

Chemical Contaminants of Emerging Concern



Limiting Liability from PFAS and 1,4-Dioxane

Per- and polyfluoroalkyl substances, better known as PFAS, have dominated the emerging contaminants landscape for the last decade. PFAS and 1,4-Dioxane (1,4-D) represent significant challenges in investigation, remediation, and regulatory compliance. Scientific research and advancements in technology have helped industry gain a better understanding of the potential sources, human health risks, ecological impacts, characterization methods, and treatment alternatives. As regulatory guidance of PFAS and 1,4-D continues to evolve, there is a growing sense of uncertainty and urgency in both industry and the regulatory community.

Our culture at GES is to develop and implement practical solutions to our customers' current and future environmental challenges, including the challenges posed by emerging contaminants. PFAS and 1,4-D are both mobile, persistent, and challenging to remediate. The sources are varied and the regulatory requirements for investigation and remediation are rapidly evolving throughout the U.S.

What does this mean for your business? Have you identified your potential exposures for emerging contaminants? What are the regulatory requirements across the US? What actions are you required to take? What needs to be sampled and by what analytical methods? What does the data mean? What steps can you take now to limit your future liabilities? We can help.

GES can help you navigate the dynamic regulatory climate by developing assessment, treatment, and remediation methods associated with PFAS and 1,4-D. We'll start by educating you and helping you identify your potential exposures. We will help you determine what to sample, and what laboratories can perform the required analyses, and collect the samples using best practices developed for these challenging compounds. Let our experience and expertise work for you.

Every day we help clients sharpen their understanding of the current science and regulatory landscape while taking proactive steps towards future compliance in the form of data collection, modeling, and treatment alternatives to address these potential risks. Our emerging contaminants team is active in the industry in contributing to developing practices and bringing the latest information to our project teams.

Areas of Expertise

- Vulnerability assessment
- Site investigation
- Multi-media sampling
- Remedy selection and design
- Treatment and remediation
- Rapid response
- Regulatory-client advocacy
- Public participation support
- Waste management





The following are several examples of our diverse PFAS and 1,4-D project management, sampling, and treatment design experience.



NYSDEC Drinking-Water Well PFAS Sampling, Eaton, NY. Under a Standby Investigation and Remediation Contract, the NYSDEC tasked GES with responding to the town of Eaton to supply drinking water to several residences suspected of having perfluorooctanoic acid (PFOA)/ perfluorooctanesulfonic acid (PFOS) contamination in their drinking-water wells, potentially due to the local fire department spraying down a structure fire with fire suppression foam. Nearly all the homes in the village drew their drinking water from hand-dug wells, which averaged 25 feet deep. Once water was supplied to the homes, GES was tasked with sampling each home's potable well for PFOA/PFAS compounds on a weekly basis to determine the extent of impacts and determine whether point of entry treatment (POET) systems were needed. Over the course of the three-months' sampling program, GES was able to observe concentrations decreasing to non-detect (ND) levels. Multiple ND results at each of the residences following GES' PFOA/PFOS investigation were reported. Approval to discontinue the sampling program was obtained from NYSDEC and NYSDOH following submittal of the ND results, with a determination not to install the POET systems.



1,4-D Commingled Plume Assessment at Superfund Site, CA. GES provided professional hydrogeological consulting services for the assessment of potential contaminant plume interactions between two abutting operable units (OU-1 and OU-2) at an industrial Superfund site. The client is in the feasibility studies phase of a long-term pump and treat groundwater remediation system. Water-supply wells have been impacted from the release of chlorinated hydrocarbons, 1,4-D, and perchlorate. If the two plumes were found to be commingled, there would be long-term cost implications to the groundwater treatment system.

GES provided technical expertise and a document that included a time line of possible scenarios of when commingling of the two plumes could occur in the future, based on current supply-well pumping and future remedial pumping. This information will allow the client to modify their planning and construction of the groundwater treatment system to reduce the potential of plume commingling and its associated remediation costs. GES continues to manage and perform the groundwater sampling program to meet regulatory requirements of monitoring the likely future commingling of the plumes. GES prepares annual or semi-annual reports to meet specific regulatory requirements.



PFAS Treatment at MCAS Cherry Point, Havelock, NC. GES is tasked with filtering approximately 42,000 gallons of PFAS-impacted water from a UST holding tank. Influent concentrations were 9,600,000 ppt for PFOS and 207,000 ppt for PFOA. GES deployed a mobile filtration trailer equipped with a single 1,000-pound vessel of activated carbon and three vessels of ion-exchange media. In one test, GES was able to take a 10,000-gallon slug of water from the UST, recirculate it multiple times through the media vessels, and reduce concentrations to 75,600 ppt PFOS and ND (<500) for PFOA before the media

became saturated. It should be noted that this event did not start with fresh media; the client used the same vessels from the previous event, as they felt there was sufficient life left in the carbon. GES' on-site operators are currently in the process of draining and removing the mobile equipment from the work location to facilitate a filter media exchange. The vessels will be recharged and returned to the site to finish filtration operations.