ALS LABORATORIES QUALITY PROGRAM SUMMARY

ALS Laboratories' Quality program is based on the requirements of ISO/IEC 17025:2005, EPA FIFRA and OECD Good Laboratory Practices (GLPs).

The following is a list of standard practices employed on an everyday basis in the laboratory:

1. The Quality division of ALS Laboratories consists of the Quality System Manager and three full-time Quality System Co-ordinators. The Quality System Manager co-ordinates and manages all aspects of the Quality program.

2. Standard Operating Procedures (SOPs) are written for all analytical methodology, operation and maintenance of all lab equipment and instrumentation, safety procedures, general laboratory procedures, quality assurance protocols and support procedures. Controlled copies of SOPs are readily available to all staff and regularly scheduled SOP reviews are carried out.

3. NIST (National Institute of Standards and Technology) - traceable reference materials are used for analysis, where available. Other commercially available reference materials are checked for purity using U.S. EPA protocols. An inventory of reference materials is maintained and records of all laboratory standard preparations are kept.

4. Precision, accuracy, and method detection limit studies are performed to validate analytical methods.

5. Maintenance and calibration records are kept for all major equipment and instrumentation. Records include balance calibrations, water system maintenance, temperature monitoring of coolers, freezers, and drying ovens, thermometer and weight calibrations, pipette calibrations and instrument maintenance.

6. Sample tracking procedures are in place to document sample custody from time of receipt to final analysis. Complete chain of custody documentation ensures that all data is legally defensible.

7. A 10 - 20% program of quality control analyses is maintained for each sample batch. Quality control samples include but is not limited to calibration and verification standards, certified reference materials, matrix spikes, duplicates, method and reagent blanks, transportation and storage blanks, and glassware proofs.

8. Quality control charting is established for all routine analytical tests ensuring that a process is in place to ensure the analytical system remains in control.

9. Prior to issuing a final report, the analytical data package is reviewed by the analyst and project manager to ensure completeness of sample chain of custody documentation, verification of sample history information and analytical requirements, acceptability of QC data, and validity of sample results.

10. Participation in proficiency testing programs is extensive.

11. Training seminars are regularly scheduled and include both in-house as well as outside guest speakers. Seminar topics include training in such areas as Quality, safety, instrumentation and method development. All new employees must complete a set of initial training requirements. Daily training is provided to technicians and analysts by experienced senior staff at the bench-level on a day-to-day basis.

12. Personnel records are maintained for training, analyst proficiency, curriculum vitae, job descriptions and confidentiality agreements.

13. Quality audits are performed regularly by qualified personnel to evaluate adherence to established procedures and assess the effectiveness of the Quality program.