July 30, 2018

Excellence in Environmental Health Nomination for Sacramento County

Project Description: Approximately 40 percent of Sacramento County's public water comes from groundwater. Sacramento County's Environmental Management Department (EMD) created a Geographic Information System (GIS) risk-based assessment mapping tool in Google Earth to protect this resource and subsequently, the public's drinking water (Map). The Map allows EMD staff to quickly identify the location(s) of abandoned wells and to establish public water system and political boundaries. Additionally, the Map provides the location(s) of regulated hazardous material and waste facilities and to track areas with known groundwater contamination. Currently, there are no other mapping applications integrating these variables at a local level.

Thanks to the development/implementation of the Map, EMD saves an average of a week in turnaround time when processing well permit applications. EMD staff use the Map to easily identify potential well siting risks, promptly engaging well drillers and regulatory staff regarding mitigation efforts. The faster permit approval turnaround time has saved approximately $21,000 in permit fees charged to well drillers/owners, improving customer service. The Map has also improved EMD staff's ability to prevent the contamination of Sacramento County's groundwater.

Project History: EMD implemented its Abandoned Wells Program (AWP) in 2009; the objective of AWP was to survey, identify, and tracks abandoned wells throughout Sacramento County. In order to meet this objective and to avoid duplicating efforts, EMD staff used Google Earth's free mapping software to visualize previously located abandoned wells. Then in 2016, using GIS software, EMD staff created mapping layers of known soil and groundwater contamination, FEMA and local flood zones, and regulated hazardous material and waste facilities in Sacramento County. Today, staff regularly update the layers' data by integrating information from EMD's database, EnvisionConnect, data from California's Water Resources Control Board's GeoTracker, and the Department of Toxic Substances Control's Envirostor. Additionally, EMD staff work with local regulatory agencies concerning regional groundwater contamination plumes.

Solving Problems: The Map addressed a previously inefficient well permit approval process regarding potential groundwater contamination risks. Historically, EMD staff referenced a variety of static paper maps from different regulatory agencies when deciding whether or not to permit new well construction, well repair, and well destruction. More complicated data, including regional groundwater contamination and flood hazards, were not readily available to EMD staff for review. Consequently, EMD staff relied on extensive outside regulatory agency review and outdated contamination data when siting water wells.

Additionally, the Map has several other benefits, including:

- Usability – Google Earth is designed to be user-friendly. EMD staff have all of the data they need on one platform when making decisions regarding permitting well construction, repair, and destruction.

- Security and Privacy – EMD currently does not provide groundwater data to the public. However, EMD staff are working with different groundwater authorities to provide/share their public data.

- Accessibility – EMD is working with groundwater authorities to provide data that is visually usable. Agencies can use this information to facilitate communication and awareness.

Project Cost(s): EMD staff started work on the Map in 2009 as part of the AWP. Initially, staff spent 80 hours to develop the Map, siting previously discovered abandoned wells. Staff put in these efforts to avoid duplicative, redundant field surveys. In 2016, EMD staff expanded the Map to include more comprehensive data including: groundwater contamination. Staff spent approximately 160 hours in these efforts. Currently, ongoing Map maintenance includes approximately four staff hours per month.

Despite the cost of initial investment, EMD staff save 100 hours processing well permits each year. Other EMD staff use these maps for fieldwork during crises (eg. flooding). EMD staff also save well permit applicants tens of thousands of dollars in permit fees.

Collaborations: (1) Other, local groundwater management authorities and regulatory agencies are interested in sharing EMD's data because the Google Earth maps act as a catch-all; these layers have all of the required information that these agencies need to make decisions regarding groundwater quantity and quality.

(2) EMD shares its data with the County's Department of Technology so that the County's GIS-based Parcel Viewer (the County's master GIS-system) includes abandoned well and septic system data.

Examples: http://www.emd.saccounty.net/EC/Pages/WellsProgram.aspx

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