



John G. Aronson

ESG International Advisor
Fort Collins, Colorado-USA

usa@conexig.com

PROFILE

Specializing in interdisciplinary environmental analysis, environmental, social and governance (ESG) management, reporting, and implementation. Technical areas of expertise include multi-disciplinary environmental and social impact and risk assessment, sustainability, integrated environmental, social and governance (ESG) program management, fast-track environmental permitting, sustainability program development, limnology and aquatic ecology, fisheries, phycology, water quality, eutrophication, and water quality monitoring and modeling. Implementation of advanced environmental DNA approaches for ecosystem analysis.

Mr. Aronson has served as Program Manager and Principal ESIA/ESG/ESMMP Consultant to a wide variety of domestic and international clients over the past 40+ years including many Fortune 500 natural resource development firms such as Chevron, TengizChevroil, ConocoPhillips, ExxonMobil, Anadarko, Freeport McMoRan, PT Freeport Indonesia, Shell, Sakhalin Energy Investment Company, BP, Noble Energy, Newmont, Amoco, ARCO, Mobil Oil S.A., and many others.

He has worked in 50 countries worldwide and is expert in application of modern ESG frameworks to developing natural resource development enterprises. His experience includes projects involving some of the most challenging projects in the world. He is a recognized author, and member of many scientific organizations. Mr. Aronson serves as Principal in Charge for large, comprehensive environmental management and permitting programs in the U.S. and in many foreign countries. He is involved in a wide variety of environmental permitting, regulatory, and policy related issues at the local, state, federal, and international levels. Mr. Aronson is considered one of the world's leading ESG consultants, with formal graduate training and professional experience in key environmental, social, and management disciplines, such as limnology, civil engineering, water and wastewater engineering, modeling, and monitoring.

Mr. Aronson is an expert in multi-disciplinary environmental program development, management, and implementation and an experienced expert witness for international arbitrations concerning natural resource development projects. He has international arbitration experience for both claimants and respondents, including projects in Peru, Thailand, Venezuela, and Ukraine. Mr.



Aronson has worked closely with claimants and respondents to develop detailed technical support, reports, and expert witness testimony. He has testified before international arbitral panels.

EDUCATION

Postgraduate Foreign Language Training, Colorado State University	1984-1988
Postgraduate Studies, Environmental Engineering, Natural Sciences The Colorado State University, Fort Collins, Colorado, USA	1974-1984
Master of Science, Zoology/Limnology, Minor Civil Engineering University of Nebraska, Lincoln, Nebraska, USA	1973
Bachelor of Science, Magna Cum Laude, Nebraska Wesleyan University	1971

CERTIFICATIONS, REGISTRATIONS, LICENSES

Certified Environmental Professional, Academy of Board Certified Environmental Professionals, Past Trustee, CEP #14031076

Certified Senior Ecologist, Ecological Society of America, CSE #254

Certified Lake Manager, North American Lake Management Society, CLM #44615399

Certified Fisheries Scientist, American Fisheries Society, CFS #1590

PROFESSIONAL MEMBERSHIPS

Member, Colorado Mining Association, Denver, Colorado

Member, American Society of Limnology and Oceanography

Member, American Meteorological Society

Member, American Association for the Advancement of Science

Member, Society of Petroleum Engineers, Environmental Program Committee Emeritus

American Chemical Society

North American Diatom Symposium Sponsor

Member, Ecological Society of America

SPEAKING ENGAGEMENTS

Invited Speaker/Session Chair – Sakhalin Oil and Gas Conference – 2000-2011



Invited Lecturer – Sustainability and Extractive Industries, Business Today 33rd Annual Conference, Grand Hyatt, New York, Princeton University and Business Today.

Invited Lecturer, “International Environmental Permitting.” University of Denver Law School.

Invited Lecturer, “Comparative Analysis of Russian Environmental Regulations,” Randol Gold Forum, Denver, Colorado, USA.

Invited Lecturer, “Managing Russian Environmental Technical Specialists To Meet International Standards” Sakhalin Oil & Gas Conference, London, U.K.

Invited Lecturer, “The Environmental Management Program (EMP) Disconnect - An Important Operational Phenomenon” Society of Petroleum Geologists Environmental Health and Safety Meeting, Caracas, Venezuela.

Sakhalin Oil and Gas Conference, Chairman, Environmental Program 2001-2011

Author and Presenter, Biodiversity Offset Strategies for the Oil and Gas Exploration and Production, SPE HSE Conference

Author and Presenter, Western Power Summit, Las Vegas, Nevada and Denver, Colorado

Author and Presenter, Energy, Utility, and Environmental Conference, Phoenix, Arizona and San Diego, California.

PUBLICATIONS

“Watershed Management in Russia and the Former Soviet Union” IN Reimold, R.A. 1998. Watershed Management, McGraw Hill, New York, New York.

John G. Aronson and V. Raykin, 2012. Achieving international standards in the Arctic, the need for modern interdisciplinary technical and management approaches. Society of Petroleum Engineers, SPE #157472-MS, SPE International Conference on Health, Safety, and Environment in Oil and Gas Exploration and Production, 11-13 September, Perth, Australia.

John G. Aronson, V. Raykin, and M. Skopets, 2007. Pipeline stream crossings – International industry best practices for Russia/CIS. SPE #108876-MS. SPE International Conference on Health, Safety, and Environment in Oil and Gas Exploration and Production, 10-12 September, Bangkok, Thailand.

John G. Aronson, 2010. Biodiversity offset strategies for oil and gas exploration and production. SPE# 126492-MS. SPE International Conference on Health, Safety, and Environment in Oil and Gas Exploration and Production. 12-14 April, Rio de Janeiro, Brazil.

John G. Aronson, 2002. - Web-based environmental management systems – powerful new tool for environmental monitoring, collaboration, impact assessment, permitting, compliance, stakeholder participation, and project transparency. SPE#74041-MS. SPE International Conference on Health, Safety, and Environment in Oil and Gas Exploration and Production. Kuala Lumpur, Malaysia.



John G. Aronson, 2000. Fast-track EIA process for the Orenburg Eastern Field Extension, Russia. SPE#61034-MS. SPE International Conference on Health, Safety, and Environment in Oil and Gas Exploration and Production. 26-28 June, Stavanger, Norway.

John G. Aronson, et al. 1973-Present. Total 500+ EA, EIS, ESIA, SEIA, and ESRA reports, studies, and documents.

DETAILED EXPERIENCE

POWER / ENERGY

Canaday Steam Generating Facility, Lexington, Nebraska

Principal-In-Charge and Principal Scientist: AATA was responsible for a 316(a)-demonstration type project in support of modification of thermal limits at the Canaday Steam Generating Plant. AATA provided thermal impact analysis including extensive temperature simulation modeling using USEPA model CORMIX, based upon client-collected data. AATA assisted the client in dealing with the Nebraska Dept. of Environmental Quality on regulatory issues related to the thermal limits of the NPDES permit.

Hamilton Reservoir Management Program -Rawhide Generating Station

Principal-In-Charge and Principal Scientist: AATA was retained by PRPA to conduct specific limnological investigations and assessments of the water quality in Hamilton Reservoir, a 500-acre cooling reservoir for the 250MWe coal fired power plant. The control of condenser scaling is critical, and depends upon limnological management using physical, chemical, and biological controls. AATA assessed the impacts of changing water sources upon the limnology of the reservoir and the operation of the plant. Mr. Aronson first worked as a consulting limnologist on Hamilton Reservoir in 1985. Managed project for interdisciplinary study and review of cooling reservoir aeration and chemical stability project. Evaluated effects of aeration on eutrophication and pH. Prepared reservoir operational management plan.

Philadelphia Electric Company (PECO)

Organized installation and operations of comprehensive thermal monitoring program in East Branch Perkiomen Creek. Managed team comprised of Advanced Aquatic Technology Associates and on-site consultants to maintain monitoring network. Project achieved 100% data capture. Were able to save PECO Energy an estimated total of US\$57M in capital and operating expenses for the Limerick Nuclear Generating Plant by modifying permit conditions and requirement for chilling of discharge, while at the same time improving the trout-stocked fishery of the East Branch Perkiomen Creek.

Patuha Geothermal Project, West Java, Indonesia



Assoc: Qipra Galang Kualita, Institut Teknologi Bandung (ITB), CORE Labs Principal-In-Charge: AATA served as the principal Environmental Management and Permitting Contractor for this greenfields geothermal power exploration and development project located in the Mt. Patuha region, Bandung, West Java, Indonesia. Provided management and coordination of ITB baseline investigations, UKL/UPL, RKL/RPL, and AMDAL activities. Responsible for management of the AMDAL process, including creation of workable environmental management and monitoring plans.

Dieng Geothermal Project, Central Java, Indonesia

Principal-In-Charge: AATA served as the principal Environmental Management and Permitting Contractor for this large geothermal power exploration and development project located in the Dieng Plateau region of Central Java. Of primary environmental concern was effective management of high hydrogen sulfide concentrations and local impacts. Provided management and coordination of ITB auditing, UKL/UPL, RKL/RKL, and AMDAL activities. Responsible for management of the AMDAL process, including creation of workable environmental management and monitoring plans.

Missouri Basin Power Project

Conducted baseline investigations and downstream impact assessment study to predict impacts of Greyrocks Reservoir operations on critical whooping crane habitat in the Central Platte Valley of Nebraska. Worked with MBPP, U.S. Army Corps of Engineers, National Wildlife Federation, State of Nebraska, and other parties to arrive at settlement of Federal District Court Case. In related work, coauthored paper entitled "Monitoring, Maintenance, Rehabilitation and Enhancement of Critical Whooping Crane Habitat, Platte River, Nebraska."

Omaha Public Power District

Aquatic Ecologist and Lab Manager: Managed periphyton and macroinvertebrate lab study in support of 5-year thermal monitoring report for the Nuclear Regulatory Commission on behalf of client. Evaluated all biological sampling techniques, results, and statistics. Provided recommendations for future monitoring.

Carroll County Nuclear Project, Mississippi River, Savannah, Illinois

Project Manager: Managed multidisciplinary aquatic baseline investigations for proposed nuclear power facility on the Mississippi River near Savannah, Illinois, including extensive water quality, fisheries, and ichthyoplankton studies. Established a field office and aquatic laboratory at Bellevue, Iowa, Lock and Dam #12, Mississippi River. Conducted quantitative mussel study for intake structure siting using SCUBA techniques.

Public Service Company of Oklahoma

Project Manager: Served as PM for multidisciplinary environmental studies for a proposed nuclear plant in Inola, Oklahoma. Conducted extensive aquatic and terrestrial ecological studies of the plant site, and of the Verigris River and its tributaries, including water quality, fisheries, phytoplankton,



periphyton, macroinvertebrate, vegetation and wildlife studies. Analyzed currents using drogue deployment and recapture. Have supported client in evaluation of site and environs for past 20 years.

OIL AND GAS

Cuiabá Gas Pipeline Project

Principal-In-Charge and Chief Environmental Inspector: On-site environmental inspection and monitoring of 640 km gas pipeline project from Bolivia to Brazil. Management of field teams to conduct continuous on-site investigations of construction and installation of 18" gas pipeline through various environments. Instituted satellite linked intelligent digital photo system to capture digital images for quasi-realtime reporting of photographic documentation from the field.

BP Tangguh Gas Project

Onshore environmental manager for large USD\$5B gas project, Irian Jaya, Indonesia. Provided onshore coordination of local Indonesian technical specialists for onshore environmental investigations and operations. Includes shoreline approaches, LNG facility trains, compressors, camps, and new town development assessment. Indonesian environmental impact analysis (ANDAL) preparation. Professional reference: Dr. William Collier, PT Intersys, Jakarta, Indonesia.

Sakhalin II Oil and Gas Project

Onshore environmental manager responsible for management of over 65 Russian technical specialists in preparation of environmental baseline studies for 750km oil and gas pipelines. Responsible for management of all onshore environmental activities, contracting, supervision, report preparation, laboratory analysis, and QA/QC.

Tengizchevroil Environmental Support Program

Kazakhstan - Principal-In-Charge and Senior Environmental Impact Assessment Consultant. Provided wide range of interdisciplinary environmental support to TCO operations in Kazakhstan related to existing and proposed projects.

Azerbaijan Early Oil Project

Principal-In-Charge and Chief Environmental Inspector: Initial Audit and Completion Audit, AIOC Project for EBRD. Performed initial environmental review and completion audit for USD\$14B oil project, which included Chirag offshore platform, undersea pipelines, Sangachal and Supsa terminals, and two major oil pipelines (northern and western routes). Inspected all major facilities and prepared summary completion report according to EBRD requirements. Provided Completion certificate for compliance with all local, national, and international environmental requirements and standard industry practices.

Orenburg Gazprom Eastern Field Development Program, Russia



Principal-In-Charge and Project Manager: AATA performed an Environmental Impact Assessment for the Eastern Orenburg Field Development Program for submission to the Overseas Private Investment Corporation (OPIC). The project was completed successfully in 7 weeks from start to finish, AATA's most rapid performance on a major EIA effort. Remote sensing analysis using LANDSAT-TM data was used to supplement field observations and measurements.

PlusPetrol Environmental Audits, Argentina

Principal-In-Charge and Project Manager: AATA performed environmental audits for 62 Pluspetrol oil and gas operational facilities and properties in northern and central Argentina. Environmental audits were performed on exploration sites, production fields, and refineries. AATA evaluated the potential environmental liabilities from each property reviewed for possible purchase of former YPF properties by Mobil. The following sites were reviewed:

- Neuquen District - Centenario, Aquada Baguales, and El Porvenir Fields and Facilities that were former YPF properties
- Palmar Largo Field and Facilities (150 km east of Tartagal)
- Ramos Field and Facilities (west of Tartagal)
- Refinor Refinery at Campo Duran
- Tucuman Power Plant Site

La Ceiba Project, Venezuela

Principal-In-Charge: AATA and our local associates, Ingenieria Caura performed environmental permitting and management services on the La Ceiba project in western Venezuela. The AATA / Caura team performed the environmental permitting and documentation for 3D and 2D seismic exploration, baseline studies, exploration wells and production facilities.

Petrolera Cerro Negro Project, Venezuela

Principal-In-Charge: AATA and our local associates, Ingenieria Caura S.A. performed environmental permitting and management services for the Cerro Negro Heavy Oil Field Project. The Cerro Negro Heavy Oil Project near Morichal involved environmental permitting of 3D seismic exploration, appraisal and production well development, a new pipeline north to Jose, Venezuela and an upgrader facility at Jose. The AATA / Caura team prepared the environmental permitting documents, including EIA for seismic exploration, appraisal wells, production wells, pipeline and upgrader. We also developed the Geographic Information System for the project.

Bolivian Oil Exploration Project, Rio Madre de Dios, Bolivia

Principal-In-Charge: AATA conducted environmental baseline, impact assessment, and reclamation programs for the geological exploration of a large tract of Bolivian rainforest within the Rio Madre



de Dios River drainage in northern Bolivia. AATA performed several field investigations, and introduced new rain forest management and reclamation techniques to successfully restore disturbed sites within the rainforest ecosystem.

Venezuela Heavy Oil Project - Environmental Reconnaissance Phase

Principal-In-Charge: AATA conducted environmental reconnaissance level investigations of the proposed sites of the Mobil Oil S.A. heavy oil project in Venezuela. AATA conducted field investigations to identify existing environmental conditions and liabilities occurring all throughout the project area. AATA operated an office in Caracas, Venezuela in cooperation with Caura Engineers, a well-known local environmental engineering consultancy.

Argentina Oil Exploration Project, Rincon de los Sauces, Argentina

Principal-In-Charge: AATA conducted an environmental review of geological exploration activities in the high desert of Argentina in an area near Rincon de los Sauces. Mr. Aronson and Dr. Rolando Vadas (former AATA Latin American Coordinator) traveled to Argentina to evaluate the ecological aspects of the project area and local Mobil and contractor operations. Reclamation assessment for disturbed desert vegetation was a focus of the investigations.

U.S. Army Corps of Engineers, Sohio Alaska Petroleum Company, and Partners

Environmental Risk Assessment Task Manager responsible for comprehensive analysis of oil spill probabilities, trajectories, and weathering. Used a combination of USCG and MMS models to characterize oil spill dispersion, evaporation, and spreading. Updated historical oil spill statistical data base, predicted probabilities of spills for project alternatives and components, and evaluated different spill alternatives.

MINING

Seeps and Springs Surface Water Analysis (22 consecutive years), Barrick Goldstrike Mines, Elko, Nevada.

Conducted annual surveys of seeps and springs and local watersheds throughout the project area of the Goldstrike Mine, Elko, Nevada. Helicopter surveys, sampling, testing, and laboratory analysis, hydrological measurements of seeps and springs. Annual vegetation survey of seeps and springs and assessment of local grazing pressure.

Antamina Mining Project – Ecotox Support Project

Provided detailed ecotoxicological testing and analysis to support new Peruvian site-specific water quality permit limits. Sampling and analysis of local watersheds and effluents, laboratory testing of representative species, and report preparation, presentation to the Peruvian authorities. Worked to develop new water quality standards based upon the ecotox results. Consideration of all factors affecting the toxicity of trace metals from the site and tailings pond on sensitive local species,



including local trout. Detailed ecotoxicological impact and risk analysis of all key trace metals, arsenic, manganese, zinc, lead, aluminum, cadmium, among others. Evaluation of all of the ameliorating factors which offset aquatic toxicity, with focus on native hardness, sediments, and other complexing agents.

AngloGold Ashanti Colombia

Principal-In-Charge for large-scale environmental and social baseline studies for new greenfield mining project in Andes of Colombia. Organized local specialists including Ambiotec and Geolngeneiria, and international level QA/QC effort for modernization of all physical, chemical, biological, social, and regulatory studies. Comprehensive analysis and modeling of mine water balance and downstream water quantity and quality impact analysis. Evaluation of watershed level impacts of proposed water use from large mine/mill complex. Established network of watershed management stations. Advanced hydrological modeling of all stream gaging stations. Trace metal ecotoxicology analysis.

St. Augustine Gold and Copper Company, Russell Mining

Principal-In-Charge for large-scale gold and copper project, Philippine EIS, International SEIA, SEMMP and related project development studies/documentation. Conducted site baseline studies, resettlement action planning, marine, freshwater and terrestrial ecology studies for mine, mill, heap leach, power plant, port, and all infrastructure associated with modern development to international standards. Engaged local and international specialists and laboratories. Mr. Aronson is the Qualified Person (QP) under National Instrument 43-101 as the principal environmental and social consultant for SEDAR submittals. Installed two high tech digital, satellite linked meteorological stations. Conducted watershed level hydrological monitoring using digital hydro pressure transducers, along with comprehensive water quality monitoring and modeling.

Baruun Naran Coal Mining Project

Principal-in-charge for large-scale baseline and EIA studies for a coal mine in the southern Gobi Desert, Mongolia. Working with local Mongolian technical representatives to advance a fast-track coal mining project. Included detailed investigations of meteorology (installed high tech met station), air quality (using modern Mini-vol samplers), flora, fauna, soils, surface and groundwater, among other parameters. Responsible for proving up groundwater supply, testing Gobi groundwater resources, remote sensing of shallow and deep aquifers, evaluation of historical Russian groundwater quality data, water conservation and recycling program, and overall water quality management program.

Centerra Gold Project

Principal-In-Charge for social baseline programs designed to support international level permitting of grassroots project in NE Mongolia.



Las Brisas Copper/Gold Project/Siembra Minera Joint Program

Principal-In-Charge for large-scale VZ and International ESIA program, including all necessary baseline investigations, physical, chemical, biological, and social programs. Management and production of VZ and International ESIA's, Environmental and Social Management and Monitoring Program, Biodiversity Offset Strategy, Community Development Plan, Resettlement Action Plan, Indigenous Peoples Plan, and other related plans and documents. Conducted field and lab investigations of soils, surface water, groundwater, flora, and fauna. Detailed fisheries investigations in high biodiversity area in the Cuyuni River basin. Project won 1st place poster at 2008 International Association for Impact Assessment (IAIA) Annual Conference, Perth, Australia. Principal expert witness for World Bank Arbitration at International Centre for Settlement of Investment Disputes (ICSID), Washington, D.C. Won US\$742MM arbitration award. Principal Ecologist for Combined Siembra Minera Project, advancing environmental and social programs.

Buryatzoloto Gold Mining Project

Principal inspector for environmental due diligence of Irokinda and Zun Holba underground gold mines. Worked with Mr. Robert Ferriter, health and safety specialist from the Colorado School of Mines. Provided two separate comprehensive inspections in 2003 and 2005 to include all operations including underground mining, crushing, grinding, processing, cyanide recovery, and tailings pond components. Reporting directly to EBRD and project sponsors, Buryatzoloto Gold Mining Company.

Lost Soldier and Lost Creek ISR Projects

Principal-In-Charge for comprehensive permitting program for ISR mining projects in Wyoming. Fast-track program using AATA Early Production Permitting Protocol (EP-3) was engaged to advance uranium mining projects near the historic Sweetwater Mining District. Extensive, multi-track baseline program covering all physical, chemical, biological, social, and regulatory components. Developed and submitted permit applications to US Nuclear Regulatory Commission and Wyoming DEQ. Evaluation of impacts to surface and groundwater resources, permitting of deep well injection, definition of groundwater exclusion zone and perimeter monitoring well system, baseline investigation of local streams, water quality, aquatic ecology, and T&E species. Permitting ISR program with all NRC and WDEQ environmental and social documentation.

West Alkali Creek ISR Project

Principal-In-Charge for ISR Uranium project, Wyoming. Conducted extensive baseline investigations and advanced ISR project using AATA EP-3 protocols.

Ozernoe Lead/Zinc Project

Principal-In-Charge for one of world's largest lead/zinc projects, Buryatia, Russian Federation. Organized strategy and logistics for engaging new J/V mining project under latest Russian regulations.

Kuranakh Gold Mining Project

Principal-In-Charge and Principal Investigator for environmental due diligence survey for large placer with heap leach pilot facility. Comprehensive physical, chemical, biological, and social environmental review program. Sampling and analysis of tailings ponds, Kuranakh River, Aldan River, and local tributaries. Meteorological and air quality data analysis. Hydrological monitoring, comprehensive surface and groundwater monitoring program. Fisheries and aquatic ecological assessment. Environmental baseline studies and assessment. Served as principal liaison for Aldan raion and Sakha Republic permitting functions. 1996-2001.

Dukat Silver Project, Magadan Oblast, Russia

Principal-In-Charge: AATA serves as the principal environmental management and permitting contractor for this large silver mining project in the Russian Far East. AATA was responsible for all environmental coordination, preparation of EIA and OVOS documents, bank liaison with International Finance Corporation (IFC), monitoring, modeling, and permitting.

Kubaka Gold Mining Project, Magadan Oblast, Russian Federation

Principal-In-Charge: AATA served as Environmental Management and Permitting Contractor for the first Western/Russian joint-venture gold mining project in the Magadan Oblast, Russian Far East. Responsible for the management of the "Expertiza" environmental permitting process, environmental monitoring, and compliance planning. Organized a local environmental team using specialists from local research institutes. Completed baseline environmental monitoring programs. Installed, operate, and maintain high-tech meteorological and hydrological monitoring stations. Provided technology transfer and training to local specialists. Completed the environmental documentation necessary for successful permitting of the project, including the Russian Environmental Analysis Report (OVOS). Achieved Oblast level and Moscow level Expertiza approval for the project. Installed modern high tech meteorological and hydrological monitoring stations to collect site specific data. Permafrost monitoring and analysis.

Pokrovskoye Gold Mining Project, Amur Oblast, Russian Federation

Principal-In-Charge: AATA served as Environmental Management Contractor for the feasibility phase environmental investigations of the Pokrovka Gold prospect near Tygda, Amur Oblast, Russian Far East. Conducted two field investigations of local physical, chemical, and biological characteristics of the mine site. Assessed baseline water quality, local fisheries, plants, and wildlife of the area. Completed Environmental Analysis Report (OVOS) for the project, and performed liaison with International Finance Corporation.



Aginskoe Gold Mining Project, Kamchatka Oblast, Russian Federation

Principal-In-Charge: AATA served as the principal Environmental Management and Permitting Contractor for the project located near Milkovo on the Kamchatka peninsula of the Russian Far East. Conducted winter and summer environmental surveys, including local fisheries and water quality. Completed Environmental Analysis Report (OVOS), achieving Oblast-level and Moscow-level approval. Organized team of local specialists to assist in the Expertiza process. Performed detailed limnological and fisheries investigations of the Aga Creek, Kopylye River, and Kopylye Lake, including remote, unattended monitoring of pH, Conductivity, Depth, Temperature, and Turbidity using modern CR10X datalogger coupled with YSI 6820 water quality sonde (system integration and programming by AATA).

Julietta Gold Mining Project, Magadan Oblast, Russian Federation

Principal-In-Charge: AATA served as the principal Environmental Management and Permitting consultant for the gold mining project located near Omsukchan, Magadan Oblast, Russian Far East. Completing the Expertiza environmental permitting process. Conducted environmental baseline studies and Environmental Analysis Report (OVOS) in support of Expertiza permitting. Field investigations included disciplines of botany, hydrology, geology, chemistry, mammalogy, ichthyology, ornithology, reclamation, and hydrobiology.

Batu Hijau Copper/Gold Mining Project, Sumbawa, Indonesia

Principal-In-Charge: AATA served as a principal Environmental Management and Technical consultant for this large copper/gold mining complex in Sumbawa, Indonesia. Provided review of environmental baseline investigations, environmental management planning, and integrated physical, chemical, and biological modeling of waste discharges to the Indian Ocean. Set up field laboratory capabilities for analysis of degradable parameters such as COD/BOD, bacteria, and other water quality parameters.

Big Bend Placer Mining Project, Mongolia

Principal-In-Charge: AATA served as the principal Environmental Management Consultant for this project located in the Tuul River, Mongolia. Conducted site investigations and environmental due diligence analysis, including OPIC approved EIA, Mongolian EIA. Comprehensive watershed management program, water quality monitoring, aquatic ecological assessment, and impact assessment of existing and proposed placer mining operations.

Myanmar Copper Mining and Milling Project, Monywa, Myanmar

Principal-In-Charge: AATA was the principal Environmental Management and Technical consultant to the first western/Myanmar joint venture mining project near Monywa, Myanmar. AATA installed and is operating through its local associates a high-tech meteorological monitoring station at the site. Surface and groundwater studies, human health risk assessment concerning local water quality



and copper. AATA has conducted two environmental baseline investigations of the site, including sampling and observation of water quality, hydrology, vegetation, wildlife, forests, and other ecological attributes. Conducted first professional Environmental Impact Statement in Myanmar, as well as detailed Environmental Health Risk Assessment for site and surrounding area. Trace metal impact and risk evaluation.

PT Adaro Coal Mine Due Diligence Project, Kalimantan, Indonesia

Principal-In-Charge: AATA conducted an environmental due diligence analysis of the PT Adaro coal mining project in Kalimantan, Indonesia. Mr. Aronson and Mr. Sumaiku traveled to the mine site located north of Banjarmasin, Kalimantan, and investigated all of the operations pertinent to the coal mining program. Ground-level and aerial investigations of the mine, maintenance, haul road, river load out, river transport route, camps, and ocean loadout areas were conducted. A detailed environmental due diligence report was prepared.

Ridgeway Mining Company

Project Manager: Provided review of NPDES permit, and preparation of expert witness testimony regarding aquatic impacts from a proposed gold mine in South Carolina.

WATER / WASTEWATER

Biological Assessment/Section 7 Consultation on the Lahontan Cutthroat Trout Big Springs Project, Nevada

Senior Aquatic Scientist: Conducted detailed biological/aquatic ecology investigation in the Upper North Fork Humboldt River in Nevada. Detailed fisheries studies included specimen collection and U.S. Forest Service Level III physical habitat analysis. Laboratory analysis was performed on aquatic benthic samples, fish species, and water quality. Prepared Biological Assessment Report on Lahontan Cutthroat Trout.

Warren Lake Management Committee, Warren Lake HOAs, Fort Collins, Colorado.

Currently serves as Principal Limnologist for one of largest residential lakes in Fort Collins area. Monitoring, modeling, routine phytoplankton and zooplankton analysis, aeration system evaluation and harmful algal bloom (HAB) monitoring. Works with Lake Management Committee and the participating HOAs.

Goldenbell Mining Corporation

Senior Aquatic Ecologist (Limnologist): Responsible for aquatic ecology component of a comprehensive water resources baseline study for proposed open pit and underground gold mine near Mariposa, California. Prepared input to appropriate sections of the California Environmental Impact Report. Extensive work on Merced River water quality and downstream fisheries impacts,

as well as Lake McClure limnological impact evaluation. Evaluation of trace metals on local aquatic ecosystems.

Lake Sherwood Eutrophication Control Program

Principal Limnologist. Providing limnological evaluation and assessment for eutrophication control of interesting long residence time reservoir. Phytoplankton analysis and monitoring support. Evaluation of past control efforts.

Point Pleasant Pumping Project, Pennsylvania

Program Manager: Principal water quality consultant, limnologist, and expert witness for NPDES permitting of Delaware River diversion project, including specialized studies of North Branch Neshimany Creek and Lake Galena. Prepared Ecological Assessment Report, Thermal Impact Assessment Report, and IFIM Report, expert witness testimony including evaluation of trace metals, temperature, and other water quality parameters.

Cherry Creek Basin Water Quality Authority – Denver, Colorado

Provided independent senior technical advisory support to Basin Authority for evaluation of limnological function, eutrophication control strategies, multiuse recreational strategy – (power boating, water skiing, sailing, wakeboarding, fishing, birding, hiking), and nutrient control strategies from upper basin watershed. Live television interviews and reporting. Summerlong limnocorral testing and analysis for eutrophication research.

Barr Lake Triennial Water Quality Review

Principal Limnologist, Water Quality Consultant, and Expert Witness – Provided field and laboratory analysis, limnological assessment and interpretation, and expert witness testimony before the Colorado Water Quality Control Division related to the Colorado Triennial Water Quality Standards Review. Refuted other experts in the assessment of limnological function and nutrient cycle in Barr Lake (40 years of experience).

Denver Water Department

Managed project that analyzed water quality data for the South Platte, Williams Fork and Blue River drainages in Colorado. Reviewed and revised post-project reservoir water quality projections. Conducted limnological modeling study for impact assessment of existing reservoirs (Antero, Spinney Mountain, Eleven Mile Canyon, Cheesman, Dillon, Green Mountain, Gross, and Chatfield) and proposed reservoirs (New Cheesman, Eastbrook, and Two Forks). The modeling effort utilized the Canfield-Bachman and Clean Lakes models. Key member of Interagency Water Task Force comprised of EPA, State of Colorado, Corps of Engineers, and Denver Water Department. Provided environmental monitoring of key DWD reservoirs.

Denver Water Department



Project Manager: Managed project that included water quality modeling for predictive limnology of the proposed Two Forks Reservoir, a 1.1-million-acre-foot reservoir located on the South Platte drainage, Colorado. Utilized Corps of Engineers WQRRS model.

Denver Water Department

Project Manager: Performed reconnaissance of water quality impacts in the Region 12 Planning Area of Colorado (Summit, Grand, Routt, Pitkin, Eagle, and Jackson Counties). Reviewed 208 Areawide Water Quality Management Plan and presented expert witness testimony before the Colorado Water Quality Control Commission on water quality impacts in the area. Extensive monthly sampling and analysis of Green Mountain Reservoir, phytoplankton and chlorophyll a, comparative analysis with Lake Dillon Reservoir (upstream on Blue River drainage).

Denver Water Department

Project Manager, Chief Limnologist: Providing limnological, water quality, and other support to the Denver Water Department. Activities include consultation on water quality, eutrophication, and general limnological monitoring and modeling, as well as water resource planning and support, impact assessment support, and field data collection support. Performed downstream impact assessment for threatened and endangered species.

Denver Water Department and Summit County Participants

Project Manager, Chief Limnologist: Managed project to evaluate over 50 different alternatives for point and non-point source phosphorous control in the Lake Dillon watershed. Evaluated existing data and provided modeling analysis using eutrophication models including Dillon Clean Lakes model. Managed engineering and costing analyses to rank various alternatives. Monthly monitoring of phytoplankton, including under ice sampling and analysis. Chlorophyll a analysis for comparison with Lake Dillon Watershed "Bubble Concept". Assessment of the 4 major wastewater treatment plants which provide effluent to Lake Dillon – Snake River Plant, Breckenridge Sanitation District, Frisco Wastewater, and Copper Mountain Wastewater. Extensive water quality evaluation from Lake Dillon through Roberts Tunnel to the South Platte River and in all of the Denver Water Department mainstem reservoirs.

Los Alamos National Laboratory NPDES Permitting and Toxicity Management Program

Program Manager and Principal Water Quality Specialist (5 years): NPDES permitting support program at Los Alamos National Laboratory, Los Alamos, New Mexico. Provide technical water quality aquatic ecology, and risk assessment support regarding implementation of biomonitoring at LANL. The LANL permit covers 129 different outfalls of various types, and thus represents one of the most complex NPDES permits in the U.S. Design of a Toxicity Management Program that includes state-of-the-art toxicity screening analyses and ecological risk assessment.



City of Phoenix and Sub Regional Operating Group (SROG Participants) Water Quality and NPDES Permitting Support

Program Manager and principal water quality consultant: Provided senior level water quality management support to the cities of Phoenix, Mesa, Scottsdale, Glendale, and Youngtown (Sub-Regional Operating Group) for NPDES permitting of the 91st Avenue Wastewater Treatment Plant. Biomonitoring testing, toxicity persistence evaluation, permit negotiations, alternative test species development and expert witness testimony support. Evaluation of effluent dominated streams (Salt River) downstream of Phoenix.

Water Quality Monitoring, Taste and Odor Evaluation, Permitting

Program Manager: Provided senior level water quality support for a project to develop a state-of-the-art water quality monitoring system to be located on SRP canal supply system. Major project activities include pollutant and indicator monitoring equipment evaluations, system integration, communications, acute event alarms, point and non-point source analysis, and sampling records. Provided expert consulting to support submittal to USEPA Region 9 on water quality management of blended surface and groundwater supplies.

City of Prescott and Black & Veatch

Program Manager and principal water quality consultant: Provided support to the City of Prescott for point and non-point source water quality management of Granite Creek, water quality standard setting, eutrophication control and restoration of Watson Lake.

Pima County Wastewater Management Department; Tucson, Arizona

NPDES permitting and expert witness testimony support regarding implementation of biomonitoring. Co-project manager for Toxicity Control Program.

East Bay Municipal Water District (EBMUD), Oakland, CA

Principal Aquatic Ecologist/Ecotoxicologist – Independent evaluation of various water quality control strategies, including ecotox assessment of discharges to San Francisco Bay, eutrophication control strategies for various EBMUD reservoirs, Camanche, Pardee, Briones, Lafayette, San Pablo, and Upper San Leandro Reservoirs. Preproposal assessment of applicability of whole effluent toxicity testing and alternative eutrophication controls.

Environmental Analysis of Cuchara Valley 201 Facilities Plan

Project Manager and Senior Aquatic Ecologist: Managed project to complete Environmental Analysis Report for a wastewater treatment facility serving the town of Cuchara, Colorado and Cuchara Valley Ski Resort. Detailed analysis of water quality and aquatic ecology was completed to determine impacts of effluent on downstream beneficial uses. Onsite ecotoxicology and fisheries surveys of Cucharas River.



Syar Industries, Napa, California

Principal Aquatic Ecologist: Managed project for water quality and aquatic ecology on the Russian River near Healdsburg, California. Proposed methods of fisheries habitat enhancement to coincide with aggregate extraction from the Russian River.

Syar Industries, Napa, California

Extensive work on Napa River and local watersheds, including assessment of point and nonpoint sources on water quality of Napa River during flood stage. Evaluation of upstream and downstream reservoirs, with focus on sediment sources and supplies, transport, and river dynamics. Sampled storm flood flow in Napa River using expert oarsman and rowboat. Evaluated inputs of wastewater plants during storm surge overflows.

Expeditions 1-6 - Environmental River, Delta, and Ocean Studies

Program Manager: Interdisciplinary environmental assessment of mill tailings discharge upon downstream freshwater, estuarine, marine and semi-aquatic environments, Irian Jaya, Indonesia. Project logistics; equipment procurement and mobilization; sampling design and implementation; data analysis and interpretation; report preparation including ecological impact assessment. Project was unique in that it involved environmental assessment activities over a continuum from near an equatorial glacier to a tropical marine system.

Long-term Environmental Monitoring Program (LTEMP)

Program Manager responsible for design, installation, and operation of LTEMP at FII mine and mill operations, Irian Jaya, Indonesia. Hydrological and meteorological monitoring systems were designed using the latest solid-state data loggers and installed at strategic locations from sea level to +12,000 feet elevation. A unique feature of the LTEMP is the use of ultrasonic sensors for river stage and sea level monitoring.

Union Camp Corporation

Principal Aquatic Ecologist: Evaluated potential eutrophication and water quality effects of grassroots pulp and paper mill project on downstream aquatic systems including the Wateree River and Lake Marion, South Carolina. Prepared expert witness testimony in support of permit application and litigation.

Proctor and Gamble Company

Aquatic Ecologist: Evaluated potential downstream eutrophication and water quality effects of new pulp and paper mill on the Flint River and Lake Blackshear, Ogelthorpe, Georgia. Conducted video tape interview for regional media coverage.

Metropolitan Denver Sewage Disposal District

Principal Aquatic Ecologist: Conducted modified use attainability study of Segment 15 of the South Platte River, Colorado. Evaluated previous modeling efforts using QUAL-II water quality water model, attainability of water quality goals and standards, and aquatic ecology of the reach.

Northern Tier Pipeline Company and Partners

Permit Manager: Responsible for NPDES permitting of hydrostatic test water discharges, following Alyeska Pipeline precedents at Region 10, EPA.

J.R. Simplot Company

Principal Investigator: Conducted aquatic environmental impact assessment of ammonia effluent on indigenous periphyton, macroinvertebrates, and fish of the Portneuf River, Idaho.

RELEVANT TESTIMONY

International Arbitrations

Technical environmental expert for various international arbitrations

Kingdom of Thailand, Gold Mining Project

Country of Peru, Oil and gas environmental and social impacts in Peruvian Amazon

Country of Peru, Polymetallic smelter, High Andes, specialist for analysis of air, water, soil

Gold Reserve Corporation, Las Brisas Gold Project, World Bank ICSID Arbitration

Colorado Water Quality Control Commission, Triennial Review Testimony (several)

Atomic Safety and Licensing Board, Black Fox Station, Oklahoma, EIS Review and Testimony

U.S. Federal District Court, Preparation of EIS, Pulp and Paper Mill, Eastover, SC, USA

LANGUAGES

English (native)

Spanish (conversational)

German (conversational)

Russian (conversational)

Bahasa Indonesia (conversational)

French (conversational)

Italian (conversational)

