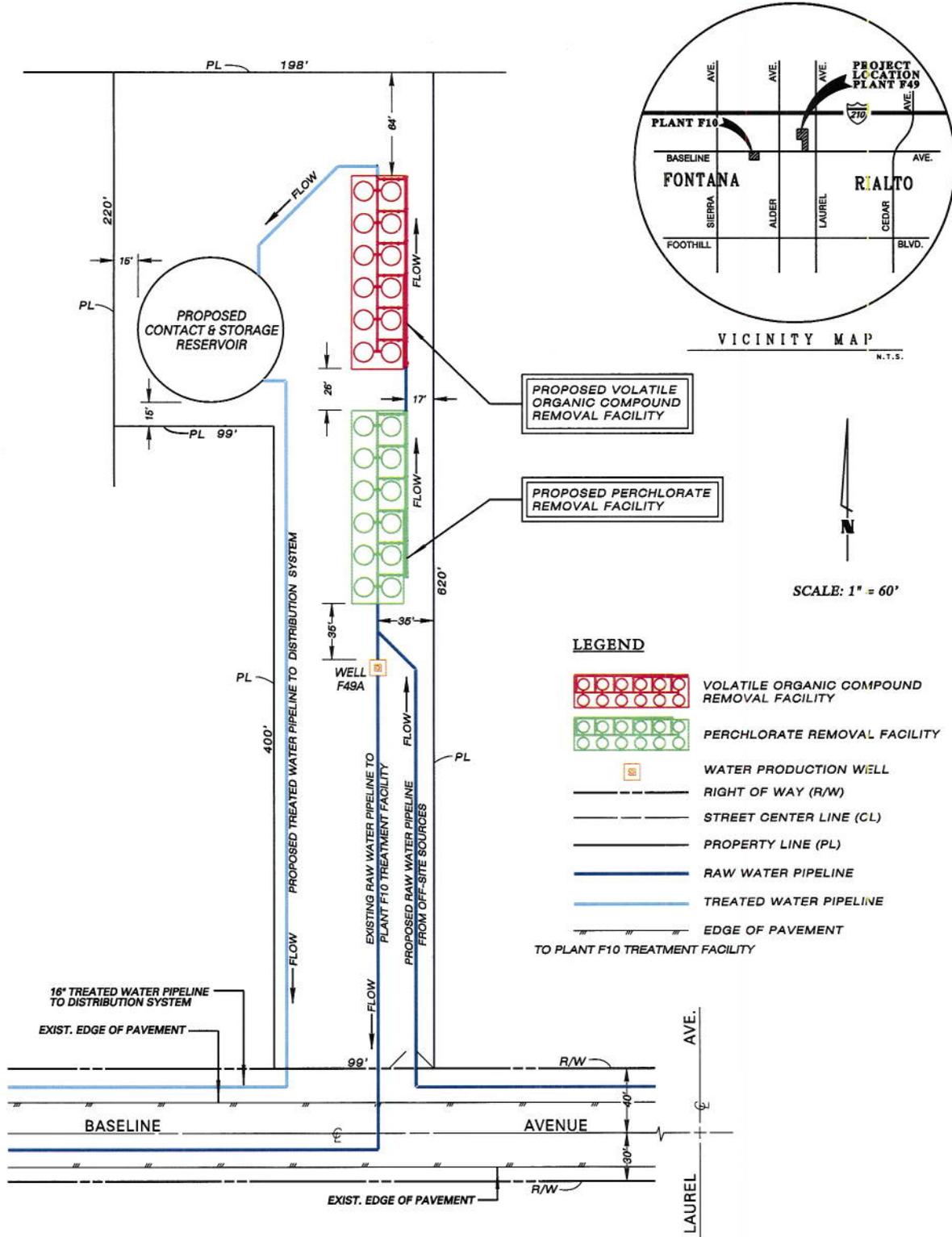
Pursuant to a U.S. Bankruptcy Court-confirmed Plan of Reorganization for Fontana Union, Fontana Water Company has an irrevocable right to produce groundwater from the Rialto Basin pursuant to Fontana Union's rights. Because of the unique methodology employed by the Decree to govern pumping, it is incorrect to suggest that there is an absolute acre-foot limit on pumping. In addition, it should be noted that Fontana Water also exercises substantial senior appropriative pumping rights in the unadjudicated No Man's Land area between the Rialto and Chino Basins, pursuant to which it has pumped over 3,500 acre-feet per year on average over the last 5 years as part of Regional Board-approved groundwater cleanup plan for contaminants migrating from the Mid-Valley Sanitary Landfill site.

FAF/vcd

# FONTANA WATER COMPANY

## PLANT F49

### PROPOSED WATER TREATMENT FACILITY



PREPARED UNDER THE SUPERVISION OF:

**MATT Y. YUCELEL** RCE No. 68951 DATE \_\_\_\_\_

**FONTANA WATER COMPANY**  
 8440 NUEVO AVENUE  
 P.O. BOX 987 - FONTANA, CALIFORNIA 92335

**PLANT F49**  
 PROPOSED WATER TREATMENT FACILITY  
 2188 BASELINE AVENUE

DATE
DRAWN BY: OD MG
DESIGNED BY: MG EP
REVIEWED BY: KO MY
APPROVED BY: MY FL
SCALE 1" = 60'
MAP 82
T.C. P.C. 575-B6