
Central Valley Regional Water Quality Control Board

6 May 2013

Mr. Parry Klassen
East San Joaquin Water Quality Coalition
1201 L Street
Modesto, CA 95354

GROUNDWATER QUALITY ASSESSMENT REPORT OUTLINE - EAST SAN JOAQUIN WATER QUALITY COALITION

Thank you for the timely submittal of the 11 April 2013 outline for the East San Joaquin Water Quality Coalition's (Coalition) Groundwater Quality Assessment Report (GAR). The proposed GAR outline was submitted as required by the Waste Discharge Requirements for Growers within the Eastern San Joaquin River Watershed Order R5-2012-0116 (Waste Discharge Requirements).

Central Valley Water Board staff reviewed the GAR outline, data sources and the preliminary bibliography. The Coalition has identified a number of key information and data sources; it is understood that the list of information sources will evolve during the preparation of the GAR. As noted in the attached memorandum and checklist, staff determined that the proposed GAR outline meets the requirements described in Attachment B to the Waste Discharge Requirements, provision IV.A.

We appreciate the Coalition's interest in working closely with the Central Valley Water Board as the methodologies to be applied and the data sources to be used in the preparation of the GAR are developed. The thoroughness and detail of the proposed GAR outline, as well as the Coalition's willingness to provide other stakeholders with updates on the progress in the implementation of the Waste Discharge Requirements, are commendable. We look forward to an ongoing productive dialogue during the process of the GAR development, and the receipt of the Coalition's Groundwater Quality Assessment Report by 13 January 2014.

If you have any questions or comments regarding the review, or need any further information, please contact Jelena Hartman at jhartman@waterboards.ca.gov or by phone at 916-464-4628.

[original signed by Susan Fregien for]

Joe Karkoski, Chief
Supervising Water Resources Control Engineer
Irrigated Lands Regulatory Program

Enclosures: Staff Review of East San Joaquin Water Quality Coalition GAR Outline

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Central Valley Regional Water Quality Control Board

TO: Clay Rodgers, Assistant Executive Officer
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FROM: Jelena Hartman, Environmental Scientist
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IRRIGATED LANDS REGULATORY PROGRAM

DATE: 2 May 2013

SUBJECT: REVIEW OF EAST SAN JOAQUIN WATER QUALITY COALITION
GROUNDWATER QUALITY ASSESSMENT REPORT OUTLINE

To meet the conditions of the Waste Discharge Requirements for Growers within the Eastern San Joaquin River Watershed Order R5-2012-0116 (Order), the East San Joaquin Water Quality Coalition (Coalition) is required to prepare a Groundwater Quality Assessment Report (GAR). The GAR should analyze existing monitoring data to identify the high and low vulnerability areas where discharges from irrigated lands may result in groundwater quality degradation, including identification of constituents that could cause degradation, and provide the technical basis informing the scope and level of effort for implementation of the Order's groundwater monitoring and implementation provisions. The GAR is due on 13 January 2014.

The Order requires that the Coalition provides a proposed outline describing data sources and references that will be considered in developing the GAR. The due date for the submission of the proposed GAR outline was 11 April 2013, and the California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) received the Coalition's GAR outline on time. The submitted outline and accompanying information were reviewed to assess the preliminary list of data sources and references that will be considered in developing the GAR.

The Central Valley Water Board staff considered the preliminary data sources and whether the process proposed for data compilation and analysis would provide information needed to address the main objectives of the GAR (Order sections VII.D.1.p.29 and Attachment B.IV.A.1, p.12-13). The submitted GAR outline addresses sources of information of all required components and includes review and analyses as described in the Order. Table 1 provides an itemized account of how the preliminary GAR outline addresses required components, and preliminary data sources listed for each component.

Overall, the proposed GAR outline suggests that the Groundwater Quality Assessment Report will adequately address the five main objectives specified in the Order:

Objective 1. Determine the high and low vulnerability areas where discharges from irrigated lands may result in groundwater quality degradation. The GAR outline indicates that approaches for existing vulnerability assessments will be summarized, and a statistical

method will be developed to identify a vulnerability formula based on hydrogeologic parameters and groundwater quality observations. A vulnerability model will be developed using data from select areas based on relevant properties of geology, soil, hydrology, and available water quality data. The derived model will be applied to calculate vulnerability across the entire Coalition region using geology, soils, and hydrology information. The model results will be validated using a subset of water quality data and calculated vulnerability designations. The model performance will be compared to the results of existing assessments, such as the Department of Pesticide Regulation and State Water Resources Control Board vulnerability designations. Based on the above calculations and evaluations, the rationale for vulnerability identification will be presented.

Objective II. Establish priorities for implementation of monitoring and studies within high vulnerability areas. Relative priorities will be established for high vulnerability areas based on multiple considerations, such as groundwater quality trends, constituent toxicity and mobility, land use and dominant commodities, proximity to areas contributing recharge to communities, and so on.

Objective III. Provide a basis for establishing workplans to assess groundwater quality trends. The outline indicates that the GAR will review information on existing well networks and monitored parameters, feasibility of using/sharing existing wells and data, as well as identify key data gaps in existing programs. The GAR will provide enough information on land use and will develop vulnerability prioritization sufficient to provide preliminary recommendations and justification related to informational needs for purposes of developing a Trend Monitoring Workplan.

Objective IV. Provide a basis for establishing workplans and priorities to evaluate the effectiveness of agricultural management practices to protect groundwater quality. Although the proposed outline indicates that the GAR will include much of the information necessary to design the Management Practices Evaluation Program, this objective is not explicitly addressed.

Objective V. Provide a basis for establishing groundwater quality management plans in high vulnerability areas and priorities for implementation of those plans. The data compilation and proposed analyses described in the outline indicate that the GAR will develop information necessary to designate and prioritize areas identified as vulnerable with respect to groundwater quality, and necessary for the design of the Groundwater Quality Management Plan.

Table 1. Preliminary Outline for the Groundwater Quality Assessment Report (GAR) - East San Joaquin Water Quality Coalition

GAR Component Name (WDR reference)	Section of GAR Outline	Preliminary List of Potential Data Sources	Central Valley Water Board Staff Comments
Data Compilation - relevant existing federal, state, county, and local databases and documents (Attachment B.IV.A.2.p.13)			
Pertinent geologic and hydrogeologic information (AttB.IV.A.3.p.13)	1.c, and Section 2	<ul style="list-style-type: none"> • DEM (USGS NED) • Geology (CVHM) • Hydrology (CVHM, DWR, USGS, USBR, GeoTracker, local entities - e.g. Irr. Districts) 	
Detailed land use information	Section 3	ESJWQC, DWR, USDA, county crop reports	<ul style="list-style-type: none"> • The data from the Department of Conservation Farmland Mapping and Monitoring Program (FMMP) should also be considered: http://www.conservation.ca.gov/dlrp/fmmp/Pages/Index.aspx FMMP More detailed data may be available by request from the FMMP. • What sources will be used for the Practices data (for example, outline sections 3.d and 3.e)? How will irrigation practices and fertilization methods data have to be developed?
Contour maps - depth to groundwater	2.c.iii-iv	DWR, CASGEM, GeoTracker, USGS-NWIS	
Groundwater recharge	2.c.ii	CVHM	
Soil survey information	2.b	NRCS, CVHM, Irr. Districts	
Shallow groundwater constituent concentrations; potential constituents of concern identified	Section 4	DPR, DWR, USGS-NWIS, GAMA, CDPH, County Health Departments, Dairy Program	<ul style="list-style-type: none"> • The Coalition anticipates an evaluation of the spatial and temporal trends of nitrate, salt, and pesticide concentrations. As the initial submittal of the GAR should include a compilation of water quality data to be used to evaluate trends (AttA.p.40), trend monitoring constituents (AttB.IV.E.p.19.Table 3) should be considered for addition to the planned water quality data compilation.
Existing groundwater data collection and analysis efforts	Section 6	CASGEM, GAMA, USGS, DPR, Dairy Program, Watershed Management Plans	<ul style="list-style-type: none"> • Tile drain information should be included where available. • Which Watershed management plans will be used, and have any watersheds been identified already?
Data Review and Analysis (Attachment B.IV.A.3.p.13)			
Known groundwater quality impacts	4.c and 4.e		
Merit and feasibility of incorporating existing data collection and monitoring well systems	6.d		<ul style="list-style-type: none"> • Purposes other than trend monitoring, e.g. MPEP and GQMP monitoring design should be considered as well.
Designate high and low vulnerability areas for groundwater (AttB.IV.A.4.p.13-14)	Section 5		
a. Rationale for vulnerability determinations (AttB.IV.A.4.p.14)	5.c		

GAR Component Name (WDR reference)	Section of GAR Outline	Preliminary List of Potential Data Sources	Central Valley Water Board Staff Comments
b. Ranking of high vulnerability areas, basis for prioritization of workplans (AttB.IV.A.5.p.14)	5.d		<ul style="list-style-type: none"> • While the list in the Outline may not be final, areas already identified as vulnerable (e.g. SWRCB, DPR, or current/future review by CV-SALTS) should be considered. • Sources of some key data are not identified (e.g. 5.d.v - Existing operational practices associated with irrigated agriculture that cause or contribute to water quality problems). What will be the source of those data?
Foundational Information for Groundwater Monitoring (VII.D.1.p.29 and Attachment B.IV.1.p.12)			
Recommendations for Management Practice Evaluation Program design (AttB.IV.B. and D, p.14-18)	!		<ul style="list-style-type: none"> • GAR should provide a basis for establishing workplans and priorities for the Management Practices Evaluation Program
Recommendations for Groundwater Quality Trend Monitoring Program design (AttB.IV.C and E, p. 16-19)	6.e and 7.c		
Recommendations for establishing Groundwater Quality Management Plans and priorities for implementation (AppMRP-1.I.B.3.p.3-4)	7.b		
References (Attachment B.IV.A.p.12)			
Data Sources	Throughout		<ul style="list-style-type: none"> • Comments for specific sections are included with each item (see above). • Sources of information are detailed in each section of the outline. The list of potential data sources provides a useful overview by data type although the list is not as comprehensive as the outline (e.g. CVHM texture model not included for soils but it is apparent that CVHM will be considered). • Some sources are too vague to evaluate what will be considered (e.g. 2.c.i.6. Local entities).
Bibliography	pages 8-10		<ul style="list-style-type: none"> • Harter, T., J. R. Lund, J. et al. 2012. Addressing Nitrate in California's Drinking Water with a Focus on Tulare Lake Basin and Salinas Valley Groundwater. Report for the State Water Resources Control Board Report to the Legislature. Center for Watershed Sciences, University of California, Davis. 78 p. http://groundwaternitrate.ucdavis.edu