Florin Analytical Services

Quantitative Analytical Laboratory,
Inorganic Analyses,
Fire Assay and Wet Chemical Methods

Statement of Qualifications

Date:
January
2016

7950 Security Circle • Reno, Nevada 89506 • Telephone: 775-677-2177 • Facsimile: 775-972-4567 • Website: www.florinanalytical.com

Florin Analytical Services (FAS), is the analytical arm of Kappes, Cassiday & Associates. FAS provides services to the mining, industrial minerals, and waste management industries. FAS is a leader in the area of inorganic analyses.

- ◊ FAS is dedicated to developing and providing high quality and accurate analytical services to a broad range of scientific professionals, industries, municipalities and others.
- ◊ FAS is a member of the Kappes, Cassiday Group of Companies (KCA). KCA is a well-respected process engineering company that started in 1972 in Reno, Nevada.

Facilities

FAS occupies 10,000 square feet of a 40,000 square foot building that rests on three acres of land just north of Reno, Nevada. The facility is easily accessed from Interstate 395 utilizing the Golden Valley Road exit or from North Virginia Street. The building is owned by Kappes, Cassiday & Associates.

Analytical Capabilities

Analytical Capabilities include but are not limited to the following:

- ◊ Fire Assay for gold, silver, platinum and palladium
- ◊ Quantitative whole rock analyses
- ◊ Carbon and sulfur analyses
- ◊ Inorganic and general chemistry by instrumental and specific technique
- ◊ Metal analyses by Flame AAS, Inductively Coupled Plasma (ICP) and Cold Vapor (CVAAS) Analyses

Assurances

FAS participates in round robin analyses within several professional organizations, including:

- ◊ American Society of Testing Material (ASTM) bullion by cupellation Round Robin Program.
- ◊ Society of Mineral Analysts Proficiency Studies.
- ◊ Geostats Survey of International Laboratories.

Quality Assurance

All of the data that Florin Analytical Services (FAS) provides to its clients will be utilized for project evaluation. Therefore, the data must be of the highest quality. It is essential that FAS personnel adhere strictly to all provisions outlined in this QA document.

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Policy

It is the policy of Florin Analytical Services to provide the highest quality of data to our clients. In support of this policy, it is necessary to promote and enforce the following procedures.

The objective of a **Quality Assurance Document** is to describe the general analytical process that will be followed in order to report both precise as well as accurate data.

This brief overview explains the quality assurance procedures utilized to establish the accuracy of the results reported by FAS.

The quality assurance program combines proven analytical technology with an extensive use of both externally and internally generated control standards. The external control standards are generally standards obtained from Rocklabs, ORE Research & Exploration Pty. Ltd., Geostats Pty. Ltd., CANMET and NIST.

The FAS quality assurance program starts with a submittal of clearly marked samples, with a valid analysis request. Sample submittal forms and chain of custody forms are available on the FAS website at www.florinanalytical.com. These forms are also available by calling the FAS office at 775-677-2177.

Our staff then follows the chain of analysis procedures listed below:

- ◊ Sample Login and Work Order Identification
- ◊ Sample Method Determination
- ◊ Sample Labels and Analysis Sheets are Generated
- ◊ Sample Preparation completed
- ◊ Sample Analysis Completed and Submitted for QA/QC
- ◊ Sample Re-analysis if Required
- ◊ Sample Analysis Accepted
- ◊ Computer Input of Results
- ◊ Submittal of Results
- ◊ Review Results with Client
- ◊ File Archived and Work Order Completed

Quality Assurance (continued)

At FAS, all analyses are completed according to written and approved procedures. The procedures are reviewed continuously for completeness, accuracy and reliability.

Data validation is conducted in a 12 step review prior to the results being issued to the client. These 12 steps are as follows:

1. Sample Identification and Type
2. Calibration Blank (CB) and Continuing Calibration Verification (CCV)
3. Interference Check Sample Analysis
4. External Laboratory Quality Control Standard Analysis
5. Specific Sample Results
6. Duplicate Analysis within Acceptable Limits
7. Completion of QC Checks
8. Completion of all QC Requirements
9. Correctness of Data Transcription
10. Completion of Analytical Data
11. Completion of Client Requirement

Equipment

The lab is capable of receiving samples from hand sample size to 80 tons, on pallets, in barrels or in bulk. Sample preparation of bulk samples can be completed utilizing a Bobcat Front End Loader, a large gasoline engine driven Jaw Crusher as well as smaller laboratory-scale crushers, screen decks, mills and pulverizers.

This section lists the major instrumentation and scientific equipment in the analytical group. The equipment is maintained by FAS following preventive maintenance schedules provided by the manufacturers.

The laboratory maintains the following major equipment items:

- ◊ 10″ X 12″ Jaw Crusher, 1 unit
- ◊ 4″ X 6″ Jaw Crushers, 2 units
- ◊ 10″ Cone Crushers, 2 units
- ◊ Standard Bico Disc Grinders, 2 units
- ◊ Standard TM Ring and Puck Pulverizers, 2 units
- ◊ Large capacity bag houses, 4 units
- ◊ Large Capacity Gilson Screen Decks, 2 units
- ◊ Tyler Roto-taps, 4 units
- ◊ Standard Bond Ball Mill, 1 unit
- ◊ Denver Lab Flotation Machine, 1 unit
- ◊ WEMCO Flotation Machines, 2 units
- ◊ High Temperature Tube Furnaces, 2 units
- ◊ Jar Mill Rolling Tables, 7 units
- ◊ Steel laboratory-scale ball mills, 15 units
- ◊ Ceramic laboratory-scale ball mill, 2 units
- ◊ Pilot-scale rod mill, 2 units
- ◊ Agilent-FAAS, 2 units
- ◊ Perkin Elmer ICP-OES, 2 units
- ◊ LECO CS-230, Carbon/Sulfur Analyzer , 1 unit
- ◊ 3 inch Knelson Bowl Concentrator, 1 unit
- ◊ No. 13 Wilfley Table (Sand Table), 1 unit
- ◊ Deister Table (Finishing Table), 1 unit
- ◊ Large capacity gas and or electric drying ovens, 4 units
- ◊ Flotation Pilot Plant, capacity 0.2 metric tonnes per hour, 1 plant
- ◊ Cress Fire Assay Furnaces, 3 units
- ◊ Centralized Vacuum Pump, 1 system
- ◊ Centralized Compressed Air, 1 system
- ◊ Balances and Scales

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Key Personnel

The staff at FAS constitutes a team of professionals with varied technical abilities, especially adapted to work on projects requiring a complete range of laboratory services. Their backgrounds consist of over 100 years of analytical chemistry experience in the mining and chemical processing industries. Key professional personnel are briefly introduced below:

Daniel W. Kappes, Owner, is a mining and metallurgical engineer and has been associated with the company since 1972. Dan is a recognized authority on precious metals heap leaching and has presented several technical papers on the subject. In addition to work on numerous small projects, he has directed laboratory and field testing on several projects that have subsequently become major precious metal mines.

Terence E. Albert, Manager of Laboratory Services, has over 26 years of experience in all facets of metallurgical and chemical testing laboratories. He manages all aspects of the metallurgical and analytical facility, schedules and executes research and contract testing projects and oversees the issuance of completed reports and data. He has directed the design and setup of several commercial assay facilities in the United States and South America. This work included the training of personnel in sample preparation, wet chemical and fire assay procedures. He has been in charge of all laboratory services for KCA since 1991.

Mario Desilets, Senior Chemist/Geochemist, has over 30 years of experience in analytical geochemistry. This includes 27 years at the Nevada Bureau of Mines & Geology and 5 years at commercial analytical laboratories. His chief duties are the supervision of all FAS analytical functions.

Christy J. Wood, Manager of Quality Assurance, has 11 years of experience in analytical chemistry with a strong emphasis on ICP-AES and Atomic Absorption analysis and 8 years as a supervisor or manager. She has a Bachelor of Science degree in biochemistry from the University Of Nevada, Reno and an Associate of Applied Science degree from Truckee Meadows Community College.

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Sample Shipping Information

FAS maintains a large shipping and receiving department. When shipping large sample groups, FAS can help arrange for consolidation and freight forwarding. Shipments of samples to FAS can be completed by air, ship or truck. When shipping samples to FAS, the shipment should be consigned as follows:

Florin Analytical Services
Attention: Mario Desilets
7950 Security Circle
Reno, Nevada 89506 U.S.A

Telephone: 775-677-2177
Facsimile: 775-972-4567

USDA Soil Permit No. P330-13-00076

Geological Samples for Analysis Only. No Commercial Value.

The shipment should be accompanied by a commercial invoice. The commercial invoice should state that the shipment is geologic material for analysis only. The value identified on the commercial invoice (for U.S. Customs Purposes) for the shipment should be no more than US$0.10/kilogram of material. FAS/KCA maintains a United States Department of Agriculture permit that allows material to be shipped to FAS from outside of the U.S.A. The permit number is P330-13-00076 and this number should be included on the commercial invoice.

Sample Handling and Disposal

FAS will take all reasonable precautions to protect samples and rejects during analysis and storage but will incur no liability for loss, deterioration, or damage thereto from any cause whatsoever. Pulp samples are stored for 6 months at no charge. Reject material is stored for 3 months at no charge. Continuing storage is available at a nominal cost after these periods. Return of the samples to the project can be completed for an additional cost. Clients will be notified, when possible, when pulps/rejects are scheduled for disposal.

Disposal by FAS is completed utilizing Nevada Division of Environmental Protection (NDEP) protocols. Typically the material is characterized and then sent to the appropriate land-fill. FAS reserves the right to back-charge the project for any reasonable cost associated with waste disposal.

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Selected Client References

Coeur Rochester
Mr. Matthew Goodale
Lovelock, NV
775.273.7995, xt. 1881

Legend Mine Supply
Mr. Mark Lewis
Reno, NV
Telephone: 775-786-3003

McClelland Laboratories
Mr. Jack McPartland
Reno, NV
Telephone: 775-356-1300

Minerals Advisory Group Research & Development (MAG R&D)
Mr. James F. Minno
Tucson AZ
Telephone: 520-572-6507

Nevada Cement
Mr. Scott Murphy
Reno, NV
775-575-2281 ext. 217

Resource Development Inc.
Mr. Deepak Malhotra
Wheat Ridge, CO
303-422-1176

Turnaround Time

FAS is committed to providing quality results in a timely manner. Typical turnaround time for analyses at FAS is seven to ten (7-10) working days. A quality program sometimes requires additional time. FAS promises to carefully review each submittal, and examine the procedures that will be required. A time line will be developed that meets the needs of the client and results in a quality analysis. FAS will keep the client informed as the program proceeds and will report to the client if additional time is required. In certain circumstances, analyses can be rushed. Rush charges will apply to these programs.

Analytical Report

Analytical reports can be provided via e-mail as soon as they have undergone quality assurance reviews.

Analytical Report Format

Final reports generated by FAS list the client's name, address, project name, client's project number, FAS laboratory number and sampler's name as listed on the Chain of Custody. Other information such as billing Purchase Order, may be included upon request.

Electronic Deliverables

Electronic deliverables are available by e-mail. The data will be provided in Microsoft Excel and/or PDF format. Electronic deliverables can be changed or corrupted so security cannot be guaranteed.

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Analytical Services Invoicing

Laboratory Invoices are prepared at the completion of the program. Special invoicing requirements can be accommodated by prior arrangement.

FAS has a minimum charge of $150.00 USD per submission of work. In addition to the analysis work performed on your samples, this minimum charge covers the costs of custody and documentation of your samples. Each sample submission must be separately tracked throughout the entire analytical process.

Records Retention, Retrieval and Destruction

Hard-copies of laboratory records are filed in metal filing cabinets at the laboratory location for a minimum of three (3) months. The records are filed sequentially by FAS work order number.

After three (3) months, hard-copies are archived to a state-of-the-art storage facility. These records can be easily accessed with prior notification.

For additional information
please contact:

Mario Desilets or Christy Wood
Florin Analytical Services
7950 Security Circle, Reno, Nevada 89506
Telephone: 775-677-2177
Facsimile: 775-972-4567
E-mail: mdesilets@kcareno.com

	Florin Analytical Services LLC **CHAIN OF CUSTODY**	FAS Work Order No. Date:

7950 Security Circle • Reno, Nevada 89506 • Telephone: 775 677 2177 • Facsimile: 775 972 4567 • Website: www.florinanalytical.com

Company	Attention
Address	
Phone Number	FAX Number
Project Name	Project Number
Purchase Order Number	Sampled By

Time/Date Sampled	Customer Sample I.D.	FAS Sample I.D.	Comments

Relinquished by (Print Name)	Signature	Date/Time	Received by (Print Name)	Signature	Date/Time

doc.file: f:\technical_notes\faslab_ChainCustody