

Injection Well Permitting



INTERA’s history of supporting injection well operations dates back to the late 1980s when we began providing technical guidance and assistance in preparing “no-migration” petitions for Class I industrial and municipal hazardous waste disposal wells. A requirement for receiving an exemption to the land disposal prohibition defined in the Hazardous and Solid Waste Amendments to the Resource Conservation and Recovery Act, these petitions include a demonstration that there will be no migration of hazardous constituents from the injection zone for 10,000 years. From 1988 through 1995, INTERA’s efforts led to over 20 successful no migration petitions—nearly half the number of active petitions in the United States today. While our staff continue to support the permitting of Class I wells, INTERA also brings experience in providing consulting services for the permitting and operation of Class II through Class VI injection wells.

INTERA’s staff provide the technical consulting and field services needed to address a wide variety of issues associated with all classes of injection wells. For example, as part of the siting and hydrogeologic characterization process, we apply state-of-art mapping software to build databases and produce site location, isopach, and structure maps. Shape files and GIS projects are generated to make future updates quickly and cost-effectively. INTERA also uses state-of-the-industry software (e.g., Petra) to interpret and correlate logs and build, edit, and quickly update geologic cross sections. Our comprehensive injection well services and capabilities include reservoir mechanics and modeling studies, well engineering, mechanical integrity testing, well stimulation, no migration petition development and reporting, pre-injection unit design and permitting, permit applications, and serving as a regulatory liaison.

■ Permit Applications for Multiple Class I Injection Wells, Texas, USA

Challenge: To obtain injection well permits needed to support facility operations.

Solution: INTERA staff led the production of technical reports on geology and reservoir mechanics in support of several Class I injection well permit applications for sites operated by various companies, including Environmental Processing Systems, Pergan Marshall, US Ecology Texas, Texas Molecular, Rio Grande Resources, and ASARCO. Our efforts included using literature sources, historic data on bottom-hole pressures and injection rates, geophysical logs and petrophysical data, and pressure-fall off test results to evaluate the geology of the injection and confining zones, assess potential impacts to any underground sources of drinking water, and model future pressure buildup and waste-front propagation in the injection zone. Our model results were used to evaluate the impacts to artificial penetrations within an area of review around the proposed boreholes. INTERA staff also directly interfaced with state regulatory staff to expedite the resolution of permit application issues.

Results: All permits successfully obtained to ensure compliance with applicable regulatory requirements.

