

Integrity - Quality - Independence



Hydro
H*solutions Inc*

DUNS # 15-9761139

Contract Period (3-29-2011 to 3-28-2016)

Independent Expertise in Water
Resources and the Environment

Veteran Owned



GSA GS-10F-0172X



Mission Statement

HydroSolutions Inc exists to provide its employees a means to serve our clients and the public good with sound science and engineering, and with independent and unbiased analysis, in support of technical solutions for environmental designs and decision-making, founded on profitability and environmental sustainability.



Hi! I am Jeannie Riddle, Business Manager/Contract Specialist for HydroSolutions Inc and your first point of contact. Contact me with questions via phone 406-655-9555 ext 100 or email me at jeannier@hydrosi.com.

HydroSolutions Inc was incorporated in the State of Montana by Tom Osborne, President, in August 1999. HydroSolutions has grown organically, hiring experienced professional staff and broadening its services in response to market needs and current issues. Over the years, our services have grown to include civil and environmental engineering, geographic information systems (GIS) and environmental database management service areas which augment

our solid base in hydrology, geology and environmental management services.

Most of our mid-level to senior scientists have 20 to 30 years of professional experience with a demonstrated track record of providing the leadership required to address today's most pressing environmental issues in water resources, water quality and environmental restoration.

GSA SCHEDULE GS-10F-0172X

**899-1;
899-1RC**

Environmental Consulting Services

**899-7;
899-7RC**

Geographic Information Systems (GIS)

**899-8;
899-8RC**

Remediation and Reclamation Services

Services Price List

GSA Schedule

GS-10F-0172X

SIN 899-1; 899-1RC Environmental Consulting Services

HydroSolutions is a consulting company specializing in Hydrology, Geology, Environmental Engineering, Groundwater, Water Quality, Environmental Assessment and Cleanup. We have offices in Billings and Helena, Montana. Our projects and clients are located throughout the western United States. We have a well-balanced staff of hydrologists, hydrogeologists, engineers, geologists, environmental scientists, and GIS and database specialists.

We are an independent source of high-quality expertise, with a track record of addressing the most pressing environmental, energy and natural resource issues facing resource managers in this region. We emphasize quality, integrity, safety and responsiveness. We take pride in conducting state-of-the-art analyses and producing technically accurate reports with a clear presentation of methods, findings, and conclusions. We hire and retain highly experienced professional staff with intimate knowledge of the natural resources and regulatory framework of this region. We are frequently retained

as “experts” in our fields to address complex technical issues, or provide expert testimony in legal proceedings.



Our environmental service areas, organized by key topics, include:

ENVIRONMENTAL PLANNING & DOCUMENTATION:

- NEPA Planning, Scoping & Alternative Development
- Preparation of EISs' & EAs'
- Supervision of Multi-disciplinary Teams
- Multiple Accounts Analysis Supporting NEPA Ac-

tions

- Technical Support for Resource Management Plans
- Wetlands, Riparian and Aquatic Resource Planning
- Watershed Inventory, Mapping & Management Planning

ENVIRONMENTAL PROGRAM AND PROJECT MANAGEMENT:

- Technical Analysis of Environmental Regulations
- Technical Analysis of Environmental Risks
- Environmental Studies
- Analysis of Protective Measures to Mitigate Threats
- Vulnerability Assessments
- GIS Resource Evaluations, Modeling, Scenario Evaluations
- Energy and Resource Development Baseline and Impact Studies
- Water Quantity & Quality Evaluations
- Produced Water & Wastewater Management
- Air Emissions and Greenhouse Gas Evaluations
- Environmental Modeling for Regulatory Standards Compliance

RESOURCE CONSERVATION & ENVIRONMENTAL RESPONSE:

- Spill Prevention/Control and Countermeasure Plans (SPCC)
- Investigation and Response to Hazardous Materials Spills
- Technical Support for Environmental Regulations and Policy Updates
- Remediation Feasibility Studies and Environmental Risk Analysis
- RCRA Site Investigations and Cleanup
- CERCLA Site Investigations and Cleanup

AREAS OF SPECIAL EXPERTISE:

- Oil & Gas, Coal & Mining Projects
- Coal Basin Hydrology, Hydrogeology & Hydrochemistry
- Native American Land, Water & Minerals Projects
- River Basin Studies- Point and Non-Point Source Evaluations
- Wildland Hydrology
- Water Quality Assessments, Statistics & Modeling
- Groundwater Flow & Geochemical Modeling

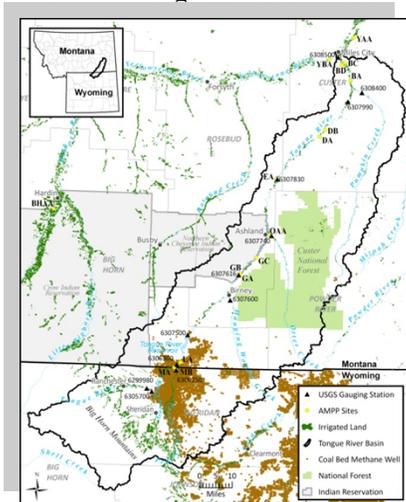
GSA Schedule

GS-10F-0172X

- Environmental Engineering for Water Management Alternatives
- Water Supply Engineering
- Aquatic Resources and Fisheries Biology
- Water Rights Assessments & Permitting

SIN 899-7; 899-7RC Geographic Information Systems Services

HydroSolutions Inc offers geographic information system services to provide spatial analysis, representation, and data organization structure for environmental consulting.



HydroSolutions Inc utilizes GIS and other information technologies as an integrated component of the work process, as a tool to aid in project planning, organization and analysis of acquired data, in addition to concise work products that enhance communication of technical and scientific information. The HydroSolutions Inc staff

possesses professional and academic expertise in many fields, working in conjunction to ensure that geospatial products and analysis have sound, professional, scientific interpretation, review and revision beyond the technologic application output:

Services and products include:

- Spatially integrated environmental impact assessment
- Groundwater modeling
- Contaminant fate and transport modeling
- Historic use and change analysis
- Geospatial data research, acquisition, and organization
- Map preparation and publishing
- Geologic cross section development
- Well lithology and construction diagramming

SIN 899-8; 899-8RC Remediation and Reclamation Services

HydroSolutions has characterization, remediation, restoration and reclamation experience related to crude oil, oil products, solvents, mine waste, and metals contamination. Our remediation and reclamation experience has been applied to industrial, municipal, and commercial settings. Our experience offers a unique and targeted perspective applicable to numerous Federal government agencies.

Our remediation and reclamation services include:

- Site Characterization
- Contaminant Field Investigations
- Monitor Well Installation
- Groundwater Quality Monitoring
- Surface Water Quality Monitoring
- Contaminant Fate & Transport Modeling
- Remediation Design
- Air Monitoring



GSA Procurement Information

GSA Advantage

GSA Advantage is the federal government's premier online shopping superstore giving you access to millions of commercial products and services available from GSA-negotiated contracts.

State and local governments can use GSA Federal Supply Schedules contracts under the authorities of the Cooperative Purchasing Program, the Disaster Recovery Purchasing Program, and the 1122 Counter-drug Program.

Note: only those products and services offered under the Disaster Recovery and Cooperative Purchasing programs are available online for purchase.

State and local customers may browse GSA Advantage anytime. You must use a state or local government issued credit card for payment. No other form of payment is accepted at this time. The State or local government ordering activity is responsible for ensuring that only authorized representatives of their governments place orders and that the supplies or services purchased will be used for governmental purposes only.

Who is eligible to purchase products and services on GSA Advantage offered under the Disaster Recovery and Cooperative Purchasing Programs?

State and Local governments entities eligible include: States, counties, municipalities, cities, towns, townships, tribal governments, public authorities, school districts, colleges and other institutions of higher education, council of governments, regional or interstate government entities, or any agency or instrumentality of the preceding entities, and including legislative and judicial departments. The term does not include contractors of, or grantees of, State or local governments.

(RFP) system designed to allow government buyers to request information, find sources, and prepare RFQs/RFPs, online, for millions of services and products offered through GSA's Multiple Award Schedule (MAS) and GSA Technology Contracts. Government buyers can use eBuy to obtain quotes or proposals for services, large quantity purchases, big ticket items, and purchases with complex requirements.

What is e-Buy?

e-Buy is designed to facilitate the request for and submission of quotes or proposals for commercial products, services, and solutions offered through GSA Federal Supply Schedules and Government wide Acquisition Contracts (GWACs). Using the e-Buy system, Federal Purchasers (buyers) may prepare and post an RFQ/RFP for specific products and services for a specified period of time. Once posted, contractors (sellers) may review the request and post a response.

e-Buy is a simple online procurement tool to use. First, find a category and select vendors to personally notify (all vendors are notified if the RFQ/RFP is placed under a GWAC category). All vendors listed under the category selected can also review or quote on your request. Second, enter your requirements and specify the amount of time the RFQ should remain open. Contractors will receive emails about your requirements and submit quotes in return.

GSA eBuy

GSA's latest e-Business innovation, *eBuy*, is an electronic Request for Quote (RFQ) / Request for Proposal

Why Should I Use e-Buy?

E-Buy was designed to bring ease and versatility to online procurement. Here is a sample of what can be done using e-Buy:

- Receive quotes on millions of products and services
- Find sources of supply
- Seek information
- Procure complex requirements by attaching statements of work
- Request large dollar items
- Establish Blanket Purchase Agreement (BPA) pricing

Federal Buyers:

- Save time and money by completing procurements online
- Ensure compliance with DoD Section 803 requirements
- Submit on-line Modifications
- Forward RFQ/RFPs to others for review and purchase
- Attach customized documents

Ordering Procedures for Services Requiring a Statement of Work (SOW)

1. Publicize Contract Actions Using Recovery Act Funds.
 - Ordering activities shall post notices of proposed Schedule orders (including orders issued under Blanket Purchase Agreements (BPAs)) of \$25,000 or more that are funded, in whole or in part, by the American Recovery and Reinvestment Act (ARRA) of 2009 on Federal Business Opportunities (FedBizOpps) for "informational purposes only." The notices shall follow the procedures in FAR 5.704
2. Prepare a request for quotation (RFQ).
3. Transmit the RFQ to GSA Schedule Contractors

Orders at or below the micro-purchase threshold:

The ordering activity may place orders with any GSA Schedule contractor that can meet the agency's needs.

The ordering activity should attempt to distribute orders among Schedule contractors.

Orders exceeding the micro-purchase threshold, but not exceeding the maximum order threshold:

The ordering activity shall provide the RFQ (including the SOW and evaluation criteria) to at least three Schedule contractors that offer services that meet the agency's needs.

The ordering activity should request that contractors submit firm-fixed prices to perform the services identified in the SOW.

Note: Each Schedule contract has a maximum order threshold, which will vary by special item number. The maximum order threshold represents the point where, given the dollar value of the potential order, the ordering activity shall seek a price reduction

Orders exceeding the maximum order threshold or when establishing a BPA.

In addition to meeting the requirements, above, for orders exceeding the micro-purchase threshold, but not exceeding the maximum order threshold, the ordering activity shall:

- Provide the RFQ (including the SOW and evaluation criteria) to an appropriate number of additional Schedule contractors that offer services that will meet the needs of the ordering activity.
- When determining the appropriate number of additional Schedule contractors, the ordering activity may consider the complexity, scope, and estimated value of the requirement, and the market search results.
- Seek price reductions.

4. Evaluate responses and place the order.

Ordering activities shall use the procedures in Federal Acquisition Regulation (FAR) 8.405-2 when ordering Schedule contract services priced at hourly rates. The applicable services will be identified in Schedule publications and contractors' Schedule pricelists.

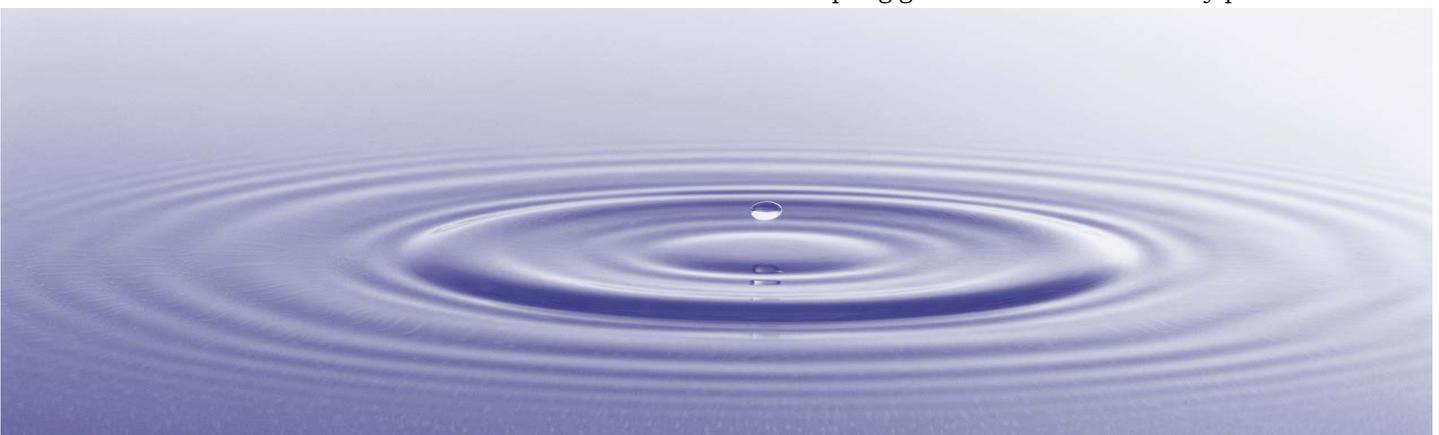
2011 GSA PRICE LIST

APPLICABLE SINS 899-1; 899-1RC; 899-7; 899-7RC; 899-8; 899-8RC

Title	(Prices applicable from March 29, 2011 to March 28, 2012)	Year 1 2011
Contract Specialist		\$57.27
GIS/DB Analyst		\$79.98
Assistant Scientist or Engineer		\$74.06
Geologist I		\$79.98
Engineer 2		\$89.95
Registered Engineer		\$95.78
Engineer 3		\$96.77
Hydrogeologist 3		\$96.77
Scientist 3		\$98.74
Hydrologist 4		\$107.63
Engineer 4		\$107.63
Hydrogeologist 4		\$107.63
Principal Hydrologist		\$123.43
Expert Hydrology Services		\$129.35
Expert Hydrogeology Services		\$129.35
Principal Expert Hydrology Services		\$138.24

The IFF of 0.75% is included in the pricing

Payment Information: HydroSolutions Inc is now accepting government credit cards by phone!



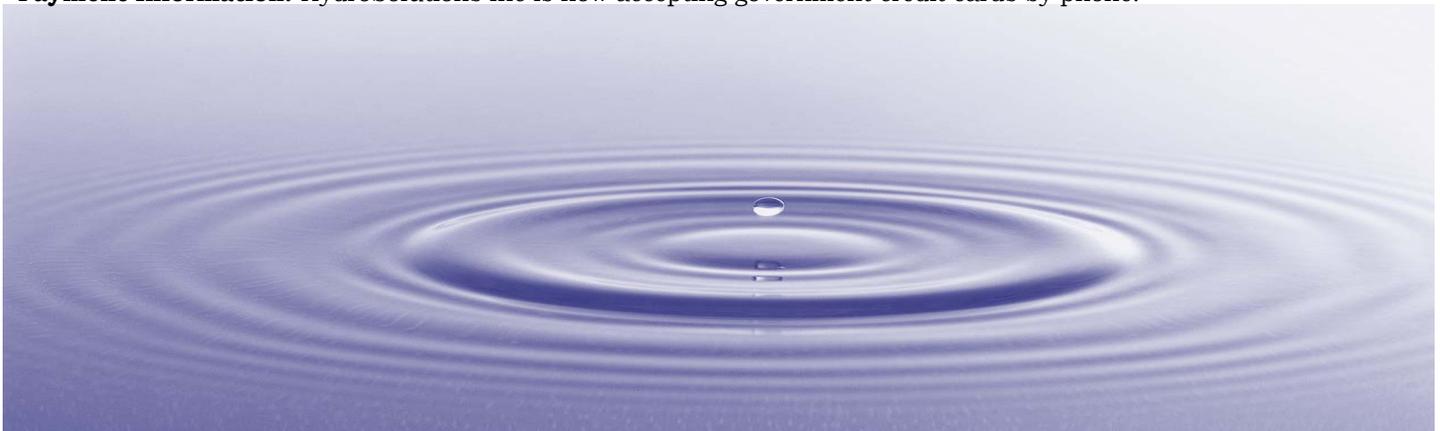
GSA PRICE LIST

APPLICABLE SINS 899-1; 899-1RC; 899-7; 899-7RC; 899-8; 899-8RC

Title	Year 2 2012	Year 3 2013	Year 4 2014	Year 5 2015
Contract Specialist	\$58.41	\$59.58	\$60.77	\$61.99
GIS/DB Analyst	\$81.58	\$83.21	\$84.88	\$86.57
Assistant Scientist or Engineer	\$75.54	\$77.05	\$78.59	\$80.16
Geologist I	\$81.58	\$83.21	\$84.88	\$86.57
Engineer 2	\$91.65	\$93.48	\$95.35	\$97.26
Registered Engineer	\$97.69	\$99.65	\$101.64	\$103.67
Engineer 3	\$98.70	\$100.68	\$102.69	\$104.74
Hydrogeologist 3	\$98.70	\$100.68	\$102.69	\$104.74
Scientist 3	\$100.72	\$102.73	\$104.78	\$106.88
Hydrologist 4	\$109.78	\$111.98	\$114.21	\$116.50
Engineer 4	\$109.78	\$111.98	\$114.21	\$116.50
Hydrogeologist 4	\$109.78	\$111.98	\$114.21	\$116.50
Principal Hydrologist	\$125.89	\$128.41	\$130.98	\$133.60
Expert Hydrology Services	\$131.94	\$134.58	\$137.27	\$140.01
Expert Hydrogeology Services	\$131.94	\$134.58	\$137.27	\$140.01
Principal Expert Hydrology Services	\$141.00	\$143.82	\$146.70	\$149.63

The IFF of 0.75% is included in the pricing.

Payment Information: HydroSolutions Inc is now accepting government credit cards by phone!



MEET THE STAFF



STEPHANIE ANDERSON

GIS/Database Analyst



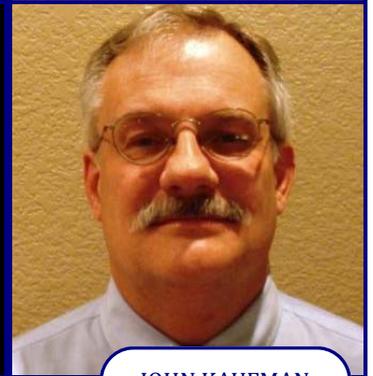
SHANE BOFTO

Engineer IV



DAVID DONOHUE

Hydrogeologist IV/Expert
Hydrogeology Services



JOHN KAUFMAN

Hydrologist IV



KORRIN KENCK

Geologist I



LUKE OSBORNE

Engineer II/ Registered
Engineer



TOM OSBORNE

Owner/Prinipal Hydrologist/ Expert
Hydrology Services/ Principal
Expert Hydrologist



JEANNIE RIDDLE

Contract Specialist



LEANNE ROULSON

Scientist III



RYE SVINGEN

Assistant Scientist

Labor Category Position Descriptions

CONTRACT SPECIALIST

Functional Responsibility: Provides contract administrations and business management. Tracks budgets and communicates with project managers and clients regarding contractual issues and budgets. Provides financial forecast and reviews past performance with client regarding funding. Supervises all clerical and administrative staff.

Minimum Experience: Greater than Five (5) years of work related experience

Minimum Education: 2 year college and associated contract training or experience

GIS/DATABASE ANALYST

Functional Responsibility: Provides advanced GIS mapping and Data Management and analysis. May act as project manager. Determines required scope and level of effort of project work using professional judgment not subject to close review.

Minimum Experience: Greater than Five (5) years of work related experience

Minimum Education: Bachelor of Science/Arts

ASSISTANT SCIENTIST

Functional Responsibility: Provides basic technical or scientific analysis. Performs work under supervision of more experienced personnel.

Minimum Experience: Greater than One (1) years of work related experience

Minimum Education: Bachelor of Science/Arts

GEOLOGIST I

Functional Responsibility: Provides basic geological services under supervision of more experienced personnel.

Minimum Experience: Zero (0) to Two (2) years work related experience

Minimum Education: Bachelor of Science/Arts

ENGINEER II

Functional Responsibility: Provides engineering analysis and design tasks. Works directly with Seniors/Principals in interpreting actual needs of individual clients and is responsible for obtaining appropriate review of project deliverables. Determines required scope and level of effort of project work using professional judgment not subject to close review.

Minimum Experience: Two (2) to Five (5) years of work related experience

Minimum Education: Bachelor of Science/Arts

REGISTERED ENGINEER

Functional Responsibility: Responsible for complex engineering project management and report preparation. Provides technical supervision to subordinate staff and performs non-routine tasks that require professional judgment and experience; plans, schedules, conducts and coordinates project work for large work scopes. Provides supervision to subordinate staff. Determines required scope and level of effort of project work using professional judgment not subject to close reviews. Requires professional registration (P.E.).

Minimum Experience: Greater than Five (5) years of work related experience

Minimum Education: Bachelor of Science/Arts

ENGINEER III

Functional Responsibility: Responsible for engineering design, report preparation and evaluation or other complex features of project; provides technical supervision to subordinate staff and performs non-routine tasks that require professional judgment and experience; plans,

schedules, conducts and coordinates project work for large work scopes. May act as project manager and provides supervision to subordinate staff. Determines required scope and level of effort of project work using professional judgment not subject to close review.

Minimum Experience: Five (5) to Ten (10) years of work related experience

Minimum Education: Bachelor of Science/Arts

HYDROGEOLOGIST III

Functional Responsibility: Responsible for hydrogeological services or data interpretation, report preparation and evaluation or other complex features of project; provides technical supervision to subordinate staff and performs non-routine tasks that require professional judgment and experience; plans, schedules, conducts and coordinates project work for large work scopes. May act as project manager and provide supervision to subordinate staff. Determines required scope and level of effort of project work using professional judgment not subject to close review.

Minimum Experience: Five (5) to Ten (10) years of work related experience

Minimum Education: Bachelor of Science/Arts

SCIENTIST III

Functional Responsibility: Responsible for scientific analysis, field testing and preparation of analytical documents or other complex features of the project provides technical supervision to subordinate staff and performs non-routine tasks that require professional judgment and experience; plans, schedules, conducts and coordinates project work for large work scopes. May act as project manager and provides supervision to subordinate staff. Determines required scope and level of effort of project work using professional judgment not subject to close review.

Minimum Experience: Five (5) to Ten (10) years of work related experience

Minimum Education: Bachelor of Science/Arts

HYDROLOGIST IV

Functional Responsibility: Responsible for advanced hydrology project management and report preparation. Provides

technical supervision to subordinate staff and performs non-routine tasks that require professional judgment and experience; plans, schedules, conducts and coordinates project work for large work scopes. Provides supervision to subordinate staff. Determines required scope and level of effort of project work using professional judgment not subject to close review.

Minimum Experience: Ten (10) to Twenty (20) years of work related experience

Minimum Education: Bachelor of Science/Arts

ENGINEER IV

Functional Responsibility: Responsible for advanced engineering project management and report preparation. Provides technical supervision to subordinate staff and performs non-routine tasks that require professional judgment and experience; plans, schedules, conducts and coordinates project work for large work scopes. Provides supervision to subordinate staff. Determines required scope and level of effort of project work using professional judgment not subject to close review.

Minimum Experience: Ten (10) to Twenty (20) years of work related experience

Minimum Education: Bachelor of Science/Arts

HYDROGEOLOGIST IV

Functional Responsibility: Responsible for advanced hydrogeological project management and report preparation. Provides technical supervision to subordinate staff and performs non-routine tasks that require professional judgment and experience; plans, schedules, conducts and coordinates project work for large work scopes. Provides supervision to subordinate staff. Determines required scope and level of effort of project work using professional judgment not subject to close review.

Minimum Experience: Ten (10) to Twenty (20) years of work related experience

Minimum Education: Bachelor of Science/Arts

PRINCIPAL HYDROLOGIST

Functional Responsibility: Owner-Hydrogeologist. Requires professional registration (P.H.) Responsible for technical services, business management, project development, technical quality and client relations. Conducts and supervises hydrogeological, water quality and environmental investigations, remediation measures, strategic regulatory consulting and permitting, and provides expert services in support of litigation.

Minimum Experience: Greater than Twenty (20) years of work related experience

Minimum Education: Master of Science/Arts

EXPERT HYDROLOGY SERVICES

Functional Responsibility: Supports Hydrogeologic Litigation. Requires professional registration (P.H.). Qualifies as and provides expert witness services in support of litigation, administrative legal proceedings, water rights, and environmental regulatory and policy matters to private and public clients in areas of special expertise.

Minimum Experience: Greater than Twenty (20) years of work related experience

Minimum Education: Master of Science/Arts

EXPERT HYDROGEOLOGY SERVICES

Functional Responsibility: Supports Hydrogeologic Litigation. Requires professional registration (P.G.). Qualifies as and provides expert witness services in support of litigation, administrative legal proceedings, water rights, and environmental regulatory and policy matters to private and public clients in areas of special expertise.

Minimum Experience: Greater than Twenty (20) years of work related experience

Minimum Education: Master of Science/Arts

PRINCIPAL EXPERT HYDROLOGIST

Functional Responsibility: Owner supporting water-related litigation. Requires professional registration (P.H.). Qualifies as and provides expert witness services in support of litigation, administrative legal proceedings, water rights, and environmental regulatory and policy matters to private and public clients in areas of special expertise.

Minimum Experience: Greater than Twenty (20) years of work related experience

Minimum Education: Master of Science/Arts

HydroSolutions Inc in Uganda

Since 2008, HydroSolutions Inc has been a sponsor of a local charitable organization called Hope 2 One Life (a faith based, non-profit organization that provides clean water, health care, educational resources and hope for impoverished people in East-Central Africa). This has been an opportunity to extend the company's expertise in water resources to third-world nations. The company contributed a portion of the cost of installation of a deep water well for a school in Uganda at which about 50 children are sponsored by Montana and Wyoming families.

In 2009, HydroSolutions hydrogeologist, Dave Donohue, supervised the installation of a deep water well at the small village of Buggoge, Uganda. Until then, all of the water that was available to residents during the dry season was obtained from a few highly contaminated mud-holes. He also worked on teaching the installation and use of drip irrigation systems (used for family gardens), evaluated water quality in existing wells, and constructed bio-sand water filters to provide clean drinking water.

In 2010, HydroSolutions Inc President, Tom Osborne, oversaw and assisted in the upgrade of a water supply well and solar pumping system at a war refugee farm near Kigumba, Uganda, called the Family Empowerment Uganda- Cnaan Farm. The goal of this work was to conduct a field trial of a solar pump installation that could ease the burden, primarily on women and children, of manual pumping of all water required for basic daily consumption. Over the subsequent year, the pilot project proved successful, marking another small step towards creating self sufficient villages, starting with clean, healthy drinking water.

Planning for this once a year trip is an ongoing project for HydroSolutions Inc. Supporters in the company spend a lot of time throughout the year conducting programs for building awareness of the world water crisis and planning for future work so they can continue to improve on previous projects and support larger goals of healthy communities and economies. "You look at what we have, and those people have so little, but they give so much." (*Dave Donohue, following his trip to Africa*)



Past Project Experience

899-1; 899-1RC Environmental Services

General categories of our hardrock mining experience include:

- Mine Development & Strategic Planning
- NEPA- EIS and EA team management & document preparation
- Geologic & Hydrogeologic Characterization
- Water Resources Engineering
- Water Management & Permitting
- Groundwater Evaluations & Modeling
- Water Quality Monitoring & Interpretation
- Environmental & Regulatory Compliance
- Geographic Information Systems
- Database Development & Management
- Field Monitoring & Sampling Services

Project-specific mining-related experience of HydroSolutions is summarized in case studies below.

2008 Tongue River Hydrology Report – Tongue River Information Program (TRIP), 2008 Progress Report – Tongue River Agronomic Monitoring and Protection Program (AMPP)

Since 2006, HydroSolutions Inc has been the project manager of the Tongue River Information Program (TRIP) for the Montana Board of Oil and Gas Conservation (MBOGC), a division of the Montana Department of Natural Resources and Conservation. The study is designed to assess the potential impact of coal bed natural gas (CBNG) discharge water on crops, soils, and river water downstream from CBNG water discharges. Currently, there are approximately 3,000 CBNG wells in the basin. MBOGC retained HydroSolutions Inc as its principal contractor, supervising subcontractors for soil science and agronomy. This team of researchers measure crop yields, crop mineral content, soil properties, and the discharge and water quality trends of the Tongue River to detect impacts to irrigated crops and agricultural soils due to water discharges associated with CBNG production. The project included completion of annual summary reports. Two components are included:

- An agronomic and soils monitoring and research

component called the Agronomic Monitoring and Protection Program (AMPP).

- A hydrologic component or summary of current stream flow and water quality and contaminant sources in the Tongue River basin.

The TRIP project, combining both the soil and crop testing along with the hydrology analysis, has provided agronomic assistance to farmers, helped irrigators better understand potential effects of CBNG waters on their irrigated fields and has documented regional trends in irrigated soil characteristics. The research study annually monitors soil chemistry, crop yields, and forage quality to identify whether any soil chemical trends exist that could impair crop yields. It also has provided science and data in which to help the MBOGC determine impacts resulting from its CBNG policies. The lead scientists give many presentations on the scientific findings of the study to public audiences, regulatory bodies, and professional organizations.



Golden Sunlight Mine Supplemental Environmental Impact Statement Whitehall, Montana

Following a competitive selection process conducted by Golden Sunlight Mine (GSM), the State of Montana and Bureau of Land Management (BLM), HydroSolutions Inc was chosen to serve as the primary hydrogeologic sub-consultant for the Supplemental Environmental Impact Statement (SEIS) addressing the Golden Sunlight Mine Pit Reclamation. HydroSolutions Inc provided the hydrologic, geologic and water quality components of the National Environmental Policy Act (NEPA) assessment and SEIS preparation. The scope included evaluation of potential impacts to groundwater and surface waters from seven pit backfill and pit dewatering alternatives. HydroSolutions Inc conducted technical analysis in support of a Multiple Accounts Analysis process and authored Environmental Conse-

quences portions of the NEPA document for Montana Department of Environmental Quality (MDEQ) and BLM.

Technical analyses, conducted by HydroSolutions Inc, for the SEIS include:

- Hydrogeologic Conceptual Model and Water Balance the pit.
- Assessment of predicted pit seepage rates for various closure alternatives.
- Characterization of predicted groundwater flow-paths from the pit and waste rock dumps in buried alluvial channels, sedimentary deposits, and fractured bedrock.
- Evaluation of the attenuation potential along predicted flowpaths.
- Dynamic Systems Modeling (DSM) of predicted groundwater and surface water chemistry and flow rates for various closure alternatives.
- Application of the model to predict compliance with DEQ-7 groundwater quality standards in the Jefferson River alluvial aquifer.
- Hydrologic characterization of the Jefferson River slough and a mixing analysis to predict compliance with DEQ-7 aquatic water quality standards.

HydroSolutions Inc participated as a technical expert in the Multiple Accounts Analysis process, in which diverse stakeholders collaborated in defining and evaluating various closure alternatives. HydroSolutions Inc authored a substantial portion of the responses to public comments on the draft SEIS, provided technical analysis for the final SEIS, and authored a Hydrology Support Document providing results of technical evaluations. The SEIS was successfully produced under an accelerated time frame required by GSM of approximately seven months.

Golden Sunlight Mine Hydrogeology and Acid Rock Drainage Attenuation Evaluation of Proposed East Buttress Extension

Whitehall, Montana

HydroSolutions Inc was retained as a sub-contractor, through GeoMatrix Consultants, to conduct a technical evaluation of the hydrogeologic conditions and acid rock drainage (ARD) attenuation related to the proposed East Buttress Waste Rock Dump Extension (EBE) at the Golden Sunlight Mine (GSM). The methods and type of analysis emulate those conducted for the SEIS by HydroSolutions Inc (2003). We evaluated the geometry and characteristics of the proposed dump extension, characterized the groundwater conditions beneath the EBE, determined mixing zones, and evaluated ARD fate and transport along groundwater flow paths.



Travel times in the rock dump, vadose zone, and groundwater flow path were analyzed. ARD breakthrough time was determined and compared to previous studies. We produced a technical memo along with two tables of detailed calculations and one figure. The analysis was found acceptable by the regulatory agencies.

The Zortman and Landusky Mines SEIS

Zortman, Montana

The team of Spectrum Engineering, HydroSolutions Inc, Robertson GeoConsultants, and Big Horn Environmental helped the BLM and DEQ prepare the SEIS for this complex evaluation. The purpose of the Zortman & Landusky SEIS was to identify the environmental impacts of various closure alternatives, required by the Montana Environmental Policy Act (MEPA) and NEPA, while taking into consideration the limited amount of funding available for closure and perpetual water treatment. The project was complicated because the Fort Belknap Tribe was a hostile stakeholder and was represented by both the EPA and the consultants.



Therefore, the process required coordination between the EPA, the BLM, the State of Montana DEQ, the Tribe, consultants for the tribe, and our team. A Multiple Accounts Analysis (MAA) process was performed to facilitate stakeholder participation and issue development.

HydroSolutions Inc conducted an evaluation of the relative amounts of contamination coming from each ARD source, the projected future contamination, and alternatives to reclaim the site. This included evaluating different water balance and water barrier covers and a variety of options for handling the acid generating waste rock dumps and leach pads. The analysis included a determination that the land application disposal (LAD) area needed to be enlarged. Subsequently, a biological treatment plant was constructed to treat nitrate, cyanide, and selenium. In the 10-years following the SEIS, HydroSolutions Inc has continued as the lead hydrologic and environmental sub-consultant to Spectrum, the MDEQ, and the BLM at the Zortman and Landusky mines.

Pre-Mine Water Quality Evaluation of Swift Gulch

Landusky Mine Site, Phillips County, Montana

HydroSolutions has served as the primary hydrogeologic consultant at the Zortman and Landusky Mine sites since the State of Montana and BLM assumed control of the site closure process in 2000. The site is currently a Federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site. Recent hydrologic work at the site has focused on Swift Gulch, a drainage that is located adjacent to the Landusky Mine and flows into the Fort Belknap Indian Reservation. HydroSolutions Inc conducted several studies, including a BLM-funded study that evaluated the pre-mining water quality at the site and a Montana DEQ funded-work evaluating the hydraulic connectivity between the reclaimed mine site and Swift Gulch.

The pre-mining water quality evaluation of Swift Gulch included interpreting historic water-quality data, geologic data, paleo-water quality analysis using modern

and ancient ferricrete deposits, geostatistical analysis of historic water quality data, and geochemical modeling. HydroSolutions Inc led the effort by conducting and coordinating various studies and synthesizing the findings in a final report that compared various estimates of pre-mining water quality in Swift Gulch.

HydroSolutions Inc completed a tracer study designed to evaluate the hydraulic connectivity between the now-reclaimed Surprise and August Little Ben open pits at the Landusky mine and Swift Gulch. Fluorescent tracer was injected into a borehole known to be located in a shear zone near the reclaimed pits, and the tracer concentrations have been monitored in surface water sampling sites on a monthly basis since July, 2004. Correlation of tracer concentration at sampling sites and the occurrence of surface seeps has led to a clearer understanding of the nature of the hydrologic connection between the mine site and Swift Gulch.

Landusky Pit Complex Groundwater and Surface Water Evaluations

Landusky Mine Site, Phillips County, Montana

HydroSolutions Inc has conducted design-level hydrogeologic investigations of water quantity, water quality, and groundwater movement within the former Landusky Mine, Phillips County, Montana, for the Montana Department of Environmental Quality and U.S.BLM through a subcontract with Spectrum Engineering Inc. HydroSolutions completed the design and installation of six deep monitoring wells designed to intercept mineralized shear zones, collected groundwater samples from selected wells along the mine northern border, and completed a 48-hour pumping test to aid in the characterization of groundwater/surface water interactions between Swift Gulch and the former Landusky pit complex. We assisted in designing and interpreting an extensive geophysical study using High Resolution Resistivity and the Residual Potential Method over an extensive area of the former mine and Swift Gulch. This work helped define the specific fracture zones and hydrogeologic pathways by which acid drainage water reaches Swift Gulch. It has led to fresh analysis of potential in-situ pollution control techniques.



Gallatin River “Outstanding Resource Water” EIS

Gallatin River, Big Sky, Montana

The Gallatin River Outstanding Resource Waters EIS was a significant effort and illustrates HydroSolutions’ ability to serve an agency as a lead technical consultant on a high profile NEPA type project. HydroSolutions Inc led hydrologic, geologic, and water quality components of NEPA evaluations of an approximate 23 mile stretch of the Gallatin River near Big Sky, Montana.

HydroSolutions Inc performed all the characterization of soils, geology, surface water, groundwater, and water quality for draft Chapter 3. HydroSolutions Inc developed a Groundwater Vulnerability “Footprint” Map of the area of shallow aquifers with direct hydraulic connection to the Gallatin River to evaluate impacts to the stream. The map incorporated and applied developed vulnerability criteria using GIS mapping to present a Vulnerability Footprint, designating an area of potential groundwater impacts that may subsequently impact the stream. HydroSolutions Inc prepared a reference document for classification of soil, geologic, and groundwater characteristics in a vulnerability assessment. The vulnerability footprint technique is currently being adopted by the MDEQ or similar sensitive reaches of other streams in Montana.

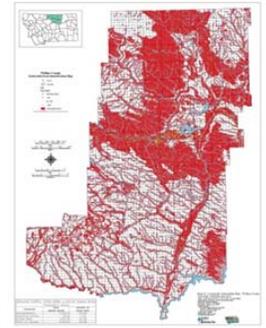
HydroSolutions Inc performed pollutant loading calculations for nitrogen and phosphorous to the river at low flows, then translated the load to the equivalent number of domestic septic systems for evaluation of socio-economic impacts. HydroSolutions Inc performed an engineering-cost feasibility analysis of various alternative waste water treatment technologies that could be considered for mitigation. We authored the geology, soils, hydrology, and water quality sections of the impact analysis in draft Chapter 4.

899-7: 899-7RC GIS

Montana Board of Oil and Gas Conservation

HydroSolutions completed a groundwater vulnerability assessment to assist the Montana Board of Oil and Gas Conservation (MBOGC) in the assessment and permitting of produced water pits associated with oil and gas

production by identifying the potential for impacts to both groundwater and surface water. To achieve this objective, HydroSolutions Inc defined groundwater resources and vulnerability. Those definitions were then used to develop a methodology to evaluate the vulnerability of groundwater resources. ArcGIS was the primary tool utilized to evaluate and visualize potential vulnerability. By implementing a GIS approach, HydroSolutions Inc was able to efficiently apply available parameters to develop a suitable dataset which was then used to conduct proximal analysis and spatial overlays, ultimately resulting in a concise set of reference maps for the region of interest.



Groundwater Impact Analysis

HydroSolutions Inc conducted groundwater impact analysis for proposed coal bed natural gas Plans of Development (PODs) in Montana. Implementation of GIS played a large role in this analysis. Utilizing the tools available in ArcGIS and extensions, HydroSolutions Inc was able to analyze regional water use distribution, proposed water use, geologic features, and groundwater modeling parameters for development alternatives within several geologic units. This analysis led to a comprehensive set of maps that identified the extent and magnitude of potential impacts to existing regional water use under various alternatives. The products of this analysis provided specific reference information to federal and state regulatory agencies preparing environmental assessments under NEPA and MEPA.

899-8: 899-8RC Remediation

Fulton Fuel Crude Oil Investigation and Remediation

Sweet Grass Hills, Montana

HydroSolutions Inc performed site characterization of an oil field gathering pipeline leak beneath a perennial creek located in north central Montana. Initial site response mitigation measures were also evaluated through on-going surface water monitoring. Site characterization included using backhoe test pits and a push probe to further define the extent and magnitude of the contami-



nation. Following the site characterization, a mitigation plan was prepared and approved by the MDEQ, and soils were strategically removed and either

land farmed in a nearby one-time permitted facility or sent to a local DEQ permitted landfill. Stream bank restoration was initiated following the soils removal. It focused on bank stabilization and revegetation in conjunction with long term monitoring. Restoration of the stream bank used BMPs for streambed restoration in conjunction with the requirements of the Army Corp of Engineers (Corps) permit. The investigation, remediation, and restoration process required approval from the MDEQ and Corps.

The results of the investigation and remediation continue to be used to monitor potential impacts from the crude oil release and to monitor the extent of remediation by natural attenuation of contaminants at the site. Monitoring data are reviewed and evaluated to determine if the selected remediation is effective or if more active remediation techniques are warranted. Compliance with Montana numeric water quality standards outlined in Circular DEQ-7 and water and soil quality requirements outlined in Montana Tier 1 Risk Based Correction Action Guidance for Petroleum Releases were met through volatile petroleum hydrocarbons (VPH) and extractable petroleum hydrocarbons (EPH) water and soil sampling. Annual soil monitoring and reporting continues at the site.

Helena Solvent Site, Indoor Air Mitigation and Source Investigation

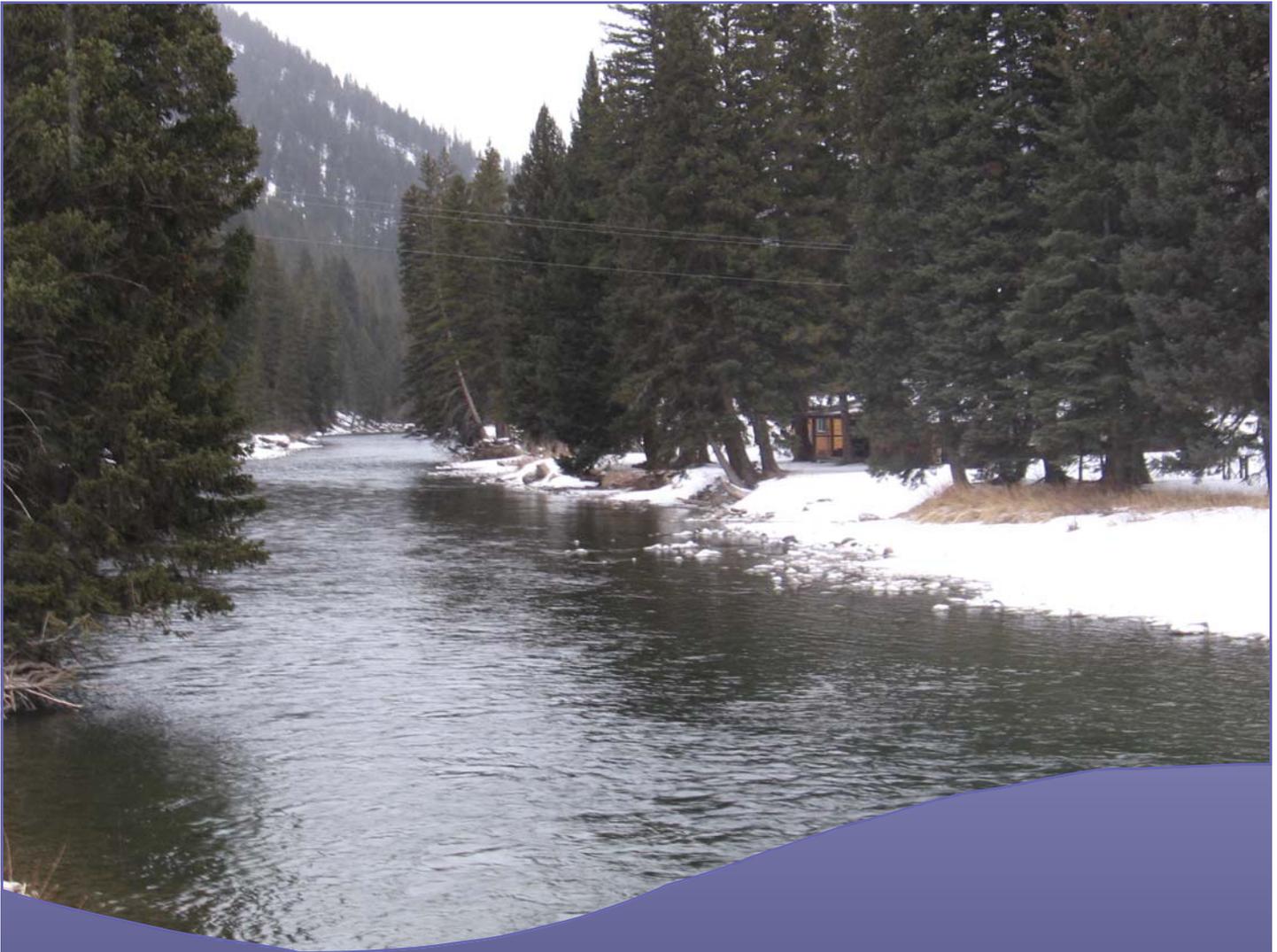
Helena, Montana

HydroSolutions Inc was selected as the prime consultant by the property owner to investigate, remedy, and monitor vapor intrusion into work space and to investigate the source of contamination beneath a commercial building complex located in the Helena Solvent Site, Helena, Montana. Tetrachloroethene (PCE) has been identified in groundwater beneath the dry cleaning facility. All work completed by the property owner is voluntary and overseen by the MDEQ, Groundwater Remediation Program.

HydroSolutions Inc provided oversight of indoor air and sub-slab soil vapor sampling conducted by the MDEQ. Based on the air monitoring results, HydroSolutions Inc successfully developed an indoor air mitigation work plan that met DEQ requirements. The work plan provided the structure for voluntarily completing air mitigation measures at the property of PCE and other volatile organic compounds (VOC) vapors in the working air space. HydroSolutions Inc completed a sub-slab communications test to evaluate the feasibility of sub-slab vapor extraction. HydroSolutions Inc coordinated the evaluation and replacement of the heating and ventilation system in the building that may have been contributing to the vapor intrusion. HydroSolutions Inc will oversee the installation of a sub-slab depressurization system to mitigate and treat vapor intrusion in the property. HydroSolutions Inc is the sole consultant responsible for continued regular monitoring and reporting of the indoor air quality and evaluation of the effectiveness of the air mitigation measures and will report all monitoring results to MDEQ.

HydroSolutions Inc completed a site specific work plan approved by MDEQ to investigate the possible source location for PCE in soils and groundwater beneath the dry cleaning facility that is contributing to indoor air quality concerns. As part of the investigation, subsurface storm and sanitary sewer lines were mapped, videoed, and used to focus proposed sample locations. Soil samples will be collected from beneath the sub slab inside the building, and soil and groundwater samples will be collected at select locations outside the building to evaluate the possibility that the dry cleaner is the source for PCE contamination or that leaking storm lines and sewer lines are the pathways for contaminant migration. MDEQ will complete oversight of all field work and an investigation report will be submitted.





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