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ALAN E. GAY, P.E.

ASSOCIATE

CIVIL/ENVIRONMENTAL ENGINEER

Technical Specialties

- Sewage Treatment Systems
- NPDES Permitting
- Sewage Collection Systems
- Industrial Field Investigations
- Stormwater Discharge
- Sanitary Landfill Design
- Surface Hydrology
- Water Distribution & Storage
- Groundwater Hydrology

Education

- B.S. Civil Engineering
- M.S. Civil Engineering

Registrations

- Professional Engineer
 - Washington 1992
 - Oregon 1994
 - Idaho 1995
 - Montana 1998

Affiliations

- American Society of Civil Engineers
- National Society of Professional Engineers
- Water Environment Federation

Mr. Gay is a civil and environmental engineer with considerable experience investigating the environmental impacts of concentrated animal feed operations (CAFOs). He has developed water and wastewater treatment systems, has considerable environmental permitting experience, and has performed other in-depth engineering planning studies and systems analysis. His experience also includes a solid background developing and designing industrial sites, airport facilities, suburban developments, and environmental remediation.

Mr. Gay is currently evaluating the treatment and discharge of dairy wastes at several dairies regarding the requirements of the Clean Water Act and the general Washington state NPDES permit for dairies. He recently completed authoring an NPDES permit for an oil drilling facility in the Beaufort Sea and an NPDES permit for Chehalis Power Company for a new generating facility, and managed an investigative study and design with the State Department of Social and Health Services (DSHS) for wastewater facility planning with the City of Medial Lake.

Relevant projects performed by Mr. Gay include:

Agricultural Wastewater

- *DeVries Dairy- Moxee Waste Systems Analysis - Yakima Valley, WA:* Mr. Gay is the nutrient management review engineer under contract to Washington FARM through Mr. Pete Optekar. Mr. Gay's tasks include analyzing and evaluating wastewater treatment, storage, and discharge at this planned 2,000 cow dairy in central Washington. Aspects of this project included evaluating the dairy's Nutrient Management Plan, the proposed treatment received in pretreatment and biosolids (liquid and solid manure) processes, lagoon design, and biosolids application practices.
- *Grandview Dairy Waste Systems Analysis - Gooding County, ID:* Mr. Gay is the lead engineer under contract to Bymann, Allison Hunter and Jones, P.S. His tasks included analyzing and evaluating wastewater treatment, storage, and discharge at this 1,300 cow dairy in central Idaho. Aspects of this project included evaluating the dairy's Nutrient Management Plan, the actual treatment received in pretreatment and



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biosolids (liquid and solid manure) processes, lagoon design, lagoon integrity, and biosolids application practices. Additional services include groundwater transport of pollutants to nearby springs and wells in conjunction with a hydrogeologist, and the health and environmental impacts of that transport.

- ▲ *S&S Dairy Waste Systems Analysis - Yakima Valley, WA:* Mr. Gay was the lead engineer under contract to Western Environmental Law Center. His tasks included analyzing and evaluating wastewater treatment, storage, and discharge at this 1,600 cow dairy in central Washington. Aspects of this project included evaluating the dairy's Waste Management Plan, the actual treatment received in pretreatment and biosolids (liquid and solid manure) processes, lagoon design, lagoon integrity, and biosolids application practices.
- ▲ *George DeRuyter Dairy Waste Systems Analysis - Yakima Valley, WA:* Mr. Gay was the lead engineer under contract to Western Environmental Law Center. His tasks include analyzing and evaluating wastewater treatment, storage, and discharge at this 3,500 cow dairy in central Washington. Aspects of this project included evaluating the dairy's Waste Management Plan, the actual treatment received in pretreatment and biosolids (liquid and solid manure) processes, lagoon design, lagoon integrity, and biosolids application practices. Additional services included analyzing off-site runoff potential at sites owned by the dairy, and irrigation practices.
- ▲ *Henry Bosma Dairies Waste Systems Analysis - Yakima Valley, WA:* Mr. Gay is the lead engineer under contract to Western Environmental Law Center. His tasks included analyzing and evaluating wastewater treatment, storage, and discharge at three CAFO facilities with a combined total of over 5,000 head, including two dairies with over 1,500 head of milk cows each in central Washington. Aspects of this project include evaluating the combined Dairy Waste Management Plan, the actual treatment received in pretreatment and biosolids (liquid and solid manure) processes, lagoon design, lagoon integrity, and biosolids application practices. Additional services include analyzing potential Clean Water Act 404 Permit violations at several Henry Bosma-owned facilities that impound natural drainage ways.
- ▲ *DeRuyter Brothers Dairy Waste Systems Analysis - Yakima Valley, WA:* Mr. Gay was the lead engineer under contract to Western Environmental Law Center. His tasks included analyzing and evaluating wastewater treatment, storage, and discharge at this 4,000 cow dairy in central Washington. Aspects of this project included evaluating the dairy's Waste Management Plan, the actual treatment received in pretreatment and biosolids (liquid and solid manure)



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processes, lagoon design, lagoon integrity, and biosolids application practices. Additional services included analyzing off-site runoff and run-on potential at several sites owned by the dairy, irrigation practices and designing a wastewater monitoring system in settlement of the case.

- ▲ *Sunnyveld Dairy Waste Systems Analysis - Yakima Valley, WA:* Mr. Gay was the lead engineer under contract to Western Environmental Law Center. His tasks included analyzing and evaluating wastewater treatment, storage, and discharge at this 1,200 cow dairy in central Washington. Aspects of this project included evaluating treatment received in pretreatment and biosolids (liquid and solid manure) processes, lagoon design, lagoon integrity, and biosolids application practices. Additional services included analyzing irrigation practices and designing a runoff monitoring system in settlement of the case.
- ▲ *J&J Bosma Dairy Waste Systems Analysis - Yakima Valley, WA:* Mr. Gay is the lead engineer under contract to Western Environmental Law Center. His tasks have included analyzing and evaluating wastewater treatment, storage, and discharge at this 1,500 cow dairy in central Washington. Aspects of this project include evaluating treatment received in pretreatment and biosolids (liquid and solid manure) processes, lagoon design, lagoon integrity, and biosolids application practices.
- ▲ *Moses Lake Livestock Auction Wastewater Treatment Design/State Waste Discharge Permit & Design Report - Moses Lake, WA:* Mr. Gay was the lead engineer designing and writing the state wastewater discharge permit application for the evaporative/land application treatment of truck wash waste water at this Livestock Auction facility located east of Moses Lake in central Washington. The ½ acre of lagoon storage was re-engineered with low-cost pretreatment and a combination of impermeable membrane and clay liners to protect surface and groundwater quality. Mr. Gay produced an Ecology-administered state waste discharge permit application and design report.

Municipal Wastewater

- ▲ *Combined Sewer Overflow Basin Planning - Consoer Townsend Envirodyne/City of Spokane, WA:* Mr. Gay helped CTE utilize information from the Combined Sewer Overflow Reduction Plan in planning combined sewer basin studies for the City of Spokane. Mr. Gay saved CTE many hours of analysis by tapping his familiarity with hydraulic and hydrologic modeling on the project, as well as the objectives of the original project.



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- ▲ *Eastern State Hospital and Lakeland Village Wastewater Facility Planning Coordination:* Mr. Gay managed this project to the design stage, including studies and analyses on pump station design and value engineering of City of Medical Lake plans necessary to assist the State Department of Social and Health Services (DSHS) during the joint facility planning process with the City of Medical Lake. Mr. Gay reviewed and interpreted the NPDES permits for DSHS, and assisted plant operators in meeting permit requirements.
- ▲ *Wastewater Facility Plan Study - City of Spokane, WA:* Mr. Gay was Collection System Project lead in analyzing over 800 miles of sewer system, including 22 lift stations and 11 siphons for deficiencies in present and future scenarios. He reviewed and prepared draft of revised NPDES permit for the City's Spokane Advanced Wastewater Treatment Plant, with particular attention to phosphorus and ammonia limits. Mr. Gay also integrated the findings of the CSO Plan into the facility plan capital improvement program.
- ▲ *Combined Sewer Overflow Reduction Plan and Study - City of Spokane, WA:* Mr. Gay was the project manager on this Ecology-accepted study to prepare a CSO reduction plan consistent with EPA and Ecology CSO and NPDES standards. The project defined over \$40 million in improvements and studies necessary to reduce CSO from current levels in the City's system by approximately 90%. Mr. Gay personally oversaw components of the study including collection system inventory and monitoring; BMP, treatment, and storage option alternatives for CSO reduction; authorship of the plan; hydrologic and hydraulic modeling; and report production.
- ▲ *Wastewater Source Study - Medical Lake, WA:* Project Engineer and lead investigator for a short-term flow monitoring and sampling study to determine the source of high BOD and TSS discharges that violated the NPDES permit at the wastewater treatment plant at the Eastern Washington State Hospital.

Industrial Wastewater

- ▲ *Northstar Development NPDES Permit & Fact Sheet - British Petroleum, Seal Island, AK:* Mr. Gay was the lead author to produce an EPA-administered NPDES permit and fact sheet to impose stringent permit limits on an oil drilling facility in the Beaufort Sea off the north coast of Alaska. The Northstar oil drilling facility will discharge various waste waters, including sanitary and desalination plant effluent. During the process of permit preparation, due to concerns raised by Mr. Gay and others, process water filter backwash was greatly reduced to limit thermal as well as potentially toxic effluents.



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- ▲ *Chehalis Power Generating NPDES Permit & Fact Sheet - Chehalis Power, Inc., Chehalis, WA:* Mr. Gay was the lead author and task manager to produce an EPA, Washington Department of Ecology (Ecology) and Energy Facility Site Evaluation Council NPDES Permit and fact sheet to permit a natural-gas-fired electrical generating plant. The plant is planned to use reclaimed municipal wastewater as cooling water, provide additional treatment, and discharge a small fraction of the ammonia, BOD, and metals loads of the municipal plant to the Chehalis River. The additional treatment concept and pre-engineering necessary for the permit were engineered by and performed under Mr. Gay's direction. Mr. Gay also was the author of the adopted interim limits for the facility.
- ▲ *Hanford 200 Area Sewer Concept Design - Richland, WA:* Project Manager for conceptual design of a major industrial wastewater collection and treatment system for the Department of Energy's Hanford Site. The two collection systems included four lift stations and over 100,000 feet of pressure and gravity sewer pipe. Mr. Gay coordinated with Ecology in negotiating alternatives to an NPDES permit for the proposed systems, including the final concept of evaporative lagoon systems placed downwind of any occupied areas. The project was later canceled due to staff reductions at Hanford.
- ▲ *Industrial Wastewater Collection and Treatment - For Welch's,* Mr. Gay took over the lead of a project for industrial pretreatment and collection system modification at Welch's Kennewick, Washington plant.

Stormwater

- ▲ *Bonuccelli Industrial Park, Spokane Valley -* For a private developer, Mr. Gay is currently completing a stormwater system design integrating on-site and roadway stormwater under an agreement Mr. Gay brokered between Spokane County and the developer. The system will utilize conventional biofiltration swales for stormwater disposal for the 21 acre site.
- ▲ *Stormwater System Evaluation, Moran Prairie -* For the Moran Prairie Neighborhood Council, Mr. Gay rapidly and accurately evaluated the stormwater design prepared by for a private developer by other engineers to assess the potential groundwater impacts of stormwater infiltration as proposed, and to make a preliminary evaluation of evaporative disposal.
- ▲ *Stormwater System Evaluation, Five Mile Prairie -* For the Five Mile Prairie Neighborhood Council, Mr. Gay evaluated two stormwater designs prepared for private developers by other engineering firms,



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assessing surface and groundwater impacts of the proposed systems. A win-win approach to the recommendations allowed the neighborhood council to reach a compromise with the developers.

- ▲ *Kaiser Aluminum and Chemical Company Heat Treatment Center* - For a private developer under contract to Kaiser, Mr. Gay designed a simple, low-cost stormwater disposal system for a planned industrial complex in the Spokane Valley. Criteria included prevention of winter freeze overflows, minimization of piping, and accommodating future expansion on the 20 acre site.
- ▲ *Washington Water Power Central Operations Facility* - For WWP, Mr. Gay lead the pre-design team in conceptualizing a system of cascading stormwater storage basins and a pumped disposal for the existing central operations facility, to bring it into compliance with City of Spokane stormwater handling requirements. Criteria included prevention of winter freeze overflows, minimization of piping, and accommodating future expansion on the 30 acre site. During the design and construction phase of the project, Mr. Gay performed technical review as the department manager.
- ▲ *Industrial and Commercial Stormwater Disposal systems* - For numerous industrial and commercial clients, Mr. Gay has designed and overseen the construction of stormwater disposal systems ranging from biofiltration swales to complex retention and release systems for poorly draining soils.
- ▲ *Stormwater Pollution Prevention Plans (SWPPP)*. Mr. Gay has been the lead engineer on several SWPPPs, including most recently one for the Coville Indian Precision Pine Co. He has also been the project lead on numerous Spill Prevention, Control, and Countermeasure (SPCC) plans, prepared in accordance with 40 CFR Part 112.