Radiological Characterization of the Former UNC Manufacturing Facility, New Haven, Connecticut

APPENDIX

UNC Naval Products

Report No. 2002020/G-1269

Radiological Characterization of the Former UNC Manufacturing Facility, New Haven, Connecticut

Submitted to:

UNC Naval Products
1068 Hartford Turnpike
Waterford, Connecticut 06385
(800) 555-1212

by:

AAA Environmental, Inc.
6679 Moore Road
Syracuse, New York 13211
(315) 454-2000

and:

Integrated Environmental Management, Inc.
6711 Kingston Pike, Suite 103
Knoxville, Tennessee 37919
(865) 588-9180

Report No. 2002020/G-1269
May 31, 2005

TABLE OF CONTENTS

1 INTRODUCTION 1

2 FACILITY INFORMATION 4
- 2.1 Site Location 4
- 2.2 Constituents of Concern 4
- 2.3 Release Criteria 4
- 2.4 Summary of Previous Characterization Results 5

3 ORGANIZATION AND RESPONSIBILITIES 7
- 3.1 UNC Representatives 7
- 3.2 Radioactive Materials License 7
- 3.3 Radiation Safety Officer 7
- 3.4 Project Manager 8
- 3.5 Operations Manager 8
- 3.6 Quality Assurance Manager 8
- 3.7 Remediation Manager 9
- 3.8 Analytical Laboratory 9

4 SURVEY METHODOLOGY 10
- 4.1 Instrumentation Description 10
- 4.2 Instrument Calibration 10
- 4.3 Preparation for Surveys 11
- 4.4 Determination of Background 11
- 4.5 Measurement of Ambient Gamma Dose Rate 12

5 SURVEY/SAMPLING DESIGN 13
- 5.1 Sampling Objective 13
- 5.2 Sampling Methods 13
  - 5.2.1 Grab Sample 13
  - 5.2.2 Core Sample 14
- 5.3 Sample Locations 14

6 DATA INTERPRETATION 15
- 6.1 Detection Limits 15
- 6.2 Measurement Uncertainty 15
- 6.3 Data Conversion 16
- 6.4 Laboratory Analysis 16

7 SAMPLE RESULTS 18
7.1 Decon Pit 18
7.2 X-Ray Read Room 19
7.3 South Trench 21
7.4 North Trench 22
7.5 Sewer System 22
7.6 Trash Pile 23
7.7 Hazardous Characteristics 24

8 SUMMARY AND CONCLUSIONS 27

9 TABLES 29
Table 9.1 - Radionuclide Concentrations near the Decon Pit 30
Table 9.2 - Radionuclide Concentrations near the X-ray Read Room 31
Table 9.3 - Radionuclide Concentrations in the South Trench 32
Table 9.4 - Radionuclide Concentrations in the North Trench 33
Table 9.5 - Radionuclide Concentrations in the Sewer System 34
Table 9.6 - Radionuclide Concentrations in the Trash Pile 35
Table 9.7 - Hazardous Characteristics in Waste Streams 36

10 FIGURES 37
10.1 Sample Locations for the Decon Pit 38
10.2 Sample Locations for the Xray Read Room 39
10.3 Sample Locations for Building 3H Trenches 40
10.4 Sample Locations for Building 6H Trenches 41
10.5 Sample Locations for the Sewer 42
10.6 Sample Locations for the Trash Pile 43

11 APPENDICES 44
Appendix A - Personnel Resumes 45
Appendix B - Instrument Calibration Records 46
Appendix C - Radiation Survey Instrument Response 47
Appendix D - Field Activity Daily Logs 48
Appendix E - Sample Collection Logs and Survey Forms 49
Appendix F - Sample Chain of Custody Records 50
Appendix G - Certificates of Analysis 51
Appendix H - Disposal Records for the Trash Pile 52

11 APPENDICES

Appendix A - Personnel Resumes

R. Alan Duff

Professional Qualifications

Mr. Duff has over 24 years of experience in nuclear and hazardous materials project management, design support, surveillance, operational health physics, training, and decommissioning activities. He has prepared numerous plans, procedures, and license documents for U. S. Department of Energy facilities, U. S. Department of Defense facilities, U. S. Nuclear Regulatory Commission licensees, and commercial client facilities that are regulated by agreement states. Mr. Duff is well versed in the area of civilian and government radioactive and mixed waste transport and disposal requirements. He is registered by the National Registry of Radiation Protection Technologists (NRRPT).

Education

Confined Space Entry Training, 1998
CNSI Advanced Radioactive Material Transportation and Disposal Class, 1989 and 1993
IT Corporation Project Management Course (40 hours), 1992.
40-Hour OSHA HAZWOPER (29 CFR 1910.120) Training, 1987.
Eight-hour Supervisor Training, 1990
Eight-hour OSHA Annual Refresher (29 CFR 1910.120), 2001.
Canberra Multichannel Analyzer Operations Class, 1988.
Operational Water Chemistry and Radiological Controls, U.S. Navy, 1982
Engineering Laboratory Technician School, U.S. Navy, 1980.
Nuclear Power Training Unit (prototype), U.S. Navy, 1980.
Naval Nuclear Power School, U.S. Navy, 1978.

Registrations/Certifications

Registered Radiation Protection Technologist (RRPT), National Registry of Radiation Protection Technologists

Experience and Background

2002 - Present *Vice President of Nuclear Services, Integrated Environmental Management, Inc., Knoxville, Tennessee* - As the director of IEM's Nuclear Services Division, which operates as a compliment to our consulting capability by providing all of the support services and on-site project management for major client initiatives, Mr. Duff is responsible for turn-key decontamination and decomissioning of nuclear facilities - including the preparation of all planning documentation, characterization surveys and sampling - facility and equipment decontamination, final status survey performance, waste packaging/transport/disposal coordination, routine facility surveillance services, emergency response, leak testing of sealed sources, instrument rental, employee monitoring services for internal and/or external exposures, training, and

a host of other applied health physics operations.) Mr. Duff also serves as the Radiation Safety Officer (RSO) for IEM operations under Maryland Department of the Environment Radioactive Materials License No. MD-31-281-01.

1995 - 2002 *Program/Project Manager, Integrated Environmental Management, Inc., Knoxville, Tennessee* - Provides high-quality project management and remediation services to commercial and government clients. As a member of the client's response team, works with clients to: Develop scopes-of-work and bid packages for specialty subcontractors handling highly focused assignments; identify those subcontractors who will provide the greatest value to the client; manage teams of specialty subcontractors to ensure that the client's goals and expectations (technical, regulatory, and financial) are met from the beginning until project completion; provide insights into future regulatory issues and their impact as input to the client's long-range business planning and cost forecasting process; provide site remediation/decommissioning services for radioactive and hazardous materials; advise and train clients on waste transportation and disposal issues; and develop project specific plans and procedures to conduct on site activities.

1994 - 1995 *Senior Environmental Specialist, AWK Consulting Engineers, Inc., Pittsburgh, Pennsylvania* While assigned to the Oak Ridge, Tennessee office, was responsible for performing technical and administrative duties required to satisfy customer needs on site characterization and pre-remedial design support projects and for all aspects of D&D projects. Responsible for preparing project plans, project work plans, task specific Health & Safety Plans, and budgets/schedules for these projects. Also responsible for identifying and implementing decommissioning and decontamination methods for these projects.

1987 - 1994 *Project Manager, Health Physics Supervisor, Nuclear/Mixed Waste Engineering Services, IT Corporation, Knoxville, Tennessee.* Provided project management and health physics support services for nuclear and mixed waste projects throughout the United States.

1978 - 1987 *Engineering Laboratory Technician (ELT), Leading Petty Officer, Radiological Controls Shift Supervisor*, United States Navy Supervised a division of 40 personnel, provided support for nuclear powered submarines, and performed over 250 error-free shipments of radioactive materials. Served as Leading ELT and Engine Room Supervisor on the USS Grayling, SSN 646.

Professional Society Memberships

Health Physics Society (Plenary Member)
American Nuclear Society
Conference of Radiation Control Program Directors (Advisor to the Radioactive Waste Management Committee E-5 and to the D&D Committee E-24)

Awards

Navy Achievement Medal for conducting the first Trident Class submarine ion exchange resin discharge and solidification.
IT Corporation Project Management Associate

Billy R. Thomas

Professional Qualifications

Mr. Thomas has over 24 years of senior-level experience in radiological and industrial hygiene activities with emphasis on systems to minimize personnel exposures to radioactive and hazardous materials, compliance with federal and state regulations, site and facility audits. Mr. Thomas has developed and implemented comprehensive programs for radiation and chemical protection programs. Mr. Thomas is actively involved in all aspects of health and safety including regulatory compliance, site decommissioning, program evaluation, applied health physics, occupational safety, training and project management.

Education

M.S., Environmental Health, University of Oklahoma, 1981
B.S., Health Physics, Oklahoma State University, 1976

Certifications

Certified Health Physicist (Comprehensive Practice), American Board of Health Physics, 1988. Recertified: 1992, 1996 and 2000.

Certified Industrial Hygienist (Comprehensive Practice), American Board of Industrial Hygiene, 1984. Recertified : 1990 and 1996.

OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) Training. Initial training 1987 and updated each year.

Lead Abatement Training for Supervisors, University of Cincinnati. 1996.

Asbestos Abatement Supervisor Course, Asbestos Consulting and Training Systems, 1997.

Experience and Background

1999-Present *Senior Health Physicist, Integrated Environmental Management, Inc., Findlay, Ohio.* Provides high quality radiation protection services to commercial and government clients. As a member of the client's response team, works with clients to promote an understanding of what is required to achieve and/or maintain compliance in the eyes of all pertinent regulatory agencies, individually or jointly; develop and overall strategy for achieving compliance and reduce liabilities in a technically-sound, legally defensible, and fiscally-conservative business manner; recommend specific solutions that are compatible with the client's operating philosophy; and provide insights into future regulatory issues and their impact as input to the client's long-range business planning and cost forecasting process.

1993-1999 *Director of Health and Safety, The IT Group, Findlay, Ohio.* Originally joined OHM Remediation Services in 1993. The IT Group purchased OHM in 1998. Duties including conducting site and facility health and safety audits, determination of personal protective equipment and respiratory protection equipment, supervising the development and implementation of site specific health and safety plans, and providing industrial hygiene training and services. He had direct accountability for health and safety compliance, including regulatory compliance with federal, state and local agencies. He implemented a comprehensive health and safety program for demolition and remediation activities by the Midwest region, which accumulated 2.3 million man-hours from March, 1994 to July, 1997 without a single lost time injury.

Health and Safety Manager, Knolls Atomic Power Laboratory, Schenectady, New York. Duties on this contract included the evaluation of personnel exposures to airborne hazardous materials during the demolition of hot cells and glove boxes in laboratory facilities. Equipment was previously used

for examination and testing of spent reactor fuel and metal components operated by the U.S. Navy. Training was provided to minimize exposures and the correct use of personal protective equipment used during the demolition activities. Program audits and evaluations for several of the safety programs, including asbestos control, polychorinated biphenyls, beryllium and heat stress.

Health and Safety Manager, Department of Energy, Weldon Spring Site Remedial Action Program (WSSRAP). OHM was contracted to excavate contaminated construction debris from the WSSRAP quarry. Materials in the quarry were accumulated from a munitions manufacturing facility at Weldon Spring, as well as the demolition of buildings from the Mallinckrodt site used during the Manhattan project. Personnel exposures to uranium and thorium were documented, as well as nitroaromatics and asbestos. Mr. Thomas completed site inspections to evaluate the effectiveness of the health and safety plan and review the results of employee exposure monitoring.

1990 - 1993 *Health and Safety Manager, IT Corporation, St. Louis, Missouri.* Provided day to day direction for laboratory operations in the areas of health physics, industrial hygiene, hazardous waste management, and laboratory safety. Served as the Radiation Safety Officer for the USNRC Broad Scope license for the use of by-product and source material at the laboratory .

Collateral assignment as Department Manager of a radiochemistry laboratory to analyze samples from a variety of commercial and government facilities, including facilities operated by the DOE. Services were provided to a variety of DOE facilities including Fernald, Idaho National Energy Laboratory, Lawrence Livermore National Laboratory, Nevada Test Site, Oak Ridge National Laboratory, Paducah Gaseous Diffusion Plant, Rocky Flats, WSSRAP, and the Y12 Production Facility. Supervised the analysis of various environmental media to be analyzed for specific radioactive isotopes including uranium, plutonium, thorium, and radium. Other analyses were performed for fission products and gross methods including alpha and beta analysis. Served as the RSO for the broad-scope license issued to the laboratory by the NRC.

1988 - 1990 *Director of Corporate Health and Safety, Burlington Environmental, Columbia, Illinois.* Responsible for designing and implementing health and safety programs to limit exposures to hazardous chemicals and radioactive material during sampling and remediation activities. Developed procedures and conducted training classes for field service personnel to correctly use personal protective equipment and perform air monitoring to evaluate personnel exposures.

Mr. Thomas also served on several audit teams to review the health physics programs at DOE site, including Rocky Flats, Los Alamos and the Nevada Test Site. The criteria for the audits were based on the DOE Technical Safety Appraisal objectives. Mr. Thomas worked with the program personnel to correct deficiencies and measure the effectiveness of the programs.

Member of Technical Advisory Group for Martin-Marietta Energy Systems. The Advisory Group provided oversight of the Federal Facility Agreement regarding the operation of the Low Level Radioactive Waste Tank Systems implemented for Oak Ridge National Laboratory. Made recommendations to implement standard industry practices for the purposes of reducing personnel exposures to hazardous and radioactive materials. Reviewed the elements of the industrial hygiene relating to the engineering controls and administrative controls implemented to reduce exposures to hazardous materials. Evaluated the effectiveness of the health physics programs for the purposes of reducing personnel exposures to radiation to as low as reasonably achievable.

1983 - 1988 *Senior Health Physicist, IT Corporation, Oak Ridge, Tennessee.* Provided health physics and consulting to government and commercial clients. Served as the project manager for several remedial decontamination projects involving hazardous and radioactive materials. His experience included:

Project CIH, Fernald Feed Materials Production Center, US Department of Energy Cincinnati, Ohio. Performed health-and-safety review of engineering improvements at DOE uranium metals production facility. Improvements included new ventilation systems, radioactive materials handling systems, and decontamination of the facility. Recommended health physics and industrial hygiene controls to minimize worker's exposure, and updated air monitoring programs for both workplace exposures and effluent sampling.

1976-1983 *Senior Research Industrial Hygienist, Dow Chemical, Midland, Michigan and Tulsa, Oklahoma.* Provided health and safety support for employees in manufacturing facilities, including plastic and other intermediate chemical production. Assigned as lead health physicist for decontamination projects at several nuclear power plants. From 1977 to 1980, Mr. Thomas served as the radiation safety officer for a NRC broad scope license to authorize the use of mixed fission products and special nuclear material used in manufacturing and research applications at Dow Chemical. The program included a TRIGA reactor, two small accelerators, sealed radioactive sources and tracers for a variety of research programs. Mr. Thomas directed all elements of the health physics program including training, standard operating procedures, exposure assessment and documentation. Mr. Thomas later (1981 - 1983) served as the radiation safety officer for the field services division where sealed sources and mixed fission products were used in treatment systems. This assignment had responsibilities in 22 states for approximately 3,000 employees. Mr. Thomas directed the use of radioactive materials licenses in 16 different states and a NRC license for the use of these radioactive materials.

Professional Society Membership

Health Physics Society (Plenary member)
American Academy of Health Physics
American Industrial Hygiene Association
American Academy of Industrial Hygiene

Bibliography

Mr. Thomas has authored/coauthored a number of papers and technical reports. In addition, he has developed/presented training courses in the field of health physics, industrial hygiene and safety.

Other Appointments/Awards

Appointed to the radioactive materials and radioactive waste subcommittees for the Ohio Radiation Advisory Council to the Ohio Department of Health.

Appointed to the Ohio Citizen's Advisory Council by the Utility Radiological Safety Board of the Ohio Public Utilities Commission.

Director of the State of Ohio Low Level Radioactive Waste Facility Development Authority Board. Appointment by the Speaker of the Ohio State Legislature.

Chairman's Award for Safety Excellence, OHM Remediation Services, 1996, 1997

Senior Technical Associate, International Technology Corporation, 1991.

Member of the People to People Ambassador Delegation visiting the People's Republic of China, 1987. Invited speaker to review health physics practices.

Carol D. Berger

Professional Qualifications

Ms. Berger has over 25 years experience in nuclear and radiological activities with emphasis in strategic planning, radiation dosimetry, instrumentation, and applied health physics. As a co-founder of **IEM**, Inc., Ms. Berger is actively involved in performance of radiological dose assessments, regulatory interactions, site decommissioning, program evaluations, program development, pathway analyses, risk assessments, dosimetry evaluations, assessment and control of sources of non-ionizing radiations, waste management programs, environmental monitoring programs, and detection and quantification of low-levels of radioactivity.

Education

M.S., Health Physics, San Diego State University, San Diego, California; 1979
M.S., Radiation Physics, San Diego State University, San Diego, California; 1977
B.S., Physics/Chemistry, San Diego State University, San Diego, California; 1972

Certifications

Certified Health Physicist (Comprehensive), American Board of Health Physics, 1983 (Re-certified: 1987, 1991, 1995, 1999)

Experience and Background

1994 - Present *President, Integrated Environmental Management, Inc., Gaithersburg, Maryland.* Provides high-quality strategic environmental management services to commercial and government clients. As a member of the client's response team, works with clients to promote an understanding of what is required to achieve and/or maintain compliance in the eyes of all pertinent regulatory agencies, individually or jointly; develop an overall strategy for achieving compliance and reduce liabilities in a technically-sound, legally-defensible, and fiscally-conservative business manner; recommend specific solutions that are compatible with the client's operating philosophy; and provide insights into future regulatory issues and their impact as input to the client's long-range business planning and cost forecasting process.

1989 - 1994 *Senior Technical Consultant, IT Corporation/Nuclear Sciences, Washington, D.C.* Performed health physics consulting for government and commercial facilities in Internal and External Dosimetry; Radiation Monitoring; Environmental Monitoring; Instrumentation; Emergency Response and Preparedness; Site Decommissioning; Radioactive Waste Management; Radiation Risk Assessment; Training; Licensing and Regulatory Negotiations; and Non-ionizing Radiation

1986 - 1989 *Senior Health Physicist, IT Radiological Sciences Laboratory, Knoxville, Tennessee* - Performed health physics consulting for government and commercial facilities in Internal and External Dosimetry; Radiation Monitoring; Environmental Monitoring; Applied Health Physics; Instrumentation; Radioactive Waste Management; Training; and Non-ionizing Radiation.

1983 - 1986 *Radiation Dosimetry Group Leader, Oak Ridge National Laboratory, Oak Ridge, Tennessee.* Responsible for internal and external dose assessment and programs for ORNL employees, visitors and contractors. Experience included Internal and External Dose Assessment; Monitoring Program Design and Implementation; Instrumentation Development; Site Characterizations; Personnel Management; and Training.

1978 - 1983 *Internal Dose Group Leader, Oak Ridge National Laboratory, Oak Ridge, Tennessee.* Responsible for development of the ORNL Whole Body Counter Facility for detection and quantification of the actinides in-vivo. Experience included: Internal Dose Assessment; Monitoring Program Design and Implementation; Instrumentation Development; Special Studies; Personnel Management; and Training.

1978 - 1986 *Adjunct Faculty, Oak Ridge Associated Universities, Oak Ridge, Tennessee.* Professional training courses and general classes in the following health physics and radiation protection areas: Internal Dose Assessment; In-vivo Monitoring and Bioassay Methodologies; Instrumentation, and Applied Health Physics.

1979 - 1980 *Health Physics and Dosimetry Task Group Member, President's Commission on the Accident at Three Mile Island, Washington, D.C.* Tasks included: Internal Dose Assessment from Whole Body Counting Results; Estimates of Source Term from in-plant Monitoring Systems; Atmospheric Dispersion Modeling and Population Dose Assessment; and Development of Health Physics Sequence of Events.

Professional Society Membership

American Academy of Health Physics (President, 1995; Executive Committee, 1995-1997; Chair of Strategic Planning Committee, 1997; Professional Standards and Ethics Committee, 2001-2003)
Health Physics Society (Plenary Member; Publications Committee, 1999-2001; Chair of the Affilliates Committee, 2002-2004)
Baltimore-Washington Chapter, Health Physics Society (Treasurer, 1993-1994, Board of Directors, 1998-2000)
American Bar Association (Natural Resources, Energy, and Environmental Law)
Environmental Law Institute

Publications

Over 30 professional publications; over 40 oral presentations; over 100 technical reports; over 25 training courses taught.

Other Appointments/Awards

East Tennessee Chapter - Health Physics Society (President, 1986; President-Elect, 1985; Secretary, 1981-1982)

San Diego Chapter - Health Physics Society (Charter member)

American Board of Health Physics, Comprehensive Panel of Examiners, (1989-1993)

ASTM Task Group E-10.04.27 "Transuranic Wound Analysis"; (1986 to 1000)

ANSI Standards Committee (ANSI N13.41) on Multiple Badging; 1986 to 1996 (Chairman, PlanCo-59 Working Group, 1990 to 1996)

ANSI Standards Committee (ANSI N13.39) on Internal Dosimetry Programs (1994 to 2001)

Sigma Xi - Scientific Research Society

National Council on Radiation Protection and Measurements (NCRP) Scientific Committee 46-10, "Assessment of Occupational Exposures from Internal Emitters" (1989-present)

Purdue University, Health Sciences Advisory Council for the School of Health Sciences (1995-1998)

DOE/IAEA Whole Body Counter Intercalibration Committee (1980-1986)

Consultant to Knoxville Academy of Medicine, Mass Casualty Simulation (1984-1985)

Consultant to the National Cancer Institute to Evaluate Devices and Techniques to Determine Previous Radiation Exposure under Public Law 98-54 (Award for participation presented by Oak Ridge Associated Universities in April, 1988.)

Steering Committee Member, U. S. Department of Energy Task Group on the Education of Future Health Physicists (1989-1991)

Technical reviewer and referee for *Health Physics*, *Nuclear Technology*, and *Radiation Protection Management*

IT Corporation *Distinguished Technical Associate* - June, 1992.

Keith Balbuena

Project Assignment: **Project Supervisor**

Current Position: **Project Supervisor**
Years of Experience: **10Years**

Project Responsibilities:

- Responsible for all site operations. These responsibilities include the implementation of all plans, organization and deployment of resources and subcontractors, and communications with client's representative. Report project information to the Project Manager.
- Review proposal and bid forms to confirm work task narratives, schedule, and cost information are consistent with the Project Team's overall approach.
- Responsible for daily supervision and organization of labor, equipment, material, subcontractors, and other resources to accomplish assigned tasks in accordance to the plans and specifications. Inspect work constantly to ensure it is completed correctly. Operate in a manner which will achieve quality, cost, and schedule objectives.
- Assist in the implementation of the HASP and site safety programs. Conduct daily "toolbox" safety meetings with work group.
- Immediately report any unexpected conditions and unusual situations to the Project Manager.

Directly Relevant Project Experience:

Mr. Balbuena has over 10 years of environmental remediation experience including work in the industrial sector and nuclear power generation industry. Mr. Balbuena has worked in the environmental services industry for over 10 years and has held increasingly responsible positions on major projects. His experience includes site remediation, environmental construction, facility decontamination and demolition. Mr. Balbuena has served as a Project Supervisor and as a Foreman on sites which were impacted by contaminants such as mercury, asbestos, hydrocarbons, metals, solvents, and radioactive materials. He has managed multiple crews in major mercury decontamination projects involving the removal or cleanup of mercury contaminated equipment, debris, process systems and building structures. Related projects and responsibilities include:

- Project Supervisor for multiple projects at Niagara Mohawk's 9 Mile Point Nuclear Generation Facility, Oswego, New York. Projects ranged from spill response services and decontamination of support service equipment to cleaning condensers, heat exchange systems, and fire suppression systems.
- Project Foreman for the decontamination and removal of facility drain lines, concrete structures, subsurface soil and bedrock contaminated with radioactive cesium at the CBS Forest Hill, Pennsylvania site. AAA was contracted to excavate, remove and replace over 700 feet of 6-18 inch drain lines and 250 cubic yards of contaminated soil. The project included demolition of building structures over the excavation areas, removal of contaminated concrete, back fill and restoration of all affected areas.
- Project Supervisor for the Nicor residential mercury cleanups in several hundred homes in the Chicago area. Coordinated up to four 6-man decontamination crews and 20 site inspectors for the location, characterization and cleanup of mercury meter spills in residential homes. Performed all site scheduling, manpower planning and coordination with laboratories, subcontractors and client contacts.

- Foreman for the decontamination and demolition of the former Allied / LCP plant in Solvay, New York. Managed up to six 6-man crews during all interior decontamination and dismantlement operations. Primary contaminants of concern were metallic mercury and asbestos with extremely large quantities of mercury frequently encountered. Typical tasks included the decontamination of remaining equipment and building structures prior to demolition. All waste streams including the demolition debris were thoroughly screened for mercury and decontaminated where practical.
- Supervisor for the abatement and decontamination of a mercury instrumentation building at a Utica, New York process facility. Scope of work included asbestos abatement and mercury decontamination of a 20,000 ft^2 facility including all process lines, drain lines, vents, ducts and related process equipment.
- Foreman for utility shutdown work at Central Hudson Gas & Electric facility in Poughkeepsie, New York. Managed up to 12 men during 2nd shift shutdown cleaning of precipitators and related boiler process systems. Scope of work included industrial vacuuming of fly ash and power washing of the boiler systems to remove residual deposits.
- Project Supervisor for the asbestos abatement of insulation block around a boiler at the New York State Electric & Gas Milliken Station facility. Project included the preparation of the work area, abatement of boiler block insulation and disposal throughout a six week project.

Training and Certifications:

- OSHA 1910.120 40 Hour Training
- OSHA 1910.120 Supervisor Training
- Asbestos Supervisor Licenses, various states

Appendix B - Instrument Calibration Records

Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER INTEGRATED ENV MGMT ORDER NO. 277387/262523

Mfg. Bicron Model MICRO REM Serial No. B295W

Mfg. Model Serial No.

Cal. Date 24-Jul-02 Cal Due Date 24-Jul-03 Cal. Interval 1 Year Meterface 0-200 µrem

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 73 °F RH 38 % Alt 704.8 mm Hg

☐ New Instrument Instrument Received ☐ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☑ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☐ F/S Resp. ck ☑ Reset ck. ☐ Window Operation ☐ Geotropism
☐ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) _____ VDC

☐ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☑ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set _____ V Input Sens. _____ mV Det. Oper. _____ V at _____ mV Threshold Dial Ratio _____ = _____ mV

☐ HV Readout (2 points) Ref./Inst. _____ / _____ V Ref./Inst. _____ / _____ V

COMMENTS:
No "As Found Reading" due to no gas in tube.

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
x 1000	150 mR/hr	"	145 mR/hr
x 1000	50 mR/hr	"	55 "
x 100	15 mR/hr	"	150 "
x 100	5 mR/hr	"	55 "
x 10	1500 µR/hr	N/A	150 µR/hr
x 10	500 µR/hr	"	55 "
x 1	150 µR/hr	"	150 "
x 1	100 µR/hr	"	100 "
x0.1	15 µR/hr	"	150 "
x0.1			

*Uncertainty within ± 10% C.F. within ± 20%

Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout				Log Scale			

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☑ G112 ☑ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☑ E551 ☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N ☐ Beta S/N ☑ Other Cs-137 ~201 µCi

n 500 S/N ☐ Oscilloscope S/N ☐ Multimeter S/N

Calibrated By: Domingo Ramos Date 24 Jul 02

Reviewed By: Rhonda Hamm Date 26 Jul 02

This certificate shall not be reproduced except in full, without the written approval of Ludlum Measurements, Inc.
FORM C22A 10/31/2001

AC Inst. Only ☐ Passed Dielectric (Hi-Pot) and Continuity Test ☐ Failed:

Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER INTEGRATED ENV MGMT TN ORDER NO. 278702/263193

M Ludlum Measurements, Inc. Model 2224 Serial No. 146718

Mfg. Ludlum Measurements, Inc. Model 43-89 Serial No. PR 146748

Cal. Date 23-Apr-02 Cal Due Date 23-Apr-03 Cal. Interval 1 Year Meterface 202-783

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 75 °F RH 42 % Alt 699.8 mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☑ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC
☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 600 V Input Sens. Comments mV Det. Oper. 600 V at Comments mV Threshold Dial Ratio = mV

☑ HV Readout (2 points) Ref./Inst. 523 / 500 V Ref./Inst. 1505 / 1500 V

COMMENTS:

Firmware: 390063
Alpha Threshold: 120 mV
Beta Threshold: 3.5 mV
Beta Window: 30 mV
Hv set with detector disconnected.

cl set to simmulated light leak

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X1000	400 K cpm	400	400
X1000	100 K cpm	100	100
X100	40 K cpm	400	400
X100	10 K cpm	100	100
X10	4 K cpm	400	400
X10	1 K cpm	100	100
X1	400cpm	400	400
X1	100cpm	100	100

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout	400 K cpm	400874	400874	Log Scale			
	40 K cpm	40002	40002				
	4 K cpm	4001	4001				
	400 cpm	400	400				
	40 cpm	40	40				

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ Neutron Am-241 Be S/N T-304

☑ Alpha S/N Pu-239 2928-01 ☑ Beta S/N Tc-99 NI-EV SrY-90 4016 ☐ Other

m 500 S/N 132899 ☐ Oscilloscope S/N ☑ Multimeter S/N 75460209

Calibrated By: Domingo Marrero Date 23 Apr 02

Reviewed By: Rhonda Harris Date 25 Apr 02

This certificate shall not be reproduced except in full, without the written approval of Ludlum Measurements, Inc.
FORM C22A 10/31/2001

AC Inst. Only ☐ Passed Dielectric (Hi-Pot) and Continuity Test ☐ Failed:

Designer and Manufacturer
of
Scientific and Industrial
Instruments

POST OFFICE BOX 810 TEL. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 43-89 Serial No. PR 146748

Order #. 278702/263193

Customer INTEGRATED ENV MGMT TN

Alpha Input Sensitivity 120 mV

Counter 2224 Serial No. 146718

Beta Input Sensitivity 3.5 mV

Count Time 1 Minute

Beta Window 30 mV

Other

Distance Source to Detector Surface

High Voltage	Background Alpha	Background Beta	Isotope Pu-239 Size 12.6kCPM Alpha	Isotope Pu-239 Size 12.6kCPM Beta	Isotope Tc-99 Size 14.1kCPM Alpha	Isotope Tc-99 Size 14.1kCPM Beta	Isotope Sr Y-90 Size 45446CPM Alpha	Isotope Sr Y-90 Size 45446CPM Beta
575	2	194	4359	326	1	1804	0	10440
600	1	255	4763	463	2	2900	1	14576
625	0	347	4864	605	2	4119	0	18150

☐ Gas Proportional detector count rate decreased ≤ 10% after 15 hour static test using 39" cable.

☐ Gas proportional detector count rate decreased ≤ 10% after 5 hour static test using 39" cable and alpha/beta counter.

Signature Domingo Garza

Date 23 Apr 02

FORM C4B 12/09/97

Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER INTEGRATED ENV MGMT TN ORDER NO. 278702/263193

Ludlum Measurements, Inc. Model 2241 Serial No. 119737

Mfg. Ludlum Measurements, Inc. Model 44-10 Serial No. PR151705

Cal. Date 24-Apr-02 Cal Due Date 24-Apr-03 Cal. Interval 1 Year Meterface 44-10

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 75 °F RH 42 % Alt 699.8 mm Hg

☐ New Instrument Instrument Received ☐ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☑ Other-See comments

☑ Mechanical ck. ☐ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☐ Window Operation
☑ Audio ck. ☑ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC
☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☑ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 1200 V Input Sens. 35 mV Det. Oper. 1200 V at 35 mV Threshold Dial Ratio = mV

COMMENTS:

	Det.1 R/hr	Det.2 CPM
Deadtime:	6 µSec	6 µSec
Cal Constant:	527e+08	100e-02
Alert:	20 µR/hr	20 kcpm
Alarm:	50 µR/hr	50 kcpm
Firmware:	P-04 05	

Overload checked but not set.
Currently set to det 1.
No "As Found Reading" due to shattered crystal.

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
auto	2.0 mR/hr	"	1.89 mR/hr
auto	1.5 mR/hr	"	1.46 "
	1.0 mR/hr	"	1.04 "
	500 µR/hr	N/A	501 µR/hr
	200 µR/hr	"	201 "
	250 µR/hr	"	~~249~~ 249 "
	150 µR/hr	"	150 "
	100 µR/hr	"	150 "
			108 "

*Uncertainty within ± 10% C.F. within ± 20% Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Ratemeter Readout	800K cpm	800 kCPM	800kCPM
	200K cpm	200 "	200 "
	80K cpm	80 "	80 "
	20K cpm	20 "	20 "
	8K cpm	8.00 "	8.00 "
	2K cpm	2.00 "	2.00 "
	800 cpm	800 CPM	800CPM
	200 cpm	200 "	200 "

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Scaler Readout	800K cpm	80021(0)	80021(0)
	200K cpm	20053 "	20053 "
	80K cpm	8006 "	8006 "
	20K cpm	2007 "	2007 "
	8K cpm	800 "	800 "
	2K cpm	200 "	200 "
	800 cpm	80 "	80 "
	200 cpm	20 "	20 "

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978. State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☑ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☑ E551 ☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N ☐ Beta S/N ☑ Other Am-241 ~0.77 µCi

n 500 S/N 132899 ☐ Oscilloscope S/N ☑ Multimeter S/N 75460209

Calibrated By: Domingo Baeza Date 24 Apr 02

Reviewed By: Rhonda Harris Date 24 Apr 02

FORM C22E 12/28/2000

This certificate shall not be reproduced except in full, without the written approval of Ludlum Measurements, Inc.

Designer and Manufacturer
of
Scientific and Industrial
Instruments

POST OFFICE BOX 810 TEL. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 44-10 Serial No. PR151705

Customer INTEGRATED ENV MGMT TN Order #. 278702/263193

Counter 2241 Serial No. 119737 Counter Input Sensitivity 35 mV

Count Time 6 sec Distance Source to Detector Surface

Other

High Voltage	Background	Isotope Am-241 Size ~0.77μC	Isotope Size	Isotope Size	Isotope Size
900	604	11538			
950	605	13086			
1000	593	13395			
1050	620	13317			
1100	656	13563			
1150	654	13680			
1200	698	13875			
1250	611	13778			
1300	622	13918			
1350	732	13811			
1400	834	13978			
1450	1207	14799			

Signature Domingo Marquez Date 24 Apr 06

FORM C4A 02/23/94

Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER INTEGRATED ENV MGMT ORDER NO. 275899/261793

Mfg Ludlum Measurements, Inc. Model 12 Serial No. 143593

Mfg. Ludlum Measurements, Inc. Model 44-9 Serial No. PR 151746

Cal. Date 20-Feb-02 Cal Due Date 20-Feb-03 Cal. Interval 1 Year Meterface 202-356

heck mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 72 °F RH 20 % Alt 702.8 mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☐ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC
☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

strument Volt Set 900 V Input Sens. 35 mV Det. Oper. 900 V at 35 mV Threshold Dial Ratio = mV

☑ HV Readout (2 points) Ref./Inst. 501 / 500 V Ref./Inst. 2006 / 2000 V

COMMENTS:
nstrument calibrated using a ~~6' cable~~ 5ft. cable.

mma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 1000	400 K cpm	400	400
X 1000	100 K cpm	100	100
X 100	40 K cpm	400	400
X 100	10 K cpm	100	100
X 10	4 K cpm	400	400
X 10	1 K cpm	100	100
X 1	400 cpm	400	400
X 1	100 cpm	100	100

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
gital eadout				Log Scale			

dlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of her International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. e calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☑ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☑ E551 ☐ Neutron Am-241 Be S/N T-304

☐ pha S/N ☐ Beta S/N ☐ Other

☑ m 500 S/N 70648 ☐ Oscilloscope S/N ☑ Multimeter S/N 61730074

Calibrated By: Lori Martin Date 20-Feb-02

Reviewed By: Rhonda Harris Date 21 Feb 02

This certificate shall not be reproduced except in full, without the written approval of Ludlum Measurements, Inc.

AC Inst. ☐ Passed Dielectric (Hi-Pot) and Continuity Test

of
Scientific and Industrial
Instruments

POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CONVERSION CHART

Customer INTEGRATED ENV MGMT Date 20-Feb-02 Order #. 275899/261793

Model 12 Serial No. 143593 Detector Model 44-9 Serial No. PR151746

Source Cs-137 194.6 mCi Cs-137 20 mCi High Voltage 900 V

Input Sensitivity 35 mV

	"As Found" Readings (CPM):		After Adjustment Readings (CPM):	
Reference Point	Meter Reading	Range/Scale	Meter Reading	Range/Scale
150 mR/hr	320	X1000	320	X1000
50 mR/hr	140	"	140	"
15 mR/hr	465	X100	465	X100
5 mR/hr	170	"	170	"
1.5 mR/hr	450	X10	450	X10
1.0 mR/hr	300	"	300	"

ture: Lori Martin Date 20-Feb-02

Duratek

CALIBRATION CERTIFICATE

Duratek Instrument Services
628 Gallaher Road
Kingston, TN 37763
Phone: (865) 376-8337
Fax: (865) 376-8331

This Certificate will be accompanied by Calibration Charts or Readings where applicable

CUSTOMER INFORMATION		INSTRUMENT INFORMATION	
Customer Name: Duratek Instrument Services		Manufacturer: Ludlum	
Address: 628 Gallaher Road, Kingston, TN 37763		Model: 12	Serial Number: 91033
Contact Name: Thomas Scott		Probe: 44-2	Serial Number: 129770
Contract/Task Number: N/A	Work Order Number: 2002-01419	Calibration Method: Electronic and Source	

INSTRUMENT CALIBRATION INFORMATION

Instrument Range	Calibration Standard Value	Instrument Response		Comments	
		Before Calibration	After Calibration	Calibrated in accordance with RP-INS-1-223	
X 1	100	100	100	Pulser: 101500	Cal Due: 09/11/03
X 1	250	250	250	DVM: TW12663	Cal Due: 03/18/03
X 1	400	390	390	D-814: 2525	Cal Due: 02/18/03
X 10	1,000	1,000	1,000	Psychron: 7480	Cal Due: 05/17/03
X 10	2,500	2,500	2,500		
X 10	4,000	3,850	3,850	Temperature: 25.7°C	
X 100	10,000	10,000	10,000	Pressure: 743mmHg	
X 100	25,000	25,000	25,000	Humidity: 46%	
X 100	40,000	39,000	39,000		
X 1000	100,000	100,000	100,000	Audio: SAT	Batt. Check: SAT
X 1000	250,000	245,000	250,000	Fast/Slow: SAT	Reset: SAT
X 1000	400,000	380,000	385,000	HV Pushbutton: SAT	Linearity Test: SAT
				Overange: SAT	Threshold: 10mV
High Voltage	N/A	630V	800V		

COMMENTS

Background= 3,800CPM Exposure to 200uR/hr= 70,000cpm (331 cpm/uR/hr)
Special Remarks on 44-2#129770: 331 cpm/uR/hr at 800 Volts 10mV Threshold

STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology. (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated By: Mike Paul	Reviewed By: Thomas G Scott	Date: 12-17-02
Calibration Date: 12/17/02	Calibration Due: 06/17/03	

BACKGROUND PLATEAU 44-2#129770 5FT CABLE 12/17/02

500	54
550	258
600	663
650	881
700	921
750	937
800	973
850	921
900	975
950	952
1000	1204
1050	1671
1100	3123
1150	5297

SOURCE PLATEAU CS-137#019456

500	8131
550	14775
600	18071
650	19226
700	20721
750	20997
800	20915
850	20689
900	21027
950	21978
1000	25065

Thomas F. Scott

12-16-02

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER INTEGRATED ENV MGMNT ORDER NO. 279801/263780

Mfg. Ludlum Measurements, Inc. Model 2241 Serial No. 143562

M Ludlum Measurements, Inc. Model 44-10 Serial No. PR151704

Cal. Date 20-May-02 Cal Due Date 20-May-03 Cal. Interval 1 Year Meterface 44-10

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 72 °F RH 20 % Alt 705.8 mm Hg

☐ New Instrument Instrument Received ☐ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☑ Other-See comments

☑ Mechanical ck. ☐ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☐ Window Operation
☑ Audio ck. ☑ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC
☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☑ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 1000 V Input Sens. 10 mV Det. Oper. 1000 V at 10 mV Threshold Dial Ratio = mV

COMMENTS:

	Det. 1(R/hr)	Det. 2(cpm)
Deadtime:	6µSec.	6µSec.
Cal Constant:	525e08	100e-02
Ratemeter Alert:	20µsec	20kcpm
Ratemeter Alarm:	50µsec	50kcpm
Scaler Alarm:	85Kcpm	85Kcpm
Scaler Count Time:	12sec	6sec

Firmware: P-04-05

~~Overload checked but not set~~ JK Overload set @ 20 mR/hr

Instrument currently set to Det. 2(cpm)

No "as founds" instrument was not set up for exposure.

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
digital	2.0 mR/hr	NA	1.89 R/hr
digital	1.5 mR/hr		1.45
	1.0 mR/hr		1.01
	500 µR/hr		502 µR/hr
	200 µR/hr		202
	150 µR/hr		150
	100 µR/hr		105

*Uncertainty within ± 10% C.F. within ± 20% Range(s) Calibrated Electronically

Ratemeter Readout	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
	800K cpm	800	800
	200K cpm	199	199
	80K cpm	80	80
	20K cpm	19.9	19.9
	8K cpm	8.0	8.0
	2K cpm	2.0	2.0
	800 cpm	0.80	0.80
	200 cpm	0.20	0.20

Scaler Readout	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
	800K cpm	79968 (0)	79968 (0)
	200K cpm	19968	19968
	80K cpm	7997	7997
	20K cpm	1997	1997
	8K cpm	800	800
	2K cpm	199	199
	800 cpm	80	80
	200 cpm	20	20

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of their International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978. State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☑ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☑ E551 ☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N ☐ Beta S/N ☐ Other

☑ m 500 S/N 57885 ☐ Oscilloscope S/N ☑ Multimeter S/N 71300353

Calibrated By: Jerry Fuqua Date 20-MAY-02

Reviewed By: Thomas Harris Date 21 May 02

FORM C22E 12/28/2000

This certificate shall not be reproduced except in full, without the written approval of Ludlum Measurements, Inc.

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 44-10 Serial No. PR151704

Customer INTEGRATED ENV MGMT Order #. 279801/263780

Counter 2241 Serial No. 143562 Counter Input Sensitivity 10 mV

Count Time 6 sec Distance Source to Detector surface

Other

High Voltage	Background	Isotope Am 241 Size ≈0.77μC	Isotope Size	Isotope Size	Isotope Size
900	645	10533			
950	640	12045			
1000	655	12299			
1050	662	12471			
1100	1925	12864			

Signature Jeremy Zugna Date 20-MAY-02

FORM C4A 02/23/94

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER INTEGRATED ENV MGMT ORDER NO. 292251/269924

Mfr Ludlum Measurements, Inc. Model 2224 Serial No. 116239

M. Ludlum Measurements, Inc. Model 43-89 Serial No. PR120411

Cal. Date 11-Feb-03 Cal Due Date 11-Feb-04 Cal. Interval 1 Year Meterface 202-694

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 73 °F RH 20 % Alt 703.8 mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☑ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC

☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 600 V Input Sens. Comment mV Det. Oper. 600 V at Comment mV Threshold Dial Ratio = mV

☑ HV Readout (2 points) Ref./Inst. 500 / 500 V Ref./Inst. ~~1500~~ 1500 / 1500 V

COMMENTS:

ALPHA SENS. 120mV
BETA SENS. 3.5mV
BETA WIN. 30mV

Firmware: 390063
OL set to simulate light leak

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X1000	400 K cpm	400	400
X1000	100 K cpm	100	100
X100	40 K cpm	400	400
X100	10 K cpm	100	100
X10	4 K cpm	400	400
X10	1 K cpm	100	100
X1	400cpm	400	400
X1	100 cpm	100	100

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout	400 K cpm	400014	400014	Log Scale			
	40 K cpm	40004	40004				
	4 K cpm	3981	3981				
	400 cpm	401	401				
	40 cpm	40	40				

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ Neutron Am-241 Be S/N T-304

☑ Alpha S/N Pu239 8744 ☑ Beta S/N SrY90 4016, Tc99 NI-EV ☐ Other

☐ 500 S/N 57885 ☐ Oscilloscope S/N ☑ Multimeter S/N 71300353

Calibrated By: Jeremy Ferguson Date 11-Feb-03

Reviewed By: Rhonda Harris Date 13 Feb 03

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 43-89 Serial No. PR 120411 Order #. 292251/269924

Customer INTEGRATED ENV MGMT Alpha Input Sensitivity 120 mV

Counter 2224 Serial No. 116239 Beta Input Sensitivity 3.5 mV

Count Time 1Minute Beta Window 30 mV

Other Distance Source to Detector Surface

High Voltage	Background		Isotope Sr Y 90 Size 44896 cpm		Isotope Tc 99 Size 14.1 kcpm		Isotope Pu 239 Size 186 kcpm	
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta
575	0	87	1	10357	1	1588	53337	3778
600	0	161	1	14791	4	2876	64628	4888
625	0	404	3	16999	4	3693	70770	12536

☐ Gas Proportional detector count rate decreased ≤ 10% after 15 hour static test using 39" cable.

☐ Gas proportional detector count rate decreased ≤ 10% after 5 hour static test using 39" cable and alpha/beta counter.

Signature Jerry Zuzga Date 11-Feb-03

FORM C4B 12/09/97

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER INTEGRATED ENV MGMT ORDER NO. 200609/274033

Mfr Ludlum Measurements, Inc. Model 19 Serial No. 182648

M. Model Serial No.

Cal. Date 31-Jul-03 Cal Due Date 31-Jul-04 Cal. Interval 1 Year Meterface 202-016

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 72 °F RH 38 % Alt 705.8 mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☐ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC

☐ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☑ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 600 V Input Sens. 36 mV Det. Oper. V at mV Threshold Dial Ratio = mV

☐ HV Readout (2 points) Ref./Inst. / V Ref./Inst. / V

COMMENTS:

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
5000	4000 µR/hr	4000	4000
5000	1000 µR/hr	1000	1000
500	400 µR/hr = 69500 cpm	380	380
500	100 µR/hr	100	100
250	200 µR/hr = ~~6955~~ 34500 cpm	180	200
250	100 µR/hr	100	100
50	6950 cpm	38	40
50	1730 cpm	10	10
25	3450 cpm	19	20
25	862 cpm	5	5

*Uncertainty within ± 10% C.F. within ± 20% 50, 25 Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout				Log Scale			

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☑ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N ☐ Beta S/N ☐ Other

500 S/N 81084 ☐ Oscilloscope S/N ☑ Multimeter S/N 80040300

Calibrated By: Michael J Thomas Date 31-July-03

Reviewed By: J J Robin Date 31 July 03

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER INTEGRATED ENV MGMT TN ORDER NO. 278702/263193

Mfg. Ludlum Measurements, Inc. Model 2224 Serial No. 119791

Mfg. Ludlum Measurements, Inc. Model 43-89 Serial No. PR 132118

Cal. Date 23-Apr-02 Cal Due Date 23-Apr-03 Cal. Interval 1 Year Meterface 202-783

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 75 °F RH 42 % Alt 699.8 mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☑ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC
☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 800 V Input Sens. Comments mV Det. Oper. 800 V at Comments mV Threshold Dial Ratio = m'

☑ HV Readout (2 points) Ref./Inst. 500 / 500 V Ref./Inst. 1500 / 1500 V

COMMENTS:

Firmware: 390063
Alpha Threshold: 120 mV
Beta Threshold: 3.5 mV
Beta Window: 30 mV
Hv set with detector disconnected.

DI set to simulated light load.

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X1000	400 K cpm	400	400
X1000	100 K cpm	100	100
X100	40 K cpm	400	400
X100	10 K cpm	100	100
X10	4 K cpm	400	400
X10	1 K cpm	100	100
X1	400cpm	400	400
X1	100cpm	100	100

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout	400 K cpm	400975	400975	Log Scale			
	40 K cpm	40012	40012				
	4 K cpm	4000	4000				
	400 cpm	400	400				
	40 cpm	40	40				

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ Neutron Am-241 Be S/N T-304

☑ Alpha S/N Pu-239 2928-01 ☑ Beta S/N Tc-99 NI-EV SrY-90 4016 ☐ Other

m 500 S/N 132899 ☐ Oscilloscope S/N ☑ Multimeter S/N 75460209

Calibrated By: Domingo Barrio Date 23 Apr 02

Reviewed By: Rhonda Harris Date 25 Apr 02

This certificate shall not be reproduced except in full, without the written approval of Ludlum Measurements, Inc. ☐ AC Inst. ☐ Passed Dielectric (Hi-Pot) and Continuity Test

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 43-89 Serial No. PR132118

Order #. 278702/263193

Customer INTEGRATED ENV MGMT TN

Alpha Input Sensitivity 120 mV

Counter 2224 Serial No. 119791

Beta Input Sensitivity 3.5 mV

Count Time 1Minute

Beta Window 30 mV

Other

Distance Source to Detector Surface

High Voltage	Background		Isotope Pu-239 Size 12.6 KCPM		Isotope Tc-99 Size 14.1 KCPM		Isotope Sr Y-90 Size 45.946 CPM	
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta
750	0	86	4410	233	2	2251	0	13340
775	1	149	4570	283	2	2936	3	16156
800	0	166	4862	299	1	3789	1	18377
825	0	242	4933	385	0	4494	3	19740
850	0	306	5014	496	1	4878	5	19889

☐ Gas Proportional detector count rate decreased ≤ 10% after 15 hour static test using 39" cable.

☐ Gas proportional detector count rate decreased ≤ 10% after 5 hour static test using 39" cable and alpha/beta counter.

Signature Domingo Barrera Date 23 Jan 02

FORM C4B 12/09/97

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER INTEGRATED ENV MGMT TN ORDER NO. 295510/271519

Mfr Ludlum Measurements, Inc. Model 2241 Serial No. 114535

Mfg Ludlum Measurements, Inc. Model 44-10 Serial No. PR 132520

Cal. Date 16-Apr-03 Cal Due Date 16-Apr-04 Cal. Interval 1 Year Meterface 44-10

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 78 °F RH 38 % Alt 700.8 mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☐ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☐ Window Operation
☑ Audio ck. ☑ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC

☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 1000 V Input Sens. 10 mV Det. Oper. 1000 V at 10 mV Threshold Dial Ratio = mV

COMMENTS:

	Det 1.	Det 2.
Lead time:	0 usec	6 u Sec
Dial const:	100-2	5240 8
Rate meter alert:	20 kc/m	20 uR/hr
Rate meter alarm:	50 kc/m	50 uR/hr

Firmware version: P04 05

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
digital	2.0 mR/hr		1.98 mR/hr
digital	1.5 "		1.53 "
	1.0 "		1.05 "
	500 µR/hr	N/A	516 µR/hr
	200 "		204 "
	150 "		152 "
	100 "		104 "

*Uncertainty within ± 10% C.F. within ± 20% All Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Rate meter Readout	800K cpm	796 kc/m	796 kc/m
	200K cpm	199	199
	80K cpm	79.6	79.6
	20K cpm	19.8	19.8
	8K cpm	7.92	7.92
	2K cpm	1.97	1.97
	800 cpm	0.78	0.78
	200 cpm	0.20	0.20

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Scaler Readout	800K cpm	79614(0)	79614(0)
	200K cpm	19871(0)	19871(0)
	80K cpm	7951(0)	7951(0)
	20K cpm	1998(0)	1998(0)
	8K cpm	796(0)	796(0)
	2K cpm	198(0)	198(0)
	800 cpm	80(0)	80(0)
	200 cpm	20(0)	20(0)

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978. State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N ☐ Beta S/N ☐ Other

☑ 500 S/N 81084 ☐ Oscilloscope S/N ☑ Multimeter S/N 80040300

Calibrated By: Michael J Thomas Date 16-April-03

Reviewed By: Rhonda Harris Date 26 Apr 03

This certificate shall not be reproduced except in full, without the written approval of Ludlum Measurements, Inc.

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 44-10 Serial No. PR 132520

Customer INTEGRATED ENV MGMT TN Order #. 295510/271519

Counter 2241 Serial No. 114535 Counter Input Sensitivity 10 mV

Count Time 6 sec Distance Source to Detector Surface

Other

High Voltage	Background	Isotope Am 241 Size ≈0.77uci	Isotope Size	Isotope Size	Isotope Size
750	5180	7324			
800	5890	10909			
850	6500	12131			
900	7630	12297			
950	6720	12267			
→ 1000	7470	12344			
1050	7140	12368			
1100	7800	12556			
1150	8050	12399			
1200	1024	12951			

Signature Michael J Thomas Date 16-April-03

FORM C4A 04/09/2003

Appendix C - Radiation Survey Instrument Response

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
EXPOSURE RATE SURVEY INSTRUMENT DATA SHEET

Project No.	Detector		Meter		
2002020.01					
Site Location/Background Location:	**Type:**	**Serial No.**	**Type:**	**Serial No:**	**Operating Voltage:**
Former UNC Facility New Haven, CT	Ludlum 44-10	151705	Ludlum 2241	119737	SAT

Check Source Number	Radionuclide:	Calibration Activity and Date:
0316	Cs-137	1 μC:

Date	Units	Start of Shift Background				End of Shift Background				Daily Response (μR/hr)	Initials
		1	2	3	Avg.	1	2	3	Ave.		
2/3/03	uR/hr	6.8	7.1	6.9	6.9	7.0	6.8	7.2	7.0	298	[illegible]
2/4/03		6.2	6.4	6.4	6.3	6.4	6.2	6.3	6.3	305	[illegible]
2/5/03		6.2	6.0	6.2	6.1	5.8	6.2	6.1	6.0	307	[illegible]
2/6/03		5.8	6.1	6.0	6.0	6.2	6.0	6.0	6.1	302	[illegible]
2/10/03		6.0	6.1	6.1	6.1	6.2	6.1	6.1	6.1	305	[illegible]
2/11/03		6.1	5.9	6.0	6.0	6.3	6.0	6.1	6.1	301	[illegible]
2/12/03		6.0	6.1	6.1	6.1	6.2	6.0	6.0	6.1	310	[illegible]
2/13/03		6.1	6.1	6.0	6.1	6.4	6.3	6.0	6.2	303	[illegible]
2/14/03		6.3	6.1	6.2	6.2	6.3	6.1	6.1	6.2	305	[illegible]

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
EXPOSURE RATE SURVEY INSTRUMENT DATA SHEET

Project No.	Detector		Meter		
2002020.01					
Site Location/Background Location: Former UNC Facility New Haven, CT	**Type:** N/A	**Serial No.** N/A	**Type:** Bicron Microrem	**Serial No:** B295W	**Operating Voltage:** SAT

Check Source Number	Radionuclide:	Calibration Activity and Date:
0316	Cs-137	1uC:

Date	Units	Start of Shift Background				End of Shift Background				Daily Response (µR/hr) rem	Initials
		1	2	3	Avg.	1	2	3	Ave.		
2/3/03	urem	3	4	4	4	4	4	4	4	550	[illegible]
2/4/03	↓	4	4	4	4	3	4	4	4	550	[illegible]
2/5/03	↓	3	3	3	3	4	3	3	3	550	[illegible]
2/10/03	↓	4	3	4	4	4	4	4	4	550	[illegible]
2/11/03	↓	4	4	4	4	4	3	4	4	550	[illegible]
2/12/03	↓	4	3	4	4	4	4	4	4	550	[illegible]
2/13/03	↓	4	3	3	3	4	3	4	4	550	[illegible]
2/14/03	↓	3	4	4	4	4	4	4	4	550	[illegible]

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
EXPOSURE RATE SURVEY INSTRUMENT DATA SHEET

roject No. 2002020.01	Detector		Meter		
Site Location/Background Location: Former UNC Facility New Haven, CT	Type: Ludlum 44-2	Serial No. 129770	Type: Ludlum Model 12	Serial No: 91033	Operating Voltage: 0.8kV

Check Source Number	Radionuclide:	Calibration Activity and Date:
0316	Cs-137	1uC:

Date	Units	Start of Shift Background				End of Shift Background				Daily Response (µR/hr) cpm	Initials
		1	2	3	Avg.	1	2	3	Ave.		
2/11/03	cpm	1000	1000	800	833	1000	1100	900	1000	70,000	[illegible]
2/12/03	cpm	1000	1000	1000	1000	1000	900	1000	967	70,000	[illegible]
2/13/03	cpm	1000	1000	1000	1000	1000	1000	1000	1000	70,000	[illegible]
2/14/03	cpm	1000	1000	1000	1000	1000	1000	1000	1000	70,000	[illegible]

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
CONTAMINATION SURVEY INSTRUMENT DATA SHEET

Project No: 2002020.01	Detector			Meter		
Site Location/Background Location: Former UNC Facility, New Haven, CT	Type: Ludlum Model 43-89	Serial No. 146748	Probe Area (cm²) 100	Type: Ludlum Model 2224	Serial No: 146718	Operating Voltage: SAT
Check Source No: 2401-98	Check Source No:			Check Source No:		
Radionuclide: Th-230 / Activity: 20,100 dpm / Date: 8/6/98	Radionuclide:	Activity:	Date:	Radionuclide:	Activity:	Date:

Date	Start of Shift Background (cpm for a ___ minute count)								End of Shift Background (cpm for a ___ minute count)								Daily Source Check (α)		Daily Source Check (β)		MDA** - Scaler Mode (dpm)		Bat. OK	HV OK	Initials
	Alpha				Beta				Alpha				Beta				Source (cpm)	Eff.	Source (cpm)	Eff.	α	β			
	1	2	3	Av.	1	2	3	Av.	1	2	3	Av.	1	2	3	Av.									
2/3/03	6	8	7	7	←	N/A		→	6	8	8	7	←	N/A		→	3868	19.2%	N/A	N/A	78.2	N/A	✓	✓	PO
2/4/03	7	7	6	7	←	N/A		→	5	7	7	6	←	N/A		→	3851	19.2%	N/A	N/A	78.2	N/A	✓	✓	PO
2/5/03	6	7	7	7	←	N/A		→	6	7	8	7	←	N/A		→	3872	19.3%	N/A	N/A	77.8	N/A	✓	✓	PO

** $MDA = \frac{2.71 + 4.65\sqrt{BKG_{avg} \times t}}{t \times E \times \frac{A}{100}}$

where MDA = the activity level (dpm/100 cm²), BKG_{avg} = the background count rate for this measurement type (cpm), t = the measurement duration (min), E = instrument efficiency, and A = probe area (cm²).

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
CONTAMINATION SURVEY INSTRUMENT DATA SHEET

Project No: 2002020.01	Detector			Meter		
Site Location/Background Location: Former UNC Facility, New Haven, CT	Type: Ludlum 44-9	Serial No. 151746	Probe Area (cm²)	Type: Ludlum Model 12	Serial No: 143593	Operating Voltage: SAT
Check Source No: 2399-98	Check Source No:			Check Source No:		
Radionuclide: Tc-99 / Activity: 20,000 dpm / Date: 8/10/98	Radionuclide:	Activity:	Date:	Radionuclide:	Activity:	Date:

Date	Start of Shift Background (cpm for a N/A minute count)								End of Shift Background (cpm for a N/A minute count)								Daily Source Check (α)		Daily Source Check (β)		MDA** - Scaler Mode (dpm)		Bat. OK	HV OK	Initials
	Alpha				Beta				Alpha				Beta				Source (cpm)	Eff.	Source (cpm)	Eff.	α	β			
	1	2	3	Av.	1	2	3	Av.	1	2	3	Av.	1	2	3	Av.									
2/3/03	← N/A →				30 ~~27~~	30	30	30	← N/A →				30	40	50	40	N/A	N/A	2500	12.5%	N/A	N/A	✓	✓	[illegible]
2/4/03	← N/A →				30	50	30	37	← N/A →				30	30	30	30	N/A	N/A	2500	12.5%	N/A	N/A	✓	✓	[illegible]
2/5/03	← N/A →				30	30	30	[illegible]	← N/A →				30	30	30	30	N/A	N/A	2500	12.5%	N/A	N/A	✓	✓	[illegible]
2/6/03	← N/A →				30	30	30	30	← N/A →				30	40	30	30	N/A	N/A	2500	12%	N/A	N/A	✓	✓	[illegible]
2/10/03	← N/A →				30	30	30	30	← N/A →				30	30	30	30	N/A	N/A	2500	12.5%	N/A	N/A	✓	✓	[illegible]
2/11/03	← N/A →				30	30	30	30	← N/A →				30	30	30	30	N/A	N/A	2500	12.5%	N/A	N/A	✓	✓	[illegible]
2/12/03	← N/A →				30	30	30	30	← N/A →				30	30	30	30	N/A	N/A	2500	12.5%	N/A	N/A	✓	✓	[illegible]
2/13/03	← N/A →				30	30	30	30	← N/A →				30	30	30	30	N/A	N/A	2500	12.5%	N/A	N/A	✓	✓	[illegible]
2/14/03	← N/A →				30	40	30	33	← N/A →				30	30	30	30	N/A	N/A	2500	12.5	N/A	N/A	✓	✓	[illegible]

** $MDA = \frac{2.71 + 4.65\sqrt{BKG_{avg} \times t}}{t \times E \times \frac{A}{100}}$

where MDA = the activity level (dpm/100 cm²), BKG_{avg} = the background count rate for this measurement type (cpm), t = the measurement duration (min), E = instrument efficiency, and A = probe area (cm²).

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONME .AL MANAGEMENT, INC.
CONTAMINATION SURVEY INSTRUMENT DATA SHEET

Project No: 2002020.01	Detector			Meter		
Site Location/Background Location: Former UNC Facility, New Haven, CT, Adjacent to waste pile	Type: Ludlum Model 43-89	Serial No. 132118	Probe Area (cm²) 100	Type: Ludlum Model 2224	Serial No: 119791	Operating Voltage: 0.8kV
Check Source No: 539-17-1	Check Source No:			Check Source No:		
Radionuclide: Sr-90 / Activity: 96.15 nC. / Date: 6/15/96	Radionuclide:	Activity:	Date:	Radionuclide:	Activity:	Date:

Date	Start of Shift Background (cpm for a 1 minute count)								End of Shift Background (cpm for a 1 minute count)								Daily Source Check (α)		Daily Source Check (β)		MDA** - Scaler Mode (dpm)		Bat. OK	HV OK	Initials
	Alpha				Beta				Alpha				Beta				Source (cpm)	Eff.	Source (cpm)	Eff.	α	β			
	1	2	3	Av.	1	2	3	Av.	1	2	3	Av.	1	2	3	Av.									
3/17/03	← N/A →				187	203	192	194	← N/A →				194	187	198	193	N/A	N/A	102,016	16%	N/A	421.7	✓	✓	BO

** $MDA = \frac{2.71 + 4.65\sqrt{BKG_{avg} \times t}}{t \times E \times \frac{A}{100}}$

$$MDA = \frac{2.71 + 4.65\sqrt{194 \times 1}}{1 \times .16 \times 100/100} = 421.7 dpm$$

where MDA = the activity level (dpm/100 cm²), BKG_{avg} = the background count rate for this measurement type (cpm), t = the measurement duration (min), E = instrument efficiency, and A = probe area (cm²).

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
CONTAMINATION SURVEY INSTRUMENT DATA SHEET

Project No: 2002020.01			Detector			Meter		
Site Location/Background Location: Former UNC facility, New Haven, CT			Type: Ludlum Model 43-89	Serial No. 120411	Probe Area (cm²) 100	Type: Ludlum Model 2224	Serial No: 116239	Operating Voltage: SAT
Check Source No: 2401-98			Check Source No:			Check Source No:		
Radionuclide: Th-230	Activity: 20,100 dpm	Date: 8/6/98	Radionuclide:	Activity:	Date:	Radionuclide:	Activity:	Date:

Date	Start of Shift Background (cpm for a 1 minute count)								End of Shift Background (cpm for a 1 minute count)								Daily Source Check (α)		Daily Source Check (β)		MDA** - Scaler Mode (dpm)		Bat. OK	HV OK	Initials
	Alpha				Beta				Alpha				Beta												
	1	2	3	Av.	1	2	3	Av.	1	2	3	Av.	1	2	3	Av.	Source (cpm)	Eff.	Source (cpm)	Eff.	α	β			
4/21/03	0	0	0	0	←	N/A		→	0	0	0	0	←	N/A		→	3516	17.5%	N/A	N/A	15.5	N/A	✓	✓	RO
4/22/03	0	1	1	1	←	N/A		→	1	1	1	1	←	N/A		→	3523	17.5%	N/A	N/A	42.1	N/A	✓	✓	RO

** $$MDA = \frac{2.71 + 4.65\sqrt{BKG_{avg} \times t}}{t \times E \times \frac{A}{100}}$$

where MDA = the activity level (dpm/100 cm²), BKG_{avg} = the background count rate for this measurement type (cpm), t = the measurement duration (min), E = instrument efficiency, and A = probe area (cm²).

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
EXPOSURE RATE SURVEY INSTRUMENT DATA SHEET

ıject No. 2002020.01	Detector		Meter		
Site Location/Background Location:	Type:	Serial No.	Type:	Serial No:	Operating Voltage:
Former UNC Facility, New Haven, CT	N/A	N/A	Bicron Microrem	B295W	SAT

Check Source Number	Radionuclide:	Calibration Activity and Date:
0316	Cs-137	1 uCi

Date	Units	Start of Shift Background				End of Shift Background				Daily Response (μR/hr)	Initials
		1	2	3	Avg.	1	2	3	Ave.		
4/21/03	uRem/h	8	9	8	8	9	8	10	9	650	[illegible]
4/22/03	uRem/h	9	9	9	9	8	9	8	8	650	[illegible]

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
EXPOSURE RATE SURVEY INSTRUMENT DATA SHEET

Project No. 2002020.01	Detector		Meter		
Site Location/Background Location:	Type:	Serial No.	Type:	Serial No:	Operating Voltage:
Former UNC Facility, New Haven, CT	44-10	151704	Ludlum 2241	143562	SAT

Check Source Number	Radionuclide:	Calibration Activity and Date:
0316	Cs-137	1 uCi

Date	Units	Start of Shift Background				End of Shift Background				Daily Response (µR/hr)	Initials
		1	2	3	Avg.	1	2	3	Ave.		
4/21/03	uR/hr	7	7	7	7	8	7	7	7	275	[illegible]
4/22/03	uR/hr	7	8	7	7	7	7	7	7	275	[illegible]

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
EXPOSURE RATE SURVEY INSTRUMENT DATA SHEET

ject No. 2002020.01	Detector		Meter		
Site Location/Background Location: Former UNC/GE Facility, New Haven, CT Parking lot, North side of bldg	Type: Ludlum Model 44-10	Serial No. 132520	Type: Ludlum Model 2241	Serial No: 114535	Operating Voltage: SAT

Check Source Number	Radionuclide: Cs-137	Calibration Activity and Date:
3347	1 uC:	1 uC: 11/97

Date	Units	Start of Shift Background				End of Shift Background				Daily Response (µR/hr)	Initials
		1	2	3	Avg.	1	2	3	Ave.		
10/13/03	uR/hr	6.1	6.5	5.8	6.1	6.0	6.1	6.1	6.1	220	BO
10/14/03	↓	6.4	6.1	6.3	6.3	6.2	6.1	6.5	6.3	225	BO
10/15/03	↓	6.1	6.5	6.4	6.3	6.2	6.3	6.1	6.2	223	BO

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
CONTAMINATION SURVEY INSTRUMENT DATA SHEET

Project No: 2002020.01			Detector			Meter		
Site Location/Background Location: Former UNC/GE Facility, New Haven, CT			Type: Ludlum Model 43-89	Serial No. 132778	Probe Area (cm²) 100	Type: Ludlum Model 2224	Serial No: 119791	Operating Voltage: 0.8 kV
Check Source No: 1640			Check Source No:			Check Source No:		
Radionuclide: Th-230	Activity: 18,600 dpm	Date: 5/24/96	Radionuclide:	Activity:	Date:	Radionuclide:	Activity:	Date:

Date	Start of Shift Background (cpm for a 1 minute count)								End of Shift Background (cpm for a 1 minute count)								Daily Source Check (α)		Daily Source Check (β)		MDA'' - Scaler Mode (dpm)		Bat. OK	HV OK	Initials
	Alpha				Beta				Alpha				Beta												
	1	2	3	Av.	1	2	3	Av.	1	2	3	Av.	1	2	3	Av.	Source (cpm)	Eff.	Source (cpm)	Eff.	α	β			
10/13/03	5	6	4	5	←	N/A	→		6	6	5	6	←	N/A	→		3278	17.6%	N/A	N/A	74.5	N/A	✓	✓	KO
10/14/03	7	6	5	6	←	N/A	→		6	7	8	7	←	N/A	→		3266	17.6%	N/A	N/A	80.1	N/A	✓	✓	KO
10/15/03	7	6	4	6	←	N/A	→		6	6	5	6	←	N/A	→		3259	17.5%	N/A	N/A	80.6	N/A	✓	✓	KO

$$MDA = \frac{2.71 + 4.65\sqrt{BKG_{avg} \times t}}{t \times E \times \frac{A}{100}}$$

where MDA = the activity level (dpm/100 cm²), BKG_{avg} = the background count rate for this measurement type (cpm), t = the measurement duration (min), E = instrument efficiency, and A = probe area (cm²).

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
EXPOSURE RATE SURVEY INSTRUMENT DATA SHEET

ject No. 2002020.01	Detector		Meter		
Site Location/Background Location: Former UNCAGE Facility, New Haven, CT	Type: N/A	Serial No. N/A	Type: Ludlum Model 19	Serial No: 182648	Operating Voltage: SAT

Check Source Number	Radionuclide: Cs-137	Calibration Activity and Date:
3347		1uC: 11/97

Date	Units	Start of Shift Background				End of Shift Background				Daily Response (µR/hr)	Initials
		1	2	3	Avg.	1	2	3	Ave.		
10/13/03	uR/hr	5	5	5	5	5	5	5	5	180	[illegible]
10/14/03	uR/hr	5	5	5	5	5	6	5	5	180	[illegible]
10/15/03	uR/hr	5	5	5	5	5	5	5	5	180	[illegible]

Copyright © Integrated Environmental Management, 1998

Appendix D - Field Activity Daily Logs

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
FIELD ACTIVITY DAILY LOG

Facility: Former UNC Facility

Date: 2/3/03 | Job/Task Number: 2002020.01

Client Name: AAA/GE

Address of Work Site: 71 Shelton Ave., New Haven, CT

Description of Work: Site sampling

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS

Arrived on site at (insert date and time): 2/3/03 0630

0630 On site, held radiation safety briefing & pre-work briefing w/AAA personnel
0710 Gate unlocked by Facility owner representative, Mark.
0730 Toured work area w/AAA personnel.
0740 Setting up instruments for use.
0750 Bob Benito on site, told him we needed someone to verify core locations in building, he called for Bob Gregg to come to site.
0805 Bob. B. left site.
0820 Collecting sample of trash pile outside building (NE corner)
0900 Completed collecting trash pile sample.
1000-1130 AAA drilled concrete core #1, Bob Gregg on site/verified core locations
1230-1300 Drilled core #2
1300-1320 Drilled core #3
1320-1400 Drilled core #4
1430-1500 Drilled core #5
1530 Packaged trash pile sample for overnight shipment, AAA/IEM personnel left site

No Further Entries

Departed site at (insert date and time): 2/3/03 1530

Changes from Plans and Specifications, and Other Special Orders and Important Decisions: None

Weather Conditions: Cool, partly cloudy, wind calm

Important Telephone Calls and Interactions: None

Personnel on Site: Bob Benito, Bob Gregg, Ed Johns, Nick Campagna, Keith Bolblend

Name (print): R. Alan Duff

Signature: [signature]

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
FIELD ACTIVITY DAILY LOG

Facility: Former UNC Facility

Date: 2/4/03 | Job/Task Number: 2002020.01

Client Name: AAA/GE

Address of Work Site: 71 Shelton Ave., New Haven, CT

Description of Work: Site Sampling

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS

Arrived on site at (insert date and time): 2/4/03 0720

0720 On site, prepared instruments for use.

0730 At manhole on south side of bldg., preparing to collect sample for Olin analysis.

0830 Collected ~100 ml of sample from manhole, turned over sample to Olin rep.

0900 John U of GE on site.

0915 Collected sample of sediment from manhole adjacent to Shelton Ave.

0945-0955 Drilled core #6, core had a piece of steel pipe in it.

1000-1030 Drilled core #7

1100-1130 Drilled core #8, turned over 2ND manhole sample to Olin rep., broke for lunch

1200 Returned from lunch.

1230-1250 Drilled core #9-1, collapsed soil under core, appears to be clay pipe under floor, will drill in a new location further East.

1300 Toured Facility w/ Marie Miller of NRC.

1330 Drilling at core location #10.

1400 Shear pin broke on core drill, will secure work for today, AAA to find a new pin for drill.

1430 Olin rep. said results from 2 samples from sewer showed no reactive materials, took samples from Olin for archival.

1500 Left Site

Departed site at (insert date and time): 2/4/03 1500

Changes from Plans and Specifications, and Other Special Orders and Important Decisions: None

Weather Conditions: Cloudy rain, wind ~5 fm. west

Important Telephone Calls and Interactions: None

Personnel on Site: B. Gregg, B. Benito, John Ur, AAA crew, owner's rep., Olin rep., Marie Miller (NRC)

Name (print): R. Alan Duff

Signature: [signature]

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
FIELD ACTIVITY DAILY LOG

Facility: Former UNC Facility	
Date: 2/5/03	Job/Task Number: 2002020.01
Client Name: AAA/GE	
Address of Work Site: 71 Shelton Ave., New Haven, CT	
Description of Work: Site Sampling	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS

Arrived on site at (insert date and time): 2/5/03 0720

0720 On site
0740 Gate opened, preparing instruments for today's use, AAA repairing drill
0830 Recommenced drilling @ location #10
0915 Completed drilling core #10.
0920-0940 Drilled core #9-2, large air void under concrete, ~3', bottom ½ of core fell into hole & was not recovered.
0950-1015 Drilled core #11
1020-1100 Drilled core #12, completed release survey of core drill.
1130-1200 Lunch
1230-1300 Toured site w/ CT DEP rep. Daren Strickland.
1330 Sampled trench location #1 (Hazardous & rspec)
100 Sampled trench location #2 (rspec)
1430 Looked at trench sample locations #3&4, will need long handled tool to collect samples.
1500 Left site.

No Further Entries

Departed site at (insert date and time): 2/5/03 1500

Changes from Plans and Specifications, and Other Special Orders and Important Decisions: None.

Weather Conditions: Cold, clear, windy.	Important Telephone Calls and Interactions: None
Personnel on Site: Duff, AAA work crew, B. Bonito, Owner. Representative, CT. DEP,	
Name (print): R. Alan Duff	Signature: [signature]

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
FIELD ACTIVITY DAILY LOG

Facility: Former UNC Facility	
Date: 2/6/03	Job/Task Number: 2002020.01
Client Name: AAA / GE	
Address of Work Site: 71 Shelton Ave., New Haven, CT	
Description of Work: Site Sampling	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS

Arrived on site at (insert date and time): 2/6/03 0720

0720 On site
0730 Gate opened, prepared instruments for use.
0815 Sampled trench location #3.
0900 Sampled trench location #4.
0915 Bob Benito left site, buried 44-10 probe in soil, bkgd. @ wkist 10 uR/h, in soil 18 uR/h.
0930 AAA crew left site, packaging trench samples for shipment.
1100 Packaging concrete cores & oil samples for archiving.
1130 Sampled unknown drum in waste pile for TCLP analysis.
1200 Left site.

No Further Entries

Departed site at (insert date and time): 2/6/03 1200

Changes from Plans and Specifications, and Other Special Orders and Important Decisions: None.

Weather Conditions: Cold, partly cloudy, windy	Important Telephone Calls and Interactions: None
Personnel on Site: Duff, AAA work crew, B. Benito, Facility owner rep.	
Name (print): R. Alan Duff	Signature: [signature]

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
FIELD ACTIVITY DAILY LOG

Facility: Former UNC Facility

Date: 2/10/03 | Job/Task Number: 2002020.01

Client Name: AAA/GE

Address of Work Site: 71 Shelton Ave., New Haven, CT

Description of Work: Site Sampling

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS

Arrived on site at (insert date and time): 2/10/03 0730

0730 On site, preparing instruments for use.
0800 AAA preparing for manhole entry
0830 AAA generator does not start, running AC power from bldg. to sewer manhole to power camera. ~~The~~ CT. DEP rep. on site
0930 Ed Johns of AAA made confined space entry into MH#3, collected sediment/sludge sample in S.S. bowl w/S.S. scoop. AAA having problems w/camera recording of sewer + dirt obstructing camera path in sewer pipe.
0945 CT DEP rep. left site, AAA modifying camera to pass over piles of dirt.
1030-1200 Held job status meeting w/all parties involved (AAA, EEM, UNC/GE)
1300 Lunch, AAA personnel picking up Geoprobe unit off site, AAA unable to get camera to travel pipe due to sediment in pipe.
100 Performing entry at Shelton Ave. manhole, Ed Johns entered manhole
1445 Collected sample of sediment at Shelton Ave. manhole, made a composite sample for hazardous suite analysis of #3 manhole & this manhole.
1530 Used geoprobe unit to attempt sample at core location #12, went ~1' into the material & hit concrete/rock obstruction. Secured attempt at sampling.
1615 Left site

No Further Entries

Departed site at (insert date and time): 2/10/03 1615

Changes from Plans and Specifications, and Other Special Orders and Important Decisions:
Unable to get camera to travel down pipe at MH #3.

Weather Conditions: Cold, cloudy, wind calm.

Important Telephone Calls and Interactions: None

Personnel on Site: Duff, B. Thomas, B. Gregg, B. Bonito, Ed & Keith of AAA, owner's rep., CT Dep Rep., John U, B. Sanger (AAA)

Name (print): R. Alan Duff

Signature: [signature]

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
FIELD ACTIVITY DAILY LOG

Facility: Former UNC Facility

Date: 2/11/03 | Job/Task Number: 2002020.01

Client Name: AAA/GE

Address of Work Site: 71 Shelton Ave., New Haven, CT

Description of Work: Site Sampling/Characterization

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS

Arrived on site at (insert date and time): 2/11/03 0730

0730 On site, prepared instruments for today's use, AAA preparing for entry into Shelton Ave. manhole for video inspection.

0830 AAA (Ed Johns) Entered manhole for video inspection, appears to be a significant amount of roots in the ~~drain~~ sewer line.

0900 Completed video inspection, camera was advanced ~ ' into line heading in the east direction. Performed BR contamination surveys of camera/cable & worker's clothing, no contamination detected > bkgd. levels.

0955-1030 Cored into decon pit (location #3), went ~8'-9' into pit, material appears to be fill material, no measurable γ above bkgd. on removed core samples.

1045 Cored at location #4, recovered ~3' core, no measurable γ > bkgd. on core sample

1120 Cored at location #2, recovered ~3' core, no γ > bkgd. on core.

45 Cored at location #1, recovered ~3' core, no γ > bkgd. on core.

1200-1230 Lunch

1300 Cored at location #11, hit obstruction (concrete) downhole, recovered ~8" of material.

1330 Cored at location #8, hit obstruction (concrete) downhole, recovered ~8" of material.

1355 Cored at location #6, collected 3 ea. ~3' samples, appears to be fill material.

1530 Completed work, left site, ordered concrete bit for geoprobe unit.

No Further Entries

Departed site at (insert date and time): 2/11/03 1530

Changes from Plans and Specifications, and Other Special Orders and Important Decisions: None

Weather Conditions: Cold, clear, wind calm

Important Telephone Calls and Interactions: None

Personnel on Site: Duff, B. Thomas, B. Gregg, B. Bonito, Keith & Ed of AAA, Facility owner rep. (Mark)

Name (print): R. Alan Duff

Signature: [signature]

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
FIELD ACTIVITY DAILY LOG

Facility: Former UNC Facility	
Date: 2/12/03	Job/Task Number: 2002020.01
Client Name: AAA/GE	
Address of Work Site: 71 Shelton Ave., New Haven, CT	
Description of Work: Site Sampling/Characterization	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS

Arrived on site at (insert date and time): 2/12/03 0800

0800 On site, prepared instruments for today's use.
0830 Cored at location #10, recovered ~8' of material, material all resembles
0910 Fill material.
1000-1030 Cored at location #7, recovered ~7' of material, indication of elevated downhole gamma readings.
1035-1100 Cored at location #5, recovered ~6' of material
1100-1130 Cored at location #9-2, recovered ~3' of material
1130-1200 Lunch
1230-1400 Tried to core into location #8 using concrete auger, pointed tip, unable to collect sample/hole is still obstructed.
1500 Meeting on site w/J. Vruskyj, it was determined we will attempt 3 additional core locations, AAA will rent coring drill to attempt breaking through obstructions at locations #8, 11 & 12. Ordered 4 additional geoprobe 3' rods to allow samples at greater depth at locations #3 & 6.
1630 Left site.

No Further Entries

Departed site at (insert date and time): 2/12/03 1630

Changes from Plans and Specifications, and Other Special Orders and Important Decisions:
See 1500 entry above

Weather Conditions: Cold, partly cloudy, 40-50mph wind gusts	Important Telephone Calls and Interactions: None
Personnel on Site: Duff, AAA work crew (Keith/Ed), B. Gregg, B. Bonito, facility owner, John Vruskyj.	
Name (print): R. Alan Duff	Signature: [signature]

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
FIELD ACTIVITY DAILY LOG

Facility: Former UNC Facility

Date: 2/13/03 | Job/Task Number: 2002020.01

Client Name: AAA/GE

Address of Work Site: 71 Shelton Ave., New Haven, CT

Description of Work: Site Sampling/Characterization

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS

Arrived on site at (insert date and time): 2/13/03 0800

0800 On site, preparing instruments for today's use, Keith B. off-site picking up longer core drill.

0830 Placed removed concrete cores on waste pile. All cores were surveyed & showed no contamination above background.

1000 Off site to pick up additional Geoprobe coring sections to go to deeper depths.

1100 Returned to site, preparing to continue Geoprobe sampling, Keith B. on site with new coring machine.

1130 Geoprobed to a sampler length of 16' into location #6, recovered 2ea 3' cores.

1140 AAA coring concrete at location #13.

200 Geoprobe sampled at location #13, recovered ~6' of sample.

1230 Geoprobe sampled at location #14, recovered ~6.5' of sample.

1315 Tried to recore at location #8, hit metal pipe @ 3' depth.

1400 AAA cored at new location #8-2.

1630 Geoprobe sampled at location #8-2, recovered ~3' of material & could not sample deeper due to obstruction, elevated downhole measurements were observed.

1720 Completed work/left site.

No Further Entries

Departed site at (insert date and time): 2/13/03 1720

Changes from Plans and Specifications, and Other Special Orders and Important Decisions: None

Weather Conditions: Cold, partly cloudy, windcalm

Important Telephone Calls and Interactions: None

Personnel on Site: Duff, AAA work crew (Keith/Ed), B. Bonito

Name (print): R. Alan Duff

Signature: [signature]

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
FIELD ACTIVITY DAILY LOG

Facility: Former UNC Facility	
Date: 2/14/03	Job/Task Number: 2002020.01
Client Name: AAA/GE	
Address of Work Site: 71 Shelton Ave., New Haven, CT	
Description of Work: Site Sampling	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS

Arrived on site at (insert date and time): 2/14/03 0745

0745 On site, preparing instruments for today's use.
0810 AAA coring Floor at location 8-3, concrete is ~2.5' thick.
0930 GeoProbe sampled at location 8-3, recovered ~3' sample.
1005 Geoprobe sampled at location 12-2, recovered ~1' sample/hit obstruction
1025 Geoprobe sampled at location 15 (decon room), recovered ~3' sample.
1050 Geoprobe sampled at location 3 (decon pit), used 3ea. 3' rods + 4' sampler to a depth of 13'.
1100 Commenced surveys of sample cores in plastic geoprobe sleeves, collection of samples from sleeves.
1230 Collected composite sample of all geoprobe ~~cores~~ samples that were removed from sleeves.
530 Packaging samples/archive samples for shipment to lab.
1400 AAA personnel left site.
1500 Completed on site work, took sample cooler to FedEx for shipment.

No Further Entries

Departed site at (insert date and time): 2/14/03 1500

Changes from Plans and Specifications, and Other Special Orders and Important Decisions:	
Weather Conditions: Cool, partly cloudy, wind calm.	Important Telephone Calls and Interactions:
Personnel on Site: Duff, AAA work crew (Keith, Ed), B. Bonito	
Name (print): R. Alan Duff	Signature:

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
FIELD ACTIVITY DAILY LOG

Facility: Former UNC Facility	
Date: 3/17/03	Job/Task Number: 2002020.01
Client Name: AAA/GE	
Address of Work Site: 71 Shelton Ave., New Haven, CT	
Description of Work: Sampling/survey of roofing materials in waste pile	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS

Arrived on site at (insert date and time): 3/17/03 1115

1115 On site, gate was unlocked & no one was present, prepared survey instrument for use. Located 4 locations on the pile where roofing materials (tar, tarpaper) were present, conducted β- contamination surveys on those materials. No contamination > bkgd. levels were detected.

1130 Collected a sample (composite) of the 4 waste ~~pile~~ pile roofing material locations. Bob Bonito arrived on site.

1200 Packaged sample for shipment to GEL lab for γ spec. analysis. Completed on site work & left site for FedEx/return trip home.

No Further Entries

Departed site at (insert date and time): 3/17/03 1200

Changes from Plans and Specifications, and Other Special Orders and Important Decisions:
Could not locate "sheet metal" that was from the roof, told B. Bonito that the pile of debris will be surveyed as it is loaded for disposal.

Weather Conditions: Warm, cloudy	Important Telephone Calls and Interactions: None
Personnel on Site: DUFF, B. Bonito	
Name (print): R. Alan Duff	Signature:

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
FIELD ACTIVITY DAILY LOG

Facility: Former UNC Facility, New Haven

Date: 4/21/2003 | Job/Task Number: 2002020

Client Name: AAA/GE

Address of Work Site: Shelton Ave., New Haven, CT

Description of Work: Removal of waste pile/area walkover survey and sampling.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS

Arrived on site at (insert date and time): 4/21/2003 0730

0730 Arrived on site, preparing instruments for today's use.
1030 Waiting on truck w/roll off containers for trash pile, went to FedEx for shipping out archive samples.
1100 Taking dimensional measurements of geoprobe sample locations
1200 Measuring waste pile dimensions (~25'x 25' footprint)
1400 Located 5-6 locations on the south trench where samples could be collected. Located north trench sample locations.
1440 1ST Truck w/roll off arrived, AAA lined trailer w/ plastic, commenced loading of the trash pile into trailer. Duff performing radiation & contamination surveys of waste pile debris as it is uncovered by the front end loader.
1530 Completed loading 1ST truck.
1600 Loading 2ND truck w/trash pile debris.
1730 Completed loading 2ND truck, concrete pad where trash pile was is now cleaned off & ready to survey/sample. Left site.

No Further Entries

Departed site at (insert date and time): 4/21/2003 1730

Changes from Plans and Specifications, and Other Special Orders and Important Decisions:
None

Weather Conditions: Partly cloudy, mild, wind calm

Important Telephone Calls and Interactions:
None

Personnel on Site: Duff, B. Gregg, B. Bonito, AAA personnel

Name (print): R. Alan Duff, NRRPT

Signature: RAD

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.

FIELD ACTIVITY DAILY LOG

Facility: Former UNC Facility, New Haven

Date: 4/22/2003 | Job/Task Number: 2002020

Client Name: AAA/GE

Address of Work Site: Shelton Ave., New Haven, CT

Description of Work: Removal of waste pile/area walkover survey and sampling.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS

Arrived on site at (insert date and time): 4/22/2003 0730

0730 - On site, preparing instruments for use
0745 - Performing walkover gamma survey of waste pile concrete pad area.
0900 - Completed walkover survey of pad, no areas >bkgd. noted.
AAA coring concrete to allow for soil samples under the pad.
1200 Collected 8 soil samples from 8 cored locations, samples to be analyzed by gamma spectroscopy. Made 1 composite sample from the 8 locations to be analyzed for the hazardous suite.
1300 Packaged up all samples, completed on site work, left site for FedEx shipment.

No Further Entries

Departed site at (insert date and time): 4/22/2003 1300

Changes from Plans and Specifications, and Other Special Orders and Important Decisions:
None

Weather Conditions: Light rain, cloudy, mild, wind calm

Important Telephone Calls and Interactions:
None

Personnel on Site: Duff, Bonito, Gregg, AAA workers

Name (print): R. Alan Duff, NRRPT

Signature: [signature]

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
FIELD ACTIVITY DAILY LOG

Facility: Former UNC Facility

Date: 10/13/03 | Job/Task Number: 2002020.01

Client Name: AAA/GE

Address of Work Site: 71 Shelton Ave., New Haven, CT

Description of Work: Sampling/survey of facility

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS

Arrived on site at (insert date and time): 10/13/03 0730

0730 Arrived on site, A. Jarman opened gate for access
0745 Setting up instruments for today's use
0900 Toured site w/ Bob Gregg to locate sample points for coring & trench Access locations
0930 AAA on site w/ Geoprobe unit & drill rig, setting up to take core in X-ray read room, east of Location 9-2. (coring at Location 9-3)
1045 Began concrete coring at Location 9-3, two floor layers, top 3¾", bottom - 6".
1105 Collecting soil samples at location 9-3 w/ Geoprobe unit.
1110 Recovered ~1' 9" in 1ST section.
1120 Recovered ~2.5' in 2ND section
1215 Recovered ~3.5' in 3rd section.
1230 Broke for lunch
1315 Collecting sample at location #16 (center - North end of excavated area)
1330 Recovered 4 sections from location #16 (1ST - 35", 2ND - 30", 3rd - 32" 4th - 36")
1430 Collecting sample at location #17 (North of excavated area). Was unable to collect samples East of excavated area (concrete too thick).
1445 Recovered 2 sections from location #17 (1ST 37", 2ND - 29")
1515 Collecting sample North of decon pit (location 18). Recovered 3 sections (1ST - 35", 2ND - 32", 3rd - 38")
1600 Completed work for today, left site.

Departed site at (insert date and time): 10/13/03 1600

Changes from Plans and Specifications, and Other Special Orders and Important Decisions:
None

Weather Conditions: Sunny, mild, wind ~5mph From SW

Important Telephone Calls and Interactions: None

Personnel on Site: Duff, A. Jarman (site owner), B. Bonito, Bob Gregg (0800), Keith & Tim (AAA @ 0930)

Name (print): R. Alan Duff

Signature: [signature]

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
FIELD ACTIVITY DAILY LOG

Facility: Former UNC Facility	
Date: 10/14/03	Job/Task Number: 2002020.01
Client Name: AAA/GE	
Address of Work Site: 71 Shelton Ave., New Haven, CT	
Description of Work: Sampling/survey of facility	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS

Arrived on site at (insert date and time): 10/14/03 0730

0730 On site, B. Bonito opened gate.
0740 Setting up instruments for today's use, AAA preparing to core east of x-ray read room excavated area adjacent to where sample could not be obtained yesterday.
0815 AAA cored 30" into this location (location #19), unsuccessful in breaking through to soil layer.
0900 Collected grab sample at North trench #1, surveyed area for gamma radiation
0910 Collected grab sample at North trench #2, surveyed area for gamma radiation.
0930 Collected grab sample at North trench #3, surveyed area for gamma radiation.
0955 Collected grab sample at South trench #5, surveyed area for gamma radiation.
1015 Collected grab sample at South trench #6, material on base of trench read up to 25 μR/hr
1040 Collected grab sample at south trench #7, surveyed area for gamma radiation.
1105 Collected grab sample at south trench #8, surveyed area for gamma radiation.
1115 Collected grab sample at South trench #9, surveyed area for gamma radiation
1145 Broke for lunch
1320 Collected grab sample at south trench #10, material on base of trench read up to 20 μR/hr
1400 Collected grab sample at South trench #11 at SE corner of bldg., read up to 14 μR/hr.
1430 Completed on site work, left site

No Further entries

Departed site at (insert date and time): 10/14/03 1430

Changes from Plans and Specifications, and Other Special Orders and Important Decisions: None	
Weather Conditions: Sunny, Mild, wind calm	Important Telephone Calls and Interactions: None
Personnel on Site: Duff, B. Bonito, Bob Gregg, Keith B. & Tim (AAA)	
Name (print): R. Alan Duff	Signature: [signature]

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
FIELD ACTIVITY DAILY LOG

Facility: Former UNC Facility	
Date: 10/15/03	Job/Task Number: 2002020.01
Client Name: AAA/GE	
Address of Work Site: 71 Shelton Ave., New Haven, CT	
Description of Work: Sampling/survey of facility	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS

Arrived on site at (insert date and time): 10/15/03 0730

0730 - On site, preparing instruments for today's use.

0830 - Collected composite grab sample from the small trench North of X-ray read room wall.

0900 At front gate, awaiting police traffic control, John Uruskyj of GE on site, DOE representatives, located manhole to enter.

1000 New Haven PD arrived, set up traffic control.

1010 Entered 1ST Manhole, Appears to be a newer system (installed after site operations ceased) and does not appear to connect to the Argyle St. Sewer System.

1025 Entered manhole @ ℄ of street (Shelton Ave.), just west of 1ST manhole entered, manhole ~20' deep, appears to have a lateral connection here that connected to the Argyle St. sewer, noted 25-28 uR/hr inside lateral connection.

1030 Collected sample Sewer-3 from this manhole (debris from lateral line)

1100 Moved ~50 yds downstream from Sewer-3 location (south of Sewer-3 on Shelton Ave.), collected grab sample Sewer-4, of materials on the ledges of this manhole. Bkgd. = 20 uR/hr, Noted ~ 22-25 uR/hr at bottom.

1130 Preparing samples for shipment.

1500 Completed on site work, left site to deliver samples to FedEx.

No Further Entries

Departed site at (insert date and time): 10/15/03 1500

Changes from Plans and Specifications, and Other Special Orders and Important Decisions:

None

Weather Conditions: Cool, cloudy, wind calm.	Important Telephone Calls and Interactions:
Personnel on Site: Duff, Bob Gregg & B. Bonito, A. Jarman, Keith B. & Tim (AAA)	
Name (print): R. Alan Duff	Signature: [signature]

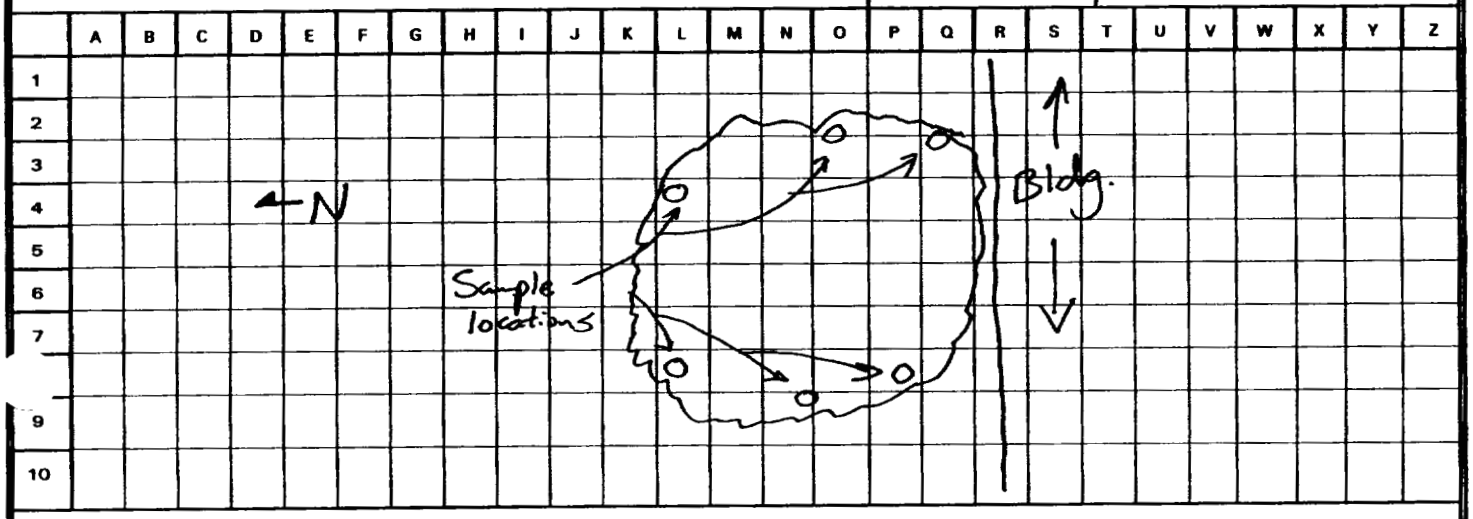
Copyright © Integrated Environmental Management, 1998

Appendix E - Sample Collection Logs and Survey Forms

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Trash Pile	Site Name: Former UNC New Haven, CT Facility	Date: 2/3/03	Time: 0900 / Page: 1 of 1
Sample Location: Trash Pile	Sample media: Soil/Debris	Sample Collected and By (Signature): Ronald Alan Duff	
Sample Depth: Surface (0"-3")	Sample Type: (grab, composite, etc.) Grab/Composite	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Stainless steel trowel		Sample Container: Glass Jar	
Preservative: Ice, 4 deg. C		Grid Dimensions: N/A x ☐ meters ☐ feet ☐ inches ☐ centimeters	



Notes:

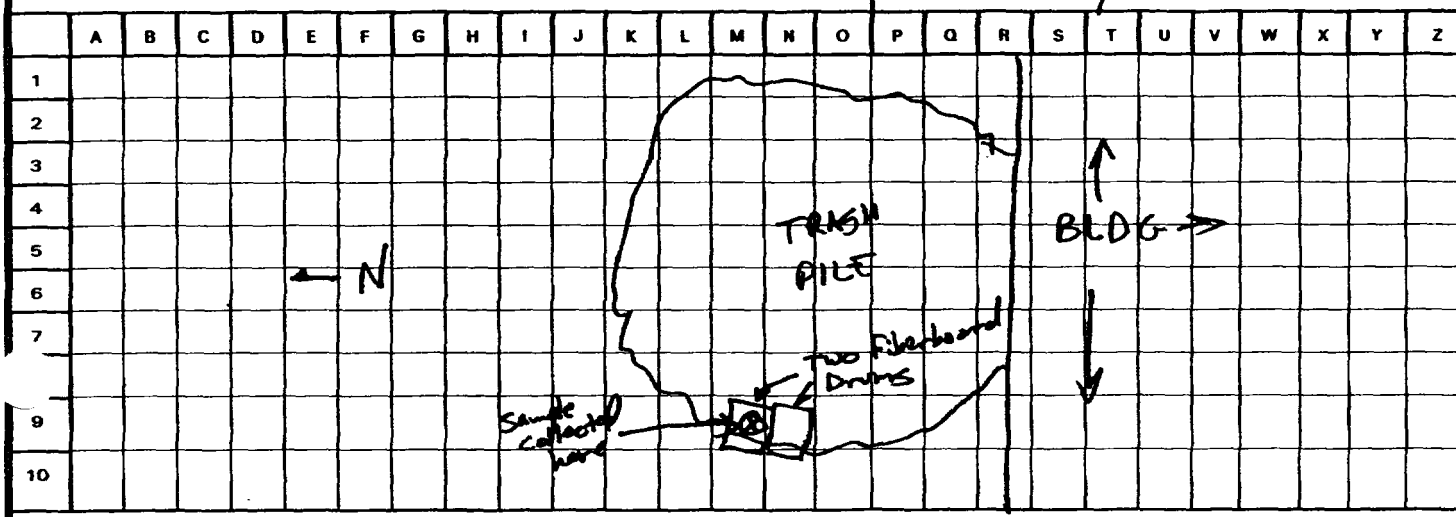
Collected grab samples from 6 locations on trash pile at NE corner outside building. Samples were collected w/a Stainless steel trowel. Sample was placed in a stainless steel bowl for mixing. Sample was divided and placed in a 1 l, 250 ml, & zip loc bag. Survey of the sample containers for gamma radiation w/Ludlum Model 2241/44-10, no increase above bkgd. was noted on any container. Samples placed in a cooler with ice for FedEx shipment. Samples to be analyzed for γ spec. & hazardous suite.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Trash Pile Drum	Site Name: Former UNC New Haven, CT Facility	Date: 2/6/03	Time: 1130	Page: 1 of 1
Sample Location: Trash Pile	Sample media: Unknown Solid Powder	Sample Collected ed By (Signature): [signature]		
Sample Depth: Surface	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff		
Sample Method/Collection Device: Plastic Scoop		Sample Container: 1 l glass & 250 ml glass jars		
Preservative: Ice, 4 deg. C		Grid Dimensions: N/A x ☐ meters ☐ feet ☐ inches ☐ centimeters		



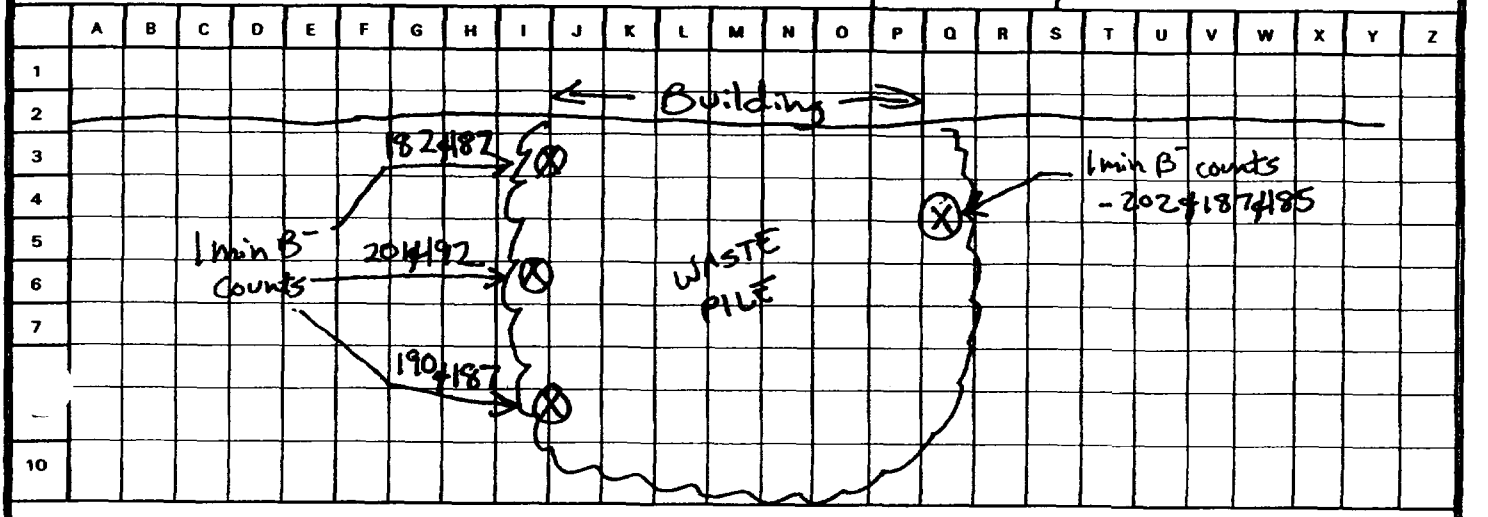
Notes: Collected grab sample of drum of unknown makeup located in the trash pile at the NE corner of the building. Collected sample w/a clean PVC scoop. Sample will be analyzed for TCLP.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

e Number: Waste Pile/Roofing Materials	Site Name: Former UNC New Haven, CT Facility	Date: 3/17/03	Time: 1130	Page: 1 of 1
Sample Location: Former UNC facility waste pile	Sample media: Roofing materials	Sample Collected ed By (Signature): RAD		
Sample Depth: Surface	Sample Type: (grab, composite, etc.) Composite (4 locations)	Sample Collected By (Print): R. Alan Duff		
Sample Method/Collection Device: Gloved hand		Sample Container: Ziploc Bag		
Preservative: None		Grid Dimensions: N/A x ☐ meters ☐ feet ☐ inches ☐ centimeters		



Notes:

⊗ - denotes sample location

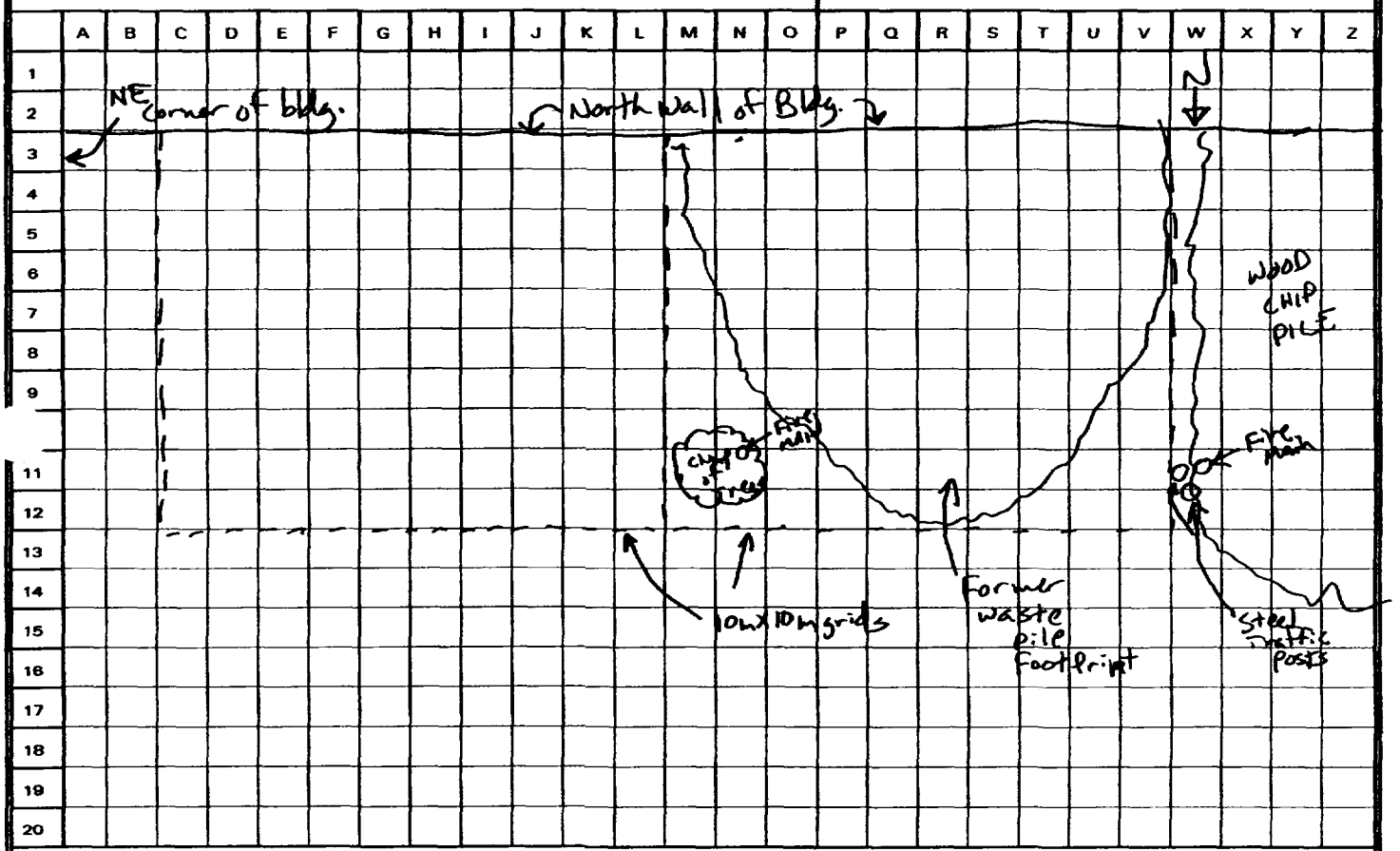
Collected grab samples from 4 locations on trash pile at NE corner outside building. Samples were collected w/ a gloved hand & placed in a ziploc bag. ~300 g of sample was collected total. Beta contamination scans were performed w/ a Ludlum Model 2224 w/ 43-89 detector & no counts were detected > bkgd. 1min. ~~stat~~ static counts were conducted at each of the 4 locations ~~withe~~ with the results noted on the map above in gross cpm beta. Bkgd for beta = 194 cpm

wright © Integrated Environmental Management, 1998
018 (Rev. 001) - Attachment 1

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
RADIOLOGICAL SURVEY FORM

Survey Number Waste Pile Pad

Instrument/SN: Ludlum 2241 w/44-10 #143562, 151704	Calibration Due: 5/20/03	Site Name: Former UNC New Haven, CT Facility	Date: 4/22/03	Time: 0745
Instrument/SN: Bicron Microrem #B295W	Calibration Due: 7/24/03	Location: Waste pile location, Northeast end of building		
Instrument/SN: Ludlum Model 2224/43-89 #116239, 120411	Calibration Due: 4/14/04	Purpose: Waste Pile area survey/sampling		
Survey Performed By (Print): R. Alan Duff, RRPT		Survey Performed By (Signature):		
☒ Battery OK ☒ HV OK ☒ Source Check OK		Grid Dimensions: 10 x 10 X meters ☐ feet ☐ inches ☐ centimeters		



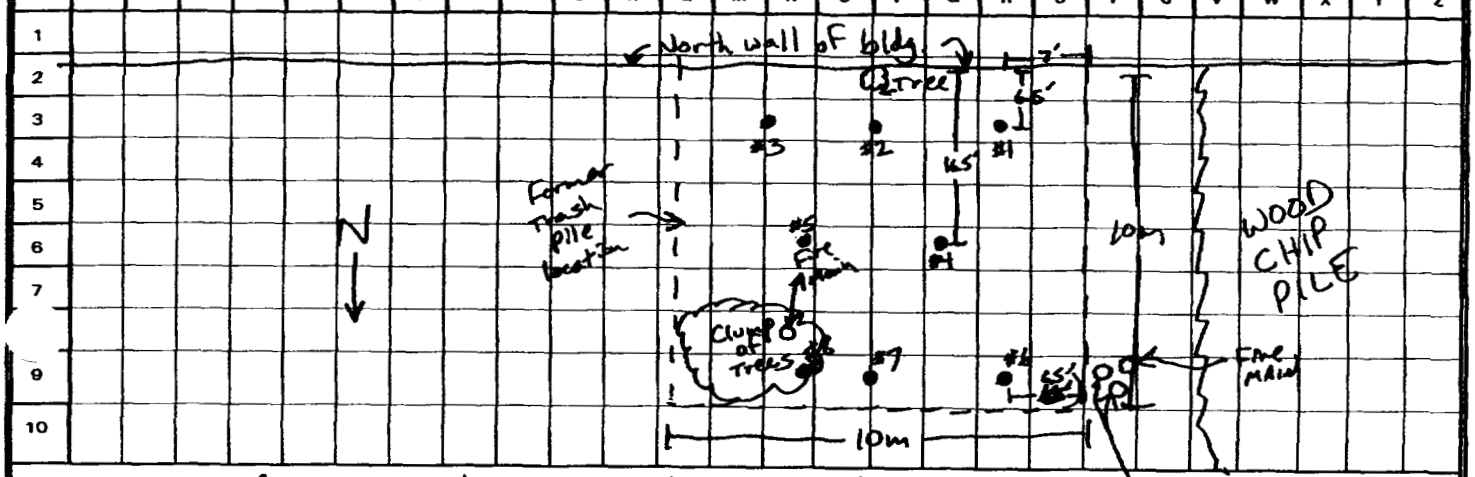
Notes: Conducted a gamma walkover survey of concrete pad where waste pile was located. Conducted survey using 2241 w/44-10 NaI probe. Held probe w/in 1" of surface being monitored, swinging probe in a ~3' wide serpentine pattern, moving ~1'/sec. Surveyed 100% of the 2 10mx10m grids shown, no areas detected > bkgd. levels. Bkgd = 7 uR/h on Model 2241/44-10.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020 ~~2003016.01~~

Sample Number: WP-Soil-1 through 8 + WP-Soil-Haz	Site Name: Former UNC Facility, New Haven, CT	Date: 4/22/03	Time: 0940 – 1205	Page: 1 of 1
Sample Location: Former waste pile location, Northeast corner of building.	Sample media: Soil	Sample Collected ed By (Signature):		
Sample Depth: 0"-6" Beneath into soil concrete pad.	Sample Type: (grab, composite, etc.) Grab (composite for hazardous sample)	Sample Collected By (Print): R. Alan Duff		
Sample Method/Collection Device: Stainless steel scoop		Sample Container: Ziploc Bags (1-8) 1l + 250ml glass jar (haz.)		
Preservative: ~~None~~ → Ice, 4°C		Grid Dimensions: 10 x 10 X meters ☐ inches ☐ feet ☐ centimeters		



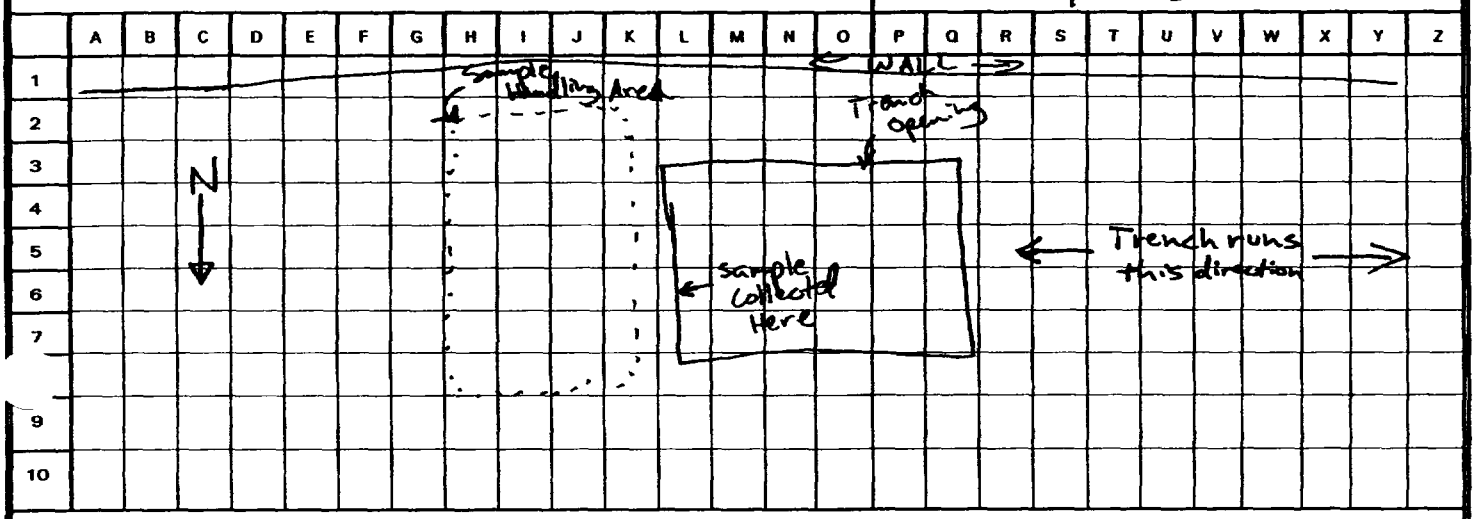
Notes: Collected soil samples WP-Soil-1 through WP-Soil-8 From locations where AAA cored through concrete. Made 1 composite sample from all 8 locations (WP-Soil-Haz) to be analyzed for hazardous suite.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Trench-1	Site Name: Former UNC New Haven, CT Facility	Date: 2/5/03	Time: 1330	Page: 1 of 1
Sample Location: Bldg. 6H Former chemistry laboratory	Sample media: Sediment/sludge	Sample Collected ed By (Signature): [signature]		
Sample Depth: Surface of Trench (~6' down)	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff		
Sample Method/Collection Device: Scoop		Sample Container: 1l glass, 250 ml glass, & 1gal. ziploc bag		
Preservative: Ice, 4 deg. C		Grid Dimensions: ☐ meters ☐ feet N/A x ☐ inches ☐ centimeters		



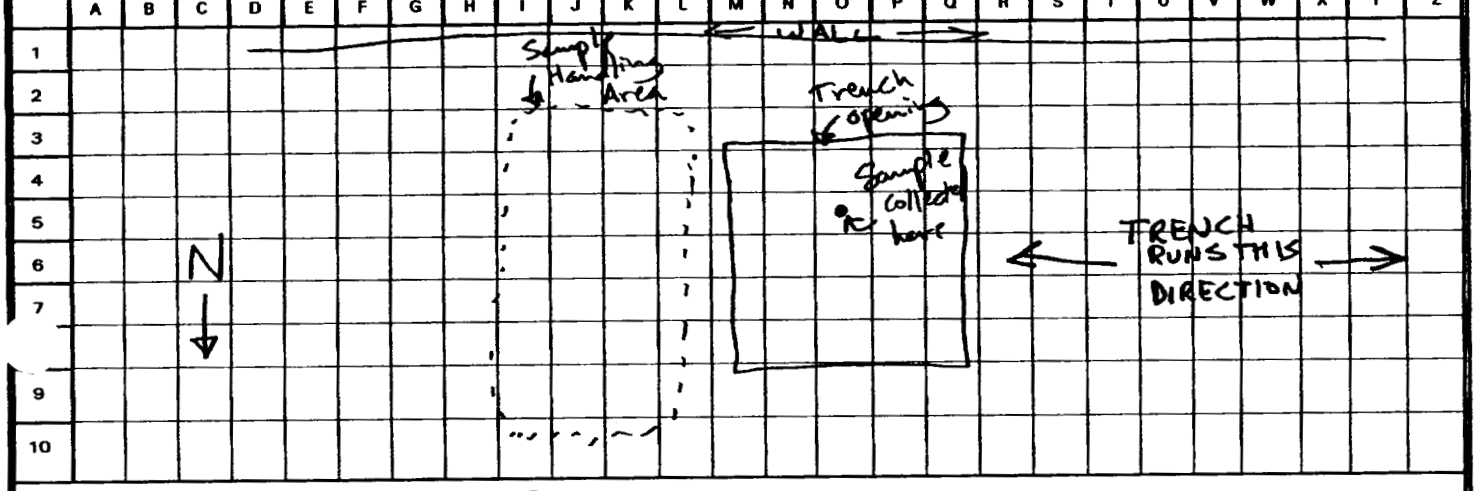
Notes: Collected a grab sample of sediment/sludge w/a scoop from the base of the trench (material was 1"-2" ~~thick~~ thick). Sample was placed into Glass jars + ziploc bags, to be analyzed for γ spec., hazardous Suite. No detectable counts > bkgd. w/ Ludlum 2241 w/44-10 2" NaI detector on sample material. Direct frisk of lay down area (plastic sheet) after sampling showed no detectable βγ contam. >bkgd. levels.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Trench-2	Site Name: Former UNC New Haven, CT Facility	Date: 2/5/03	Time: 1400	Page: 1 of 1
Sample Location: X-Ray Read Room (Westernmost trench access)	Sample media: Soil	Sample Collected ed By (Signature): [signature]		
Sample Depth: Surface of trench (~4' down)	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff		
Sample Method/Collection Device: Scoop		Sample Container: 1 gal. ziploc bag.		
Preservative: Ice, 4 deg. C		Grid Dimensions: ☐ meters ☐ feet ___ x ___ ☐ inches ☐ centimeters N/A		



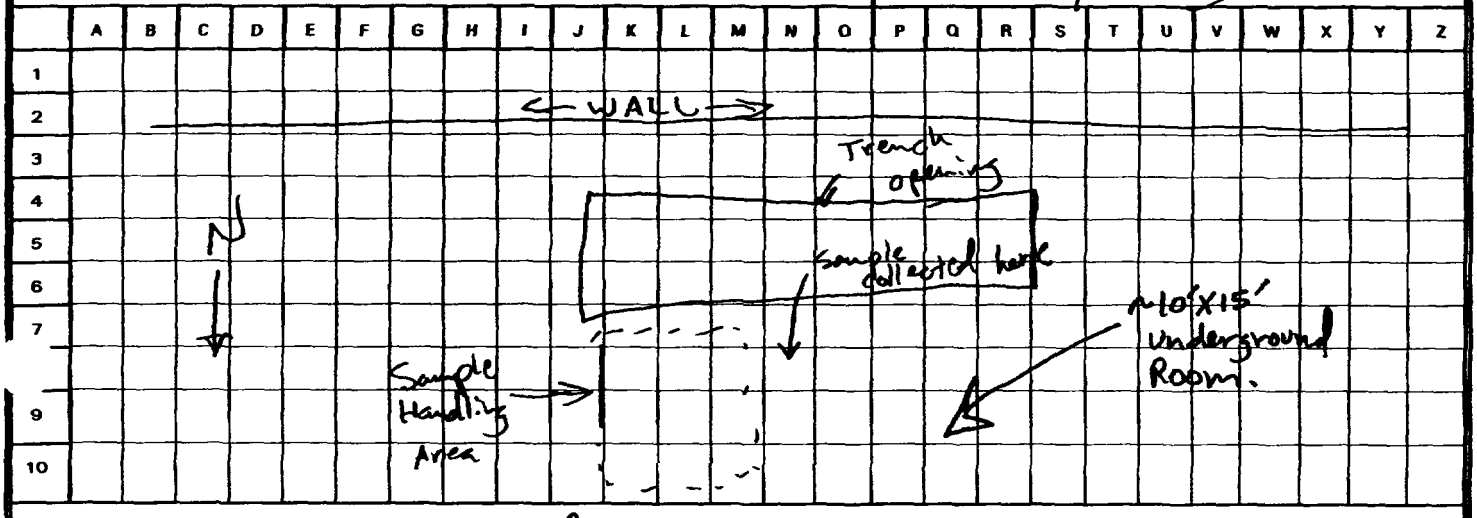
Notes:
Collected ziploc bag of soil sample at this location, immediately adjacent to previously excavated area in the X-Ray Read Room. No γ noted > bkgd. on sample bag, no BY contamination > bkgd. noted on sampling tools/materials. Sample was collected w/ a stainless steel scoop, to be analyzed for γ spec. Sample was collected from a pile of soil in the trench.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Trench-3	Site Name: Former UNC New Haven, CT Facility	Date: 2/6/03	Time: 0815 / Page: 1 of 1
Sample Location: X-Ray Read Room (~~Exterior Trench Access~~)	Sample media: Sludge	Sample Collected ed By (Signature): [signature]	
Sample Depth: Surface of trench (~10' deep)	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Scoop on extension pole		Sample Container: 1 gal. ziploc bag	
Preservative: Ice, 4 deg. C		Grid Dimensions: ~~☐ meters~~ ☐ feet N/A x ☐ inches ~~☐ centimeters~~	



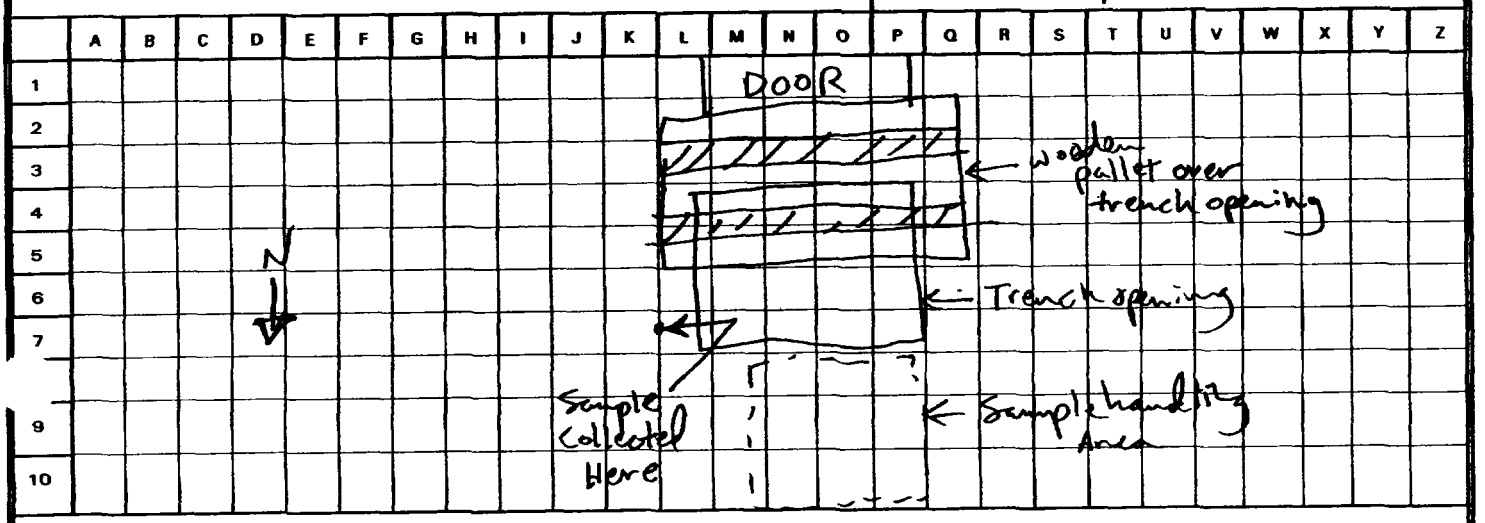
Notes: Sample was collected from base of trench w/ long handled pole w/ stainless scoop attached. Material was 3"-4" deep on bottom of trench. No γ noted > bkgd. on sample, no Bγ contamination > bkgd. was noted on sampling equipment/materials. Sample to be analyzed for γ spec.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Trench-4	Site Name: Former UNC New Haven, CT Facility	Date: 2/6/03	Time: 0900	Page: 1 of 1
Sample Location: Former Rectifier Room	Sample media: Soil	Sample Collected By (Signature): [signature]		
Sample Depth: Surface of trench (~10' depth)	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff		
Sample Method/Collection Device: Scoop on extension pole		Sample Container: 1 gal. ziploc bag		
Preservative: Ice, 4 deg. C		Grid Dimensions: ☐ meters ☐ feet ← N/A x → ☐ inches ☐ centimeters		



Notes:

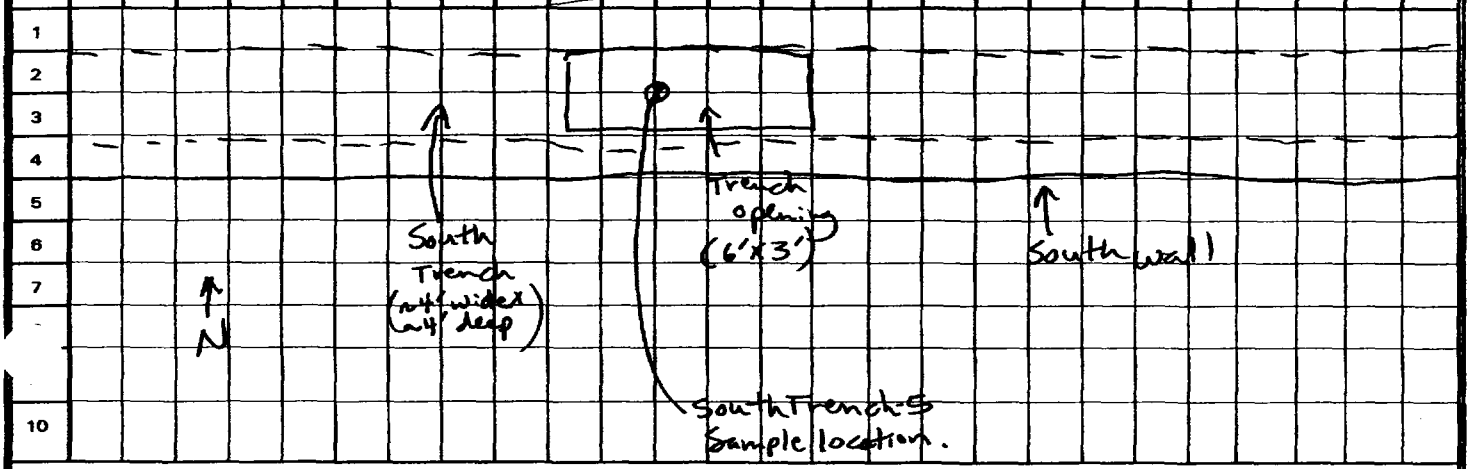
Collected ziploc bag of soil at this location using stainless scoop on an extension pole. No γ noted > bkgd. on sample bag, no βγ contamination noted > bkgd. on sampling tools/materials.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: South Trench-5	Site Name: Former UNC New Haven, CT Facility	Date: 10/14/03	Time: 0955 / Page: 1 of 1
Sample Location: ~50' West of Chem lab trench opening, between columns 12 & 13	Sample media: Soil/Trench Debris	Sample Collected ed By (Signature): [signature]	
Sample Depth: 0"-4"	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Stainless Steel Scoop		Sample Container: Ziploc Bag	
Preservative: None		Grid Dimensions: N/A ☐ meters ☐ feet ☐ inches ☐ centimeters	



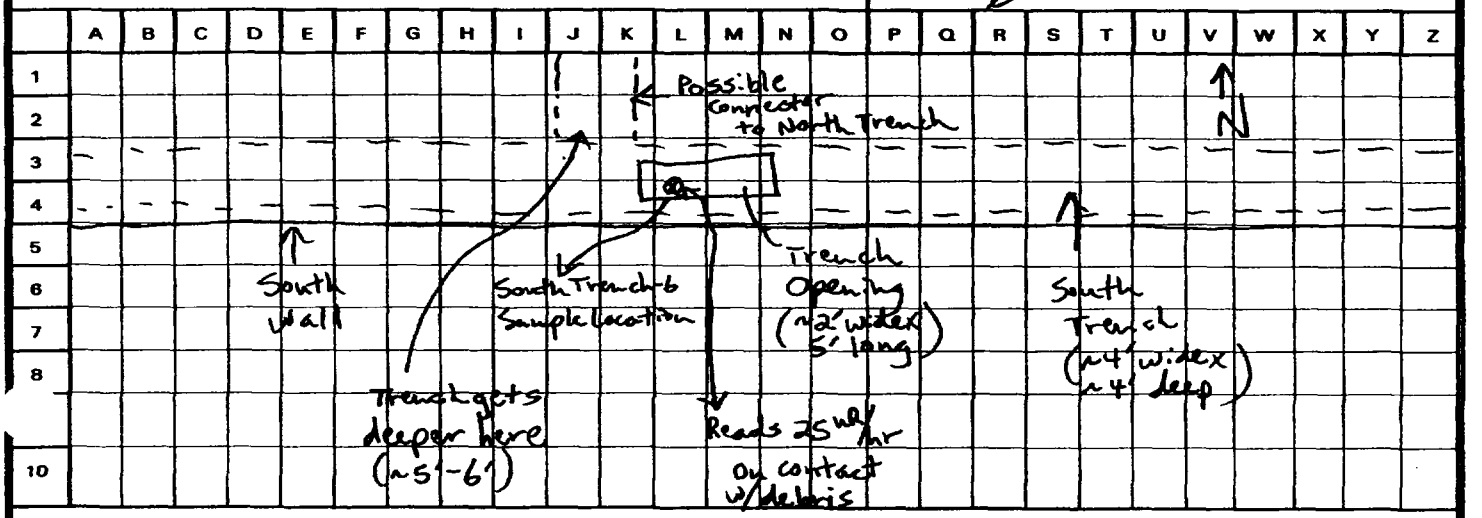
Notes: Bkgd = 9 uR/hr, scanned debris in trench, no gamma radiation levels detected > bkgd. levels. Collected a grab sample of debris from base of trench. Potential asbestos on piping.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: South Trench-6	Site Name: Former UNC New Haven, CT Facility	Date: 10/14/03	Time: 1015 / Page: 1 of 1
Sample Location: Former spec. lab, Between columns 17+18.	Sample media: Soil/Trench Debris	Sample Collected ed By (Signature): [signature]	
Sample Depth: 0"-4"	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Stainless Steel Scoop		Sample Container: Ziploc Bag	
Preservative: None		Grid Dimensions: N/A x N/A ☐ meters ☐ feet ☐ inches ☐ centimeters	



Notes:

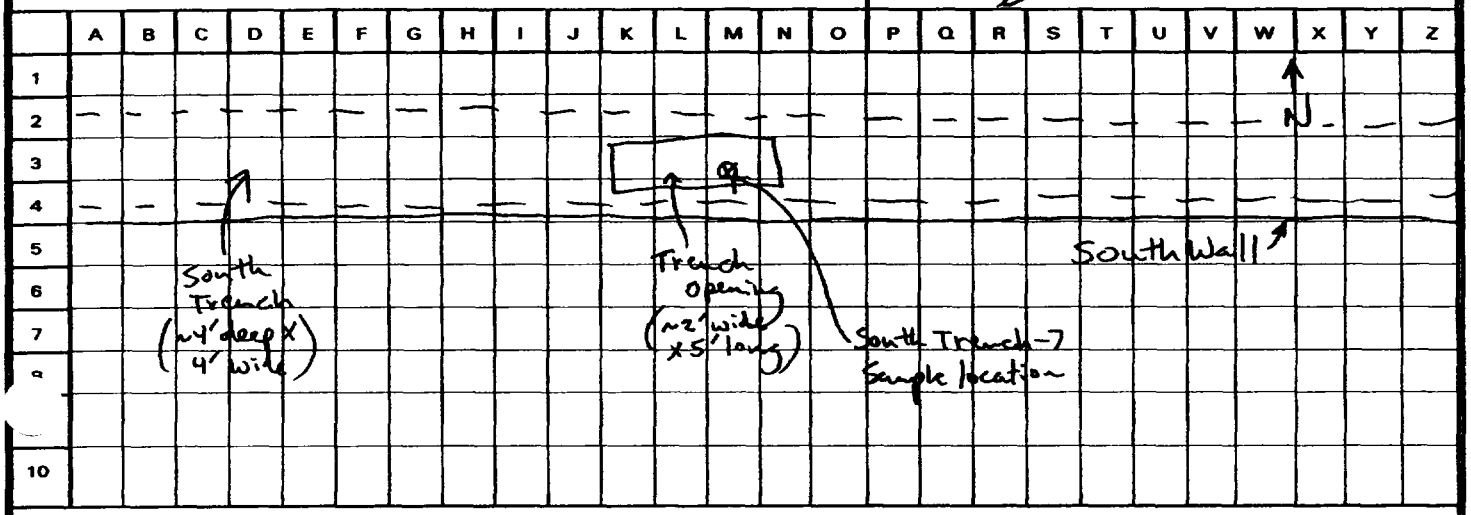
Bkgd. = 9 uR/hr, scanned debris in trench detected areas up to 25 uR/hr on contact w/debris. Collected a grab sample of highest reading debris from base of trench. Potential asbestos on piping. Appears to have a trench that connects the north & south trenches.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: South Trench-7	Site Name: Former UNC New Haven, CT Facility	Date: 10/14/03	Time: 1040 / Page: 1 of 1
Sample Location: Under Plastic tanks, Between columns 20+21	Sample media: Soil/Trench Debris	Sample Collected ed By (Signature): [signature]	
Sample Depth: 0"-4"	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Stainless Steel Scoop		Sample Container: Ziploc Bag	
Preservative: None		Grid Dimensions: N/A x ☐ meters ☐ feet / ☐ inches ☐ centimeters	



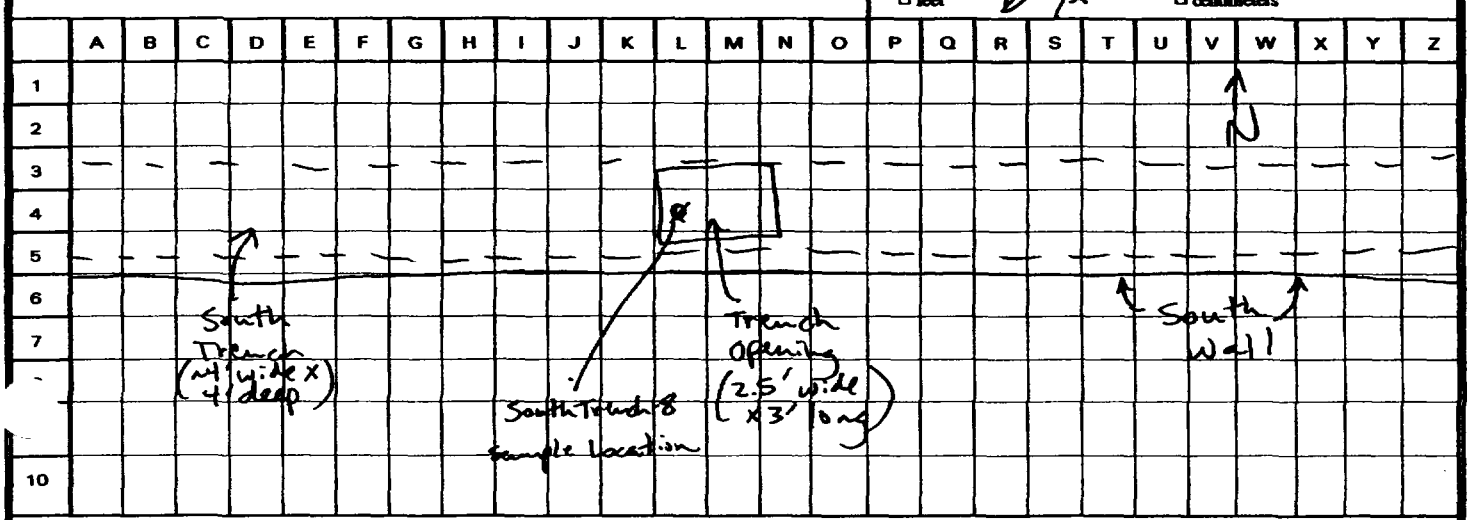
Notes: Bkgd. = 8 uR/hr, scanned debris in trench, no gammaradiation levels detected > bkgd. levels. Collected a grab sample of debris from base of the trench. Potential asbestos on piping

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: South Trench-8	Site Name: Former UNC New Haven, CT Facility	Date: 10/14/03	Time: 1105 / Page: 1 of 1
Sample Location: Between columns 25&26	Sample media: Soil/Trench Debris	Sample Collected ed By (Signature): [signature]	
Sample Depth: 0"-4"	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Stainless Steel scoop		Sample Container: Ziploc Bag	
Preservative: None		Grid Dimensions: N/A ☐ meters ☐ feet ☐ inches ☐ centimeters	



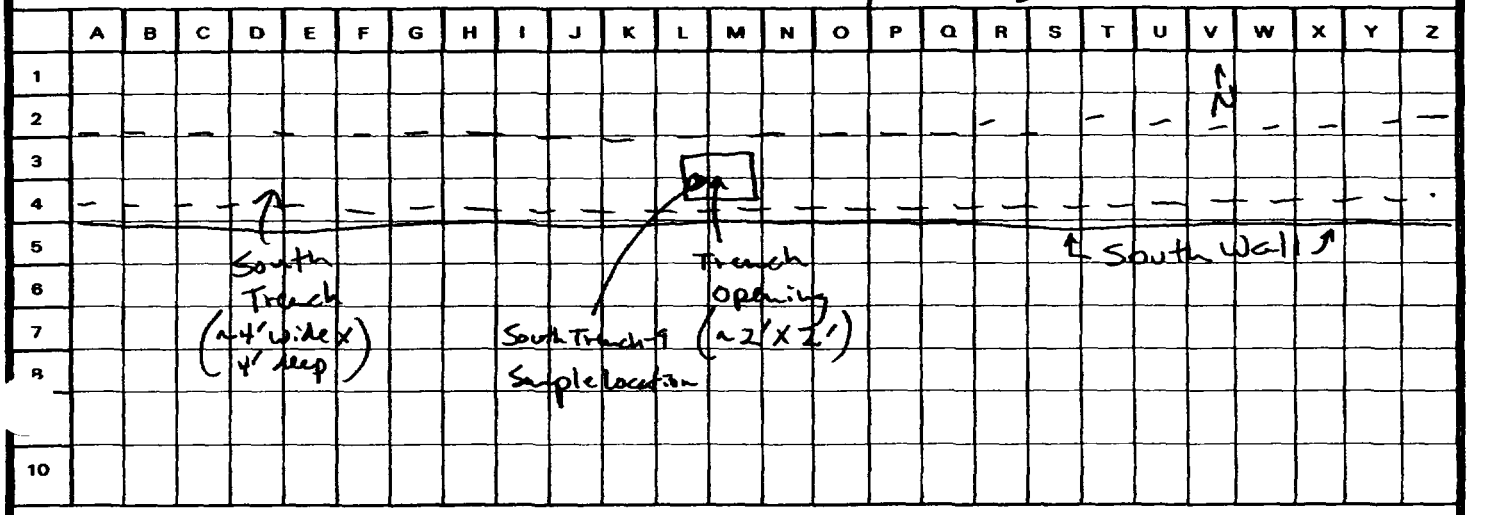
Notes: Bkgd. = 8 uR/hr, scanned debris in trench, no gamma radiation levels detected > bkgd. levels. Collected a grab sample of debris from base of the trench. Potential Asbestos on piping.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: South Trench-9	Site Name: Former UNC New Haven, CT Facility	Date: 10/14/03	Time: 1115	Page: 1 of 1
Sample Location: West end of x-ray Pad Rm, Between Columns 3 & 4	Sample media: Soil/Trench Debris	Sample Collected ed By (Signature): [signature]		
Sample Depth: 0-4"	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff		
Sample Method/Collection Device: Stainless steel scoop		Sample Container: Ziploc Bag		
Preservative: None		Grid Dimensions: N/A x N/A ☐ meters ☐ feet ☐ inches ☐ centimeters		



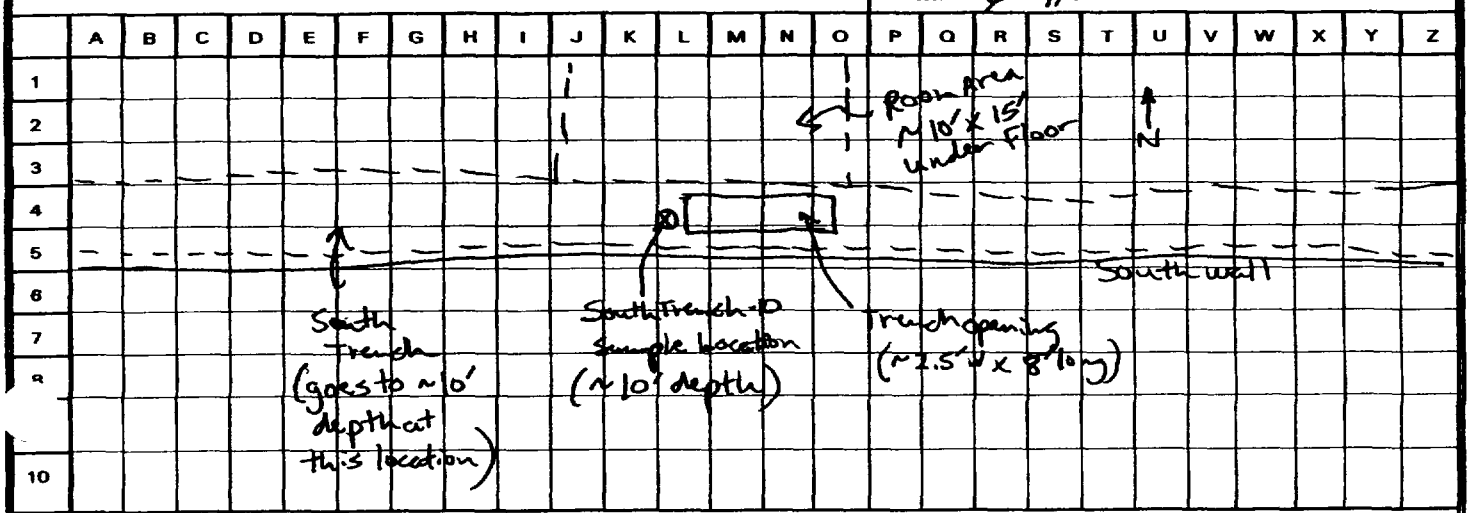
Notes: Bkgd = 10 uR/hr, scanned debris in trench, noted areas up to 20 uR/hr on contact w/debris. Collected a grab sample at location of highest radiation measurement in the base of the trench. Potential asbestos on piping.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: South Trench-10	Site Name: Former UNC New Haven, CT Facility	Date: 10/14/03	Time: 1320 / Page: 1 of 1
Sample Location: East end of x-ray read room, between Columns 39-40	Sample media: Soil/Trench Debris	Sample Collected ed By (Signature): [signature]	
Sample Depth: 0"-4"	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Stainless Steel scoop		Sample Container: Ziploc Bag	
Preservative: None		Grid Dimensions: N/A x ☐ meters ☐ feet ☐ inches ☐ centimeters	



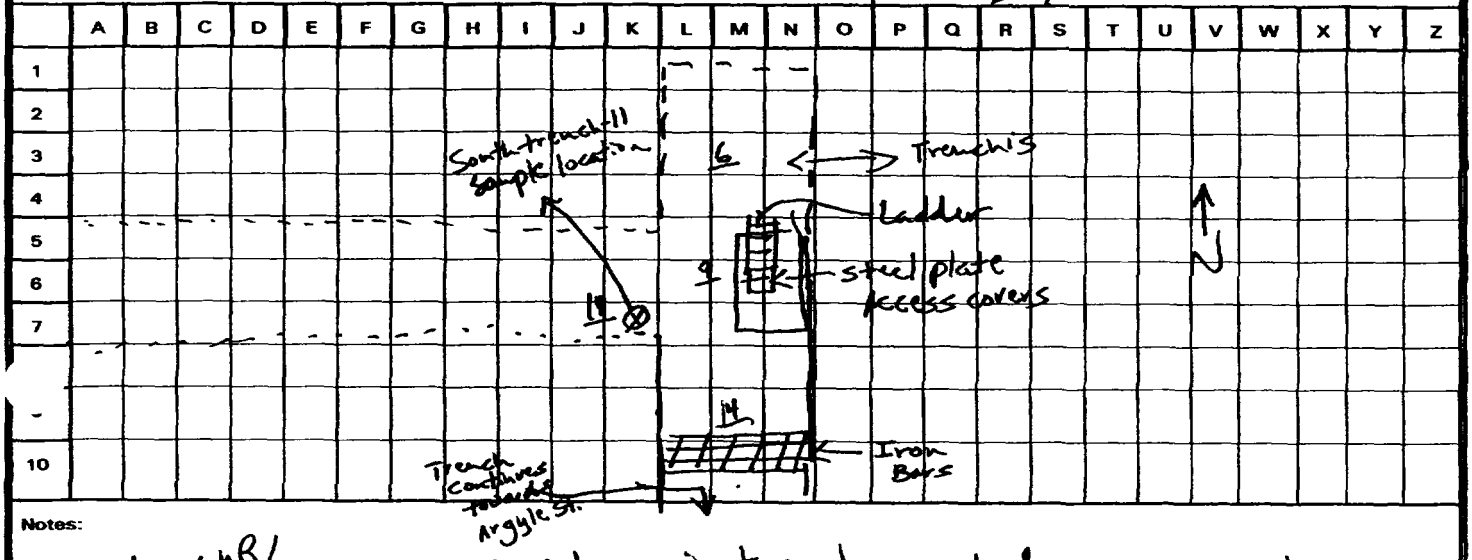
Notes: Bkgd. = 8 uR/hr, scanned debris in trench, detected areas up to 20 uR/hr on contact w/debris. Used long handle/scoop to collect grab sample of debris from base of trench. Potential asbestos on piping.

Copyright © Integrated Environmental Management, 1998
RSP-018 (Rev. 001) - Attachment 1

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: South Trench-11	Site Name: Former UNC New Haven, CT Facility	Date: 10/14/03	Time: 1400 / Page: 1 of 1
Sample Location: SE corner of bldg. – outside access	Sample media: Soil/Trench Debris	Sample Collected ed By (Signature): [signature]	
Sample Depth: 0"-4"	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Stainless Steel Scoop		Sample Container: Ziploc Bag	
Preservative: None		Grid Dimensions: ☐ meters ☐ feet N/A ☐ inches ☐ centimeters	



Notes:

Bkgd. = 6 uR/hr, scanned debris in trench, noted areas up to 14 uR/hr on contact w/debris. Collected a grab sample of the debris at highest radiation level noted. Trench continues to head south towards Argyle St., access blocked by iron bars. Potential ~~asp~~ asbestos on piping.

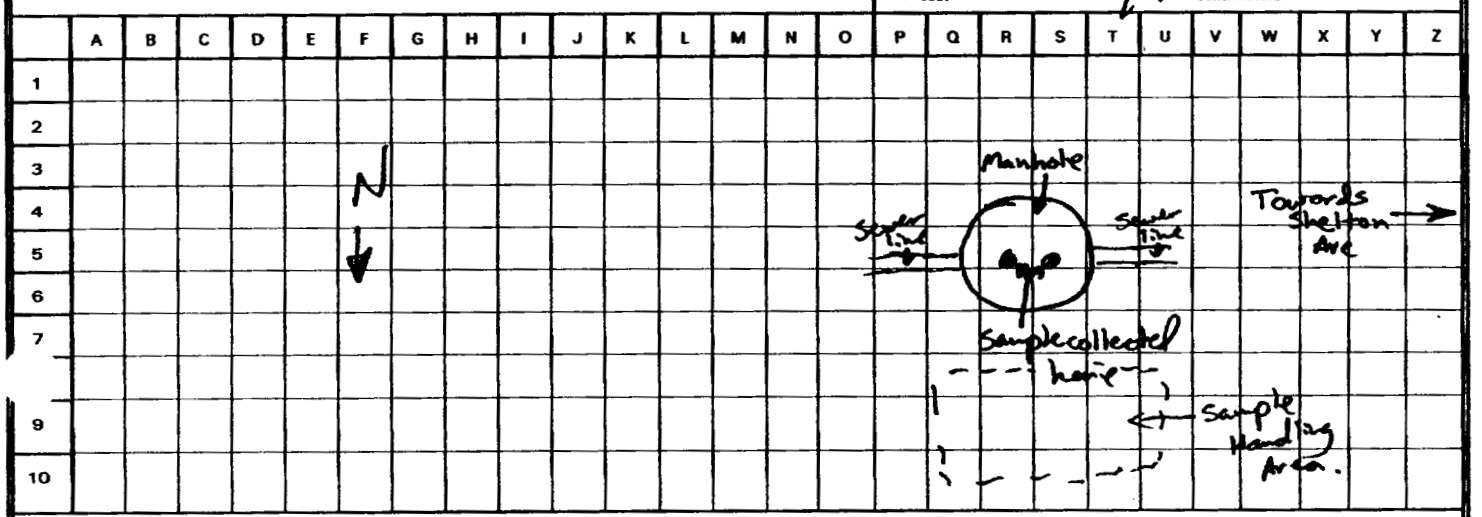
- denotes gamma radiation levels in uR/hr.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Sewer-1	Site Name: Former UNC New Haven, CT Facility	Date: 2/10/03	Time: 0930 / Page: 1 of 1
Sample Location: Manhole in Alley (Manhole #3)	Sample media: Sewer sludge/sediment	Sample Collected ed By (Signature): [signature]	
Sample Depth: 0"-3" into sludge at bottom of manhole	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Personnel entry, stainless steel scoop + bowl.		Sample Container: Ziploc Bag	
Preservative: Ice, 4 deg. C		Grid Dimensions: ☐ meters ☐ feet ☐ inches ☐ centimeters N/A	



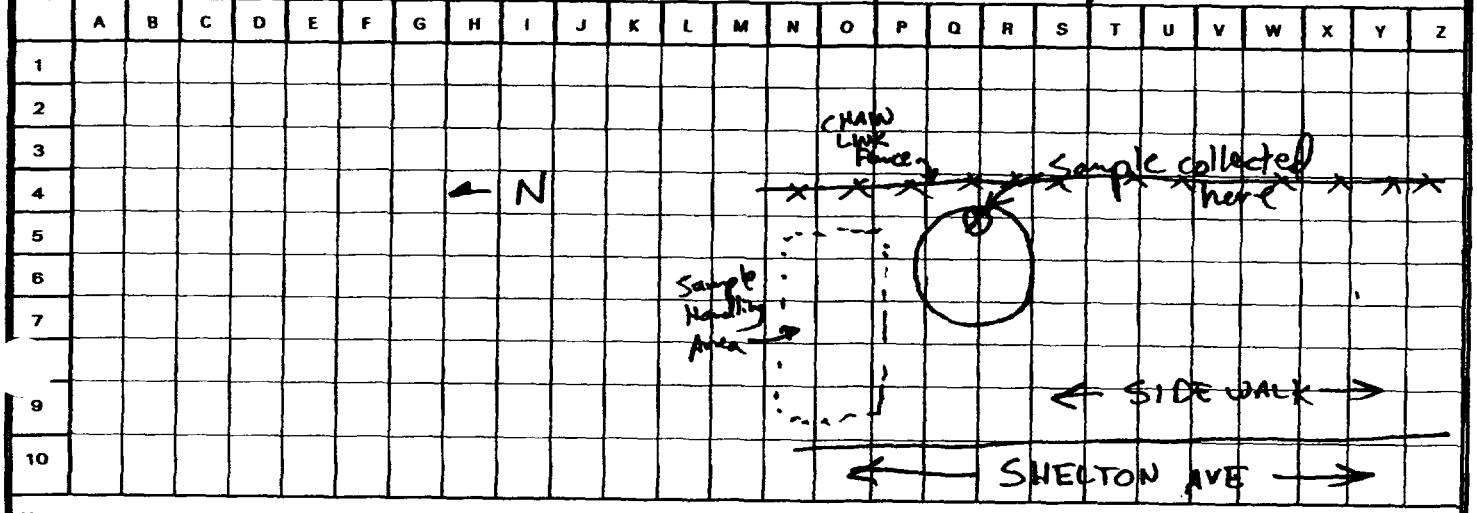
Notes: Ed Johns of AAA entered manhole (confined space entry) + collected sample material (sludge/sediment) w/s.s. scoop + bowl. Sample read 12 uR/hr w/Ludlum Model 2241/44-10 2" NaI detector (bkgd = 6 uR/hr). Conducted BR contamination surveys of sample equipment/materials + Mr. Johns tyvek suit/gloves upon exit. No contamination noted above background levels. He also performed a whole body frisk upon exit.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Sewer-2	Site Name: Former UNC New Haven, CT Facility	Date: 2/10/30	Time: 1445 / Page: 1 of 1
Sample Location: Manhole on Shelton Ave.	Sample media: Sewer sludge/ sediment	Sample Collected ed By (Signature): [signature]	
Sample Depth: 0"-3" into sludge at bottom of manhole	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Personnel entry, stainless steel scoop + bowl		Sample Container: Ziploc Bag	
Preservative: Ice, 4 deg. C		Grid Dimensions: ☐ meters ☐ feet N/A x ☐ inches ☐ centimeters	



Notes:

Ed Johns of AAA entered manhole (confined space entry) + collected sample material (sludge/sediment) w/ss. scoop + bowl. No detectable γ was detected on the sample w/Ludlum Model 2241/44-10. Conducted BG γ contamination surveys of sample equipment/ materials + Mr. John's tyrek suit/gloves, no contamination noted above background levels. He also performed a whole body frisk upon exit.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Sewer Composite	Site Name: Former UNC New Haven, CT Facility	Date: 2/10/03	Time: 1445	Page: 1 of 1
Sample Location: Alley Manhole + Manhole on Shelton Ave.	Sample media: Sewer sludge/ sediment	Sample Collected ed By (Signature): [signature]		
Sample Depth: 0"-3"	Sample Type: (grab, composite, etc.) Composite	Sample Collected By (Print): R. Alan Duff		
Sample Method/Collection Device: Personnel entry, stainless steel scoop + bowl		Sample Container: 1 l glass + 250 ml glass jars		
Preservative: Ice, 4 deg. C		Grid Dimensions: ☐ meters ☐ feet N/A ☐ inches ☐ centimeters		

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1																										
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										

Notes:
Mixed equal volumes of Sewer-1 sample + Sewer-2 sample in a stainless steel bowl to make the Sewer Composite sample. Sample to be analyzed for hazardous suite.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Olin-14 Olin-2	Site Name: Former UNC New Haven, CT Facility	Date: 2/4/03	Time: 0830 & 0915	Page: 1 of 1
Sample Location: Manhole @ south side of bldg., & manhole on Shelton Ave.	Sample media: Sewer sediment	Sample Collected ed By (Signature): [signature]		
Sample Depth: N/A	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff		
Sample Method/Collection Device: Plastic cup on extension pole.		Sample Container: 100 ml plastic bottles (2)		
Preservative: ~~Ice, 4 deg. C~~ → None		Grid Dimensions: N/A x ☐ meters ☐ feet ☐ inches ☐ centimeters		

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1																										
2																										
3																										
4																										
5																										
6																										
7																										
9																										
10																										

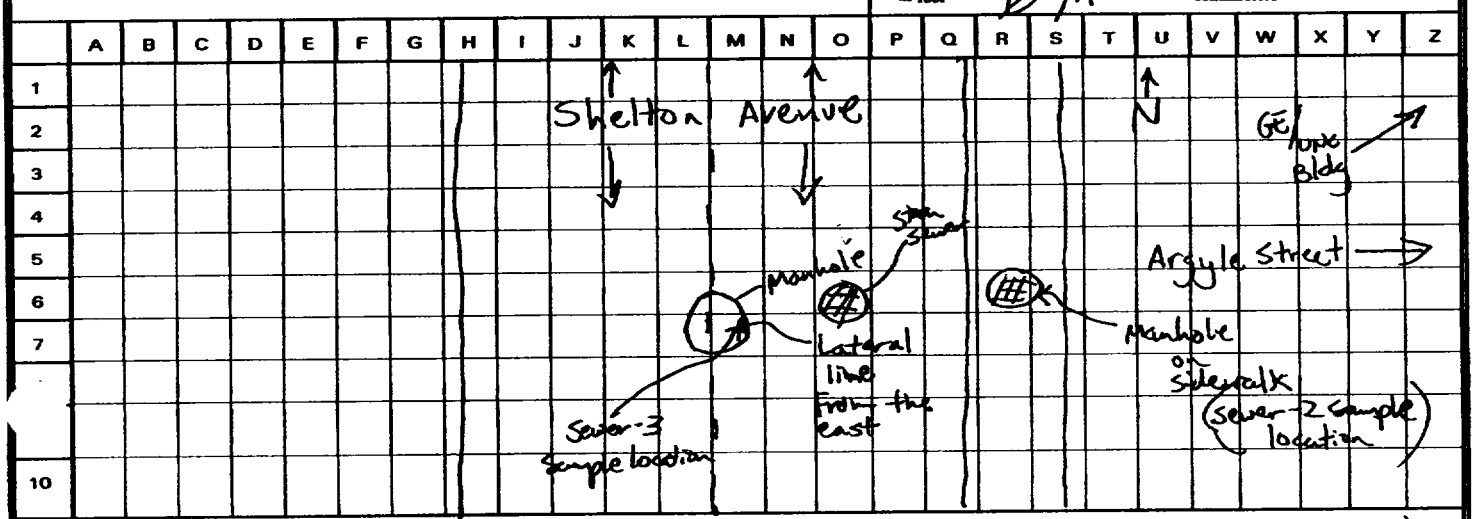
Notes: Collected grab samples of sediment from bottom of sewer manhole for Olin representative to analyze for shock sensetive materials. Samples were collected from bottom of each manhole with a plastic cup on an extension pole. Collected ~100 ml from each location. Screened each sample w/ Ludlum 2241/44-10, no indication of any levels greater than background. Conducted BK contamination surveys of sampling equipment & sampling area, no counts detected on any items greater than background levels. Samples were turned over to the Olin rep. for analysis & then returned to me for archiving.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Sewer-3	Site Name: Former UNC New Haven, CT Facility	Date: 10/15/03	Time: 1030 / Page: 1 of 1
Sample Location: Manhole at ℄ of Shelton Ave., West of Argyle St. Sewer Ave.	Sample media: Sewer Sediment	Sample Collected ed By (Signature): [signature]	
Sample Depth: ~20' deep manhole	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Stainless steel scoop/bowl		Sample Container: 1 l glass jar	
Preservative: None		Grid Dimensions: ☐ meters ☐ feet / ☐ inches ☐ centimeters	



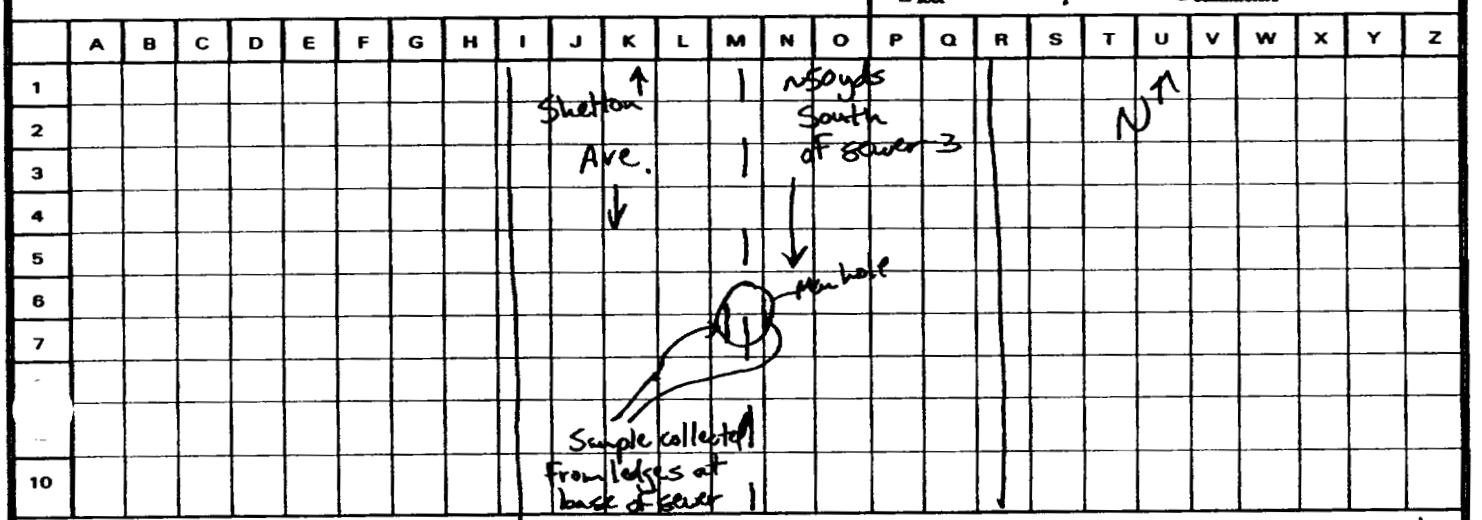
Notes: Keith B. of AAA entered manhole at center of Shelton Ave., general area in entire manhole is 20uR/hr, at lateral connection heading towards Argyle St., read 28 uR/hr. He collected a grab sample from the lateral line. Had entered the storm sewer immediately east of Sewer-3 location, had no apparent connections to Argyle St. Sewer line, read 10-12 uR/hr in that manhole.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Sewer - 4	Site Name: Former UNC New Haven, CT Facility	Date: 10/15/03	Time: 1100 / Page: 1 of 1
Sample Location: Manhole ℄ Shelton Ave, ~ South of Sewer-3 Sample	Sample media: Sewer Sediment	Sample Collected ed By (Signature): [signature]	
Sample Depth: ~20' Deep manhole	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Stainless steel scoop/bowl		Sample Container: 1 l glass jar	
Preservative: None		Grid Dimensions: N/A x ☐ meters ☐ feet ☐ inches ☐ centimeters	



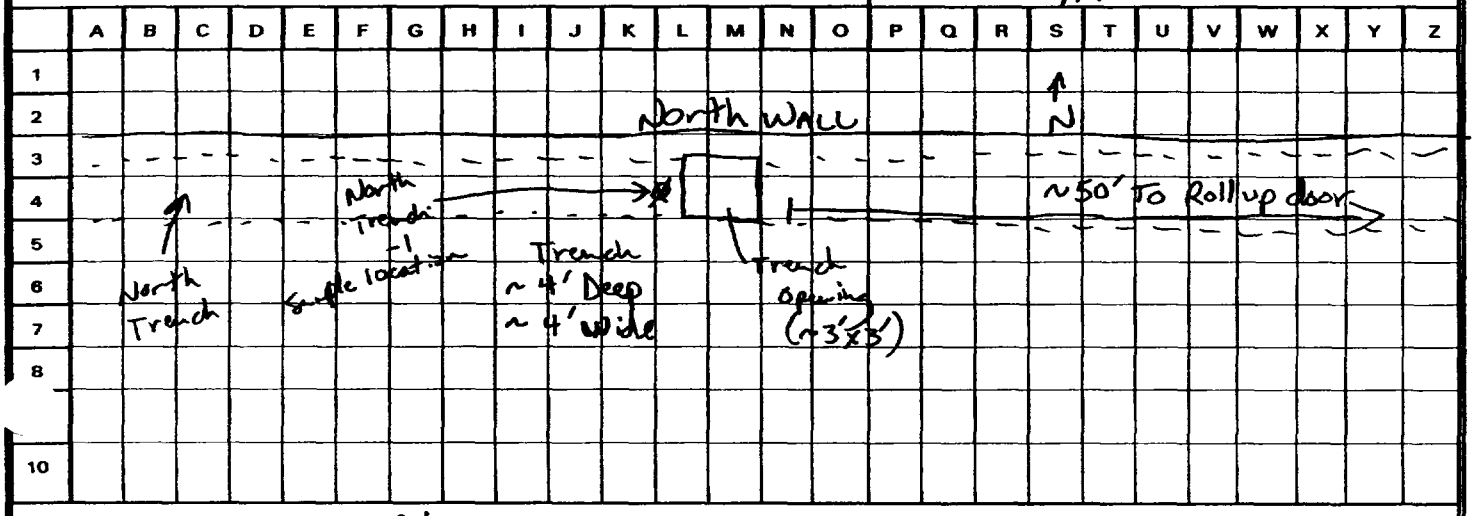
Notes: Keith B. of AAA entered manhole at center of Shelton Ave., general area in sewer manhole was 22-25 uR/hr. Collected grab sample of debris on ledges for rad analysis. This location is downstream of sewer-3 location.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: North Trench-1	Site Name: Former UNC New Haven, CT Facility	Date: 10/14/03	Time: 0900 / Page: 1 of 1
Sample Location: ~50 W of Rollup door, Between columns 25&26	Sample media: Soil/Trench Debris	Sample Collected ed By (Signature): [signature]	
Sample Depth: 0"-4"	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Stainless steel scoop		Sample Container: Ziploc Bag	
Preservative: None		Grid Dimensions: N/A x ☐ meters ☐ feet ☐ inches ☒ centimeters	



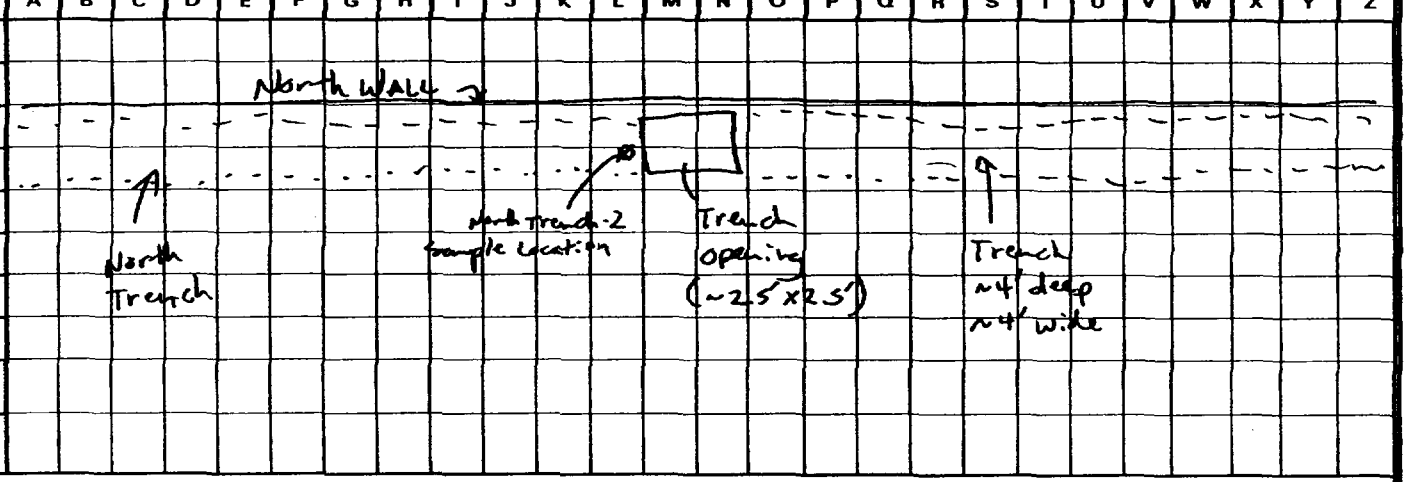
Notes: Bkgd = ~~8/hr~~ 8 uR/hr, scanned debris in trench, no gamma radiation levels detected > bkgd. levels. Collected a grab sample of debris from base of the trench. Appears to be asbestos on piping.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: NorthTrench-2	Site Name: Former UNC New Haven, CT Facility	Date: 10/14/03	Time: 0910 / Page: 1 of 1
Sample Location: 36' west of Trench 1, Between columns 2+25	Sample media: Soil/Trench Debris	Sample Collected ed By (Signature): [signature]	
Sample Depth: 0"-4"	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Stainless Steel Scoop		Sample Container: Ziploc Bags	
Preservative: None		Grid Dimensions: N/A x N/A ☐ meters ☐ feet ☐ inches ☐ centimeters	



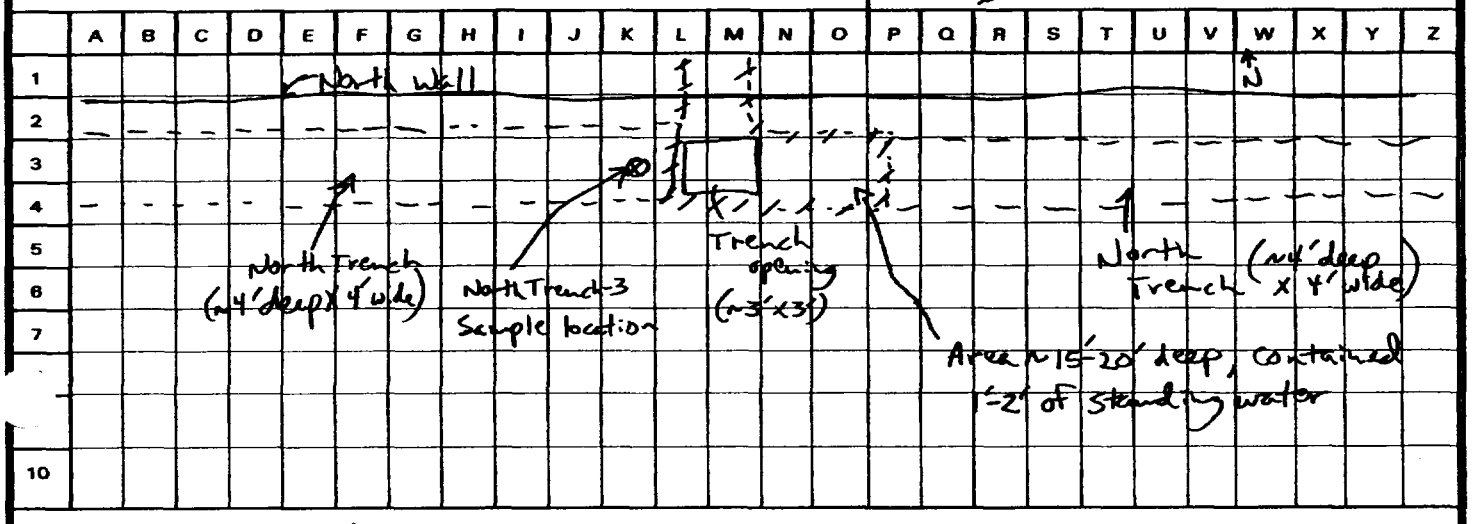
Notes: Bkgd.= 8 uR/hr, scanned debris in trench, no gamma radiation levels detected > bkgd. levels. Collected a grab sample of debris from base of the trench. Potential asbestos on piping.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: North Trench-3	Site Name: Former UNC New Haven, CT Facility	Date: 10/14/03	Time: 0930 / Page: 1 of 1
Sample Location: ~130' west of North Trench-3 Between columns 16 & 17	Sample media: Soil/Trench Debris	Sample Collected ed By (Signature): [signature]	
Sample Depth: 0"-4"	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Stainless Steel Scoop		Sample Container: Ziploc Bag	
Preservative: None		Grid Dimensions: N/A ☐ meters ☐ feet ☐ inches ☐ centimeters	



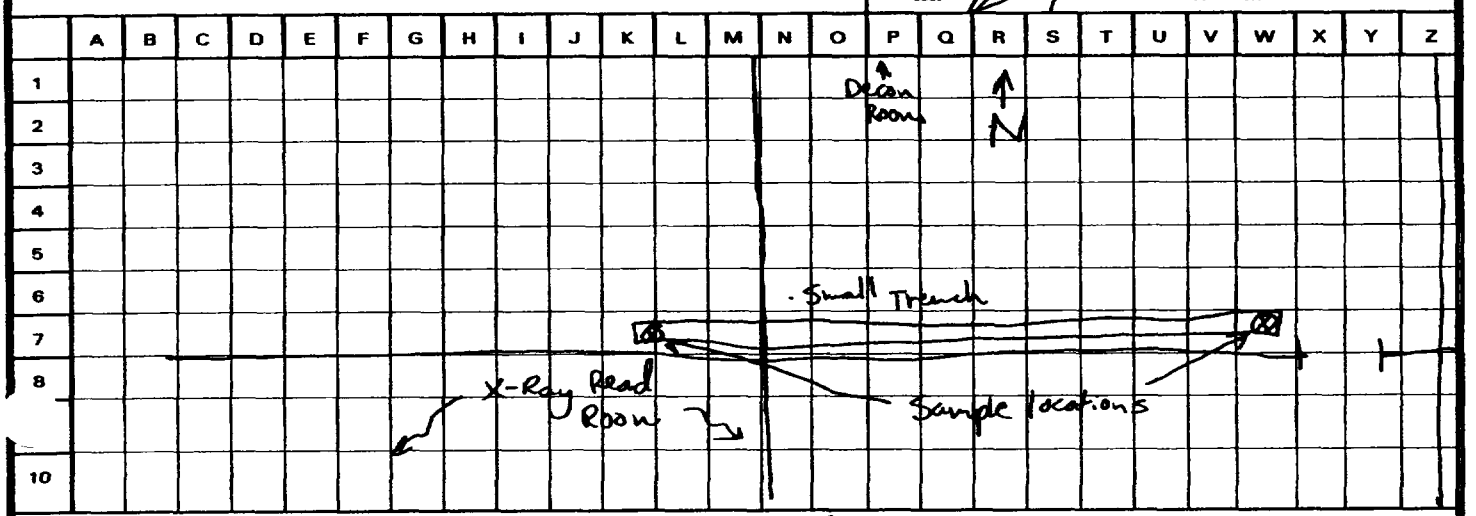
Notes: Bkgd. = 8 uR/hr. Scanned debris in trench, no gamma radiation levels detected > bkgd. levels. Collected a grab sample of debris from base of trench (the part that was ~4' deep). This area had a larger area (~8'-10' wide & ~15'-20' deep) & had 1'-2' of standing water. Another trench appeared to run North from this area. Potential asbestos on piping

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Small Trench	Site Name: Former UNC New Haven, CT Facility	Date: 10/15/03	Time: 0830 / Page: 1 of 1
Sample Location: Small Trench immed. North of X-Ray Read Room wall	Sample media: Trench Sludge/sediment	Sample Collected ed By (Signature): [signature]	
Sample Depth: 0"-3"	Sample Type: (grab, composite, etc.) Composite	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Stainless steel scoop		Sample Container: Ziploc Bag	
Preservative: None		Grid Dimensions: ☐ meters ☐ feet N/A ☐ inches ☐ centimeters	



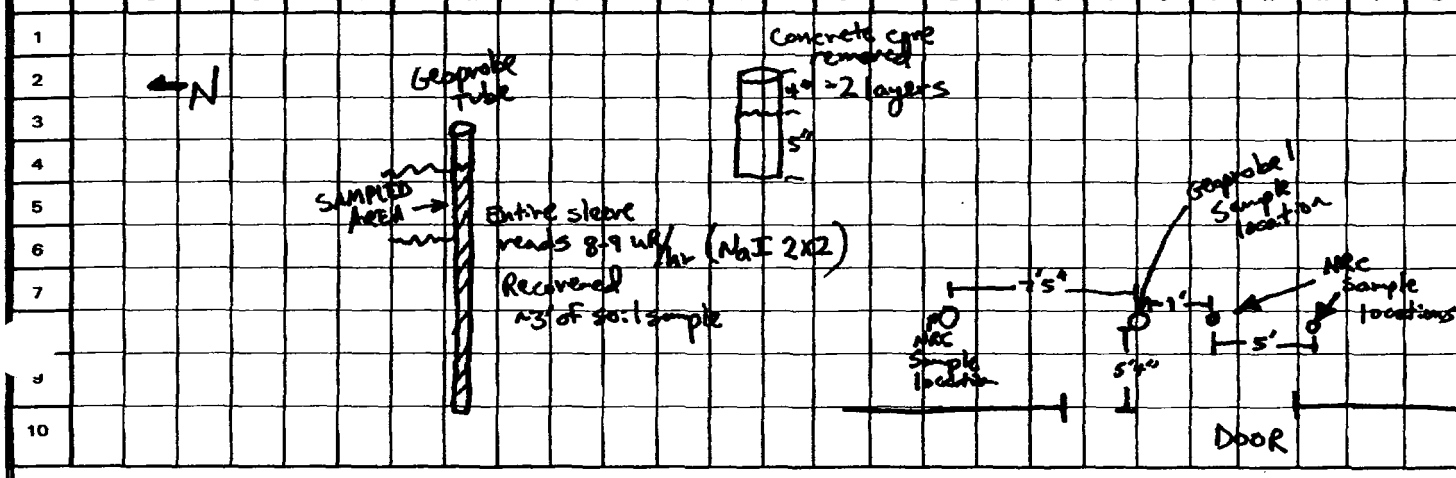
Notes: Collected a composite sample of sediment from small trench. Trench is ~6" deep x 6" wide x 20' long.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Geoprobe-1	Site Name: Former UNC New Haven, CT Facility	Date: 2/11/03	Time: 1145 / Page: 1 of 1
Sample Location: Adjacent to underground line from decon pit.	Sample media: Soil	Sample Collected ed By (Signature): [signature]	
Sample Depth: 3' into soil	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Geoprobe/plastic sleeve (2" dia)		Sample Container: ziploc Bag	
Preservative: Ice, 4 deg. C		Grid Dimensions: N/A x N/A ☐ meters ☐ feet ☐ inches ☐ centimeters	



Notes:

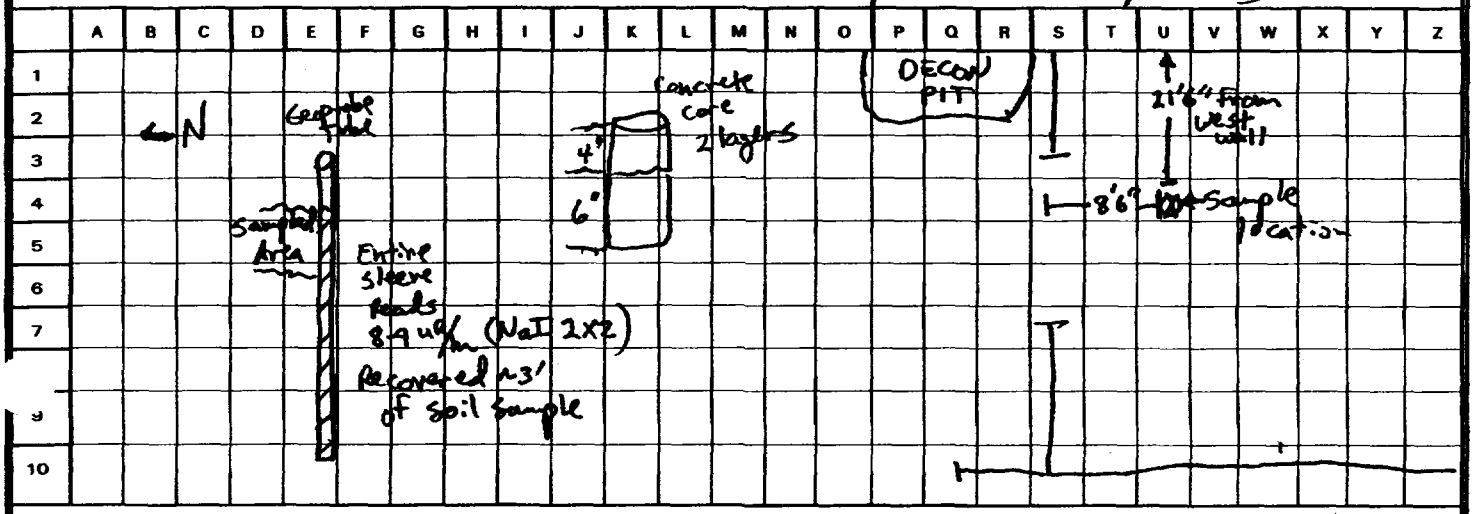
Collected geoprobe sample at Geoprobe location #1, recovered ~3' of sample material. Core had no detectable γ > bkgd.. Concrete core removed was 2 layers (2 floors), surveyed for γ radiation + βγ contamination over entire concrete core, no readings noted > bkgd. Sample core had ~3"-4" of asphalt material on top, soil beneath. Collected sample in the upper 1' of the PVC tube, remaining ~~tube sample~~ sample material in the tube will be archived. Downhole reading w/Model 12/44-2 w/ 1" NaI was 3000 cpm (same as bkgd.)

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Geoprobe-2	Site Name: Former UNC New Haven, CT Facility	Date: 2/11/03	Time: 1120 / Page: 1 of 1
Sample Location: Adjacent to underground line from decon pit	Sample media: Soil	Sample Collected ed By (Signature): [signature]	
Sample Depth: 3' into soil	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Geoprobe / 2" dia. plastic sleeve		Sample Container: Ziploc Bag	
Preservative: Ice, 4 deg. C		Grid Dimensions: ☐ meters ☐ feet ☐ inches ☐ centimeters — N/A	



Notes:

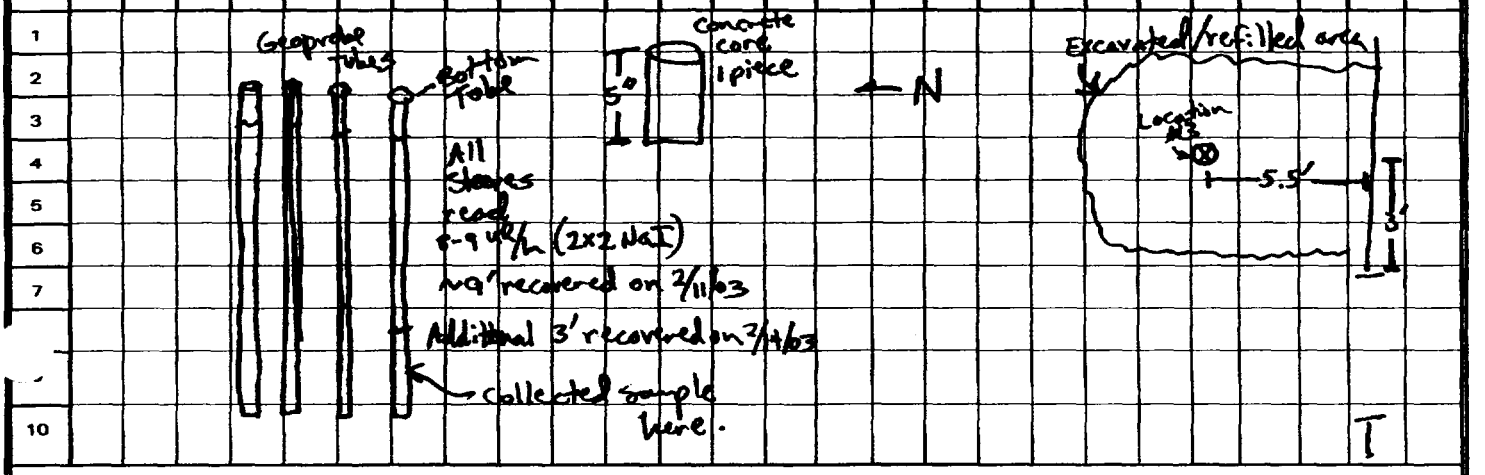
Collected geoprobe sample at location #2, recovered ~3' of sample material. Core had no detectable γ > bkgd. Concrete core removed. Concrete core removed was 2 layers (2 floors), surveyed for γ radiation & Br contamination over entire core, no readings noted > bkgd. Sample core had ~ 2"-3" of asphalt on top of the soil. Collected sample in the upper 1' of the PVC tube, remaining sample material in the tube will be archiyed. Downhole reading w/Model 12/44-2 1" NaI was 3000 cpm (same as bkgd.)

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Geoprobe-3	Site Name: Former UNC New Haven, CT Facility	Date: 2/11/03	Time: 1030 / Page: 1 of 1
Sample Location: Decon pit	Sample media: Soil	Sample Collected ed By (Signature): [signature]	
Sample Depth: 13'	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Geoprobe/2" dia. plastic sleeve		Sample Container: Ziploc Bag	
Preservative: Ice, 4 deg. C		Grid Dimensions: N/A x ☐ meters ☐ feet ☐ inches ☐ centimeters	



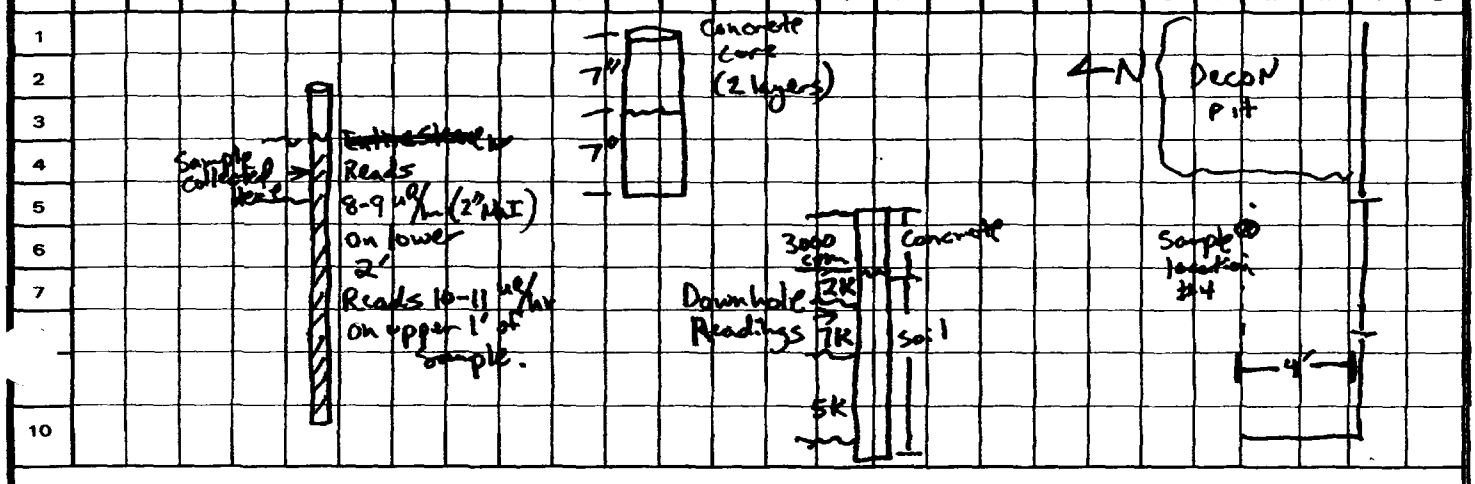
Notes: Collected geoprobe sample at location #3 (decon pit), recovered ~9' on 2/11/03 and an additional 3' on 2/14/03. Core had no detectable γ >bkgd. Concrete core removed was 1 layer, surveyed for γ radiation + BY contamination over entire core, no readings noted >bkgd. All material recovered was a red soil. Collected sample from the bottom of the deepest sample tube, remaining sample material will be archived. Downhole reading w/Model 12/44-2 (1" NaI) was 3000 cpm (same as bkgd.)

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Geoprobe-4	Site Name: Former UNC New Haven, CT Facility	Date: 2/11/03	Time: 1045	Page: 1 of 1
Sample Location: Adjacent to decon pit (west)	Sample media: Soil	Sample Collected ed By (Signature): [signature]	
Sample Depth: 3' into soil	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Geoprobe/2" dia. plastic sleeve		Sample Container: Ziploc Bag	
Preservative: Ice, 4 deg. C		Grid Dimensions: ☐ meters ☐ feet N/A x ☐ inches ☐ centimeters	



Notes:

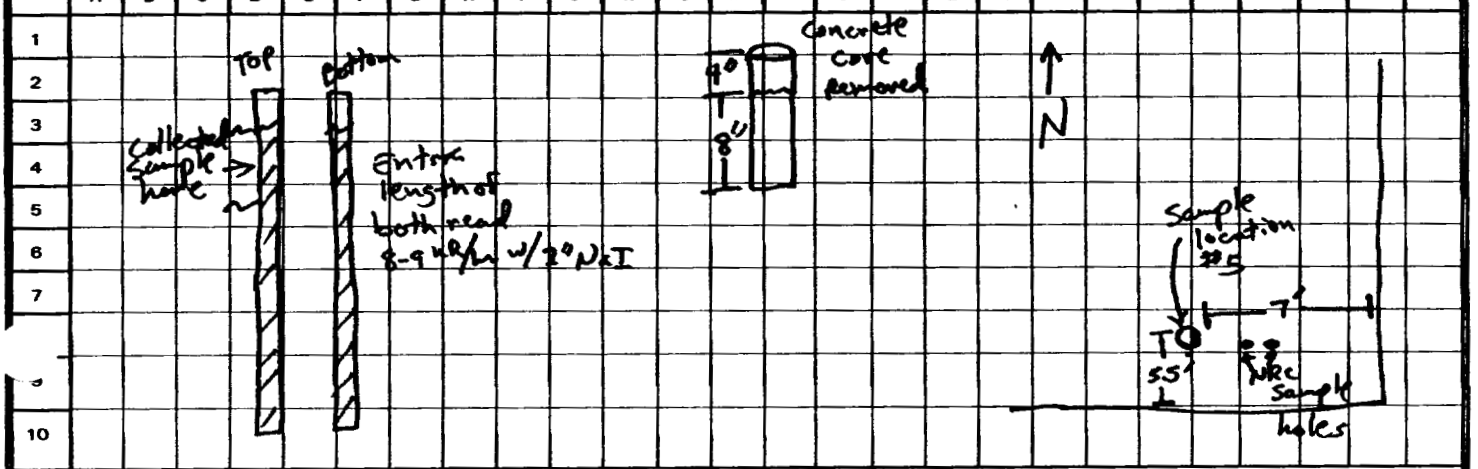
Collected geoprobe sample at location #4 (adjacent to decon pit), recovered ~3' of soil. Core read 10-11 uR/hr on upper 1' of sample, bkgd. levels >1'. Concrete core removed was 2 layers, surveyed for γ radiation & βγ contamination over entire core, no readings noted > bkgd. Collected sample from the top of the core, remaining sample material will be archived. Down hole readings showed elevated readings > bkgd (extended ~5' into hole).

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Geoprobe-5	Site Name: Former UNC New Haven, CT Facility	Date: 2/12/03	Time: 1100	Page: 1 of 1
Sample Location: X-RAY Read Room SE Corner	Sample media: Soil	Sample Collected ed By (Signature): [signature]	
Sample Depth: 6' into soil	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Geoprobe/2" dia. plastic sleeve		Sample Container: Ziploc Bag	
Preservative: Ice, 4 deg. C		Grid Dimensions: N/A x ☐ meters ☐ feet ☐ inches ☐ centimeters	



Notes:

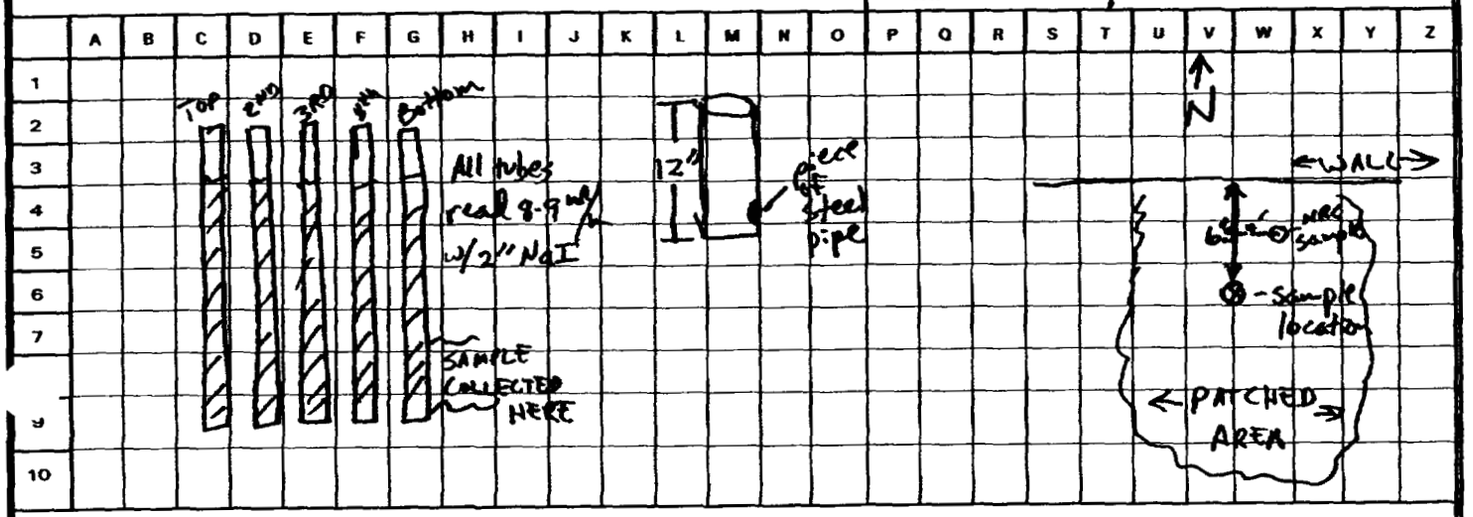
Collected geoprobe sample at location #5, recovered ~6' of material. Core had no detectable γ > bkgd. Concrete core removed was 2 layers, surveyed for γ radiation & βγ contamination, no levels detected > bkgd. Collected soil sample from the upper 1' of the top core, remaining sample material in tubes will be archived. Downhole reading w/Model 12/44-2 (1" NaI) was 3000 cpm (same as bkgd.)

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Geoprobe-6	Site Name: Former UNC New Haven, CT Facility	Date: 2/11/03	Time: 1355 / Page: 1 of 1
Sample Location: X ray Read Room Center of Excavated Area	Sample media: Soil	Sample Collected By (Signature): [signature]	
Sample Depth: 13' into soil	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Geoprobe/2" dia. plastic sleeve		Sample Container: Zip loc Bag	
Preservative: Ice, 4 deg. C		Grid Dimensions: ☐ meters ☐ feet N/A ☐ inches ☐ centimeters	



Notes:

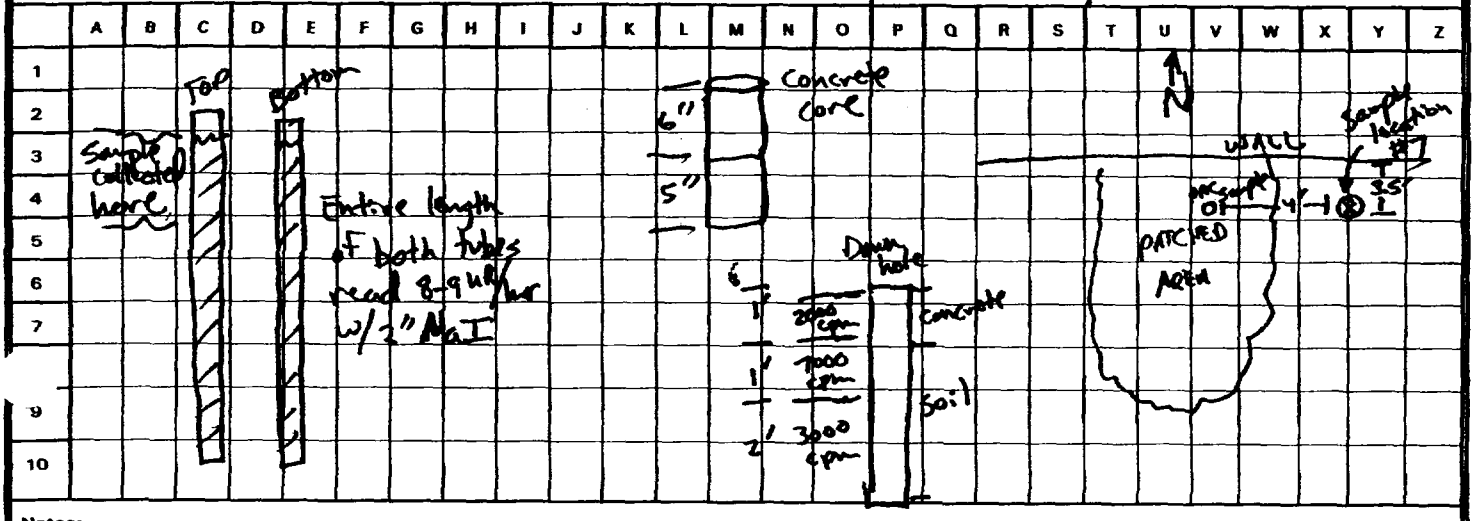
Collected geoprobe sample at location #6, recovered ~9' of soil on 2/11/03 + ~6' of soil on 2/13/03. Cores had no detectable γ > bkgd. Concrete core removed was one piece w/piece of steel pipe near the bottom, surveyed for γ radiation + βγ contamination, no levels detected > bkgd. Collected soil sample from the bottom 1' of the bottom core, remaining sample material in tubes will be archived. Downhole reading w/Model 12/44-2 (1" NaI) was 3000 cpm (same as bkgd.).

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Geoprobe-7	Site Name: Former UNC New Haven, CT Facility	Date: 2/12/03	Time: 1030 / Page: 1 of 1
Sample Location: Xray Read Room East of patched area.	Sample media: Soil	Sample Collected ed By (Signature): [signature]	
Sample Depth:	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Geoprobe/2" dia. plastic sleeve		Sample Container: Ziploc Bag	
Preservative: Ice, 4 deg. C		Grid Dimensions: N/A x ☐ meters ☐ feet ☐ inches ☐ centimeters	



Notes:

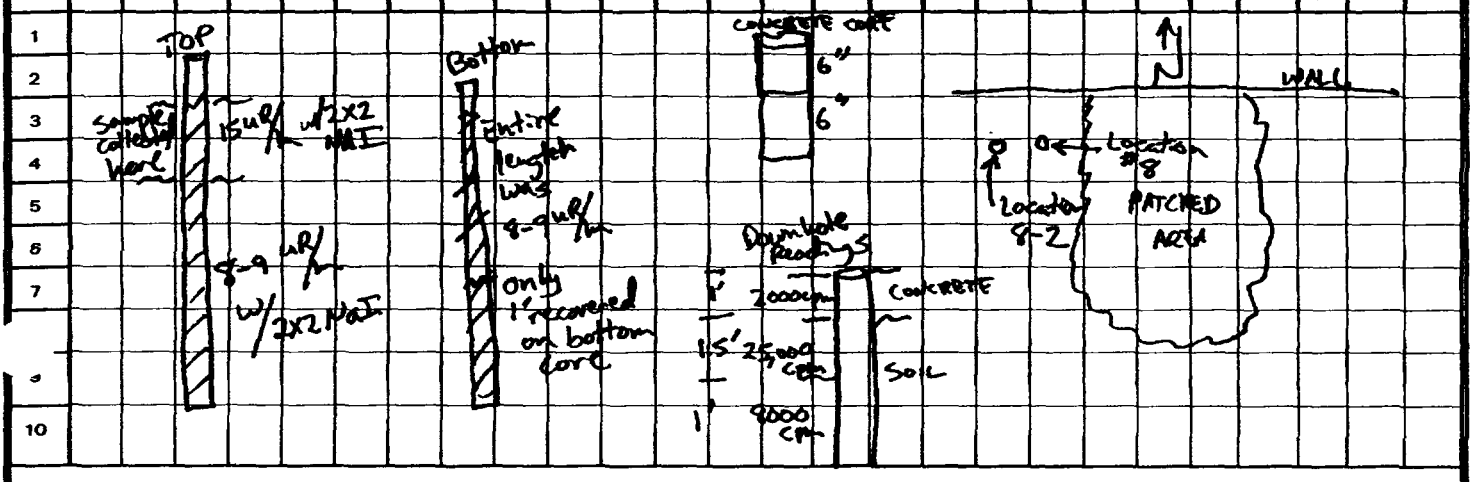
Collected geoprobe sample at location #7, recovered ~7' of soil. Cores had no detectable γ > bkgd. Concrete core removed was 2 pieces, surveyed for γ radiation & BR contamination, no levels noted > bkgd.. Collected soil sample from the top 1' of the top core tube, remaining material in tubes will be archived. Down hole reading w/ Model 12/44-2 (1" NaI) indicated elevated readings in the upper 1' of soil, dropped to bkgd. levels (3000 cpm) > 1' depth.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Geoprobe-8-2	Site Name: Former UNC New Haven, CT Facility	Date: 2/13/03	Time: 1630 / Page: 1 of 1
Sample Location: X Ray Read Room west of patched area	Sample media: Soil	Sample Collected ed By (Signature): [signature]	
Sample Depth: 6' into soil	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Geoprobe / 2" dia. plastic sleeve		Sample Container: Ziploc Bag	
Preservative: Ice, 4 deg. C		Grid Dimensions: ☐ meters ☐ feet — N/A ☐ inches ☐ centimeters	



Notes:

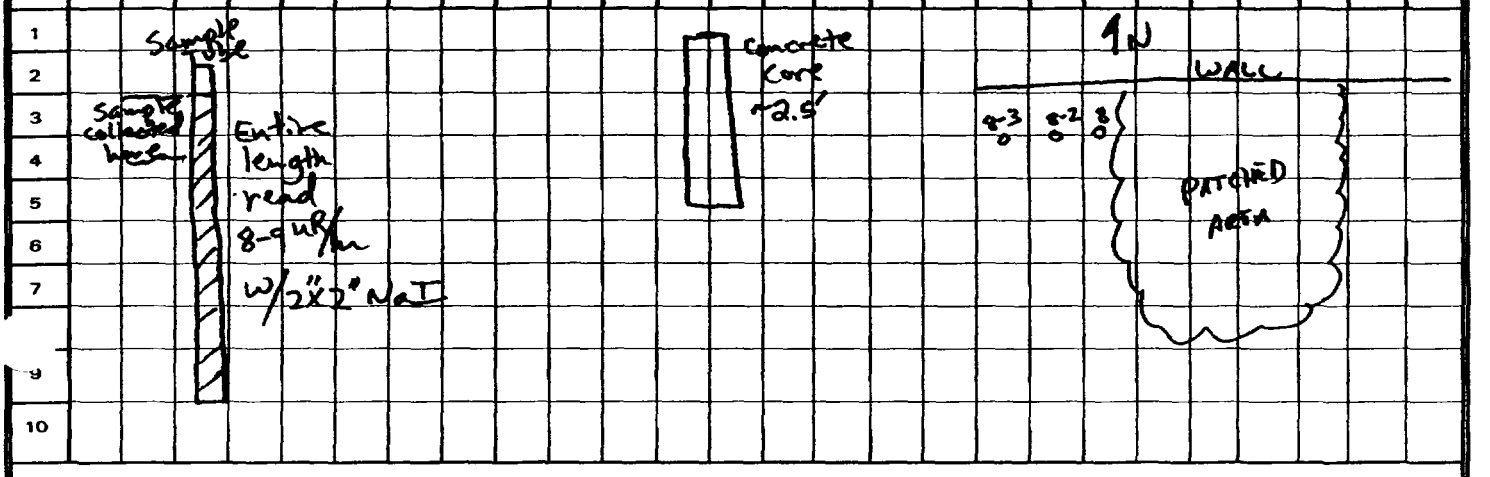
Collected geoprobe sample at location 8-2, recovered ~4' of soil & then hit obstruction. Was unable to retrieve any sample at original location 8 due to some obstruction. Concrete core was 2 layers, was surveyed for γ radiation & Bγ contamination, no levels > bkgd. were noted. Collected sample from the top 1' of the top core tube, remaining material in tubes will be archived. Down hole reading w/ Model 12/44-2 (1" NaI) indicated elevated readings in the soil (2.5' thickness depth)

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Geoprobe-8-3	Site Name: Former UNC New Haven, CT Facility	Date: 2/14/03	Time: 0930	Page: 1 of 1
Sample Location: ~1' West of sample 8-2 in Xray Read Room	Sample media: Soil	Sample Collected ed By (Signature): [signature]	
Sample Depth: ~3' into soil	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Geoprobe/2" dia. plastic sleeve		Sample Container: Ziploc Bag	
Preservative: Ice, 4 deg. C		Grid Dimensions: ☐ meters ☐ feet N/A ☐ inches ☐ centimeters	



Notes:

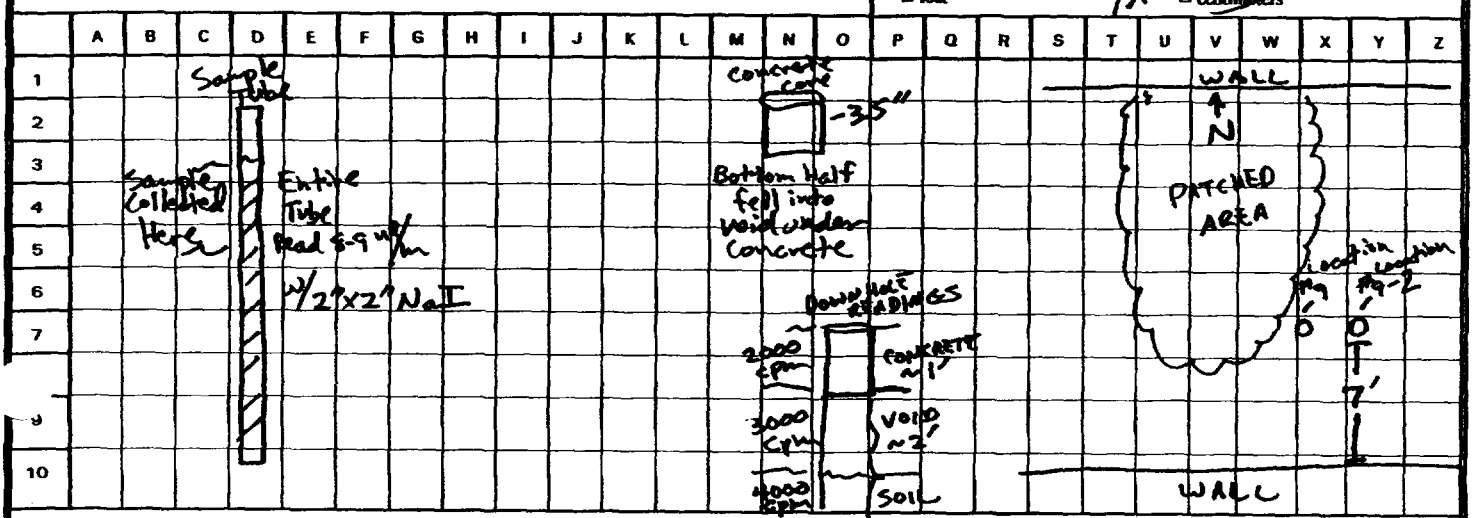
Collected geoprobe sample at location 8-3, recovered ~3' of material. Concrete core was ~2.5' thick, surveyed for γ radiation & βγ contamination, no levels noted > bkgd. Collected sample from top 1' of sample tube, remaining material in tube to be archived. Down hole reading w/ Model 12/44-2 (1" NaI) was 3000 cpm (same as bkgd.)

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Geoprobe-9-2	Site Name: Former UNC New Haven, CT Facility	Date: 2/12/03	Time: 1130 / Page: 1 of 1
Sample Location: Xray Read Room SE of patched area	Sample media: Soil	Sample Collected ed By (Signature): [signature]	
Sample Depth: ~3' into soil	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Geoprobe/2" dia. plastic sleeve		Sample Container: Ziploc Bag	
Preservative: Ice, 4 deg. C		Grid Dimensions: N/A x ☐ meters ☐ feet ☐ inches ☐ centimeters	



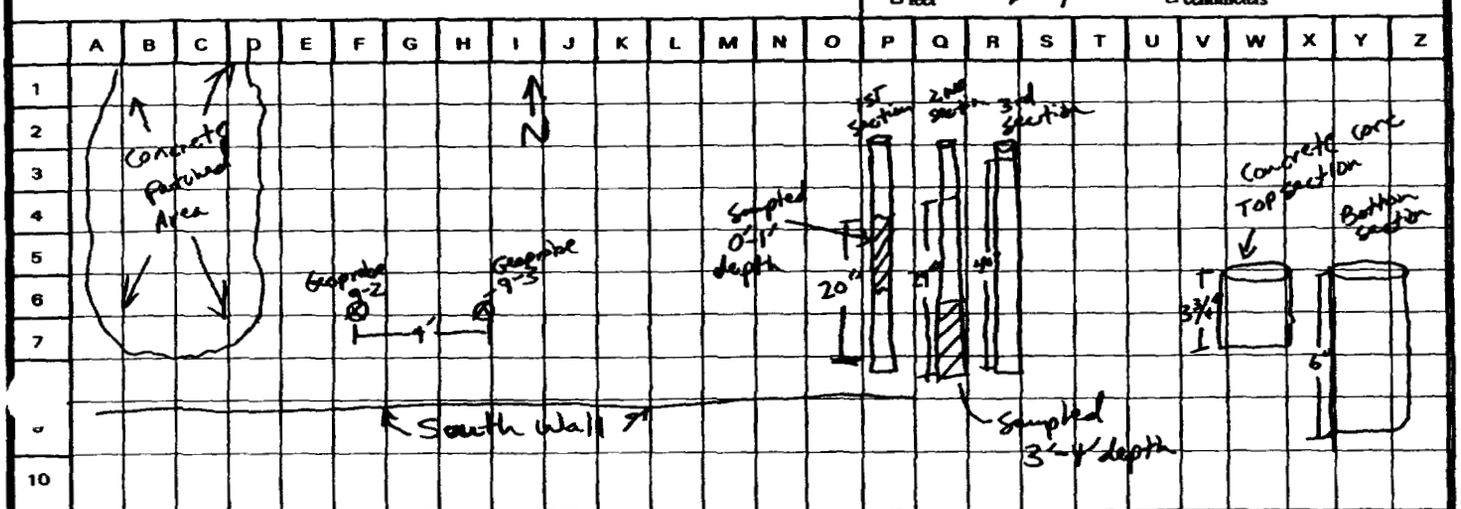
Notes: Collected geoprobe sample at location 9-2, recovered ~3' of soil. Was unable to collect sample at original location #9 due to clay pipe obstruction. Concrete core was 2 layers, bottom ½ fell into void under concrete, removed core was surveyed for γ radiation + βγ contamination, no levels > bkgd. were noted. Sample was collected in the top 1' of the sample tube, remaining material in tube will be archived. Downhole readings w/Model 12/4t-2 (1" NaI) showed slightly elevated readings in the soil, 1000 cpm > bkgd. (Bkgd = 3000 cpm)

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

P Number 2002020

Sample Number: Geoprobe 9-3	Site Name: Former UNC New Haven, CT Facility	Date: 10/13/03	Time: 1215	Page: 1 of 1
Sample Location: X-ray readroom, ~4' east of Geoprobe 9-2	Sample media: Soil	Sample Collected ed By (Signature):		
Sample Depth: 0'-1' & 3'-4', Total ~7' core collected.	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff		
Sample Method/Collection Device: Geoprobe Core		Sample Container: 500 ml plastic jar		
Preservative: None		Grid Dimensions: N/A ☐ meters ☐ feet ☐ inches ☐ centimeters		



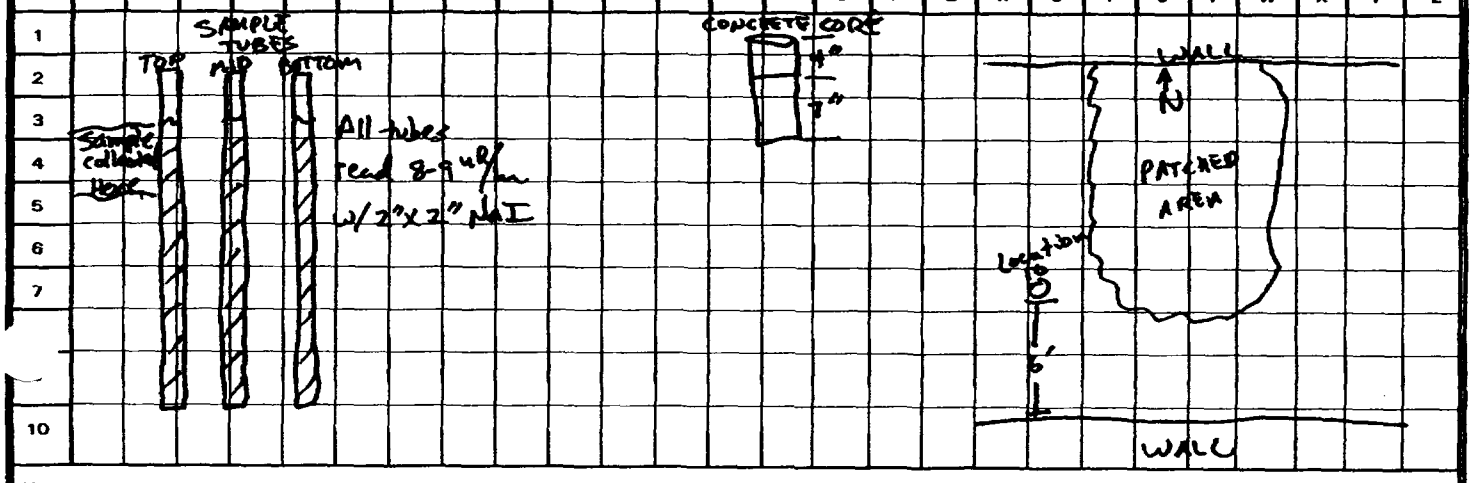
Notes: Collected geoprobe sample at location 9-3, recovered ~7' of soil in 3 sample tubes. Concrete core was 2 layers, surveyed for γ radiation + Br contamination, no levels noted > bkgd. levels. Samples were collected at the 0'-1' level + at the 3'-4' level, remaining samples were bagged + sent to GEL labs for archival. Downhole readings showed no detectable γ > bkgd. levels. Gamma scan on ~~core~~ sample tubes showed no γ > bkgd. levels. Collected a sample for TCLP metals from the 1"-2" depth of soil.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Geoprobe 10	Site Name: Former UNC New Haven, CT Facility	Date: 2/12/03	Time: 0855 / Page: 1 of 1
Sample Location: Xray Read Room SW corner of patched area	Sample media: Soil	Sample Collected ed By (Signature): [signature]	
Sample Depth: 9' into soil	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Geoprobe/2" dia. plastic sleeve		Sample Container: Ziploc Bag	
Preservative: Ice, 4 deg. C		Grid Dimensions: N/A x ☐ meters ☐ feet ☐ inches ☐ centimeters	



Notes:

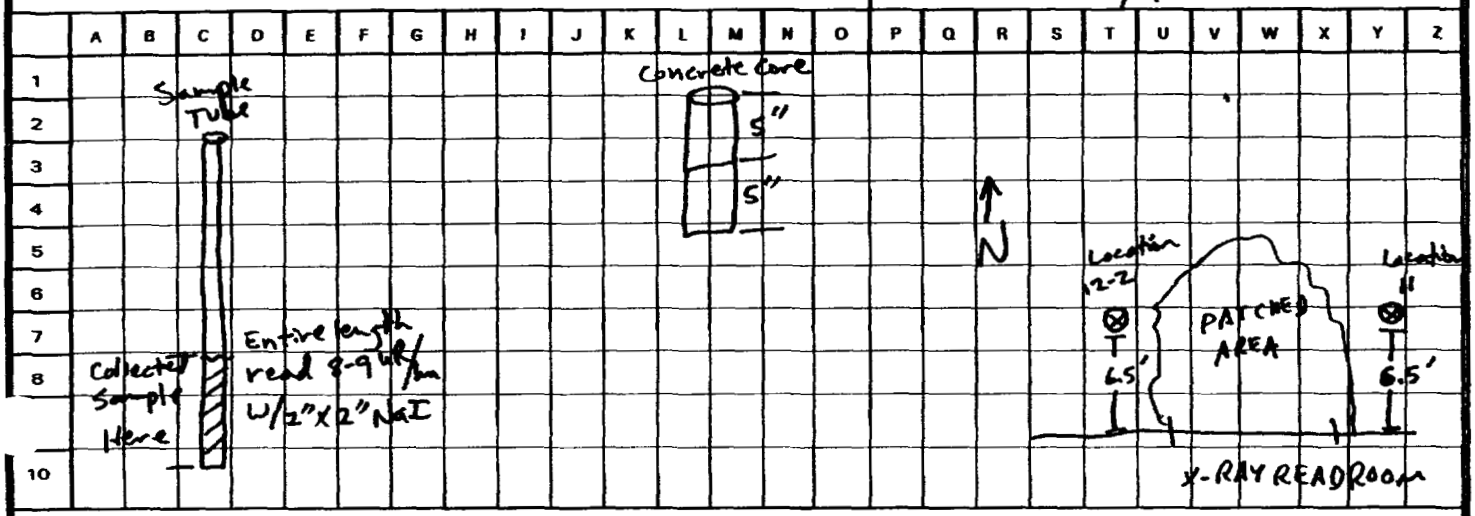
Collected geoprobe sample at location #10, recovered ~ 9' of soil. Concrete core was 2 layers, surveyed for γ radiation & BY contam, no levels noted > bkgd. levels. Sample was collected in top 1' of upper sample tube, remaining sample in tubes will be archived. Down hole readings w/Model 12/44-2 (1" NaI) showed levels in the soil no greater than bkgd. (3000cpm).

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Geoprobe-12-2	Site Name: Former UNC New Haven, CT Facility	Date: 2/14/03	Time: 1005	Page: 1 of 1
Sample Location: At exit of Xray read room, adjacent (west) of patched area.	Sample media: Soil	Sample Collected ed By (Signature): [signature]		
Sample Depth: 1' into soil	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff		
Sample Method/Collection Device: Geoprobe /2" dia. plastic sleeve		Sample Container: Ziploc Bag		
Preservative: Ice, 4 deg. C		Grid Dimensions: ☐ meters ☐ feet N/A ☐ inches ☐ centimeters		



Notes:

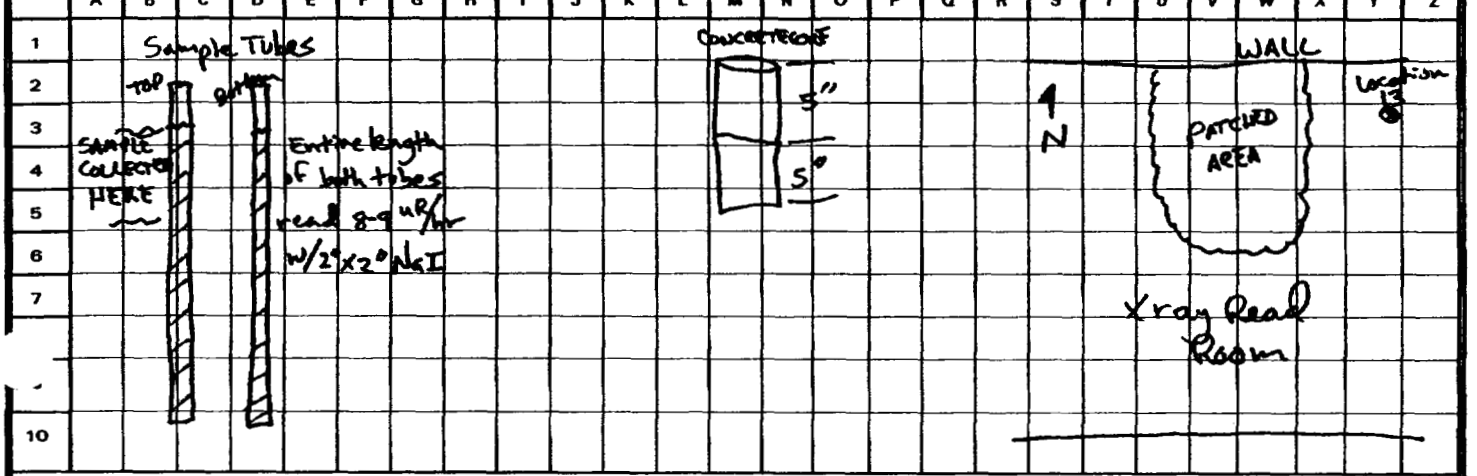
Collected geoprobe sample at location 12-2, recovered ~1' of material then hit obstruction (same thing happened at location 12, immediately adjacent to 12-2). Concrete core was 2 layers, surveyed for γ radiation + βγ contam., no counts noted > bkgd. levels. Sample consisted of the entire 1' core, no archive materials remained. Downhole readings w/Model 12/44-2 (1" NaI) showed no levels > bkgd. levels (3000 cpm).

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

ple Number: Geoprobe 13	Site Name: Former UNC New Haven, CT Facility	Date: 2/13/03	Time: 1230 / Page: 1 of 1
Sample Location: Xray Read Room East of patched area	Sample media: Soil	Sample Collected ed By (Signature): [signature]	
Sample Depth: 6' into soil	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Geoprobe/2" dia. plastic sleeve		Sample Container: Ziploc Bag	
Preservative: Ice, 4 deg. C		Grid Dimensions: ☐ meters ☐ feet N/A ☐ inches ☐ centimeters	



Notes:

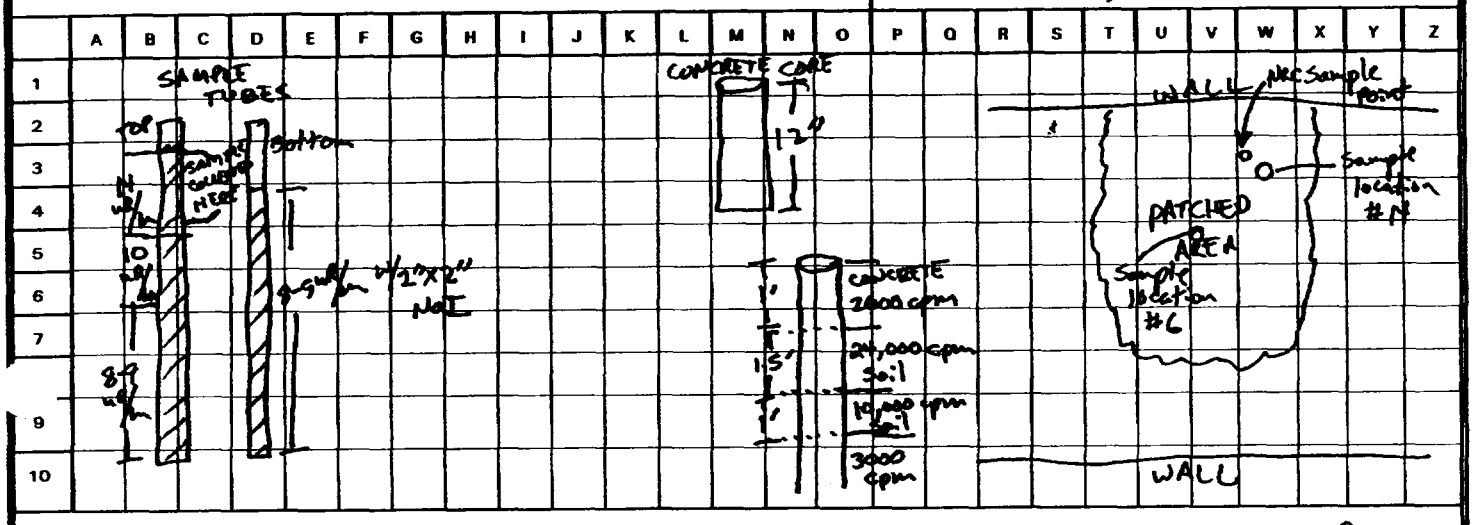
Collected geoprobe sample at location #13, recovered ~6' of soil. Concrete core was 2 layers, surveyed for γ radiation + Bγ contam., no counts noted > bkgd. levels. Sample was collected in the top 1' of the top sample tube, remaining material in tubes will be sent for archiving. Downhole readings w/Model 12/44-2 (1" NaI) showed levels in soil no greater than bkgd. levels (3000 cpm).

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Geoprobe-14	Site Name: Former UNC New Haven, CT Facility	Date: 2/13/03	Time: 1300	Page: 1 of 1
Sample Location: x ray Read Room Adjacent to NRC sample core	Sample media: Soil	Sample Collected ed By (Signature): [signature]	
Sample Depth: 6.5' into soil	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Geoprobe/2" dia. plastic sleeve		Sample Container: Ziploc Bag	
Preservative: Ice, 4 deg. C		Grid ~~Dimensions~~ ☐ ~~meters~~ ☐ ~~feet~~ N/A x ☐ ~~inches~~ ☐ ~~centimeters~~	



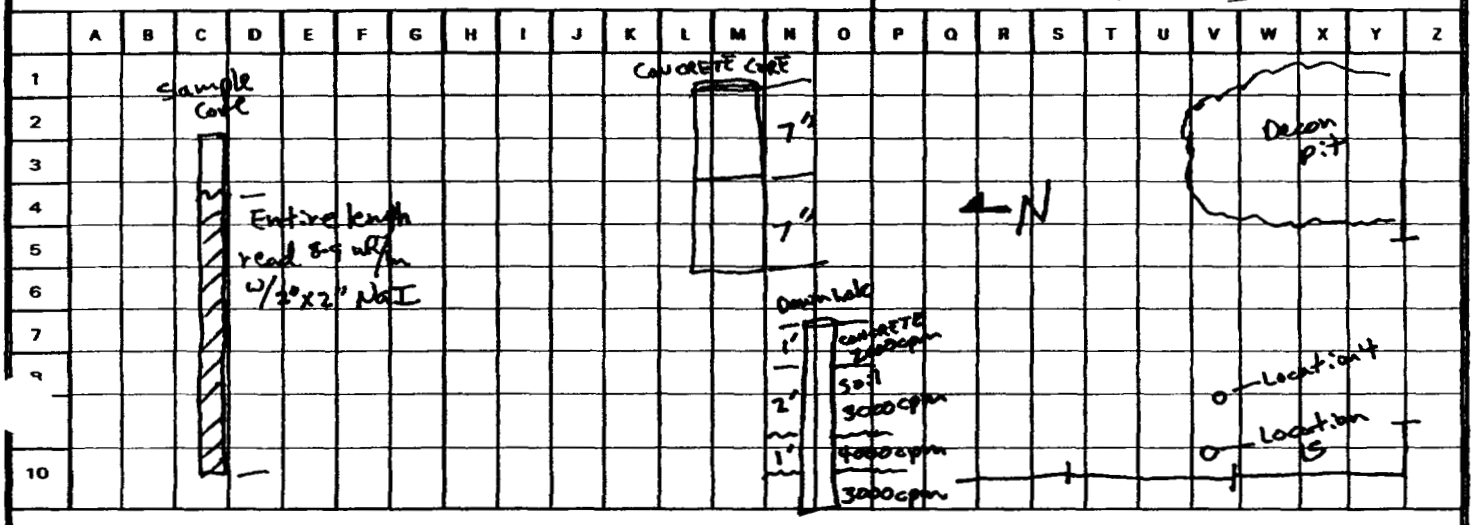
Notes: Collected geoprobe sample from location #14, retrieved ~6.5' of soil. Concrete core was 1 piece, surveyed for γ radiation + βγ contamination. Sample was collected from the top 1' of the top sample core, remaining material in tubes will be archived. Downhole readings w/Model 12/44-2 showed elevated γ levels in the upper 2.5' of soil.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Geoprobe-15	Site Name: Former UNC New Haven, CT Facility	Date: 2/14/03	Time: 1025 / Page: 1 of 1
Sample Location: Decon Room, west of decon pit + Geoprobe-4	Sample media: Soil	Sample Collected ed By (Signature): [signature]	
Sample Depth: 3' into soil	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Geoprobe/2" dia. plastic sleeve		Sample Container: Ziploc Bag	
Preservative: Ice, 4 deg. C		Grid Dimensions: ☐ meters ☐ feet — N/A x ☐ inches ☐ centimeters	



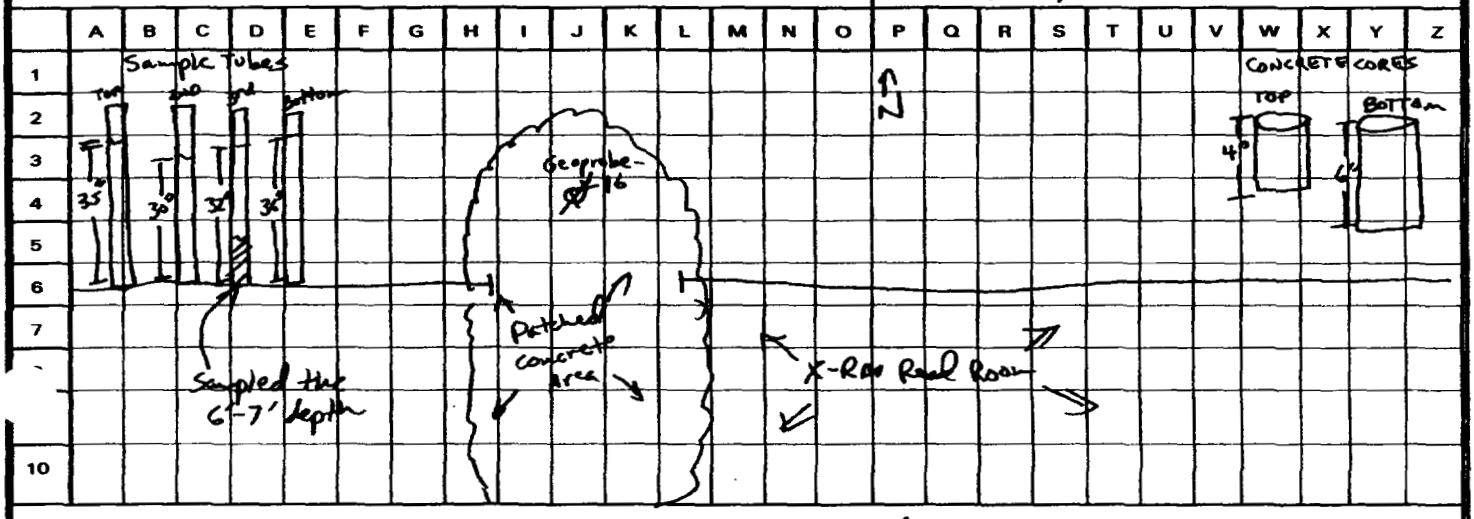
Notes: Collected geoprobe sample at location #5, recovered ~3' of soil. Concrete core was 2 layers, surveyed for γ radiation & βγ contam., no levels > bkgd. were noted. Sample was collected from the top 1' of the sample tube, remaining material in tube will be archived. Downhole readings w/ Model 12/44-2 (1" NaI) showed a slight ↑ (1000cpm) over bkgd. (3000cpm) at 3' into the soil.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Geoprobe-16	Site Name: Former UNC New Haven, CT Facility	Date: 10/13/03	Time: 1330 / Page: 1 of 1
Sample Location: Center of patched Area, North side.	Sample media: Soil	Sample Collected ed By (Signature): [signature]	
Sample Depth: 0'-1' depth & 6'-7' depth	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Geoprobe Core		Sample Container: 500 ml plastic jar	
Preservative: None		Grid Dimensions: N/A ☐ meters ☐ feet ☐ inches ☐ centimeters	



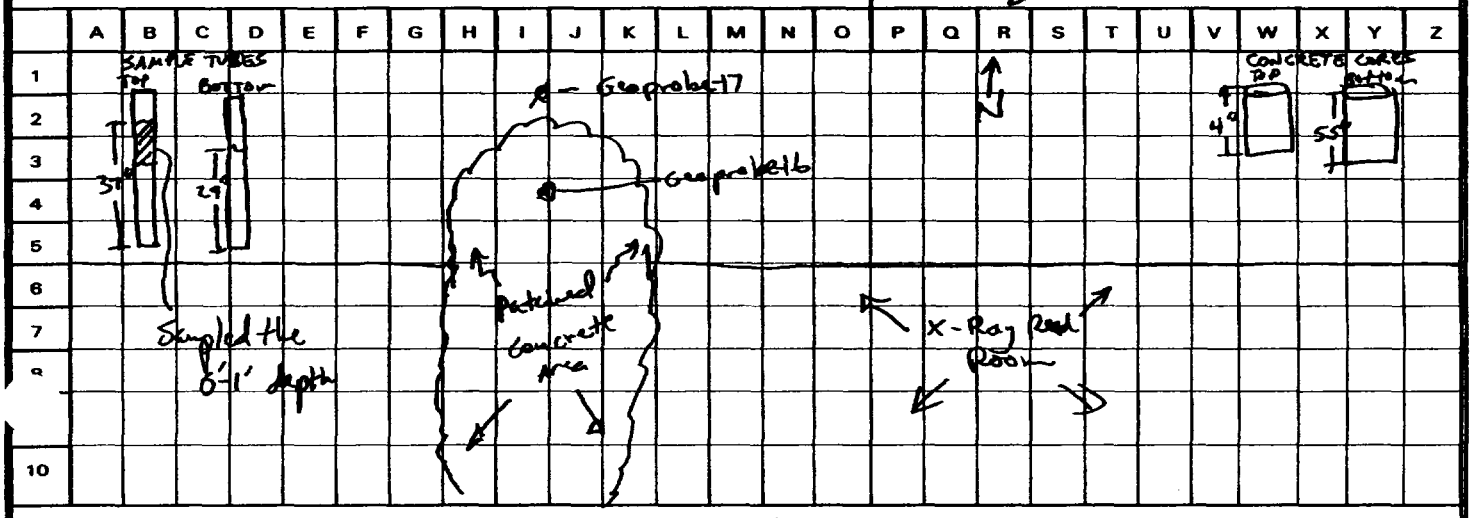
Notes: Collected sample at location 16, recovered ~10' of soil in 4 sample tubes. Concrete core was 2 layers, surveyed for γ radiation & BR contamination, no levels noted > bkgd. levels. The concrete coring ~~machine~~ machine dug into the 1ST 6"-8" of soil & that soil was removed with the coring machine. Detectable γ radiation up to 14μR/hr on that soil. Collected that soil removed by coring machine + soil at the 6'-7' depth as 2 samples to be analyzed by gamma spectroscopy. Gamma scan on all sample tubes/soil were at bkgd. levels. Remaining sections of sample tubes sent for Archival.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Geoprobe-17	Site Name: Former UNC New Haven, CT Facility	Date: 10/13/03	Time: 1445 / Page: 1 of 1
Sample Location: North of x-ray Read Rm. concrete patched area	Sample media: Soil	Sample Collected By (Signature):	
Sample Depth: 0'-1'-Rad analysis, 1'-2' depth-TCLP metals	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Geoprobe core		Sample Container: 500 ml. plastic jar	
Preservative: None		Grid Dimensions: N/A ☐ meters ☐ feet ☐ inches ☐ centimeters	



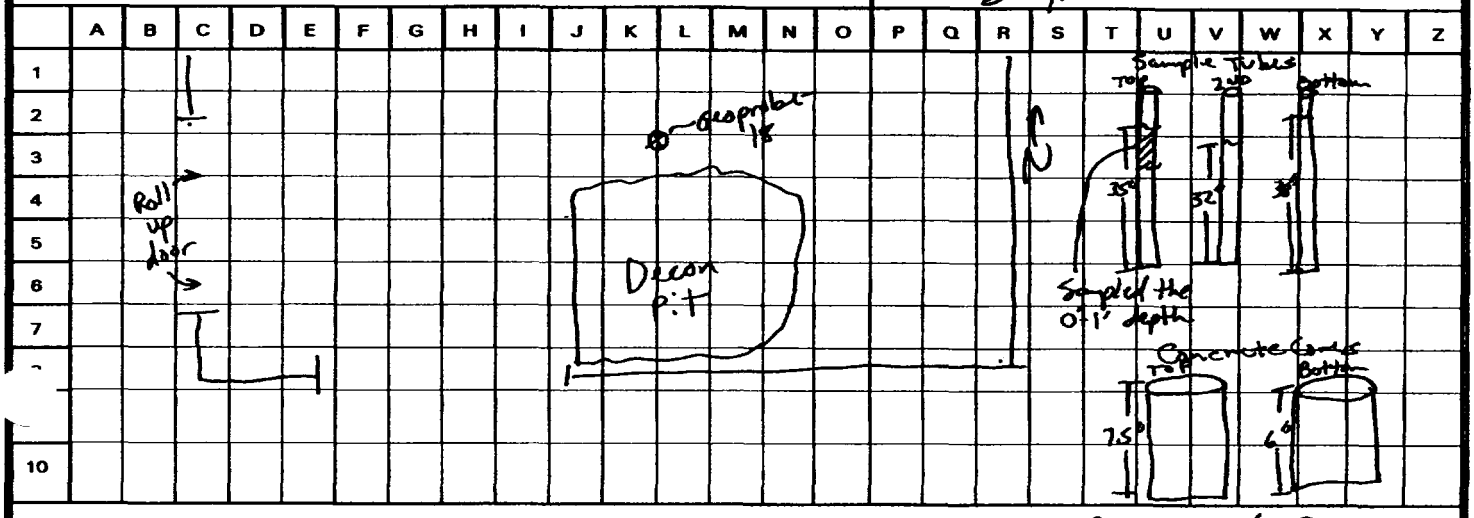
Notes: Collected geoprobe sample at location 17, recovered ~5.5' of soil. Concrete core was 2 layers, surveyed for γ radiation + βγ contam., no levels noted > bkgd. levels. No γ detected on sample tubes > bkgd. levels or during downhole readings. Collected the 0'-1' depth of soil as sample for analysis, remaining sections of tubes sent for archival. The 1'-2' depth was sampled for TCLP metals analysis.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Geoprobe-18	Site Name: Former UNC New Haven, CT Facility	Date: 10/13/03	Time: 1515 +1550 / Page: 1 of 1
Sample Location: Decon pit Room, North of decon pit	Sample media: Soil	Sample Collected ed By (Signature): [signature]	
Sample Depth: 0'-1' into soil.	Sample Type: (grab, composite, etc.) Grab	Sample Collected By (Print): R. Alan Duff	
Sample Method/Collection Device: Geoprobe Core		Sample Container: 500 ml. plastic jar	
Preservative: None		Grid Dimensions: ☐ meters ☐ feet N/A ☐ inches ☐ centimeters	



Notes: Collected geoprobe sample at location 18, recovered ~8.75' of soil. Concrete core was 2 layers, surveyed for γ radiation & Br contam., no levels noted > bkgd. levels. No γ detected on sample tubes > bkgd. levels or on down hole readings. Collected the 0'-1' depth of soil as sample for rad. analysis, remaining sections sent to lab for Archival.

Copyright © Integrated Environmental Management, 1998

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.

SAMPLE COLLECTION LOG

Project Number 2002020

Sample Number: Soil Composite	Site Name: Former UNC New Haven, CT Facility	Date: 2/14/03	Time: 1230	Page: 1 of 1
Sample Location: Composite of 15 geoprobe samples	Sample media: Soil	Sample Collected ed By (Signature): [signature]		
Sample Depth: Various	Sample Type: (grab, composite, etc.) Composite	Sample Collected By (Print): R. Alan Duff		
Sample Method/Collection Device: Geoprobe/2" dia. plastic sleeve		Sample Container: Ziploc Bag		
Preservative: Ice, 4 deg. C		Grid Dimensions: ☐ meters ☐ feet N/A ☐ inches ☐ centimeters		

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1																										
2																										
3																										
4																										
5																										
6																										
7																										
8																										
10																										

Notes: Mixed equal volumes of all 15 geoprobe samples in stainless bowl to make the soil composite sample.

Copyright © Integrated Environmental Management, 1998

Appendix F - Sample Chain of Custody Records

INTEGRATED ENVIRONM ITAL MANAGEMENT, INC.
ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Page 1 of 1

Reference No 2002020.01

(1) Client Name UNC-New Haven/AAA	(7) Samples Shipment Date 2/3/03	(5) Bill to: IEM /Attn: ~~Alan Diff~~
(2)Collected By: Ronald Alan Diff	(8) Lab Destination GEL-South Carolina	8 Brooks Ave., Ste 205 ~~302 Wirtfield Rd~~
(3) Job/Task No: 2002020.01	(9) Lab Contact Amy Jamison	Gaithersburg, MD 20877 ~~Knoxville, TN 37919~~
(4) Project Manager: Bill Thomas	(12) IEM Technical Contact/Phone Alan Diff (865) 588-9180 x3 cell (865)	(10) Report to: FAX TO:
(6) Purchase Order No. N/A	(13) Carrier/Waybill No. Federal Express #	~~(865) 588-9681~~ (419) 423-7462
(11) Required Report Date 2/11/03	6341892695 32	Mail to IEM Knoxville Address Above

ONE CONTAINER PER LINE

(14) Sample Number	(15) Sample Description/Type	(16) Date/Time Collected	(17) Container Type	(18) Sample Volume	(19) Preservative	(20) Requested Testing Program
Trash Pile	Soil Grab/Composite	2/3/03 0900	Glass Jar		Ice / 4° C	Hazardous suite (TCLP, Tox, pH, reactivity) Gamma
↓	↓	↓	Glass Jar		↓	~~spectroscopy~~
↓	↓	↓	1qt. ziploc bag	1qt.	↓	↓

(23) Special Instructions Potential low levels of Uranium contamination

(24) Possible Hazard Identification
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

(25) Sample Disposal
Return to Client ☐ Disposal by Lab ☐ Archive _____ months

(26) Turnaround Time Required: Normal ☐ Rush ☒

(27) QC Level: I ☐ II ☐ III ☐ Project Specific _____

(28) Relinquished by: (signature, date, time): [signature] 2/3/03	Received by: (signature, date, time)
Relinquished by: (signature, date, time):	Received by: (signature, date, time)
Relinquished by: (signature, date, time):	Received by: (signature, date, time)

(See Reverse for Instructions)

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

74742%

Page 1 of 1

Reference No 2002020.01

(1) Client Name: UNC New Haven/AAA	(7) Samples Shipment Date: 2/7/03	(5) Bill to: IEM: Attn: Carol Berger
(2) Collected By: R. Alan Duff	(8) Lab Destination: Gel - Charleston, SC	8 Brookes Ave, Ste. 205
(3) Job/Task No: 2002020.01	(9) Lab Contact: Amy Jamison	Gaithersburg, MD 20877
(4) Project Manager: Bill Thomas	(12) IEM Technical Contact/Phone: Alan Duff (865) 588-9180 x13	(10) Report to: IEM/ Bill Thomas
(6) Purchase Order No. N/A	(13) Carrier/Waybill No. FEDEX #	2705 North Main St., Ste. 202
(11) Required Report Date: 30 Day Turn	834189269750	Findlay, Ohio 45840

ONE CONTAINER PER LINE

(14) Sample Number	(15) Sample Description/Type	(16) Date/Time Collected	(17) Container Type	(18) Sample Volume	(19) Preservative	(20) Requested Testing Program 200302461 89	
Trench-1	Soil/Grab	2/5/03 1330	1 ziploc Bag 1L glass, 250ml glass	3 containers ~1Kg	Ice, 4°C	rspectroscopy, TCLP/HAZ suite	.1
Trench-2	Soil/Grab	2/5/03 1400	ziploc bag	~1kg	↓	Gamma Spec.	.2
Trench-3	Liquid + Soil/Grab	2/6/03 0815	ziploc bag	~500g	↓	~~Sp~~ Gamma Spec.	.2
Trench-4	Soil/Grab	2/6/03 0900	ziploc bag	~500g	↓	Gamma Spec.	.2
Trash Pile Drum	Solid/Grab	2/6/03 1130	1L glass + 250ml glass	2 containers ~1Kg	↓	TCLP	.1

(23) Special Instructions: Potential Uranium Contamination

(24) Possible Hazard Identification
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

(25) Sample Disposal
Return to Client ☐ Disposal by Lab ☒ Archive _____ months → After Authorization By IEM

(26) Turnaround Time Required: Normal ☐ Rush ☐ 30 DAY TURN

(27) QC Level: I ☐ II ☐ III ☒ Project Specific _____

(28) Relinquished by: (signature, date, time): [signature] 2/7/03 1200	Received by: (signature, date, time) [signature] 2/10/03 0930
Relinquished by: (signature, date, time):	Received by: (signature, date, time)
Relinquished by: (signature, date, time):	Received by: (signature, date, time)

(See Reverse for Instructions)

75467%

200 302404 xo

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference No 2002020.01

(1) Client Name: AAA/GE	(7) Samples Shipment Date: 2/14/03	(5) Bill to: IEM Attn: Carol Berger
(2) Collected By: R. Alan Duff	(8) Lab Destination: GEL - Charleston, S.C.	8 Brookes Ave, Ste. 205
(3) Job/Task No: 2002020.01	(9) Lab Contact: Amy Jamison	Gaithersburg, MD 20877
(4) Project Manager: Bill Thomas	(12) IEM Technical Contact/Phone: Alan Duff (865) 588-9780 x13	(10) Report to: IEM / Bill Thomas
(6) Purchase Order No. N/A	(13) Carrier/Waybill No. FEDEX #	2705 North Main St, Ste. 202
(11) Required Report Date: 30 Day Turn	834189269521	Findlay, OH 45840

ONE CONTAINER PER LINE

(14) Sample Number	(15) Sample Description/Type	(16) Date/Time Collected	(17) Container Type	(18) Sample Volume	(19) Preservative	(20) Requested Testing Program	
Sewer-1	Sediment/Grab	2/10/03 0930	ziploc bag	~200 g	4°C, Ice	Gamma Spec.	.1
Sewer-2	Sediment/Grab	2/10/03 1445	ziploc bag	~200 g	4°C, Ice	Gamma Spec.	.1
Sewer Composite	Sediment/Composite Soil	2/10/03 1445	1 L glass jar 250 ml glass jar	1.25 L	4°C, Ice	Hazardous Suite	1/2
Geoprobe-1	Geoprobe Core	2/11/03 1145	ziploc bag	~200 g		Gamma Spec.	.1
Geoprobe-2		2/11/03 1120					.1
Geoprobe-3		2/11/03 1030					.1
Geoprobe-4		2/11/03 1045					.1
Geoprobe-5		2/12/03 1100					.1
Geoprobe-6		2/11/03 1355					.1

(23) Special Instructions: Potential Uranium Contamination

(24) Possible Hazard Identification: Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

(25) Sample Disposal: Return to Client ☐ Disposal by Lab ☐ Archive _____ months

(26) Turnaround Time Required: Normal ☒ Rush ☐

(27) QC Level: I ☐ II ☐ III ☐ Project Specific _____

(28) Relinquished by: (signature, date, time): [signature] 2/14/03 1500 — Received by: (signature, date, time) [signature] 2/17/03 0915

Relinquished by: (signature, date, time): — Received by: (signature, date, time)

Relinquished by: (signature, date, time): — Received by: (signature, date, time)

(See Reverse for Instructions)

INTEGRATED ENVIRONM ITAL MANAGEMENT, INC.
ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference No 2002020.0

(1) Client Name	(7) Samples Shipment Date	(5) Bill to:
(2)Collected By:	(8) Lab Destination	
(3) Job/Task No:	(9) Lab Contact	
(4) Project Manager:	(12) IEM Technical Contact/Phone	(10) Report to:
(6) Purchase Order No.	(13) Carrier/Waybill No.	
(11) Required Report Date		

SEE PAGE #1

ONE CONTAINER PER LINE

(14) Sample Number	(15) Sample Description/Type	(16) Date/Time Collected	(17) Container Type	(18) Sample Volume	(19) Preservative	(20) Requested Testing Program	
Geoprobe-7	Soil Geoprobe Core	2/12/03 1030	ziplock bag	~200g	4°C, Ice	Gamma Spec.	-1
Geoprobe-8-2		2/13/03 1630					-1
Geoprobe-8-3		2/14/03 0930					-1
Geoprobe-9-2		2/12/03 1130					-1
Geoprobe-10		2/12/03 0855					-1
Geoprobe-12-2		2/14/03 1005					-1
Geoprobe-13		2/13/03 1230					-1
Geoprobe-14		2/13/03 1300					-1
Geoprobe-15		2/14/03 1025					-1

(23) Special Instructions

(24) Possible Hazard Identification
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

(25) Sample Disposal
Return to Client ☐ Disposal by Lab ☐ Archive _____ months

(26) Turnaround Time Required: Normal ☐ Rush ☐

(27) QC Level: I ☐ II ☐ III ☐ Project Specific _____

(28) *Relinquished by: (signature, date, time):*	Received by: (signature, date, time) G. Mfarley 2/17/03 0915
Relinquished by: (signature, date, time):	Received by: (signature, date, time)
Relinquished by: (signature, date, time):	Received by: (signature, date, time)

(See Reverse for Instructions)

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference No 2002 020.01

(1) Client Name	(7) Samples Shipment Date	(5) Bill to:
(2)Collected By:	~~(8) Lab Destination~~	
(3) Job/Task No:	(9) Lab Contact	
(4) Project Manager:	~~(12) IEM Technical Contact/Phone~~	(10) Report to:
(6) Purchase Order No.	(13) Carrier/Waybill No.	
(11) Required Report Date		

SEE PAGE #1

ONE CONTAINER PER LINE

(14) Sample Number	(15) Sample Description/Type	(16) Date/Time Collected	(17) Container Type	(18) Sample Volume	(19) Preservative	(20) Requested Testing Program
Soil Composite	Composite of All geoprobe cores	2/14/03 1230	1 L glass ~~250 ml~~ glass	~1.25 l	4°C, Ice	Hazardous Site

(23) Special Instructions

(24) Possible Hazard Identification
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

(25) Sample Disposal
Return to Client ☐ Disposal by Lab ☐ Archive _____ months

(26) Turnaround Time Required: Normal ☐ Rush ☐

(27) QC Level: I ☐ II ☐ III ☐ Project Specific _____

(28) Relinquished by: (signature, date, time):	Received by: (signature, date, time) J M Hanley 2/17/03 0915
Relinquished by: (signature, date, time):	Received by: (signature, date, time)
Relinquished by: (signature, date, time):	Received by: (signature, date, time)

(See Reverse for Instructions)

76633

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference No 2002020.01

(1) Client Name UNC-New Haven/AAA	(7) Samples Shipment Date 3/17/03	(5) Bill to: IEM/Attn: Carol Berger
(2) Collected By: R. Alan Duff	(8) Lab Destination GEL/South Carolina	8 Brookes Ave., Ste. 205
(3) Job/Task No: 2002020.01	(9) Lab Contact Amy Jamison	Gaithersburg, MD 20877
(4) Project Manager: Bill Thomas	(12) IEM Technical Contact/Phone Alan Duff (865) 588-9180 X13	(10) Report to: FAX TO (419) 423-7462
(6) Purchase Order No. N/A	(13) Carrier/Waybill No. Federal Express	MAIL TO: IEM/Attn: Alan Duff
(11) Required Report Date 7 Day Turnaround	#834189269290	302 Westfield Rd., Knoxville, TN 37919

ONE CONTAINER PER LINE

(14) Sample Number	(15) Sample Description/Type	(16) Date/Time Collected	(17) Container Type	(18) Sample Volume	(19) Preservative	(20) Requested Testing Program
Waste Pile/ Roofing Material	Waste Pile Roofing Material Grab/Composite	3/17/03 1130	Ziploc Bag	~300g	None	Gamma Spec.

(23) Special Instructions None

(24) Possible Hazard Identification
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

(25) Sample Disposal
Return to Client ☐ Disposal by Lab ☒ Archive _____ months

(26) Turnaround Time Required: Normal ☐ Rush ☒ 7 day turnaround

(27) QC Level: I ☐ II ☐ III ☐ Project Specific _____

(28) Relinquished by: (signature, date, time): [signature] 3/17/03 1200	Received by: (signature, date, time) [signature] 3/18/03 1000
Relinquished by: (signature, date, time):	Received by: (signature, date, time)
Relinquished by: (signature, date, time):	Received by: (signature, date, time)

(See Reverse for Instructions)

18'11'01
787137.

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Page 1 of 1
Reference No 2002020.01

(1) Client Name GE/AAA	(7) Samples Shipment Date 4/22/03	(5) Bill to: IEM /Attn. Alan Duff
(2) Collected By: R. Alan Duff	(8) Lab Destination GEL-Charleston	302 Westfield Rd.
(3) Job/Task No: 2002020.01	(9) Lab Contact Amy Jamison	Knoxville, TN 37919
(4) Project Manager: Bill Thomas/IEM	(12) IEM Technical Contact/Phone Alan Duff	(10) Report to: ~~SAME AS ABOVE~~
(6) Purchase Order No. N/A	(13) Carrier/Waybill No. FEDEX	
(11) Required Report Date NORMAL Turn Around	# 834189269690	

ONE CONTAINER PER LINE

(14) Sample Number	(15) Sample Description/Type	(16) Date/Time Collected	(17) Container Type	(18) Sample Volume	(19) Preservative	(20) Requested Testing Program 20030443498	
WP-Soil-1	Grab Soil (After waste pile removed)	4/22/03 0940	Ziploc Bag	~ 1 Kg	Ice 4°C	Gamma Spec (HASL 300)	.1
WP-Soil-2		0930					.1
WP-Soil-3		0935					.1
WP-Soil-4		1010					.1
WP-Soil-5		0945					.1
WP-Soil-6		1110					.1
WP-Soil-7		1135					.1
WP-Soil-8		1125					.1
WP-Soil-Haz	Composite of all 8 locations	1205	Glass Jars	1l + 250 ml		Hazardous Suite → No Gamma Spec.	.1

(23) Special Instructions Potential trace Amts. of Uranium 20030443499

(24) Possible Hazard Identification
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

(25) Sample Disposal
Return to Client ☐ Disposal by Lab ☒ Archive _____ months
Contact Bill Thomas/IEM For Disposal/Archive Instruction

(26) Turnaround Time Required: Normal ☒ ~~Rush 7 Days~~

(27) QC Level: I ☐ II ☐ III ☐ Project Specific _____

(28) Relinquished by: (signature, date, time): [signature] 4/22/03 1500	Received by: (signature, date, time) [signature] 4/23/03 6900
Relinquished by: (signature, date, time):	Received by: (signature, date, time)
Relinquished by: (signature, date, time):	Received by: (signature, date, time)

(See Reverse for Instructions)

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference No 2002020.01

(1) Client Name AAA/GE	(7) Samples Shipment Date 10/15/03	(5) Bill to: SAME AS "REPORT TO" Address
(2) Collected By: R. Alan Duff	(8) Lab Destination GEL-Charleston	
(3) Job/Task No: 2002020.01	(9) Lab Contact Amy Jamison	
(4) Project Manager: Bill Thomas	(12) IEM Technical Contact/Phone Alan Duff (865) 588-9180	(10) Report to: IEM / Attn: Alan Duff
(6) Purchase Order No. N/A	(13) Carrier/Waybill No. FEDEX # 841031461059	6711 Kingston Pike, Ste. 103
(11) Required Report Date 10/30/03		Knoxville, TN 37919

ONE CONTAINER PER LINE

(14) Sample Number 100114%	(15) Sample Description/Type	(16) Date/Time Collected	(17) Container Type	(18) Sample Volume	(19) Preservative	(20) Requested Testing Program	
North Trench #1	Soil/sediment	10/14/03 0900	Ziploc Bag	~1 Kg	None	Gamma Spectroscopy	.1
North Trench #2		0910					.1
North Trench #3		0930					.1
South Trench #5		0955					.1
South Trench #6		1015					.1
South Trench #7		1040					.1
South Trench #8		1105					.1
South Trench #9		1115					.1
South Trench #10		1320					.1

(23) Special Instructions Potential residual amounts of Uranium.

(24) Possible Hazard Identification
Non-hazard ☒ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

(25) Sample Disposal
Return to Client ☐ Disposal by Lab ☒ Archive _____ months

(26) Turnaround Time Required: Normal ☒ Rush ☐ (Gamma Spec. w/in 2 weeks)

(27) QC Level: I ☐ II ☐ III ☐ Project Specific _____

(28) Relinquished by: (signature, date, time): 10/15/03 1700

Received by: (signature, date, time): 10-16-03 0845

Relinquished by: (signature, date, time):

Received by: (signature, date, time)

Relinquished by: (signature, date, time):

Received by: (signature, date, time)

(See Reverse for Instructions)

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference No 2002020.01

(1) Client Name AAA/GE	(7) Samples Shipment Date	(5) Bill to:
(2)Collected By:	(8) Lab Destination	
(3) Job/Task No:	(9) Lab Contact SEE PAGE 1 of 3	
(4) Project Manager:	(12) IEM Technical Contact/Phone	~~(10) Report to:~~
(6) Purchase Order No.	~~(13) Carrier/Waybill No.~~	
(11) Required Report Date		

ONE CONTAINER PER LINE

(14) Sample Number 100114%	(15) Sample Description/Type	(16) Date/Time Collected	(17) Container Type	(18) Sample Volume	(19) Preservative	(20) Requested Testing Program
South Trench #11	Soil/sediment	10/14/03 1400	Ziploc Bag	~1 Kg	None	Gamma Spectroscopy .1
Geoprobe 9-3 0-1'	Soil (0-1')	10/13/03 1215	500 ml plastic	~1 Kg		.1
Geoprobe 16 7-8'	(7'-8')	1330				.1
Geoprobe 17 0-1'	(0-1')	1445				.1
Geoprobe 18 0-1'	(0-1')	1515				.1
Geoprobe 9-3 (3'-4')	(3'-4')	10/13/03 1215				.1
Geoprobe 16 0-1'	(0-1')	10/13/03 1330				.1
Sewer-3		10/15/03 1030	1l glass	~1 Kg		.1
Sewer-4		10/15/03 1100	1l glass	~1 Kg		.1

(23) Special Instructions: Potential residual amounts of uranium

(24) Possible Hazard Identification
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

(25) Sample Disposal
Return to Client ☐ Disposal by Lab ☒ Archive _____ months

(26) Turnaround Time Required: Normal ☒ Rush ☐ (Gamma Spec. w/in 2wks.)

(27) QC Level: I ☐ II ☐ III ☐ Project Specific _____

(28) Relinquished by: (signature, date, time): 10/15/03 1700	Received by: (signature, date, time) Scott A Mallo 10-16-03 0845
Relinquished by: (signature, date, time):	Received by: (signature, date, time)
Relinquished by: (signature, date, time):	Received by: (signature, date, time)

(See Reverse for Instructions)

INTEGRATED ENVIRONMI TAL MANAGEMENT, INC.
ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference No 2002020.01

(1) Client Name AAA/GE	(7) Samples Shipment Date	(5) Bill to:
(2)Collected By:	(8) Lab Destination SEE PAGE 1 of 3	
(3) Job/Task No:	(9) Lab Contact	
(4) Project Manager:	(12) IEM Technical Contact/Phone	(10) Report to:
(6) Purchase Order No.	(13) Carrier/Waybill No.	
(11) Required Report Date		

ONE CONTAINER PER LINE

(14) Sample Number 100114'/.	(15) Sample Description/Type	(16) Date/Time Collected	(17) Container Type	(18) Sample Volume	(19) Preservative	(20) Requested Testing Program
Small Trench	Soil/Sediment	10/15/03 0830	Ziploc Bag	~1 Kg	None	Gamma Spectroscopy .1
Geoprobe 9-3 Metals	Soil (1'-2')	10/13/03 1215	500 ml plastic	~1 Kg		TCLP Metals
Geoprobe 17 Metals	Soil (1-2')	10/13/03 1445	500 ml plastic	~1 Kg		TCLP Metals

(23) Special Instructions

(24) Possible Hazard Identification
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

(25) Sample Disposal
Return to Client ☐ Disposal by Lab ☐ Archive _____ months

(26) Turnaround Time Required: Normal ☐ Rush ☐

(27) QC Level: I ☐ II ☐ III ☐ Project Specific _____

(28) Relinquished by: (signature, date, time): [signature] 10/15/03 1700	Received by: (signature, date, time) [signature] 10-16-03 0945	
Relinquished by: (signature, date, time):	Received by: (signature, date, time)	
Relinquished by: (signature, date, time):	Received by: (signature, date, time)	

(See Reverse for Instructions)

Page: 1 of 3
Project #: 2.2020.01
GEL Quote #:
COC Number (1):
P.O. Number:

GEL Chain of Custody and Analytical Request

General Engineering Laboratories,
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Project Name / Site Name: Former UNC Facility

Client Name: IEM/AAA Phone #: (865)556-9180 x13 Fax #:

Address: 302 West Field Rd., Knoxville, TN 37919

Collected By: R. Alan Dutt Send Results To: N/A

Sample Analysis Requested(5) (Fill in the number of containers for each test)

Client Sample ID	Date Collected (mm-dd-yy)	Time Collected (Military) (Hours)	Sample Depth (beginning-ending)	QC Code (2)	Field Filtered (3)	Sample Matrix(4)	Should this sample be considered: Radioactive	Should this sample be considered: TSCA Regulated	#2024	Remarks: Are there any known hazards applicable to these samples? If so, please list the hazards
#8-1 Zip loc Bag			-							Potential low level uranium contamination
#11 Bag Zip loc			-							
#1 - Geoprobe Tube			-							
#5			-							
#7			-							
#8-2 Top			-							
#8-3			-							
#8-2 Bottom			-							
#5 Bottom			-							
#9-2			-							
#13 bottom			-							

ARCHIVE

TAT Requested: Normal / Rush: (Subject to Surcharge) Fax Results: Yes / No Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Comments: (attach compound and/or element list requested)

ARCHIVE ARCHIVE

Chain of Custody Signatures

Relinquished By (Signed)	Date	Time	Received By (Signed)	Date	Time
1. [signature]	2/14/03	1500	1.		
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab:
Method of Shipment:
Analytical Lab:
Lab Recipient:
Shipped:
Airbill #:
Location:
Date: Time:

For Lab Receiving Use Only
Custody Seal Intact? YES NO
Cooler Temp

1.) Chain of Custody Number = Client Determined
2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was filtered or - N - for sampled was not filtered.
4.) Matrix Codes: DW = Drinking Water, GW = Groundwater, SW = Surface Water, WW = Waste Water, SO = Soil, SD = Sediment, SL = Sludge, SS = Solid Waste
5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).

WHITE = LABORATORY YELLOW = FILE PINK = CLIENT

Page 2 of 3
Project #:
GEL Quote #:
COC Number (1): SEL
P.O. Number:

GEL Chain of Custody & Analytical Request

General Engineering Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Project Name / Site Name: PAGE #1

Client Name: Phone #: Fax #:

Address:

Collected By: Send Results To:

Sample Analysis Requested(5) (Fill in the number of containers for each test)

Client Sample ID	Date Collected (mm-dd-yy)	Time Collected (Military) (hhmm)	Sample Depth (beginning-ending)	QC Code (2)	Field Filtered(3)	Sample Matrix(4)	Should this sample be considered: Radioactive	TSCA Regulated	#0710	Remarks: Are there any known hazards applicable to these samples? If so, please list the hazards
#14 Bottom - Geoprobe Bit										Potential low level Uranium Contamination
#2										
#10 Top										
#10 Bottom										
#6 - 2nd layer										
#15										
#13										
#6 Bottom										
#6-4										
#4										
#3 Bottom										

ARCHIVE

TAT Requested: Normal: Rush: (Subject to Surcharge) Fax Results: Yes / No Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Comments: (attach compound and/or element list requested)

ARCHIVE

ARCHIVE

Chain of Custody Signatures

Relinquished By (Signed)	Date	Time	Received By (Signed)	Date	Time
1.			1.		
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab:
Method of Shipment:
Analytical Lab:
Lab Recipient:

Shipped:
Airbill #:
Location:
Date: Time:

For Lab Receiving Use Only
Custody Seal Intact? YES NO
Cooler Temp °C

1.) Chain of Custody Number = Client Determined
2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was filtered or - N - for sampled was not filtered.
4.) Matrix Codes: DW = Drinking Water, GW = Groundwater, SW = Surface Water, WW = Waste Water, SO = Soil, SD = Sediment, SL = Sludge, SS = Solid Waste
5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).

WHITE = LABORATORY YELLOW = FILE PINK = CLIENT

Page 3 of 3
Project #:
GEL Quote #:
COC Number (1):
P.O. Number:

GEL Chain of Custody and Analytical Request

General Engineering Laboratories, LLC
2040 Savage Road
Charleston, SC 29407
Phone: (843) 556-8171
Fax: (843) 766-1178

Project Name / Site Name: SEE PAGE #1

Client Name: Phone: Fax #:

Address:

Collected By: Send Results To:

Sample Analysis Requested(5) (Fill in the number of containers for each test)

Client Sample ID	Date Collected (mm-dd-yy)	Time Collected (Military) (hhmm)	Sample Depth (beginning-ending)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Radioactive	TSCA Regulated	Should this sample be considered											Remarks
#14 Top Geoprobe																				Potential Low level Uranium Contamination
#6 Top																				
#10 Middle																				
#3-3'd																				
#3-2ND																				
#6-3'd																				
#7-Bottom																				
#3 Top																				
Olin #1 Plastic Bottle																				
Olin #2																				

ARCHIVE

TAT Requested: _____ Normal: _____ Rush: _____ (Subject to Surcharge) Fax Results: Yes / No Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4

Comments: (attach compound and/or element list requested)

ARCHIVE ARCHIVE

Chain of Custody Signatures

Relinquished By (Signed)	Date	Time	Received By (Signed)	Date	Time
1.			1.		
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped: _____
Method of Shipment: _____ Airbill #: _____
Analytical Lab: _____ Location: _____
Lab Recipient: _____ Date: _____ Time: _____

1.) Chain of Custody Number = Client Determined
2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was filtered or - N - for sampled was not filtered.
4.) Matrix Codes: DW = Drinking Water, GW = Groudwater, SW = Surface Water, WW = Waste Water, SO = Soil, SD = Sediment, SL = Sludge, SS = Solid Waste
5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1).

For Lab Receiving Use Only
Custody Seal Intact? YES NO
Cooler Temp _____ °C

WHITE = LABORATORY YELLOW = FILE PINK = CLIENT

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Page 1 of 1

Reference No 20022020.01

(1) Client Name AAA/GE	(7) Samples Shipment Date 4/22/03	(5) Bill to: IEM/Attn: Alan Duff
(2)Collected By: R. Alan Duff	(8) Lab Destination GEL	302 Westfield Rd.
(3) Job/Task No: 20022020.01	(9) Lab Contact Amy Jamison	Knoxville, TN 37919
(4) Project Manager: Bill Thomas	(12) IEM Technical Contact/Phone Alan Duff (865) 588-9150 x13	(10) Report to: SAME AS ABOVE
(6) Purchase Order No. N/A	(13) Carrier/Waybill No. FEDEX	
(11) Required Report Date N/A	# 834189269679	

ONE CONTAINER PER LINE

(14) Sample Number	(15) Sample Description/Type	(16) Date/Time Collected	(17) Container Type	(18) Sample Volume	(19) Preservative	(20) Requested Testing Program
Concrete Core 2	Concrete Core	4/22/03 0930	Plastic Bag	N/A	NONE	N/A- ARCHIVE
3		0935				
4		1010				
5		0945				
6		1110				
7		1135				
8		1125				

(23) Special Instructions ARCHIVE

(24) Possible Hazard Identification
Non-hazard ☒ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

(25) Sample Disposal
Return to Client ☐ Disposal by Lab ☐ Archive _____ months

(26) Turnaround Time Required: Normal ☐ Rush ☐ N/A

(27) QC Level: I ☐ II ☐ III ☐ Project Specific _____

(28) Relinquished by: (signature, date, time): [signature] 4/22/03 1300	Received by: (signature, date, time)
Relinquished by: (signature, date, time):	Received by: (signature, date, time)
Relinquished by: (signature, date, time):	Received by: (signature, date, time)

(See Reverse for Instructions)

INTEGRATED ENVIRONMENTAL MANAGEMENT, INC.
ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference No 2002020.01

(1) Client Name AAA/GE	(7) Samples Shipment Date 10/15/03	(5) Bill to: IEM/Attn: Alan Duff
(2) Collected By: R. Alan Duff	(8) Lab Destination GEL Charleston SC	6711 Kingston Pike, Ste. 103
(3) Job/Task No: 2002020.01	(9) Lab Contact Amy Jamison	Knoxville, TN 37919
(4) Project Manager: Bill Thomas	(12) IEM Technical Contact/Phone Alan Duff (865) 588-9140	(10) Report to: Same As Above
(6) Purchase Order No. N/A	(13) Carrier/Waybill No. FEDEX	
(11) Required Report Date N/A	841031461060	

ONE CONTAINER PER LINE

(14) Sample Number	(15) Sample Description/Type	(16) Date/Time Collected	(17) Container Type	(18) Sample Volume	(19) Preservative	(20) Requested Testing Program
Geoprobe 16 1'-2'	Soil	10/13/03 1330	N/A	~1 Kg	NONE	ARCHIVE
2'-3'						
3'-4'						
4'-5.5'						
5.5'-6.5'						
6.5'-7'						
8'-9'						
9'-10'						
10'-11'						

(23) Special Instructions Potential Residual Amts. of Uranium

(24) Possible Hazard Identification
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

(25) Sample Disposal
Return to Client ☐ Disposal by Lab ☐ Archive ? months

(26) Turnaround Time Required: Normal ☐ Rush ☐ N/A

(27) QC Level: I ☐ II ☐ III ☐ Project Specific _____

(28) Relinquished by: (signature, date, time): [signature] 10/15/03 1700	Received by: (signature, date, time)
Relinquished by: (signature, date, time):	Received by: (signature, date, time)
Relinquished by: (signature, date, time):	Received by: (signature, date, time)

(See Reverse for Instructions)

INTEGRATED ENVIRONM ITAL MANAGEMENT, INC.
ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference No 20020200.01

(1) Client Name AAA/GF	(7) Samples Shipment Date	(5) Bill to:
(2)Collected By:	(8) Lab Destination SEE PG. 1 of	
(3) Job/Task No:	(9) Lab Contact	
(4) Project Manager:	(12) IEM Technical Contact/Phone	(10) Report to:
(6) Purchase Order No.	(13) Carrier/Waybill No.	
(11) Required Report Date		

ONE CONTAINER PER LINE

(14) Sample Number	(15) Sample Description/Type	(16) Date/Time Collected	(17) Container Type	(18) Sample Volume	(19) Preservative	(20) Requested Testing Program
Geoprobe 17 2-3	Soil	10/13/03 1445	N/A	~1 kg	None	ARCHIVE
3-4						
4-5						
Geoprobe 18 1-2		1515				
2-3						
3-4						
4-5						
5-6						
6-7						

(23) Special Instructions: Potential Residual Uranium

(24) Possible Hazard Identification
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

(25) Sample Disposal
Return to Client ☐ Disposal by Lab ☐ Archive ? months

(26) Turnaround Time Required: Normal ☐ Rush ☐

(27) QC Level: I ☐ II ☐ III ☐ Project Specific _____

(28) Relinquished by: (signature, date, time): 10/15/03 1700	Received by: (signature, date, time)
Relinquished by: (signature, date, time):	Received by: (signature, date, time)
Relinquished by: (signature, date, time):	Received by: (signature, date, time)

(See Reverse for Instructions)

INTEGRATED ENVIRONM ITAL MANAGEMENT, INC.
ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference No 2002020.01

(1) Client Name	(7) Samples Shipment Date	(5) Bill to:
(2)Collected By:	(8) Lab Destination	
(3) Job/Task No:	(9) Lab Contact	
(4) Project Manager:	(12) IEM Technical Contact/Phone	(10) Report to:
(6) Purchase Order No.	(13) Carrier/Waybill No.	
(11) Required Report Date		

See pg 1 of 3

ONE CONTAINER PER LINE

(14) Sample Number	(15) Sample Description/Type	(16) Date/Time Collected	(17) Container Type	(18) Sample Volume	(19) Preservative	(20) Requested Testing Program
Geoprobe 18 7'-8.5'	Soil	10/13/03 1515	N/A	~1kg	None	ARCHIVE
Geoprobe 9-3 2'-3'		1215				
4'-5'						
5'-6'						
6'-7'						

(23) Special Instructions Potential Residual Uranium

(24) Possible Hazard Identification
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

(25) Sample Disposal
Return to Client ☐ Disposal by Lab ☐ Archive _____ months

(26) Turnaround Time Required: Normal ☐ Rush ☐

(27) QC Level: I ☐ II ☐ III ☐ Project Specific _____

(28) Relinquished by: (signature, date, time): [signature] 10/15/03 1700	Received by: (signature, date, time)
Relinquished by: (signature, date, time):	Received by: (signature, date, time)
Relinquished by: (signature, date, time):	Received by: (signature, date, time)

(See Reverse for Instructions)

Appendix G - Certificates of Analysis

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: February 13, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Trash Pile (Relog 74393-001)	Project:	IEM100100
Sample ID:	74886001	Client ID:	IEM1001
Matrix:	Misc Solid		
Collect Date:	03-FEB-03 09:00		
Receive Date:	12-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.285	+/-0.128	0.104	0.800	pCi/g		SRB	02/12/03	1508	233165	1
Americium-241	U	0.00957	+/-0.0995	0.165	0.200	pCi/g						
Antimony-124	U	-0.00505	+/-0.0191	0.0327	0.100	pCi/g						
Antimony-125	U	0.000185	+/-0.0447	0.0749	0.200	pCi/g						
Barium-133	U	-0.0703	+/-0.0275	0.0372	0.100	pCi/g						
Barium-140	U	-0.0141	+/-0.0879	0.153	0.500	pCi/g						
Beryllium-7	U	0.170	+/-0.196	0.260	0.700	pCi/g						
Bismuth-212	U	0.131	+/-0.204	0.232	0.500	pCi/g						
Bismuth-214		0.216	+/-0.0684	0.0566	0.200	pCi/g						
Cerium-139	U	0.00112	+/-0.0166	0.0253	0.050	pCi/g						
Cerium-141	U	0.0446	+/-0.0433	0.0533	0.100	pCi/g						
Cerium-144	U	0.0146	+/-0.104	0.182	0.500	pCi/g						
Cesium-134	U	-0.00762	+/-0.0196	0.0286	0.100	pCi/g						
Cesium-136	U	-0.00599	+/-0.0354	0.0599	0.300	pCi/g						
Cesium-137		0.102	+/-0.0349	0.030	0.100	pCi/g						
Chromium-51	U	-0.0658	+/-0.176	0.252	0.600	pCi/g						
Cobalt-56	U	-0.00206	+/-0.0175	0.0299	0.100	pCi/g						
Cobalt-57	U	0.00209	+/-0.0133	0.0232	0.050	pCi/g						
Cobalt-58	U	-0.00605	+/-0.0151	0.0254	0.100	pCi/g						
Cobalt-60	U	-0.00316	+/-0.0154	0.0273	0.100	pCi/g						
Europium-152	U	-0.0154	+/-0.0466	0.0771	0.200	pCi/g						
Europium-154	U	-0.0193	+/-0.0426	0.0732	0.500	pCi/g						
Europium-155	U	-0.00617	+/-0.0567	0.0986	0.500	pCi/g						
Iridium-192	U	0.00542	+/-0.0162	0.0279	0.100	pCi/g						
Iron-59	U	0.001	+/-0.0365	0.0627	0.300	pCi/g						
Lead-210	U	1.38	+/-3.70	5.29	4.00	pCi/g						
Lead-212		0.389	+/-0.0624	0.0459	0.100	pCi/g						
Lead-214		0.258	+/-0.0611	0.0602	0.100	pCi/g						
Manganese-54	U	0.00795	+/-0.0165	0.0295	0.100	pCi/g						
Mercury-203	U	0.0267	+/-0.0255	0.0319	0.100	pCi/g						
Neodymium-147	U	-0.03	+/-0.172	0.300	1000	pCi/g						
Neptunium-239	U	-0.0263	+/-0.0994	0.172	2.00	pCi/g						
Niobium-94	U	0.0137	+/-0.0161	0.0292	1.00	pCi/g						
Niobium-95	U	0.0104	+/-0.0185	0.0332	0.050	pCi/g						
Potassium-40		4.26	+/-0.660	0.272	1.00	pCi/g						
Promethium-144	U	-0.00317	+/-0.0172	0.0294	0.080	pCi/g						
Promethium-146	U	0.0165	+/-0.021	0.0367	1.00	pCi/g						
Radium-228		0.285	+/-0.128	0.104	0.500	pCi/g						

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

FEB. -13. 03(THU) 14:30 GEN. ENGINEERING TEL:843-852-5812 P. 002
Received: 2/13/03 2:34PM; 843 852 5812 -> Integrated Environmental Manage; Page 2

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: February 13, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trash Pile (Relog 74393-001) Project: IEMI00100
Sample ID: 74886001 Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec. Gamma, Solid (Standard List)											
Ruthenium-106	U	0.0347	+/-0.145	0.257	0.800	pCi/g					
Silver-110m	U	0.0106	+/-0.017	0.0273	0.080	pCi/g					
Sodium-22	U	-0.00673	+/-0.0152	0.0262	0.080	pCi/g					
Thallium-208		0.077	+/-0.0338	0.0273	0.080	pCi/g					
Thorium-230		0.216	+/-0.0684	0.0566	1.00	pCi/g					
Thorium-234	U	0.533	+/-1.13	1.26	2.00	pCi/g					
Tin-113	U	-0.0117	+/-0.0212	0.0343	0.100	pCi/g					
Uranium-235	U	0.167	+/-0.164	0.193	0.500	pCi/g					
Uranium-238	U	0.533	+/-1.13	1.26	1.00	pCi/g					
Yttrium-88	U	0.00778	+/-0.0159	0.0308	0.100	pCi/g					
Zinc-65	U	0.045	+/-0.0475	0.0606	0.300	pCi/g					
Zirconium-95	U	-0.0166	+/-0.0301	0.050	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/12/03	1706	233164

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

FEB. -13. 03 (THU) 14:30 GEN. ENGINEERING TEL:843-852-5812 P. 003
Received: 2/13/03 2:34PM; 843 852 5812 -> Integrated Environmental Manage; Page 3

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: February 13, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trash Pile (Relog 74393-001) Project: IEMI00100
Sample ID: 74886001 Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

Received: 2/13/03 2:34PM; 843 852 5812 -> Integrated Environmental Manage; Page 4
FEB. -13. 03(THU) 14:30 GEN. ENGINEERING TEL:843-852-5812 P. 004

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: February 13, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trash Pile
Sample ID: 74393001
Matrix: Misc Solid
Collect Date: 03-FEB-03 09:00
Receive Date: 04-FEB-03
Collector: Client

Project: IEM100100
Client ID: IEM1001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Electrode Analysis											
SW9045C pH											
pH at Temp C	H	7.49	0.010	0.100	SU	1	VHI	02/04/03	1808	231505	1
Halogen Analysis											
SW9023 TOX (Extract. Halogen)											
Extractable Organic Halogens		36.9	8.21	15.0	mg/kg	1	LS	02/06/03	1604	231847	2
Mercury Analysis-CVAA											
TCLP Hg in Solid											
Mercury	U	ND	0.000472	0.002	mg/L	1	NORI	02/10/03	1919	231878	3
Metals Analysis-ICP											
TCLP ICP Metals for Solid											
Arsenic	U	ND	0.0238	0.050	mg/L	10	BAS	02/08/03	1754	231883	4
Barium		0.486	0.00393	0.050	mg/L	10					
Cadmium	J	0.0236	0.00386	0.050	mg/L	10					
Chromium	U	ND	0.00735	0.050	mg/L	10					
Copper		0.385	0.0117	0.050	mg/L	10					
Lead		0.0651	0.0266	0.050	mg/L	10					
Selenium		0.175	0.0338	0.050	mg/L	10					
Silver	U	ND	0.0118	0.050	mg/L	10					
Zinc		4.47	0.0209	0.050	mg/L	10					
Rapid Flow Analysis (Alpkem)											
SW 7.3.3 Reactivity, Releasable											
Reactive Releasable Cyanide	U	ND	4.19	250000	ug/kg	1	ADF	02/10/03	1419	232511	5
Semi-Volatiles-GC/MS											
TCLP BNA SOLID 8270C 3510C											
1,4-Dichlorobenzene	U	ND	1.55	50.0	ug/L	1	CAK	02/07/03	1918	231850	6
2,4,5-Trichlorophenol	U	ND	4.85	50.0	ug/L	1					
2,4,6-Trichlorophenol	U	ND	1.95	50.0	ug/L	1					
2,4-Dinitrotoluene	U	ND	3.50	50.0	ug/L	1					
Hexachlorobenzene	U	ND	3.25	50.0	ug/L	1					
Hexachlorobutadiene	U	ND	1.60	50.0	ug/L	1					
Hexachloroethane	U	ND	2.15	50.0	ug/L	1					
Nitrobenzene	U	ND	3.15	50.0	ug/L	1					
Pentachlorophenol	U	ND	25.0	50.0	ug/L	1					
Pyridine	U	ND	25.0	50.0	ug/L	1					
m,p-Cresols	U	ND	2.95	50.0	ug/L	1					
o-Cresol	U	ND	2.25	50.0	ug/L	1					

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

FEB. -13. 03(THU) 15:05 GEN. ENGINEERING TEL:843-852-5812 P. 002
Received: 2/13/03 3:09PM; 843 852 5812 -> Integrated Envirnomental Manage; Page 2

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: February 13, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trash Pile
Sample ID: 74393001

Project: IEM100100
Client ID: IEM1001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-HERB											
8151B TCLP HERB Soil											
2,4,5-TP	U	ND	0.0188	0.100	mg/L	20	SAS1	02/10/03	1226	231859	7
2,4-D	U	ND	0.018	1.00	mg/L	20					
Semi-Volatiles-Pesticide & PCB											
8081A/3510C TCLP PEST Solid											
Chlordane (tech.)	U	ND	0.00155	0.0025	mg/L	1	MM	02/07/03	2208	231862	9
Endrin	U	ND	0.000038	0.0004	mg/L	1					
Heptachlor	U	ND	0.000059	0.0002	mg/L	1					
Heptachlor epoxide	U	ND	0.00003	0.0002	mg/L	1					
Methoxychlor	U	ND	0.000278	0.002	mg/L	1					
Toxaphene	U	ND	0.00105	0.010	mg/L	1					
gamma-BHC (Lindane)	U	ND	0.000021	0.0002	mg/L	1					
Titration Analysis											
Reactive Sulfide SW846 Chapter 7.3.4											
Reactive Releasable Sulfide	J	98.9	15.4	500	mg/kg		BEP2	02/10/03	1418	232449	11
Volatile Organics											
TCLP Volatiles in Solid											
1,1-Dichloroethylene	U	ND	0.082	0.200	mg/L	200	JEB	02/06/03	1411	231945	12
1,2-Dichloroethane	U	ND	0.058	0.200	mg/L	200					
1,4-Dichlorobenzene	U	ND	0.050	0.200	mg/L	200					
2-Butanone	U	ND	0.462	1.00	mg/L	200					
Benzene	U	ND	0.066	0.200	mg/L	200					
Carbon tetrachloride	U	ND	0.058	0.200	mg/L	200					
Chlorobenzene	U	ND	0.064	0.200	mg/L	200					
Chloroform	U	ND	0.072	0.200	mg/L	200					
Tetrachloroethylene	U	ND	0.066	0.200	mg/L	200					
Trichloroethylene	U	ND	0.072	0.200	mg/L	200					
Vinyl chloride	U	ND	0.110	0.200	mg/L	200					
Wet Chemistry General											
SW9095 Paint Filter Test											
Paint Filter		FAIL					POW1	02/07/03	1030	232203	13

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3510C	3510C BNA TCLP/SPLP Prep-8270C Analysis	MJM1	02/07/03	1442	231849
SW846 3510C	3510C PEST TCLP Liquid Prep	MJM1	02/07/03	1000	231861
SW846 8151A Prep	8151A HERB TCLP Prep in Liquid	MJM1	02/06/03	1000	231858
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A 026	TCD	02/05/03	1431	231508
SW846 7470A Prep	EPA 7470A Mercury Prep TCLP Liquid	KHN	02/07/03	1400	231877

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

FEB. -13' 03(THU) 15:06 GEN. ENGINEERING TEL:843-852-5812 P. 003
Received: 2/13/03 3:10PM; 843 852 5812 -> Integrated Environmental Manage; Page 3

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Contact: Alan Duff
Project: Routine Analysis

Report Date: February 13, 2003

Client Sample ID: Trash Pile
Sample ID: 74393001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
SW846 3010A	ICP-TRACE TCLP by SW846 3010A				BCD1	02/07/03	0815	231881		
SW846 7.3.3 Prep	SW 7.3.3 Reactivity, Releasable Cyanide				ADF	02/10/03	1030	232509		
SW846 9023 Prep	SW 9023 Halogen, Extractable(TOX) Prep				LS	02/06/03	1412	231846		
SW846 1311	SW846 1311 TCLP Leaching				ETL	02/04/03	1700	231564		
SW846 1311	SW846 1311 TCLP Leaching				ETL	02/04/03	1700	231565		
SW846 1311	SW846 1311 TCLP Volatiles Prep				ETL	02/04/03	1700	231567		

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9045C	
2	SW846 9023	
3	SW846 7470A	
4	SW846 3010/6010B	
5	SW846 7.3.3	
6	SW846 8270C	
7	SW846 8151A	
8	SW846 8151A	
9	SW846 8081A	
10	SW846 8081A	
11	SW846 Chpt. 7.3.4-TIT	
12	SW846 8260B	
13	SW846 9095	

Surrogate recovery	Test	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	TCLP BNA SOLID 8270C 3510C	80%	(28%-126%)
2-Fluorobiphenyl	TCLP BNA SOLID 8270C 3510C	68%	(32%-109%)
2-Fluorophenol	TCLP BNA SOLID 8270C 3510C	52%	(13%-73%)
Nitrobenzene-d5	TCLP BNA SOLID 8270C 3510C	74%	(33%-107%)
Phenol-d5	TCLP BNA SOLID 8270C 3510C	37%	(14%-66%)
p-Terphenyl-d14	TCLP BNA SOLID 8270C 3510C	74%	(36%-130%)
2,4-Dichlorophenylacetic acid	8151B TCLP HERB Soil	83%	(45%-140%)
4cmx	8081A/3510C TCLP PEST Solid	86%	(34%-116%)
Decachlorobiphenyl	8081A/3510C TCLP PEST Solid	85%	(21%-122%)
Bromofluorobenzene	TCLP Volatiles in Solid	99%	(57%-140%)
Dibromofluoromethane	TCLP Volatiles in Solid	114%	(56%-137%)
Toluene-d8	TCLP Volatiles in Solid	104%	(54%-141%)

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

FEB. -13. 03 (THU) 15:06 GEN. ENGINEERING TEL:843-852-5812 P. 004
Received: 2/13/03 3:10PM; 843 852 5812 -> Integrated Envirnomental Manage; Page 4

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: February 13, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trash Pile
Sample ID: 74393001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C. Jamison
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

FEB. -13. 03(THU) 15:06 GEN. ENGINEERING TEL:843-852-5812 P. 005
Received: 2/13/03 3:10PM; 843 852 5812 -> Integrated Environmental Manage; Page 5

Batch 232203 Narrative

This narrative done on 10-FEB-03 by Deidre Reilly

Were all the initial calibration requirements met?
The instrument was properly calibrated.

Were any non-conformance reports (NCR) submitted with this batch?
No Nonconformance Reports (NCR) were required for any of the samples in this sample group for this analysis.

Are any additional comments needed?
Sample 74377001 was a composited sample with a matrix of very low density, grey, fibrous material. 0.0718 grams of sample 74377001 passed through the paint filter and 0.1408 grams of the sample duplicate (1200376683) passed throught he paint filter. Sample 74393001 is a dense, coarse grain material. 0.0103 grams of sample 74393001 passed throught the paint filter. Samples 74582001, 74582002 and 74582003 were composited samples with fine to coarse particulate matrix. 0.5180 grams of sample 74582001 passed through the paint filter. 1.1090 grams of sample 74582002 passed throught he paint filter. 0.1700 grams of sample 74582003 passed through the paint filter.
All

Were any samples selected for quality control analysis?
The following sample was designated for Quality Control: 74377001

Were the relative percent differences (RPD) between the sample and its duplicate within acceptable limits?

The Relative Percent Differences between the samples and duplicates for this batch were within the required acceptance limits.

Were all procedures performed as stated in the SOP?
All procedures were performed as stated in the SOP.

Were any of the samples in this batch reprepped and/or reanalyzed for reasons other than dilutions?
No samples in this sample group were reprepped and/or reanalyzed for any reason other than dilutions.

GENERAL ENGINEERING LABORATORIES, LLC

a Member of THE GEL GROUP, INC.

Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Sewer -1	Project:	IEMI00100
Sample ID:	75096001	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	10-FEB-03 09:30		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		1.07	+/-0.225	0.123	0.800	pCi/g		CRB 03/12/03	0631	234961	1
Americium-241	UUI	ND	+/-0.140	0.109	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0269	0.0466	0.100	pCi/g					
Antimony-125	U	ND	+/-0.0498	0.0904	0.200	pCi/g					
Barium-133	U	ND	+/-0.0247	0.0387	0.100	pCi/g					
Barium-140	U	ND	+/-0.334	0.593	0.500	pCi/g					
[illegible]lium-7		0.403	+/-0.357	0.387	0.700	pCi/g					
[illegible]th-212		0.801	+/-0.301	0.295	0.500	pCi/g					
Bismuth-214		0.464	+/-0.115	0.0667	0.200	pCi/g					
Cerium-139	U	ND	+/-0.0401	0.0657	0.050	pCi/g					
Cerium-141	UUI	ND	+/-1.75	0.305	0.100	pCi/g					
Cerium-144	U	ND	+/-0.268	0.471	0.500	pCi/g					
Cesium-134	U	ND	+/-0.0222	0.0333	0.100	pCi/g					
Cesium-136	U	ND	+/-0.127	0.220	0.300	pCi/g					
Cesium-137		0.366	+/-0.0651	0.0376	0.100	pCi/g					
Chromium-51	U	ND	+/-0.295	0.510	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.0263	0.0444	0.100	pCi/g					
Cobalt-57	UUI	ND	+/-0.0904	0.061	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.0253	0.0454	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.0205	0.0371	0.100	pCi/g					
Europium-152	UUI	ND	+/-0.102	0.090	0.200	pCi/g					
Europium-154	U	ND	+/-0.0611	0.0974	0.500	pCi/g					
Europium-155	UUI	ND	+/-0.329	0.291	0.500	pCi/g					
Iridium-192	U	ND	+/-0.0221	0.0372	0.100	pCi/g					
Iron-59	U	ND	+/-0.0613	0.112	0.300	pCi/g					
Lead-210		2.05	+/-1.20	0.863	4.00	pCi/g					
Lead-212		1.37	+/-0.186	0.0536	0.100	pCi/g					
Lead-214		0.556	+/-0.112	0.0645	0.100	pCi/g					
Manganese-54	U	ND	+/-0.0351	0.0386	0.100	pCi/g					
Mercury-203	UUI	ND	+/-0.0511	0.0491	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.857	1.50	1000	pCi/g					
Neptunium-239	U	ND	+/-0.248	0.452	2.00	pCi/g					
Niobium-94	U	ND	+/-0.0197	0.0344	1.00	pCi/g					
Niobium-95	U	ND	+/-0.0392	0.0684	0.050	pCi/g					
Potassium-40		5.04	+/-0.743	0.317	1.00	pCi/g					
Promethium-144	U	ND	+/-0.0215	0.0386	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0426	0.0448	1.00	pCi/g					
Radium-226		0.464	+/-0.115	0.0667		pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Sewer -1
Sample ID: 75096001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Radium-228		1.07	+/-0.225	0.123	0.500	pCi/g					
Ruthenium-106	U	ND	+/-0.188	0.339	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0242	0.0385	0.080	pCi/g					
Sodium-22	U	ND	+/-0.022	0.0352	0.080	pCi/g					
Thallium-208		0.431	+/-0.071	0.0391	0.080	pCi/g					
Thorium-230		0.464	+/-0.115	0.0667	1.00	pCi/g					
Thorium-234		3.17	+/-1.57	1.08	2.00	pCi/g					
Tin-113	U	ND	+/-0.029	0.0467	0.100	pCi/g					
Uranium-235		36.9	+/-7.00	0.441	0.500	pCi/g					
Uranium-238		3.17	+/-1.57	1.08	1.00	pCi/g					
ım-88	U	ND	+/-0.020	0.0354	0.100	pCi/g					
·65	U	ND	+/-0.0523	0.081	0.300	pCi/g					
Zirconium-95	U	ND	+/-0.0497	0.0888	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Sewer -1
Sample ID: 75096001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Sewer -2	Project:	IEMI00100
Sample ID:	75096002	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	10-FEB-03 14:45		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		2.21	+/-0.357	0.0728	0.800	pCi/g		CRB 03/12/03	0632	234961	1
Americium-241	U	ND	+/-0.175	0.329	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0197	0.030	0.100	pCi/g					
Antimony-125	U	ND	+/-0.037	0.0642	0.200	pCi/g					
Barium-133	U	ND	+/-0.0191	0.0306	0.100	pCi/g					
Barium-140	U	ND	+/-0.219	0.407	0.500	pCi/g					
Beryllium-7		1.33	+/-0.335	0.259	0.700	pCi/g					
uth-212		1.48	+/-0.331	0.188	0.500	pCi/g					
uth-214		0.574	+/-0.0961	0.0429	0.200	pCi/g					
Cerium-139	UUI	ND	+/-0.0387	0.064	0.050	pCi/g					
Cerium-141	UUI	ND	+/-1.12	0.291	0.100	pCi/g					
Cerium-144	U	ND	+/-0.347	0.441	0.500	pCi/g					
Cesium-134	U	ND	+/-0.0144	0.0219	0.100	pCi/g					
Cesium-136	U	ND	+/-0.0739	0.125	0.300	pCi/g					
Cesium-137		0.172	+/-0.0346	0.025	0.100	pCi/g					
Chromium-51	U	ND	+/-0.224	0.404	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.0152	0.0269	0.100	pCi/g					
Cobalt-57	UUI	ND	+/-0.0729	0.0579	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.015	0.0269	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.0123	0.0225	0.100	pCi/g					
Europium-152	U	ND	+/-0.0415	0.0736	0.200	pCi/g					
Europium-154	U	ND	+/-0.0356	0.0628	0.500	pCi/g					
Europium-155	UUI	ND	+/-0.301	0.280	0.500	pCi/g					
Iridium-192	U	ND	+/-0.0161	0.029	0.100	pCi/g					
Iron-59	U	ND	+/-0.0399	0.0642	0.300	pCi/g					
Lead-210	U	ND	+/-5.79	9.89	4.00	pCi/g					
Lead-212		2.75	+/-0.302	0.0459	0.100	pCi/g					
Lead-214		0.694	+/-0.104	0.0512	0.100	pCi/g					
Manganese-54	UUI	ND	+/-0.0137	0.0237	0.100	pCi/g					
Mercury-203	UUI	ND	+/-0.0661	0.0394	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.537	0.999	1000	pCi/g					
Neptunium-239	U	ND	+/-0.349	0.434	2.00	pCi/g					
Niobium-94	U	ND	+/-0.0129	0.0231	1.00	pCi/g					
Niobium-95	U	ND	+/-0.0238	0.0436	0.050	pCi/g					
Potassium-40		4.16	+/-0.539	0.200	1.00	pCi/g					
Promethium-144	U	ND	+/-0.0135	0.0252	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0205	0.0313	1.00	pCi/g					
Radium-226		0.574	+/-0.0961	0.0429		pCi/g					
Radium-228		2.21	+/-0.357	0.0728	0.500	pCi/g					

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Sewer -2
Sample ID: 75096002

Proiect: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.121	0.228	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0154	0.0254	0.080	pCi/g					
Sodium-22	U	ND	+/-0.0128	0.0227	0.080	pCi/g					
Thallium-208		0.741	+/-0.0901	0.0245	0.080	pCi/g					
Thorium-230		0.574	+/-0.0961	0.0429	1.00	pCi/g					
Thorium-234		2.88	+/-2.68	2.73	2.00	pCi/g					
Tin-113	U	ND	+/-0.0221	0.0353	0.100	pCi/g					
Uranium-235		29.0	+/-5.16	0.399	0.500	pCi/g					
Uranium-238		2.88	+/-2.68	2.73	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.0151	0.0237	0.100	pCi/g					
65	U	ND	+/-0.0295	0.0483	0.300	pCi/g					
nium-95	U	ND	+/-0.031	0.0565	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Sewer -2
Sample ID: 75096002

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC

a Member of THE GEL GROUP, INC.

Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Sewer Composite	Project:	IEMI00100
Sample ID:	75096003	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	10-FEB-03 14:45		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		1.11	+/-0.193	0.0743	0.800	pCi/g		CRB 03/12/03	0632	234961	1
Americium-241	UUI	ND	+/-0.191	0.189	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0167	0.0291	0.100	pCi/g					
Antimony-125	U	ND	+/-0.0327	0.0577	0.200	pCi/g					
Barium-133	U	ND	+/-0.0178	0.0262	0.100	pCi/g					
Barium-140	U	ND	+/-0.200	0.362	0.500	pCi/g					
Beryllium-7	U	ND	+/-0.139	0.257	0.700	pCi/g					
[illegible]ith-212		0.875	+/-0.264	0.164	0.500	pCi/g					
[illegible]uth-214		0.402	+/-0.0709	0.0434	0.200	pCi/g					
Cerium-139	UUI	ND	+/-0.0436	0.0655	0.050	pCi/g					
Cerium-141	UUI	ND	+/-1.24	0.306	0.100	pCi/g					
Cerium-144	U	ND	+/-0.239	0.421	0.500	pCi/g					
Cesium-134	U	ND	+/-0.0135	0.0212	0.100	pCi/g					
Cesium-136	U	ND	+/-0.0766	0.139	0.300	pCi/g					
Cesium-137		0.335	+/-0.0522	0.0212	0.100	pCi/g					
Chromium-51	U	ND	+/-0.200	0.363	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.015	0.0263	0.100	pCi/g					
Cobalt-57	UUI	ND	+/-0.0708	0.0548	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.0145	0.0269	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.0122	0.0219	0.100	pCi/g					
Europium-152	U	ND	+/-0.0419	0.0668	0.200	pCi/g					
Europium-154	U	ND	+/-0.0391	0.0675	0.500	pCi/g					
Europium-155	UUI	ND	+/-0.270	0.257	0.500	pCi/g					
Iridium-192	U	ND	+/-0.0146	0.0259	0.100	pCi/g					
Iron-59	U	ND	+/-0.0362	0.0619	0.300	pCi/g					
Lead-210	U	ND	+/-3.83	3.34	4.00	pCi/g					
Lead-212		1.36	+/-0.154	0.0397	0.100	pCi/g					
Lead-214		0.521	+/-0.0829	0.0444	0.100	pCi/g					
Manganese-54	U	ND	+/-0.0153	0.0214	0.100	pCi/g					
Mercury-203	UUI	ND	+/-0.0401	0.0346	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.488	0.872	1000	pCi/g					
Neptunium-239	U	ND	+/-0.254	0.399	2.00	pCi/g					
Niobium-94	U	ND	+/-0.0124	0.0216	1.00	pCi/g					
Niobium-95	U	ND	+/-0.023	0.0409	0.050	pCi/g					
Potassium-40		4.74	+/-0.613	0.203	1.00	pCi/g					
Promethium-144	U	ND	+/-0.0128	0.0227	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0152	0.0288	1.00	pCi/g					
Radium-226		0.402	+/-0.0709	0.0434		pCi/g					
[illegible]um-228		1.11	+/-0.193	0.0743	0.500	pCi/g					

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Sewer Composite
Sample ID: 75096003

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.117	0.208	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0134	0.022	0.080	pCi/g					
Sodium-22	U	ND	+/-0.0141	0.0244	0.080	pCi/g					
Thallium-208		0.380	+/-0.057	0.0207	0.080	pCi/g					
Thorium-230		0.402	+/-0.0709	0.0434	1.00	pCi/g					
Thorium-234	UUI	ND	+/-2.00	1.70	2.00	pCi/g					
Tin-113	U	ND	+/-0.020	0.029	0.100	pCi/g					
Uranium-235		32.9	+/-5.81	0.441	0.500	pCi/g					
Uranium-238		2.59	+/-2.00	1.62	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.0131	0.0249	0.100	pCi/g					
65	U	ND	+/-0.0345	0.0515	0.300	pCi/g					
nium-95	U	ND	+/-0.0273	0.0488	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Sewer Composite
Sample ID: 75096003

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Geoprobe -1	Project:	IEMI00100
Sample ID:	75096004	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	11-FEB-03 11:45		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.556	+/-0.162	0.090	0.800	pCi/g		CRB 03/12/03	1126	234961	1
Americium-241	U	ND	+/-0.0614	0.107	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0173	0.0308	0.100	pCi/g					
Antimony-125	U	ND	+/-0.0344	0.0684	0.200	pCi/g					
Barium-133	U	ND	+/-0.0158	0.0261	0.100	pCi/g					
Barium-140	U	ND	+/-0.212	0.363	0.500	pCi/g					
Beryllium-7	U	ND	+/-0.198	0.298	0.700	pCi/g					
ıth-212		0.929	+/-0.293	0.192	0.500	pCi/g					
ıth-214		0.440	+/-0.0854	0.0491	0.200	pCi/g					
Cerium-139	U	ND	+/-0.0121	0.023	0.050	pCi/g					
Cerium-141	UUI	ND	+/-0.0774	0.0559	0.100	pCi/g					
Cerium-144	U	ND	+/-0.0751	0.144	0.500	pCi/g					
Cesium-134	U	ND	+/-0.0143	0.0234	0.100	pCi/g					
Cesium-136	U	ND	+/-0.083	0.147	0.300	pCi/g					
Cesium-137	U	ND	+/-0.0146	0.0258	0.100	pCi/g					
Chromium-51	U	ND	+/-0.230	0.387	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.0185	0.0338	0.100	pCi/g					
Cobalt-57	U	ND	+/-0.00938	0.0181	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.0187	0.0352	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.0165	0.0328	0.100	pCi/g					
Europium-152	U	ND	+/-0.0385	0.0668	0.200	pCi/g					
Europium-154	U	ND	+/-0.0425	0.0773	0.500	pCi/g					
Europium-155	U	ND	+/-0.0394	0.0773	0.500	pCi/g					
Iridium-192	U	ND	+/-0.0245	0.0283	0.100	pCi/g					
Iron-59	U	ND	+/-0.0456	0.0823	0.300	pCi/g					
Lead-210		2.89	+/-3.49	2.63	4.00	pCi/g					
Lead-212		0.669	+/-0.0895	0.0382	0.100	pCi/g					
Lead-214		0.574	+/-0.0968	0.0438	0.100	pCi/g					
Manganese-54	UUI	ND	+/-0.0182	0.0262	0.100	pCi/g					
Mercury-203	U	ND	+/-0.020	0.0373	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.571	1.01	1000	pCi/g					
Neptunium-239	U	ND	+/-0.0686	0.132	2.00	pCi/g					
Niobium-94	U	ND	+/-0.0131	0.0233	1.00	pCi/g					
Niobium-95	U	ND	+/-0.024	0.0479	0.050	pCi/g					
Potassium-40		9.41	+/-1.22	0.292	1.00	pCi/g					
Promethium-144	U	ND	+/-0.015	0.0267	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0159	0.0318	1.00	pCi/g					
Radium-226		0.440	+/-0.0854	0.0491		pCi/g					
Radium-228		0.556	+/-0.162	0.090	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -1
Sample ID: 75096004

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.125	0.227	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0142	0.026	0.080	pCi/g					
Sodium-22	U	ND	+/-0.0153	0.0279	0.080	pCi/g					
Thallium-208		0.191	+/-0.0396	0.0265	0.080	pCi/g					
Thorium-230		0.440	+/-0.0854	0.0491	1.00	pCi/g					
Thorium-234	U	ND	+/-0.487	0.975	2.00	pCi/g					
Tin-113	U	ND	+/-0.0187	0.0328	0.100	pCi/g					
Uranium-235		0.282	+/-0.191	0.159	0.500	pCi/g					
Uranium-238	U	ND	+/-0.487	0.975	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.0141	0.0225	0.100	pCi/g					
65	U	ND	+/-0.0399	0.0628	0.300	pCi/g					
onium-95	U	ND	+/-0.0333	0.0619	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -1
Sample ID: 75096004

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC

a Member of THE GEL GROUP, INC.

Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Geoprobe -2	Project:	IEMI00100
Sample ID:	75096005	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	11-FEB-03 11:20		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		1.14	+/-0.219	0.115	0.800	pCi/g		CRB 03/12/03	1126	234961	1
Americium-241	U	ND	+/-0.072	0.139	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0227	0.0391	0.100	pCi/g					
Antimony-125	U	ND	+/-0.0444	0.0794	0.200	pCi/g					
Barium-133	U	ND	+/-0.0222	0.0337	0.100	pCi/g					
Barium-140	U	ND	+/-0.281	0.503	0.500	pCi/g					
Beryllium-7	U	ND	+/-0.187	0.333	0.700	pCi/g					
ıth-212		1.03	+/-0.314	0.263	0.500	pCi/g					
.uth-214		0.781	+/-0.121	0.0626	0.200	pCi/g					
Cerium-139	U	ND	+/-0.0158	0.0277	0.050	pCi/g					
Cerium-141	U	ND	+/-0.0507	0.074	0.100	pCi/g					
Cerium-144	U	ND	+/-0.104	0.185	0.500	pCi/g					
Cesium-134	U	ND	+/-0.0198	0.0304	0.100	pCi/g					
Cesium-136	U	ND	+/-0.108	0.198	0.300	pCi/g					
Cesium-137	U	ND	+/-0.018	0.030	0.100	pCi/g					
Chromium-51	U	ND	+/-0.263	0.490	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.0219	0.0397	0.100	pCi/g					
Cobalt-57	U	ND	+/-0.0131	0.0228	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.022	0.0414	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.0178	0.032	0.100	pCi/g					
Europium-152	U	ND	+/-0.044	0.0778	0.200	pCi/g					
Europium-154	U	ND	+/-0.0567	0.103	0.500	pCi/g					
Europium-155	UUI	ND	+/-0.0862	0.0869	0.500	pCi/g					
Iridium-192	U	ND	+/-0.0192	0.034	0.100	pCi/g					
Iron-59	U	ND	+/-0.0532	0.0953	0.300	pCi/g					
Lead-210	U	ND	+/-4.00	3.25	4.00	pCi/g					
Lead-212		1.31	+/-0.156	0.0483	0.100	pCi/g					
Lead-214		1.01	+/-0.147	0.0582	0.100	pCi/g					
Manganese-54	U	ND	+/-0.0216	0.0407	0.100	pCi/g					
Mercury-203	UUI	ND	+/-0.0431	0.043	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.662	1.22	1000	pCi/g					
Neptunium-239	U	ND	+/-0.091	0.165	2.00	pCi/g					
Niobium-94	U	ND	+/-0.0182	0.0341	1.00	pCi/g					
Niobium-95	U	ND	+/-0.0364	0.0624	0.050	pCi/g					
Potassium-40		8.14	+/-1.03	0.317	1.00	pCi/g					
Promethium-144	U	ND	+/-0.0187	0.0346	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0223	0.0403	1.00	pCi/g					
Radium-226		0.781	+/-0.121	0.0626		pCi/g					
P·ium-228		1.14	+/-0.219	0.115	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -2
Sample ID: 75096005

Proiect: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.166	0.291	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0175	0.0311	0.080	pCi/g					
Sodium-22	U	ND	+/-0.0204	0.0372	0.080	pCi/g					
Thallium-208		0.383	+/-0.0626	0.033	0.080	pCi/g					
Thorium-230		0.781	+/-0.121	0.0626	1.00	pCi/g					
Thorium-234		1.32	+/-1.18	1.12	2.00	pCi/g					
Tin-113	U	ND	+/-0.0233	0.0417	0.100	pCi/g					
Uranium-235	U	ND	+/-0.159	0.192	0.500	pCi/g					
Uranium-238		1.32	+/-1.18	1.12	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.0195	0.0394	0.100	pCi/g					
65	U	ND	+/-0.0524	0.0765	0.300	pCi/g					
onium-95	U	ND	+/-0.042	0.0817	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -2
Sample ID: 75096005

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy Jamison

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Geoprobe -3	Project:	IEMI00100
Sample ID:	75096006	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	11-FEB-03 10:30		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.970	+/-0.205	0.105	0.800	pCi/g		CRB 03/12/03	1127	234961	1
Americium-241	U	ND	+/-0.0816	0.137	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0199	0.0342	0.100	pCi/g					
Antimony-125	U	ND	+/-0.0381	0.0685	0.200	pCi/g					
Barium-133	U	ND	+/-0.0373	0.0338	0.100	pCi/g					
Barium-140	U	ND	+/-0.244	0.451	0.500	pCi/g					
Beryllium-7	U	ND	+/-0.172	0.276	0.700	pCi/g					
[illegible]uth-212		0.687	+/-0.239	0.208	0.500	pCi/g					
[illegible]uth-214		0.418	+/-0.0908	0.0629	0.200	pCi/g					
Cerium-139	U	ND	+/-0.0144	0.0255	0.050	pCi/g					
Cerium-141	U	ND	+/-0.0491	0.0624	0.100	pCi/g					
Cerium-144	U	ND	+/-0.0909	0.166	0.500	pCi/g					
Cesium-134	U	ND	+/-0.0162	0.0262	0.100	pCi/g					
Cesium-136	U	ND	+/-0.087	0.158	0.300	pCi/g					
Cesium-137	U	ND	+/-0.016	0.0281	0.100	pCi/g					
Chromium-51	U	ND	+/-0.234	0.410	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.019	0.0328	0.100	pCi/g					
Cobalt-57	U	ND	+/-0.0118	0.0213	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.0178	0.0315	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.0165	0.030	0.100	pCi/g					
Europium-152	U	ND	+/-0.0392	0.0667	0.200	pCi/g					
Europium-154	U	ND	+/-0.0571	0.0889	0.500	pCi/g					
Europium-155	U	ND	+/-0.0493	0.0914	0.500	pCi/g					
Iridium-192	U	ND	+/-0.0173	0.0291	0.100	pCi/g					
Iron-59	U	ND	+/-0.0462	0.0861	0.300	pCi/g					
Lead-210	U	ND	+/-1.93	3.45	4.00	pCi/g					
Lead-212		0.897	+/-0.113	0.0425	0.100	pCi/g					
Lead-214		0.507	+/-0.0999	0.0521	0.100	pCi/g					
Manganese-54	U	ND	+/-0.0171	0.0315	0.100	pCi/g					
Mercury-203	UUI	ND	+/-0.0494	0.0395	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.573	0.975	1000	pCi/g					
Neptunium-239	U	ND	+/-0.0838	0.153	2.00	pCi/g					
Niobium-94	U	ND	+/-0.016	0.0276	1.00	pCi/g					
Niobium-95	U	ND	+/-0.0285	0.0508	0.050	pCi/g					
Potassium-40		10.2	+/-1.18	0.254	1.00	pCi/g					
Promethium-144	U	ND	+/-0.017	0.029	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0182	0.0325	1.00	pCi/g					
Radium-226		0.418	+/-0.0908	0.0629		pCi/g					
[illegible]ium-228		0.970	+/-0.205	0.105	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -3
Sample ID: 75096006

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.137	0.260	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0149	0.0269	0.080	pCi/g					
Sodium-22	U	ND	+/-0.0206	0.032	0.080	pCi/g					
Thallium-208		0.256	+/-0.0483	0.0333	0.080	pCi/g					
Thorium-230		0.418	+/-0.0908	0.0629	1.00	pCi/g					
Thorium-234	U	ND	+/-1.23	1.16	2.00	pCi/g					
Tin-113	U	ND	+/-0.0201	0.0375	0.100	pCi/g					
Uranium-235	U	ND	+/-0.167	0.187	0.500	pCi/g					
Uranium-238	U	ND	+/-1.23	1.16	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.0162	0.0318	0.100	pCi/g					
[illegible]5	U	ND	+/-0.0434	0.0721	0.300	pCi/g					
[illegible]nium-95	U	ND	+/-0.0355	0.0685	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -3
Sample ID: 75096006

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Geoprobe -4	Project:	IEMI00100
Sample ID:	75096007	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	11-FEB-03 10:45		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.856	+/-0.175	0.0953	0.800	pCi/g		CRB 03/12/03	1127	234961	1
Americium-241	U	ND	+/-0.146	0.248	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0186	0.0346	0.100	pCi/g					
Antimony-125	U	ND	+/-0.0355	0.065	0.200	pCi/g					
Barium-133	U	ND	+/-0.0206	0.031	0.100	pCi/g					
Barium-140	U	ND	+/-0.222	0.413	0.500	pCi/g					
Beryllium-7	U	ND	+/-0.165	0.277	0.700	pCi/g					
[illegible]ıth-212		0.645	+/-0.306	0.197	0.500	pCi/g					
[illegible]uth-214		0.649	+/-0.109	0.0515	0.200	pCi/g					
Cerium-139	U	ND	+/-0.0219	0.0358	0.050	pCi/g					
Cerium-141	UUI	ND	+/-0.254	0.137	0.100	pCi/g					
Cerium-144	U	ND	+/-0.144	0.248	0.500	pCi/g					
Cesium-134	U	ND	+/-0.0161	0.0252	0.100	pCi/g					
Cesium-136	U	ND	+/-0.100	0.188	0.300	pCi/g					
Cesium-137	U	ND	+/-0.018	0.0293	0.100	pCi/g					
Chromium-51	U	ND	+/-0.228	0.379	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.0196	0.0319	0.100	pCi/g					
Cobalt-57	UUI	ND	+/-0.0418	0.0345	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.0191	0.0312	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.0165	0.0321	0.100	pCi/g					
Europium-152	U	ND	+/-0.0441	0.0713	0.200	pCi/g					
Europium-154	U	ND	+/-0.0477	0.0879	0.500	pCi/g					
Europium-155	UUI	ND	+/-0.135	0.162	0.500	pCi/g					
Iridium-192	U	ND	+/-0.017	0.0306	0.100	pCi/g					
Iron-59	U	ND	+/-0.0442	0.0849	0.300	pCi/g					
Lead-210	U	ND	+/-5.56	8.87	4.00	pCi/g					
Lead-212		0.984	+/-0.120	0.0447	0.100	pCi/g					
Lead-214		0.758	+/-0.129	0.0535	0.100	pCi/g					
Manganese-54	U	ND	+/-0.0202	0.0301	0.100	pCi/g					
Mercury-203	U	ND	+/-0.0232	0.0417	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.537	0.984	1000	pCi/g					
Neptunium-239	U	ND	+/-0.130	0.238	2.00	pCi/g					
Niobium-94	U	ND	+/-0.0159	0.029	1.00	pCi/g					
Niobium-95	U	ND	+/-0.0338	0.0558	0.050	pCi/g					
Potassium-40		7.93	+/-0.999	0.272	1.00	pCi/g					
Promethium-144	U	ND	+/-0.0148	0.0272	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0181	0.0345	1.00	pCi/g					
Radium-226		0.649	+/-0.109	0.0515		pCi/g					
[illegible]ium-228		0.856	+/-0.175	0.0953	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -4
Sample ID: 75096007

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.143	0.266	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0152	0.0275	0.080	pCi/g					
Sodium-22	U	ND	+/-0.0172	0.0317	0.080	pCi/g					
Thallium-208		0.262	+/-0.0512	0.0266	0.080	pCi/g					
Thorium-230		0.649	+/-0.109	0.0515	1.00	pCi/g					
Thorium-234	U	ND	+/-1.67	1.86	2.00	pCi/g					
Tin-113	U	ND	+/-0.0223	0.037	0.100	pCi/g					
Uranium-235		5.99	+/-1.10	0.246	0.500	pCi/g					
Uranium-238	U	ND	+/-1.67	1.86	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.0176	0.0339	0.100	pCi/g					
[illegible]55	U	ND	+/-0.0546	0.0648	0.300	pCi/g					
[illegible]onium-95	U	ND	+/-0.0372	0.0638	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -4
Sample ID: 75096007

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Geoprobe -5	Project:	IEMI00100
Sample ID:	75096008	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	12-FEB-03 11:00		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.541	+/-0.137	0.102	0.800	pCi/g		CRB 03/12/03	1131	234961	1
Americium-241	U	ND	+/-0.0642	0.115	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0175	0.0304	0.100	pCi/g					
Antimony-125	U	ND	+/-0.0342	0.0665	0.200	pCi/g					
Barium-133	U	ND	+/-0.0194	0.0267	0.100	pCi/g					
Barium-140	U	ND	+/-0.215	0.399	0.500	pCi/g					
Beryllium-7	U	ND	+/-0.148	0.281	0.700	pCi/g					
[illegible]th-212		0.334	+/-0.243	0.204	0.500	pCi/g					
[illegible]th-214		0.390	+/-0.0874	0.0479	0.200	pCi/g					
Cerium-139	U	ND	+/-0.012	0.0217	0.050	pCi/g					
Cerium-141	U	ND	+/-0.0515	0.0527	0.100	pCi/g					
Cerium-144	U	ND	+/-0.0748	0.135	0.500	pCi/g					
Cesium-134	U	ND	+/-0.014	0.0229	0.100	pCi/g					
Cesium-136	U	ND	+/-0.0852	0.159	0.300	pCi/g					
Cesium-137	U	ND	+/-0.0147	0.0253	0.100	pCi/g					
Chromium-51	U	ND	+/-0.214	0.387	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.0181	0.0269	0.100	pCi/g					
Cobalt-57	U	ND	+/-0.00912	0.0174	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.0182	0.0321	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.0155	0.0294	0.100	pCi/g					
Europium-152	U	ND	+/-0.0378	0.0641	0.200	pCi/g					
Europium-154	U	ND	+/-0.0479	0.0831	0.500	pCi/g					
Europium-155	U	ND	+/-0.0367	0.0708	0.500	pCi/g					
Iridium-192	U	ND	+/-0.0156	0.0279	0.100	pCi/g					
Iron-59	U	ND	+/-0.0481	0.0889	0.300	pCi/g					
Lead-210	U	ND	+/-2.90	3.01	4.00	pCi/g					
Lead-212		0.676	+/-0.0869	0.0371	0.100	pCi/g					
Lead-214		0.465	+/-0.086	0.0451	0.100	pCi/g					
Manganese-54	U	ND	+/-0.0155	0.0281	0.100	pCi/g					
Mercury-203	U	ND	+/-0.0245	0.0311	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.489	0.887	1000	pCi/g					
Neptunium-239	U	ND	+/-0.0671	0.126	2.00	pCi/g					
Niobium-94	U	ND	+/-0.0129	0.0232	1.00	pCi/g					
Niobium-95	U	ND	+/-0.0309	0.0491	0.050	pCi/g					
Potassium-40		6.62	+/-0.876	0.312	1.00	pCi/g					
Promethium-144	U	ND	+/-0.0137	0.0246	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0166	0.0315	1.00	pCi/g					
Radium-226		0.390	+/-0.0874	0.0479		pCi/g					
P[illegible]um-228		0.541	+/-0.137	0.102	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -5
Sample ID: 75096008

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.130	0.236	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0145	0.0269	0.080	pCi/g					
Sodium-22	U	ND	+/-0.0172	0.0299	0.080	pCi/g					
Thallium-208		0.199	+/-0.045	0.025	0.080	pCi/g					
Thorium-230		0.390	+/-0.0873	0.0479	1.00	pCi/g					
Thorium-234	U	ND	+/-0.957	0.902	2.00	pCi/g					
Tin-113	U	ND	+/-0.0198	0.0322	0.100	pCi/g					
Uranium-235	U	ND	+/-0.155	0.152	0.500	pCi/g					
Uranium-238	U	ND	+/-0.957	0.902	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.0146	0.0304	0.100	pCi/g					
[illegible]5	U	ND	+/-0.0336	0.0605	0.300	pCi/g					
[illegible]ium-95	U	ND	+/-0.0342	0.0622	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -5
Sample ID: 75096008

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC

a Member of THE GEL GROUP, INC.

Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Geoprobe -6	Project:	IEMI00100
Sample ID:	75096009	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	11-FEB-03 13:55		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.807	+/-0.138	0.0912	0.800	pCi/g		CRB 03/12/03	1132	234961	1
Americium-241	U	ND	+/-0.078	0.128	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0197	0.0336	0.100	pCi/g					
Antimony-125	U	ND	+/-0.0392	0.0714	0.200	pCi/g					
Barium-133	U	ND	+/-0.021	0.0331	0.100	pCi/g					
Barium-140	U	ND	+/-0.252	0.412	0.500	pCi/g					
Beryllium-7	U	ND	+/-0.149	0.283	0.700	pCi/g					
uth-212		0.603	+/-0.218	0.208	0.500	pCi/g					
.uth-214		0.452	+/-0.0772	0.0519	0.200	pCi/g					
Cerium-139	U	ND	+/-0.0163	0.0268	0.050	pCi/g					
Cerium-141	U	ND	+/-0.0687	0.0733	0.100	pCi/g					
Cerium-144	U	ND	+/-0.096	0.165	0.500	pCi/g					
Cesium-134	U	ND	+/-0.0164	0.0258	0.100	pCi/g					
Cesium-136	U	ND	+/-0.0996	0.150	0.300	pCi/g					
Cesium-137	U	ND	+/-0.0143	0.0256	0.100	pCi/g					
Chromium-51	U	ND	+/-0.223	0.404	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.0182	0.0323	0.100	pCi/g					
Cobalt-57	U	ND	+/-0.0119	0.0219	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.0168	0.0276	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.0155	0.0306	0.100	pCi/g					
Europium-152	U	ND	+/-0.0413	0.075	0.200	pCi/g					
Europium-154	U	ND	+/-0.047	0.0842	0.500	pCi/g					
Europium-155	U	ND	+/-0.0848	0.0881	0.500	pCi/g					
Iridium-192	U	ND	+/-0.0164	0.0301	0.100	pCi/g					
Iron-59	U	ND	+/-0.0427	0.0785	0.300	pCi/g					
Lead-210	U	ND	+/-1.81	3.17	4.00	pCi/g					
Lead-212		1.04	+/-0.0689	0.0448	0.100	pCi/g					
Lead-214		0.533	+/-0.0891	0.0529	0.100	pCi/g					
Manganese-54	U	ND	+/-0.0216	0.029	0.100	pCi/g					
Mercury-203	UUI	ND	+/-0.0407	0.0378	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.569	1.06	1000	pCi/g					
Neptunium-239	U	ND	+/-0.0835	0.149	2.00	pCi/g					
Niobium-94	U	ND	+/-0.0168	0.0261	1.00	pCi/g					
Niobium-95	U	ND	+/-0.0277	0.0453	0.050	pCi/g					
Potassium-40		9.36	+/-0.660	0.242	1.00	pCi/g					
Promethium-144	U	ND	+/-0.0161	0.0283	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0201	0.0324	1.00	pCi/g					
Radium-226		0.452	+/-0.0772	0.0519		pCi/g					
Radium-228		0.807	+/-0.138	0.0912	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -6
Sample ID: 75096009

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.129	0.232	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0145	0.0256	0.080	pCi/g					
Sodium-22	U	ND	+/-0.0169	0.0303	0.080	pCi/g					
Thallium-208		0.311	+/-0.0468	0.0275	0.080	pCi/g					
Thorium-230		0.452	+/-0.0771	0.0519	1.00	pCi/g					
Thorium-234	U	ND	+/-0.650	1.15	2.00	pCi/g					
Tin-113	U	ND	+/-0.0198	0.0372	0.100	pCi/g					
Uranium-235	U	ND	+/-0.169	0.174	0.500	pCi/g					
Uranium-238	U	ND	+/-0.650	1.15	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.0141	0.0277	0.100	pCi/g					
65	U	ND	+/-0.0423	0.0595	0.300	pCi/g					
,nium-95	U	ND	+/-0.0352	0.0678	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -6
Sample ID: 75096009

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Geoprobe -7	Project:	IEMI00100
Sample ID:	75096010	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	12-FEB-03 10:30		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		1.42	+/-0.251	0.133	0.800	pCi/g		CRB 03/12/03	1132	234961	1
Americium-241		0.0867	+/-0.0732	0.0652	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0289	0.0512	0.100	pCi/g					
Antimony-125	U	ND	+/-0.0567	0.105	0.200	pCi/g					
Barium-133	U	ND	+/-0.0303	0.0459	0.100	pCi/g					
Barium-140	U	ND	+/-0.351	0.602	0.500	pCi/g					
Beryllium-7	U	ND	+/-0.229	0.415	0.700	pCi/g					
ıth-212		0.926	+/-0.366	0.355	0.500	pCi/g					
.uth-214		1.10	+/-0.177	0.0778	0.200	pCi/g					
Cerium-139	U	ND	+/-0.0228	0.0361	0.050	pCi/g					
Cerium-141	UUI	ND	+/-0.205	0.122	0.100	pCi/g					
Cerium-144	U	ND	+/-0.133	0.239	0.500	pCi/g					
Cesium-134	U	ND	+/-0.0242	0.0369	0.100	pCi/g					
Cesium-136	U	ND	+/-0.130	0.228	0.300	pCi/g					
Cesium-137	U	ND	+/-0.0283	0.0441	0.100	pCi/g					
Chromium-51	U	ND	+/-0.322	0.567	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.029	0.0494	0.100	pCi/g					
Cobalt-57	UUI	ND	+/-0.0314	0.0303	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.0287	0.0437	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.019	0.0422	0.100	pCi/g					
Europium-152	U	ND	+/-0.0613	0.105	0.200	pCi/g					
Europium-154	U	ND	+/-0.0744	0.128	0.500	pCi/g					
Europium-155	U	ND	+/-0.168	0.117	0.500	pCi/g					
Iridium-192	U	ND	+/-0.0241	0.0405	0.100	pCi/g					
Iron-59	U	ND	+/-0.0725	0.128	0.300	pCi/g					
Lead-210		1.58	+/-0.623	0.509	4.00	pCi/g					
Lead-212		1.67	+/-0.222	0.055	0.100	pCi/g					
Lead-214		1.31	+/-0.191	0.0735	0.100	pCi/g					
Manganese-54	U	ND	+/-0.0276	0.0466	0.100	pCi/g					
Mercury-203	U	ND	+/-0.0555	0.0479	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.860	1.53	1000	pCi/g					
Neptunium-239	U	ND	+/-0.121	0.220	2.00	pCi/g					
Niobium-94	U	ND	+/-0.0229	0.0396	1.00	pCi/g					
Niobium-95	U	ND	+/-0.0773	0.0761	0.050	pCi/g					
Potassium-40		7.46	+/-0.955	0.394	1.00	pCi/g					
Promethium-144	U	ND	+/-0.0256	0.0455	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0264	0.0469	1.00	pCi/g					
Radium-226		1.10	+/-0.177	0.0778		pCi/g					
P ium-228		1.42	+/-0.251	0.133	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -7
Sample ID: 75096010

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.210	0.377	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0237	0.0408	0.080	pCi/g					
Sodium-22	U	ND	+/-0.0268	0.0462	0.080	pCi/g					
Thallium-208		0.483	+/-0.0783	0.0472	0.080	pCi/g					
Thorium-230		1.10	+/-0.177	0.0778	1.00	pCi/g					
Thorium-234		2.34	+/-0.920	0.659	2.00	pCi/g					
Tin-113	U	ND	+/-0.030	0.055	0.100	pCi/g					
Uranium-235		3.34	+/-0.721	0.235	0.500	pCi/g					
Uranium-238		2.34	+/-0.920	0.659	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.0225	0.0413	0.100	pCi/g					
65	U	ND	+/-0.0452	0.112	0.300	pCi/g					
nium-95	U	ND	+/-0.057	0.100	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -7
Sample ID: 75096010

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Geoprobe -8-2	Project:	IEMI00100
Sample ID:	75096011	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	13-FEB-03 16:30		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		2.19	+/-0.353	0.134	0.800	pCi/g		CRB 03/12/03	1132	234961	1
Americium-241	UUI	ND	+/-0.165	0.126	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0268	0.0482	0.100	pCi/g					
Antimony-125	U	ND	+/-0.0603	0.0997	0.200	pCi/g					
Barium-133	U	ND	+/-0.0291	0.0446	0.100	pCi/g					
Barium-140	U	ND	+/-0.320	0.571	0.500	pCi/g					
Beryllium-7	U	ND	+/-0.233	0.414	0.700	pCi/g					
ıth-212		1.26	+/-0.366	0.309	0.500	pCi/g					
.uth-214		1.78	+/-0.258	0.0718	0.200	pCi/g					
Cerium-139	U	ND	+/-0.0477	0.0761	0.050	pCi/g					
Cerium-141	UUI	ND	+/-3.54	0.330	0.100	pCi/g					
Cerium-144	U	ND	+/-0.347	0.558	0.500	pCi/g					
Cesium-134	U	ND	+/-0.024	0.0367	0.100	pCi/g					
Cesium-136	U	ND	+/-0.120	0.211	0.300	pCi/g					
Cesium-137	U	ND	+/-0.0287	0.0427	0.100	pCi/g					
Chromium-51	U	ND	+/-0.302	0.515	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.0275	0.0495	0.100	pCi/g					
Cobalt-57	UUI	ND	+/-0.157	0.0905	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.0295	0.0458	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.0228	0.0411	0.100	pCi/g					
Europium-152	UUI	ND	+/-0.0745	0.108	0.200	pCi/g					
Europium-154	U	ND	+/-0.0639	0.111	0.500	pCi/g					
Europium-155	UUI	ND	+/-0.556	0.373	0.500	pCi/g					
Iridium-192	U	ND	+/-0.0242	0.0399	0.100	pCi/g					
Iron-59	U	ND	+/-0.0631	0.113	0.300	pCi/g					
Lead-210		3.62	+/-1.13	1.01	4.00	pCi/g					
Lead-212		2.37	+/-0.374	0.0585	0.100	pCi/g					
Lead-214		2.05	+/-0.294	0.0727	0.100	pCi/g					
Manganese-54	UUI	ND	+/-0.041	0.0429	0.100	pCi/g					
Mercury-203	UUI	ND	+/-0.0567	0.0516	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.708	1.26	1000	pCi/g					
Neptunium-239	U	ND	+/-0.254	0.533	2.00	pCi/g					
Niobium-94	U	ND	+/-0.0227	0.0404	1.00	pCi/g					
Niobium-95	U	ND	+/-0.0442	0.0715	0.050	pCi/g					
Potassium-40		8.04	+/-1.01	0.407	1.00	pCi/g					
Promethium-144	U	ND	+/-0.0235	0.041	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0251	0.0455	1.00	pCi/g					
Radium-226		1.78	+/-0.258	0.0718		pCi/g					
P ium-228		2.19	+/-0.353	0.134	0.500	pCi/g					

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -8-2
Sample ID: 75096011

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.207	0.345	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0269	0.0407	0.080	pCi/g					
Sodium-22	U	ND	+/-0.023	0.0399	0.080	pCi/g					
Thallium-208		0.767	+/-0.112	0.0392	0.080	pCi/g					
Thorium-230		1.78	+/-0.258	0.0718	1.00	pCi/g					
Thorium-234	UUI	ND	+/-1.70	1.37	2.00	pCi/g					
Tin-113	U	ND	+/-0.032	0.0486	0.100	pCi/g					
Uranium-235		66.1	+/-13.5	0.525	0.500	pCi/g					
Uranium-238		3.90	+/-1.70	1.23	1.00	pCi/g					
Y[illegible]ium-88	U	ND	+/-0.0512	0.0491	0.100	pCi/g					
[illegible]5	U	ND	+/-0.054	0.0944	0.300	pCi/g					
[illegible]nium-95	U	ND	+/-0.0546	0.0998	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -8-2
Sample ID: 75096011

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Geoprobe -8-3	Project:	IEMI00100
Sample ID:	75096012	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	14-FEB-03 09:30		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.836	+/-0.202	0.148	0.800	pCi/g		CRB 03/12/03	1133	234961	1
Americium-241	U	ND	+/-0.0264	0.0483	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0243	0.0432	0.100	pCi/g					
Antimony-125	U	ND	+/-0.0482	0.0874	0.200	pCi/g					
Barium-133	U	ND	+/-0.0212	0.0388	0.100	pCi/g					
Barium-140	U	ND	+/-0.281	0.498	0.500	pCi/g					
Beryllium-7	U	ND	+/-0.198	0.357	0.700	pCi/g					
ıth-212		0.744	+/-0.298	0.295	0.500	pCi/g					
ıth-214		0.624	+/-0.135	0.0695	0.200	pCi/g					
Cerium-139	U	ND	+/-0.0154	0.0268	0.050	pCi/g					
Cerium-141	U	ND	+/-0.0651	0.0633	0.100	pCi/g					
Cerium-144	U	ND	+/-0.0954	0.160	0.500	pCi/g					
Cesium-134	U	ND	+/-0.020	0.0327	0.100	pCi/g					
Cesium-136	U	ND	+/-0.120	0.193	0.300	pCi/g					
Cesium-137	U	ND	+/-0.0214	0.0391	0.100	pCi/g					
Chromium-51	U	ND	+/-0.233	0.428	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.024	0.0464	0.100	pCi/g					
Cobalt-57	U	ND	+/-0.0116	0.0202	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.023	0.039	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.0204	0.0369	0.100	pCi/g					
Europium-152	U	ND	+/-0.0479	0.0843	0.200	pCi/g					
Europium-154	U	ND	+/-0.064	0.113	0.500	pCi/g					
Europium-155	UUI	ND	+/-0.0741	0.0749	0.500	pCi/g					
Iridium-192	U	ND	+/-0.0185	0.0345	0.100	pCi/g					
Iron-59	U	ND	+/-0.0556	0.0987	0.300	pCi/g					
Lead-210		1.27	+/-0.579	0.406	4.00	pCi/g					
Lead-212		1.03	+/-0.139	0.0464	0.100	pCi/g					
Lead-214		0.722	+/-0.127	0.0635	0.100	pCi/g					
Manganese-54	U	ND	+/-0.0247	0.0438	0.100	pCi/g					
Mercury-203	UUI	ND	+/-0.0644	0.0402	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.688	1.22	1000	pCi/g					
Neptunium-239	U	ND	+/-0.0816	0.137	2.00	pCi/g					
Niobium-94	U	ND	+/-0.0188	0.036	1.00	pCi/g					
Niobium-95	U	ND	+/-0.0434	0.0703	0.050	pCi/g					
Potassium-40		5.60	+/-0.814	0.362	1.00	pCi/g					
Promethium-144	U	ND	+/-0.028	0.0374	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0234	0.0428	1.00	pCi/g					
Radium-226		0.624	+/-0.135	0.0695		pCi/g					
Radium-228		0.836	+/-0.202	0.148	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -8-3
Sample ID: 75096012

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.182	0.340	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0198	0.0355	0.080	pCi/g					
Sodium-22	U	ND	+/-0.023	0.0405	0.080	pCi/g					
Thallium-208		0.317	+/-0.0597	0.0371	0.080	pCi/g					
Thorium-230		0.624	+/-0.135	0.0695	1.00	pCi/g					
Thorium-234		0.872	+/-0.668	0.475	2.00	pCi/g					
Tin-113	U	ND	+/-0.0258	0.0458	0.100	pCi/g					
Uranium-235	U	ND	+/-0.218	0.189	0.500	pCi/g					
Uranium-238		0.872	+/-0.668	0.475	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.0206	0.0364	0.100	pCi/g					
65	U	ND	+/-0.0617	0.0861	0.300	pCi/g					
nium-95	U	ND	+/-0.0464	0.0833	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -8-3
Sample ID: 75096012

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC

a Member of THE GEL GROUP, INC.

Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Geoprobe -9-2	Project:	IEMI00100
Sample ID:	75096013	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	12-FEB-03 11:30		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		1.02	+/-0.194	0.0817	0.800	pCi/g		CRB 03/12/03	1134	234961	1
Americium-241	U	ND	+/-0.0918	0.173	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0182	0.0292	0.100	pCi/g					
Antimony-125	U	ND	+/-0.0334	0.0607	0.200	pCi/g					
Barium-133	U	ND	+/-0.0191	0.0286	0.100	pCi/g					
Barium-140	U	ND	+/-0.178	0.319	0.500	pCi/g					
Beryllium-7	U	ND	+/-0.132	0.243	0.700	pCi/g					
uth-212		0.789	+/-0.229	0.164	0.500	pCi/g					
uth-214		0.641	+/-0.100	0.0425	0.200	pCi/g					
Cerium-139	U	ND	+/-0.0171	0.0287	0.050	pCi/g					
Cerium-141	UUI	ND	+/-0.149	0.107	0.100	pCi/g					
Cerium-144	U	ND	+/-0.106	0.196	0.500	pCi/g					
Cesium-134	U	ND	+/-0.0137	0.0213	0.100	pCi/g					
Cesium-136	U	ND	+/-0.0702	0.126	0.300	pCi/g					
Cesium-137	U	ND	+/-0.013	0.0235	0.100	pCi/g					
Chromium-51	U	ND	+/-0.185	0.336	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.0148	0.027	0.100	pCi/g					
Cobalt-57	UUI	ND	+/-0.0247	0.0257	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.0148	0.0251	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.0125	0.0218	0.100	pCi/g					
Europium-152	U	ND	+/-0.0349	0.0637	0.200	pCi/g					
Europium-154	U	ND	+/-0.0407	0.0733	0.500	pCi/g					
Europium-155	U	ND	+/-0.155	0.105	0.500	pCi/g					
Iridium-192	U	ND	+/-0.0144	0.0261	0.100	pCi/g					
Iron-59	U	ND	+/-0.0434	0.0634	0.300	pCi/g					
Lead-210	U	ND	+/-2.98	5.20	4.00	pCi/g					
Lead-212		1.26	+/-0.146	0.0403	0.100	pCi/g					
Lead-214		0.812	+/-0.113	0.0482	0.100	pCi/g					
Manganese-54	U	ND	+/-0.0167	0.0255	0.100	pCi/g					
Mercury-203	U	ND	+/-0.0361	0.0328	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.414	0.770	1000	pCi/g					
Neptunium-239	U	ND	+/-0.113	0.189	2.00	pCi/g					
Niobium-94	U	ND	+/-0.0113	0.0204	1.00	pCi/g					
Niobium-95	U	ND	+/-0.0329	0.0363	0.050	pCi/g					
Potassium-40		14.0	+/-1.49	0.178	1.00	pCi/g					
Promethium-144	U	ND	+/-0.0119	0.0217	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0157	0.0282	1.00	pCi/g					
Radium-226		0.641	+/-0.100	0.0425		pCi/g					
ium-228		1.02	+/-0.194	0.0817	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -9-2
Sample ID: 75096013

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.105	0.191	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0122	0.0216	0.080	pCi/g					
Sodium-22	U	ND	+/-0.0147	0.0264	0.080	pCi/g					
Thallium-208		0.337	+/-0.0509	0.0216	0.080	pCi/g					
Thorium-230		0.641	+/-0.100	0.0425	1.00	pCi/g					
Thorium-234	U	ND	+/-1.46	1.42	2.00	pCi/g					
Tin-113	U	ND	+/-0.018	0.030	0.100	pCi/g					
Uranium-235		2.58	+/-0.540	0.191	0.500	pCi/g					
Uranium-238	U	ND	+/-1.46	1.42	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.015	0.0245	0.100	pCi/g					
65	U	ND	+/-0.0361	0.0572	0.300	pCi/g					
.nium-95	U	ND	+/-0.0404	0.050	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -9-2
Sample ID: 75096013

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Geoprobe -10	Project:	IEMI00100
Sample ID:	75096014	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	12-FEB-03 08:55		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.827	+/-0.155	0.0745	0.800	pCi/g		CRB	03/12/03	1135	234961	1
Americium-241	U	ND	+/-0.0414	0.0743	0.200	pCi/g						
Antimony-124	U	ND	+/-0.0154	0.0258	0.100	pCi/g						
Antimony-125	U	ND	+/-0.030	0.051	0.200	pCi/g						
Barium-133	U	ND	+/-0.015	0.0225	0.100	pCi/g						
Barium-140	U	ND	+/-0.171	0.281	0.500	pCi/g						
Beryllium-7	U	ND	+/-0.115	0.210	0.700	pCi/g						
Bismuth-212		0.563	+/-0.222	0.161	0.500	pCi/g						
Bismuth-214		0.503	+/-0.0863	0.0386	0.200	pCi/g						
Cerium-139	U	ND	+/-0.0128	0.0205	0.050	pCi/g						
Cerium-141	UUI	ND	+/-0.0549	0.0508	0.100	pCi/g						
Cerium-144	U	ND	+/-0.0762	0.135	0.500	pCi/g						
Cesium-134	U	ND	+/-0.0126	0.0184	0.100	pCi/g						
Cesium-136	U	ND	+/-0.0664	0.116	0.300	pCi/g						
Cesium-137	U	ND	+/-0.012	0.0208	0.100	pCi/g						
Chromium-51	U	ND	+/-0.168	0.300	0.600	pCi/g						
Cobalt-56	U	ND	+/-0.0145	0.0257	0.100	pCi/g						
Cobalt-57	U	ND	+/-0.00902	0.0166	0.050	pCi/g						
Cobalt-58	U	ND	+/-0.014	0.0234	0.100	pCi/g						
Cobalt-60	U	ND	+/-0.0119	0.0209	0.100	pCi/g						
Europium-152	U	ND	+/-0.0318	0.0564	0.200	pCi/g						
Europium-154	U	ND	+/-0.0375	0.0638	0.500	pCi/g						
Europium-155	UUI	ND	+/-0.059	0.0646	0.500	pCi/g						
Iridium-192	U	ND	+/-0.0126	0.0229	0.100	pCi/g						
Iron-59	U	ND	+/-0.0356	0.0622	0.300	pCi/g						
Lead-210	U	ND	+/-1.72	1.25	4.00	pCi/g						
Lead-212		0.910	+/-0.106	0.0336	0.100	pCi/g						
Lead-214		0.673	+/-0.0913	0.042	0.100	pCi/g						
Manganese-54	U	ND	+/-0.0134	0.0198	0.100	pCi/g						
Mercury-203	UUI	ND	+/-0.0276	0.0286	0.100	pCi/g						
Neodymium-147	U	ND	+/-0.403	0.737	1000	pCi/g						
Neptunium-239	U	ND	+/-0.0651	0.122	2.00	pCi/g						
Niobium-94	U	ND	+/-0.0109	0.0198	1.00	pCi/g						
Niobium-95	U	ND	+/-0.0246	0.0402	0.050	pCi/g						
Potassium-40		9.40	+/-1.06	0.182	1.00	pCi/g						
Promethium-144	U	ND	+/-0.0114	0.0199	0.080	pCi/g						
Promethium-146	U	ND	+/-0.0131	0.0241	1.00	pCi/g						
Radium-226		0.503	+/-0.0863	0.0386		pCi/g						
Thorium-228		0.827	+/-0.155	0.0745	0.500	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -10
Sample ID: 75096014

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.105	0.181	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0111	0.0192	0.080	pCi/g					
Sodium-22	U	ND	+/-0.0135	0.023	0.080	pCi/g					
Thallium-208		0.231	+/-0.0407	0.0204	0.080	pCi/g					
Thorium-230		0.503	+/-0.0863	0.0386	1.00	pCi/g					
Thorium-234		0.980	+/-0.808	0.630	2.00	pCi/g					
Tin-113	U	ND	+/-0.0154	0.0266	0.100	pCi/g					
Uranium-235		0.323	+/-0.157	0.156	0.500	pCi/g					
Uranium-238		0.980	+/-0.808	0.630	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.0114	0.0224	0.100	pCi/g					
65	U	ND	+/-0.0353	0.0535	0.300	pCi/g					
nium-95	U	ND	+/-0.0273	0.0492	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -10
Sample ID: 75096014

Proiect: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Geoprobe -12-2	Project:	IEMI00100
Sample ID:	75096015	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	14-FEB-03 10:05		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.508	+/-0.104	0.0484	0.800	pCi/g		CRB 03/12/03	1758	234961	1
Americium-241	U	ND	+/-0.0326	0.0589	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0094	0.0174	0.100	pCi/g					
Antimony-125	U	ND	+/-0.018	0.0334	0.200	pCi/g					
Barium-133	U	ND	+/-0.0111	0.0159	0.100	pCi/g					
Barium-140	U	ND	+/-0.103	0.187	0.500	pCi/g					
Beryllium-7	U	ND	+/-0.075	0.134	0.700	pCi/g					
ıth-212		0.397	+/-0.117	0.101	0.500	pCi/g					
ıth-214		0.315	+/-0.0549	0.0252	0.200	pCi/g					
Cerium-139	U	ND	+/-0.00709	0.0115	0.050	pCi/g					
Cerium-141	U	ND	+/-0.0242	0.0293	0.100	pCi/g					
Cerium-144	U	ND	+/-0.0419	0.0795	0.500	pCi/g					
Cesium-134	U	ND	+/-0.00819	0.0127	0.100	pCi/g					
Cesium-136	U	ND	+/-0.0421	0.0753	0.300	pCi/g					
Cesium-137	U	ND	+/-0.00828	0.0136	0.100	pCi/g					
Chromium-51	U	ND	+/-0.103	0.183	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.00966	0.0171	0.100	pCi/g					
Cobalt-57	U	ND	+/-0.0051	0.00964	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.00906	0.0153	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.00791	0.0137	0.100	pCi/g					
Europium-152	U	ND	+/-0.020	0.0348	0.200	pCi/g					
Europium-154	U	ND	+/-0.0241	0.0424	0.500	pCi/g					
Europium-155	U	ND	+/-0.0503	0.0385	0.500	pCi/g					
Iridium-192	U	ND	+/-0.00802	0.0142	0.100	pCi/g					
Iron-59	U	ND	+/-0.0224	0.0399	0.300	pCi/g					
Lead-210	U	ND	+/-2.06	1.52	4.00	pCi/g					
Lead-212		0.621	+/-0.0729	0.0203	0.100	pCi/g					
Lead-214		0.349	+/-0.0542	0.0261	0.100	pCi/g					
Manganese-54	U	ND	+/-0.00818	0.0146	0.100	pCi/g					
Mercury-203	U	ND	+/-0.0178	0.0176	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.239	0.447	1000	pCi/g					
Neptunium-239	U	ND	+/-0.037	0.0695	2.00	pCi/g					
Niobium-94	U	ND	+/-0.00709	0.0124	1.00	pCi/g					
Niobium-95	U	ND	+/-0.0136	0.0215	0.050	pCi/g					
Potassium-40		7.26	+/-0.837	0.125	1.00	pCi/g					
Promethium-144	U	ND	+/-0.00728	0.0129	0.080	pCi/g					
Promethium-146	U	ND	+/-0.00843	0.0159	1.00	pCi/g					
Radium-226		0.315	+/-0.0549	0.0252		pCi/g					
Radium-228		0.508	+/-0.104	0.0484	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -12-2
Sample ID: 75096015

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.0775	0.122	0.800	pCi/g					
Silver-110m	U	ND	+/-0.00716	0.0131	0.080	pCi/g					
Sodium-22	U	ND	+/-0.00868	0.0152	0.080	pCi/g					
Thallium-208		0.164	+/-0.0258	0.0135	0.080	pCi/g					
Thorium-230		0.315	+/-0.0549	0.0252	1.00	pCi/g					
Thorium-234		0.555	+/-0.586	0.473	2.00	pCi/g					
Tin-113	U	ND	+/-0.0103	0.0176	0.100	pCi/g					
Uranium-235		0.102	+/-0.0907	0.0847	0.500	pCi/g					
Uranium-238		0.555	+/-0.586	0.473	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.00937	0.0136	0.100	pCi/g					
65	U	ND	+/-0.0206	0.0313	0.300	pCi/g					
nium-95	U	ND	+/-0.0172	0.0318	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -12-2
Sample ID: 75096015

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC

a Member of THE GEL GROUP, INC.

Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Geoprobe -13	Project:	IEMI00100
Sample ID:	75096016	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	13-FEB-03 12:30		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.785	+/-0.141	0.0533	0.800	pCi/g		CRB 03/12/03	1758	234961	1
Americium-241	U	ND	+/-0.0382	0.0668	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0111	0.0192	0.100	pCi/g					
Antimony-125	U	ND	+/-0.0215	0.0388	0.200	pCi/g					
Barium-133	U	ND	+/-0.0111	0.0179	0.100	pCi/g					
Barium-140	U	ND	+/-0.124	0.219	0.500	pCi/g					
Beryllium-7	U	ND	+/-0.0917	0.161	0.700	pCi/g					
[illegible]th-212		0.589	+/-0.150	0.119	0.500	pCi/g					
[illegible]th-214		0.541	+/-0.0776	0.0297	0.200	pCi/g					
Cerium-139	U	ND	+/-0.00849	0.0137	0.050	pCi/g					
Cerium-141	U	ND	+/-0.0297	0.0357	0.100	pCi/g					
Cerium-144	U	ND	+/-0.0508	0.0914	0.500	pCi/g					
Cesium-134	U	ND	+/-0.00955	0.0141	0.100	pCi/g					
Cesium-136	U	ND	+/-0.0503	0.0856	0.300	pCi/g					
Cesium-137	U	ND	+/-0.00982	0.0161	0.100	pCi/g					
Chromium-51	U	ND	+/-0.122	0.222	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.0101	0.018	0.100	pCi/g					
Cobalt-57	U	ND	+/-0.00619	0.0113	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.0105	0.0183	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.00921	0.0161	0.100	pCi/g					
Europium-152	U	ND	+/-0.023	0.0422	0.200	pCi/g					
Europium-154	U	ND	+/-0.0286	0.0504	0.500	pCi/g					
Europium-155	UUI	ND	+/-0.0607	0.0456	0.500	pCi/g					
Iridium-192	U	ND	+/-0.00911	0.0167	0.100	pCi/g					
Iron-59	U	ND	+/-0.0274	0.0438	0.300	pCi/g					
Lead-210	U	ND	+/-0.954	1.72	4.00	pCi/g					
Lead-212		0.927	+/-0.105	0.025	0.100	pCi/g					
Lead-214		0.707	+/-0.0934	0.0294	0.100	pCi/g					
Manganese-54	U	ND	+/-0.00982	0.0179	0.100	pCi/g					
Mercury-203	UUI	ND	+/-0.0195	0.0196	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.306	0.529	1000	pCi/g					
Neptunium-239	U	ND	+/-0.0446	0.0813	2.00	pCi/g					
Niobium-94	U	ND	+/-0.00865	0.0155	1.00	pCi/g					
Niobium-95	UUI	ND	+/-0.0224	0.0273	0.050	pCi/g					
Potassium-40		7.34	+/-0.802	0.148	1.00	pCi/g					
Promethium-144	U	ND	+/-0.00908	0.0164	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0105	0.0188	1.00	pCi/g					
Radium-226		0.541	+/-0.0776	0.0297		pCi/g					
Radium-228		0.785	+/-0.141	0.0533	0.500	pCi/g					

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -13
Sample ID: 75096016

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.0815	0.138	0.800	pCi/g					
Silver-110m	U	ND	+/-0.00892	0.0155	0.080	pCi/g					
Sodium-22	U	ND	+/-0.0103	0.0182	0.080	pCi/g					
Thallium-208		0.265	+/-0.0361	0.0156	0.080	pCi/g					
Thorium-230		0.541	+/-0.0776	0.0297	1.00	pCi/g					
Thorium-234		1.41	+/-0.755	0.551	2.00	pCi/g					
Tin-113	U	ND	+/-0.0111	0.0199	0.100	pCi/g					
Uranium-235	U	ND	+/-0.0972	0.0954	0.500	pCi/g					
Uranium-238		1.41	+/-0.755	0.551	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.00902	0.0171	0.100	pCi/g					
55	U	ND	+/-0.0241	0.0373	0.300	pCi/g					
nium-95	U	ND	+/-0.020	0.0341	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -13
Sample ID: 75096016

Proiect: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC

a Member of THE GEL GROUP, INC.

Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Geoprobe -14	Project:	IEMI00100
Sample ID:	75096017	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	13-FEB-03 13:00		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.855	+/-0.147	0.0557	0.800	pCi/g		CRB	03/12/03	1800	234961	1
Americium-241	UUI	ND	+/-0.270	0.252	0.200	pCi/g						
Antimony-124	U	ND	+/-0.0108	0.019	0.100	pCi/g						
Antimony-125	U	ND	+/-0.0224	0.0412	0.200	pCi/g						
Barium-133	U	ND	+/-0.0122	0.0199	0.100	pCi/g						
Barium-140	U	ND	+/-0.122	0.208	0.500	pCi/g						
B[illegible]llium-7	U	ND	+/-0.0922	0.162	0.700	pCi/g						
[illegible]th-212		0.753	+/-0.206	0.113	0.500	pCi/g						
B[illegible]uth-214		0.664	+/-0.0945	0.029	0.200	pCi/g						
Cerium-139	UUI	ND	+/-0.0457	0.0581	0.050	pCi/g						
Cerium-141	UUI	ND	+/-2.20	0.268	0.100	pCi/g						
Cerium-144	U	ND	+/-0.353	0.383	0.500	pCi/g						
Cesium-134	U	ND	+/-0.00899	0.0144	0.100	pCi/g						
Cesium-136	U	ND	+/-0.0468	0.0861	0.300	pCi/g						
Cesium-137	U	ND	+/-0.0094	0.0168	0.100	pCi/g						
Chromium-51	U	ND	+/-0.137	0.241	0.600	pCi/g						
Cobalt-56	U	ND	+/-0.0105	0.0185	0.100	pCi/g						
Cobalt-57	UUI	ND	+/-0.0955	0.0505	0.050	pCi/g						
Cobalt-58	U	ND	+/-0.0105	0.0188	0.100	pCi/g						
Cobalt-60	U	ND	+/-0.00906	0.0174	0.100	pCi/g						
Europium-152	UUI	ND	+/-0.0554	0.0468	0.200	pCi/g						
Europium-154	U	ND	+/-0.0263	0.0475	0.500	pCi/g						
Europium-155	UUI	ND	+/-0.431	0.250	0.500	pCi/g						
Iridium-192	U	ND	+/-0.0104	0.0179	0.100	pCi/g						
Iron-59	U	ND	+/-0.0241	0.0417	0.300	pCi/g						
Lead-210	U	ND	+/-3.70	6.30	4.00	pCi/g						
Lead-212		1.11	+/-0.125	0.0275	0.100	pCi/g						
Lead-214		0.769	+/-0.103	0.0329	0.100	pCi/g						
Manganese-54	UUI	ND	+/-0.0112	0.0161	0.100	pCi/g						
Mercury-203	UUI	ND	+/-0.0373	0.0242	0.100	pCi/g						
Neodymium-147	U	ND	+/-0.293	0.521	1000	pCi/g						
Neptunium-239	U	ND	+/-0.209	0.374	2.00	pCi/g						
Niobium-94	U	ND	+/-0.00857	0.0148	1.00	pCi/g						
Niobium-95	U	ND	+/-0.0172	0.0273	0.050	pCi/g						
Potassium-40		7.63	+/-0.792	0.135	1.00	pCi/g						
Promethium-144	U	ND	+/-0.00892	0.0144	0.080	pCi/g						
Promethium-146	U	ND	+/-0.0107	0.0197	1.00	pCi/g						
Radium-226		0.664	+/-0.0945	0.029		pCi/g						
[illegible]um-228		0.855	+/-0.147	0.0557	0.500	pCi/g						

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -14
Sample ID: 75096017

Proiect: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.0796	0.137	0.800	pCi/g					
Silver-110m	U	ND	+/-0.00872	0.0149	0.080	pCi/g					
Sodium-22	U	ND	+/-0.00946	0.0171	0.080	pCi/g					
Thallium-208		0.317	+/-0.0457	0.015	0.080	pCi/g					
Thorium-230		0.664	+/-0.0945	0.029	1.00	pCi/g					
Thorium-234	U	ND	+/-1.15	2.08	2.00	pCi/g					
Tin-113	U	ND	+/-0.0132	0.0214	0.100	pCi/g					
Uranium-235		63.2	+/-11.1	0.356	0.500	pCi/g					
Uranium-238	U	ND	+/-1.15	2.08	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.0103	0.016	0.100	pCi/g					
55	U	ND	+/-0.023	0.0336	0.300	pCi/g					
nium-95	UUI	ND	+/-0.0332	0.0367	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -14
Sample ID: 75096017

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Geoprobe -15	Project:	IEMI00100
Sample ID:	75096018	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	14-FEB-03 10:25		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.872	+/-0.157	0.051	0.800	pCi/g		CRB 03/12/03	1801	234961	1
Americium-241	U	ND	+/-0.0679	0.0923	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0103	0.018	0.100	pCi/g					
Antimony-125	U	ND	+/-0.0214	0.0387	0.200	pCi/g					
Barium-133	U	ND	+/-0.0111	0.017	0.100	pCi/g					
Barium-140	U	ND	+/-0.111	0.199	0.500	pCi/g					
Beryllium-7	U	ND	+/-0.0878	0.161	0.700	pCi/g					
[illegible]th-212		0.634	+/-0.166	0.113	0.500	pCi/g					
[illegible]th-214		0.645	+/-0.0904	0.0281	0.200	pCi/g					
Cerium-139	U	ND	+/-0.00814	0.0132	0.050	pCi/g					
Cerium-141	UUI	ND	+/-0.0248	0.0344	0.100	pCi/g					
Cerium-144	U	ND	+/-0.0492	0.0907	0.500	pCi/g					
Cesium-134	U	ND	+/-0.00886	0.0141	0.100	pCi/g					
Cesium-136	U	ND	+/-0.0476	0.0813	0.300	pCi/g					
Cesium-137	U	ND	+/-0.00987	0.0158	0.100	pCi/g					
Chromium-51	U	ND	+/-0.116	0.207	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.0101	0.0176	0.100	pCi/g					
Cobalt-57	U	ND	+/-0.0061	0.0114	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.0114	0.0176	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.00846	0.0138	0.100	pCi/g					
Europium-152	U	ND	+/-0.0224	0.0388	0.200	pCi/g					
Europium-154	U	ND	+/-0.0272	0.0507	0.500	pCi/g					
Europium-155	U	ND	+/-0.0259	0.0489	0.500	pCi/g					
Iridium-192	U	ND	+/-0.00907	0.0157	0.100	pCi/g					
Iron-59	U	ND	+/-0.0253	0.0433	0.300	pCi/g					
Lead-210	UUI	ND	+/-2.08	3.49	4.00	pCi/g					
Lead-212		1.03	+/-0.114	0.0235	0.100	pCi/g					
Lead-214		0.769	+/-0.0978	0.0284	0.100	pCi/g					
Manganese-54	U	ND	+/-0.0117	0.0177	0.100	pCi/g					
Mercury-203	U	ND	+/-0.0243	0.0196	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.272	0.499	1000	pCi/g					
Neptunium-239	U	ND	+/-0.0443	0.0815	2.00	pCi/g					
Niobium-94	U	ND	+/-0.00821	0.0146	1.00	pCi/g					
Niobium-95	U	ND	+/-0.0165	0.0256	0.050	pCi/g					
Potassium-40		6.95	+/-0.767	0.138	1.00	pCi/g					
Promethium-144	U	ND	+/-0.00887	0.0154	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0119	0.0193	1.00	pCi/g					
Radium-226		0.645	+/-0.0904	0.0281		pCi/g					
[illegible]um-228		0.872	+/-0.157	0.051	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -15
Sample ID: 75096018

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.0747	0.137	0.800	pCi/g					
Silver-110m	U	ND	+/-0.00846	0.0149	0.080	pCi/g					
Sodium-22	U	ND	+/-0.00976	0.0182	0.080	pCi/g					
Thallium-208		0.293	+/-0.0393	0.0152	0.080	pCi/g					
Thorium-230		0.645	+/-0.0904	0.0281	1.00	pCi/g					
Thorium-234		1.36	+/-0.837	0.726	2.00	pCi/g					
Tin-113	U	ND	+/-0.0129	0.0199	0.100	pCi/g					
Uranium-235		0.148	+/-0.0989	0.0997	0.500	pCi/g					
Uranium-238		1.36	+/-0.837	0.726	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.00914	0.0165	0.100	pCi/g					
[illegible]5	U	ND	+/-0.0213	0.0346	0.300	pCi/g					
[illegible]nium-95	U	ND	+/-0.0227	0.0354	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Geoprobe -15
Sample ID: 75096018

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy L Jamison
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Soil Composite	Project:	IEMI00100
Sample ID:	75096019	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	14-FEB-03 12:30		
Receive Date:	17-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.924	+/-0.168	0.0776	0.800	pCi/g		CRB	03/12/03	1802	234961	1
Americium-241		0.273	+/-0.0763	0.0523	0.200	pCi/g						
Antimony-124	U	ND	+/-0.0171	0.0265	0.100	pCi/g						
Antimony-125	U	ND	+/-0.0303	0.0536	0.200	pCi/g						
Barium-133	U	ND	+/-0.0163	0.0236	0.100	pCi/g						
Barium-140	U	ND	+/-0.170	0.293	0.500	pCi/g						
Beryllium-7	U	ND	+/-0.120	0.210	0.700	pCi/g						
ıth-212		0.599	+/-0.200	0.170	0.500	pCi/g						
ıth-214		0.660	+/-0.108	0.0407	0.200	pCi/g						
Cerium-139	UUI	ND	+/-0.0191	0.0304	0.050	pCi/g						
Cerium-141	UUI	ND	+/-0.945	0.133	0.100	pCi/g						
Cerium-144	U	ND	+/-0.136	0.220	0.500	pCi/g						
Cesium-134	U	ND	+/-0.0129	0.020	0.100	pCi/g						
Cesium-136	UUI	ND	+/-0.0821	0.120	0.300	pCi/g						
Cesium-137	U	ND	+/-0.0133	0.0229	0.100	pCi/g						
Chromium-51	U	ND	+/-0.162	0.274	0.600	pCi/g						
Cobalt-56	U	ND	+/-0.0157	0.0262	0.100	pCi/g						
Cobalt-57	UUI	ND	+/-0.0447	0.033	0.050	pCi/g						
Cobalt-58	U	ND	+/-0.0152	0.0251	0.100	pCi/g						
Cobalt-60	U	ND	+/-0.0144	0.0251	0.100	pCi/g						
Europium-152	U	ND	+/-0.036	0.055	0.200	pCi/g						
Europium-154	U	ND	+/-0.0377	0.0649	0.500	pCi/g						
Europium-155	UUI	ND	+/-0.176	0.137	0.500	pCi/g						
Iridium-192	U	ND	+/-0.0126	0.0215	0.100	pCi/g						
Iron-59	U	ND	+/-0.0351	0.0616	0.300	pCi/g						
Lead-210		1.39	+/-0.567	0.439	4.00	pCi/g						
Lead-212		1.08	+/-0.140	0.0306	0.100	pCi/g						
Lead-214		0.757	+/-0.104	0.0382	0.100	pCi/g						
Manganese-54	U	ND	+/-0.014	0.0229	0.100	pCi/g						
Mercury-203	UUI	ND	+/-0.0259	0.0261	0.100	pCi/g						
Neodymium-147	U	ND	+/-0.393	0.680	1000	pCi/g						
Neptunium-239	U	ND	+/-0.116	0.210	2.00	pCi/g						
Niobium-94	U	ND	+/-0.012	0.0208	1.00	pCi/g						
Niobium-95	U	ND	+/-0.0249	0.0388	0.050	pCi/g						
Potassium-40		8.11	+/-0.832	0.194	1.00	pCi/g						
Promethium-144	U	ND	+/-0.013	0.0225	0.080	pCi/g						
Promethium-146	U	ND	+/-0.0195	0.0244	1.00	pCi/g						
Radium-226		0.660	+/-0.108	0.0407		pCi/g						
Radium-228		0.924	+/-0.168	0.0776	0.500	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Soil Composite
Sample ID: 75096019

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.110	0.193	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0122	0.0209	0.080	pCi/g					
Sodium-22	U	ND	+/-0.0136	0.0234	0.080	pCi/g					
Thallium-208		0.335	+/-0.0521	0.0213	0.080	pCi/g					
Thorium-230		0.660	+/-0.108	0.0407	1.00	pCi/g					
Thorium-234	UUI	ND	+/-0.736	0.639	2.00	pCi/g					
Tin-113	U	ND	+/-0.0165	0.0267	0.100	pCi/g					
Uranium-235		21.5	+/-4.08	0.202	0.500	pCi/g					
Uranium-238		1.79	+/-0.736	0.529	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.0121	0.020	0.100	pCi/g					
65	U	ND	+/-0.0354	0.0504	0.300	pCi/g					
nium-95	U	ND	+/-0.0336	0.0485	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1041	234358

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Soil Composite
Sample ID: 75096019

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Sewer Composite	Project:	IEMI00100
Sample ID:	75096020	Client ID:	IEMI001
Matrix:	Solid		
Collect Date:	10-FEB-03 14:45		
Receive Date:	17-FEB-03		
Collector:	Client		
Moisture:	18.8%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Electrode Analysis											
SW9045C pH											
pH at Temp C	H	6.25	0.010	0.100	SU	1	BEP2	02/17/03	1726	234495	1
Halogen Analysis											
SW9023 TOX (Extract. Halogen)											
Extractable Organic Halogens	J	16.9	10.1	18.5	mg/kg	1	LS	02/26/03	1117	235824	2
M y Analysis-CVAA											
Hg in Solid											
Mercury	U	ND	0.000472	0.002	mg/L	1	NOR1	02/21/03	1246	234781	3
Metals Analysis-ICP											
TCLP ICP Metals for Solid											
Arsenic	J	0.0393	0.0238	0.050	mg/L	10	HSC	02/20/03	1726	234821	4
Barium		2.54	0.00393	0.050	mg/L	10					
Cadmium	J	0.0112	0.00386	0.050	mg/L	10					
Chromium	U	ND	0.00735	0.050	mg/L	10					
Copper		23.5	0.0117	0.050	mg/L	10					
Lead		6.00	0.0266	0.050	mg/L	10					
Selenium	U	ND	0.0338	0.050	mg/L	10					
Silver	U	ND	0.0118	0.050	mg/L	10					
Zinc		6.45	0.0209	0.050	mg/L	10					
Rapid Flow Analysis (Alpkem)											
SW 7.3.3 Reactivity, Releasable											
Reactive Releasable Cyanide	J	30.8	5.16	250000	ug/kg	1	ADF	02/21/03	1034	234561	5
Semi-Volatiles-GC/MS											
TCLP BNA SOLID 8270C 3510C											
1,4-Dichlorobenzene	U	ND	1.55	50.0	ug/L	1	CAK	02/20/03	1647	234743	6
2,4,5-Trichlorophenol	U	ND	4.85	50.0	ug/L	1					
2,4,6-Trichlorophenol	U	ND	1.95	50.0	ug/L	1					
2,4-Dinitrotoluene	U	ND	3.50	50.0	ug/L	1					
Hexachlorobenzene	U	ND	3.25	50.0	ug/L	1					
Hexachlorobutadiene	U	ND	1.60	50.0	ug/L	1					
Hexachloroethane	U	ND	2.15	50.0	ug/L	1					
Nitrobenzene	U	ND	3.15	50.0	ug/L	1					
Pentachlorophenol	U	ND	25.0	50.0	ug/L	1					
Pyridine	U	ND	25.0	50.0	ug/L	1					
Cresols	U	ND	2.95	50.0	ug/L	1					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Sewer Composite
Sample ID: 75096020

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-GC/MS											
TCLP BNA SOLID 8270C 3510C											
o-Cresol	U	ND	2.25	50.0	ug/L	1					
Semi-Volatiles-HERB											
8151B TCLP HERB Soil											
2,4,5-TP	U	ND	0.0188	0.100	mg/L	20	SAS1	02/20/03	1509	234741	7
2,4-D	U	ND	0.018	1.00	mg/L	20					
Semi-Volatiles-Pesticide & PCB											
8081A/3510C TCLP PEST Solid											
Chlordane (tech.)	U	ND	0.00155	0.0025	mg/L	1	SJ	02/20/03	2227	234739	9
Endrin	U	ND	0.000038	0.0004	mg/L	1					
[illegible]achlor	U	ND	0.000059	0.0002	mg/L	1					
[illegible]chlor epoxide	U	ND	0.00003	0.0002	mg/L	1					
Methoxychlor	U	ND	0.000278	0.002	mg/L	1					
Toxaphene	U	ND	0.00105	0.010	mg/L	1					
gamma-BHC (Lindane)	U	ND	0.000021	0.0002	mg/L	1					
Titration Analysis											
Reactive Sulfide SW846 Chapter 7.3.4											
Reactive Releasable Sulfide	J	52.5	19.0	500	mg/kg		POW1	02/20/03	1200	234543	11
Volatile Organics											
TCLP Volatiles in Solid											
1,1-Dichloroethylene	U	ND	0.082	0.200	mg/L	200	JEB	02/20/03	1524	235086	12
1,2-Dichloroethane	U	ND	0.058	0.200	mg/L	200					
1,4-Dichlorobenzene	U	ND	0.050	0.200	mg/L	200					
2-Butanone	U	ND	0.462	1.00	mg/L	200					
Benzene	U	ND	0.066	0.200	mg/L	200					
Carbon tetrachloride	U	ND	0.058	0.200	mg/L	200					
Chlorobenzene	U	ND	0.064	0.200	mg/L	200					
Chloroform	U	ND	0.072	0.200	mg/L	200					
Tetrachloroethylene	U	ND	0.066	0.200	mg/L	200					
Trichloroethylene	U	ND	0.072	0.200	mg/L	200					
Vinyl chloride	U	ND	0.110	0.200	mg/L	200					
Wet Chemistry General											
SW9095 Paint Filter Test											
Paint Filter		PASS					POW1	02/19/03	0930	234793	13

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 1311	SW846 1311 TCLP Leaching	ETL	02/17/03	1740	234346
SW846 1311	SW846 1311 TCLP Leaching	ETL	02/17/03	1741	234340
SW[illegible]6 1311	SW846 1311 TCLP Volatiles Prep	ETL	02/17/03	1740	234349

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Sewer Composite
Sample ID: 75096020

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
SW846 3010A	ICP-TRACE TCLP by SW846 3010A			CWS1	02/19/03	1400	234820			
SW846 3510C	3510C BNA TCLP/SPLP Prep-8270C Analysis			NAC1	02/19/03	1324	234742			
SW846 3510C	3510C PEST TCLP Liquid Prep			SEK1	02/19/03	1714	234738			
SW846 7.3.3 Prep	SW 7.3.3 Reactivity, Releasable Cyanide			POW1	02/20/03	1200	234560			
SW846 7470A Prep	EPA 7470A Mercury Prep TCLP Liquid			KHN	02/20/03	1200	234779			
SW846 8151A Prep	8151A HERB TCLP Prep in Liquid			JPB	02/19/03	1326	234740			
SW846 9023 Prep	SW 9023 Halogen, Extractable(TOX) Prep			LS	02/25/03	1100	235823			

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9045C	
2	SW846 9023	
3	SW846 7470A	
4	SW846 3010/6010B	
5	SW846 7.3.3	
6	SW846 8270C	
7	SW846 8151A	
8	SW846 8151A	
9	SW846 8081A	
10	SW846 8081A	
11	SW846 Chpt. 7.3.4-TIT	
12	SW846 8260B	
13	SW846 9095	

Surrogate recovery	Test	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	TCLP BNA SOLID 8270C 3510C	60%	(28%-126%)
2-Fluorobiphenyl	TCLP BNA SOLID 8270C 3510C	67%	(32%-109%)
2-Fluorophenol	TCLP BNA SOLID 8270C 3510C	45%	(13%-73%)
Nitrobenzene-d5	TCLP BNA SOLID 8270C 3510C	71%	(33%-107%)
Phenol-d5	TCLP BNA SOLID 8270C 3510C	31%	(14%-66%)
p-Terphenyl-d14	TCLP BNA SOLID 8270C 3510C	74%	(36%-130%)
2,4-Dichlorophenylacetic acid	8151B TCLP HERB Soil	85%	(45%-140%)
4cmx	8081A/3510C TCLP PEST Solid	89%	(34%-116%)
Decachlorobiphenyl	8081A/3510C TCLP PEST Solid	87%	(21%-122%)
Bromofluorobenzene	TCLP Volatiles in Solid	97%	(57%-140%)
Dibromofluoromethane	TCLP Volatiles in Solid	113%	(56%-137%)
			(54%-141%)

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Sewer Composite
Sample ID: 75096020

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Toluene-d8	TCLP Volatiles in Solid	101%								

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
I The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Soil Composite	Project:	IEMI00100
Sample ID:	75096021	Client ID:	IEMI001
Matrix:	Solid		
Collect Date:	14-FEB-03 12:30		
Receive Date:	17-FEB-03		
Collector:	Client		
Moisture:	10.3%		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Electrode Analysis											
SW9045C pH											
pH at Temp C	H	9.64	0.010	0.100	SU	1	BEP2	02/17/03	1726	234495	1
Halogen Analysis											
SW9023 TOX (Extract. Halogen)											
Extractable Organic Halogens		31.5	9.15	16.7	mg/kg	1	LS	02/26/03	1138	235824	2
M ry Analysis-CVAA											
' Hg in Solid											
Mercury	J	0.00102	0.000472	0.002	mg/L	1	NOR1	02/21/03	1253	234781	3
Metals Analysis-ICP											
TCLP ICP Metals for Solid											
Arsenic	U	ND	0.0238	0.050	mg/L	10	HSC	02/20/03	1750	234821	4
Barium		0.283	0.00393	0.050	mg/L	10					
Cadmium	J	0.012	0.00386	0.050	mg/L	10					
Chromium	J	0.0103	0.00735	0.050	mg/L	10					
Copper		5.52	0.0117	0.050	mg/L	10					
Lead		0.183	0.0266	0.050	mg/L	10					
Selenium	U	ND	0.0338	0.050	mg/L	10					
Silver	U	ND	0.0118	0.050	mg/L	10					
Zinc		12.0	0.0209	0.050	mg/L	10					
Rapid Flow Analysis (Alpkem)											
SW 7.3.3 Reactivity, Releasable											
Reactive Releasable Cyanide	J	9.19	4.67	250000	ug/kg	1	ADF	02/21/03	1035	234561	5
Semi-Volatiles-GC/MS											
TCLP BNA SOLID 8270C 3510C											
1,4-Dichlorobenzene	U	ND	1.55	50.0	ug/L	1	CAK	02/20/03	1627	234743	6
2,4,5-Trichlorophenol	U	ND	4.85	50.0	ug/L	1					
2,4,6-Trichlorophenol	U	ND	1.95	50.0	ug/L	1					
2,4-Dinitrotoluene	U	ND	3.50	50.0	ug/L	1					
Hexachlorobenzene	U	ND	3.25	50.0	ug/L	1					
Hexachlorobutadiene	U	ND	1.60	50.0	ug/L	1					
Hexachloroethane	U	ND	2.15	50.0	ug/L	1					
Nitrobenzene	U	ND	3.15	50.0	ug/L	1					
Pentachlorophenol	U	ND	25.0	50.0	ug/L	1					
Pyridine	U	ND	25.0	50.0	ug/L	1					
Cresols	U	ND	2.95	50.0	ug/L	1					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Soil Composite
Sample ID: 75096021

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-GC/MS											
TCLP BNA SOLID 8270C 3510C											
o-Cresol	U	ND	2.25	50.0	ug/L	1					
Semi-Volatiles-HERB											
8151B TCLP HERB Soil											
2,4,5-TP	U	ND	0.0188	0.100	mg/L	20	SAS1	02/20/03	1537	234741	7
2,4-D	U	ND	0.018	1.00	mg/L	20					
Semi-Volatiles-Pesticide & PCB											
8081A/3510C TCLP PEST Solid											
Chlordane (tech.)	U	ND	0.00155	0.0025	mg/L	1	SJ	02/20/03	2239	234739	9
Endrin	U	ND	0.000038	0.0004	mg/L	1					
P[illegible]chlor	U	ND	0.000059	0.0002	mg/L	1					
[illegible]hlor epoxide	U	ND	0.00003	0.0002	mg/L	1					
Methoxychlor	U	ND	0.000278	0.002	mg/L	1					
Toxaphene	U	ND	0.00105	0.010	mg/L	1					
gamma-BHC (Lindane)	U	ND	0.000021	0.0002	mg/L	1					
Titration Analysis											
Reactive Sulfide SW846 Chapter 7.3.4											
Reactive Releasable Sulfide	J	65.4	17.2	500	mg/kg		POW1	02/20/03	1200	234543	11
Volatile Organics											
TCLP Volatiles in Solid											
1,1-Dichloroethylene	U	ND	0.082	0.200	mg/L	200	JEB	02/20/03	1553	235086	12
1,2-Dichloroethane	U	ND	0.058	0.200	mg/L	200					
1,4-Dichlorobenzene	U	ND	0.050	0.200	mg/L	200					
2-Butanone	U	ND	0.462	1.00	mg/L	200					
Benzene	U	ND	0.066	0.200	mg/L	200					
Carbon tetrachloride	U	ND	0.058	0.200	mg/L	200					
Chlorobenzene	U	ND	0.064	0.200	mg/L	200					
Chloroform	U	ND	0.072	0.200	mg/L	200					
Tetrachloroethylene	U	ND	0.066	0.200	mg/L	200					
Trichloroethylene	U	ND	0.072	0.200	mg/L	200					
Vinyl chloride	U	ND	0.110	0.200	mg/L	200					
Wet Chemistry General											
SW9095 Paint Filter Test											
Paint Filter		PASS					POW1	02/19/03	0930	234793	13

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 1311	SW846 1311 TCLP Leaching	ETL	02/17/03	1740	234346
SW846 1311	SW846 1311 TCLP Leaching	ETL	02/17/03	1741	234340
SW[illegible] 1311	SW846 1311 TCLP Volatiles Prep	ETL	02/17/03	1740	234349

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Soil Composite
Sample ID: 75096021

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
SW846 3010A	ICP-TRACE TCLP by SW846 3010A			CWS1	02/19/03	1400	234820			
SW846 3510C	3510C BNA TCLP/SPLP Prep-8270C Analysis			NAC1	02/19/03	1324	234742			
SW846 3510C	3510C PEST TCLP Liquid Prep			SEK1	02/19/03	1714	234738			
SW846 7.3.3 Prep	SW 7.3.3 Reactivity, Releasable Cyanide			POW1	02/20/03	1200	234560			
SW846 7470A Prep	EPA 7470A Mercury Prep TCLP Liquid			KHN	02/20/03	1200	234779			
SW846 8151A Prep	8151A HERB TCLP Prep in Liquid			JPB	02/19/03	1326	234740			
SW846 9023 Prep	SW 9023 Halogen, Extractable(TOX) Prep			LS	02/25/03	1100	235823			

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9045C	
2	SW846 9023	
3	SW846 7470A	
4	SW846 3010/6010B	
5	SW846 7.3.3	
6	SW846 8270C	
7	SW846 8151A	
8	SW846 8151A	
9	SW846 8081A	
10	SW846 8081A	
11	SW846 Chpt. 7.3.4-TIT	
12	SW846 8260B	
13	SW846 9095	

Surrogate recovery	Test	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	TCLP BNA SOLID 8270C 3510C	55%	(28%-126%)
2-Fluorobiphenyl	TCLP BNA SOLID 8270C 3510C	62%	(32%-109%)
2-Fluorophenol	TCLP BNA SOLID 8270C 3510C	40%	(13%-73%)
Nitrobenzene-d5	TCLP BNA SOLID 8270C 3510C	65%	(33%-107%)
Phenol-d5	TCLP BNA SOLID 8270C 3510C	27%	(14%-66%)
p-Terphenyl-d14	TCLP BNA SOLID 8270C 3510C	73%	(36%-130%)
2,4-Dichlorophenylacetic acid	8151B TCLP HERB Soil	85%	(45%-140%)
4cmx	8081A/3510C TCLP PEST Solid	75%	(34%-116%)
Decachlorobiphenyl	8081A/3510C TCLP PEST Solid	81%	(21%-122%)
Bromofluorobenzene	TCLP Volatiles in Solid	96%	(57%-140%)
Dibromofluoromethane	TCLP Volatiles in Solid	112%	(56%-137%)
			(54%-141%)

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 19, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Soil Composite
Sample ID: 75096021

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Toluene-d8		TCLP Volatiles in Solid		101%						

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
I The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Client : IEM, Inc.
302 Westfield Road
Knoxville, Tennessee
Contact: Alan Duff

Workorder: 75096

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Electrode Analysis											
Batch 234495											
QC1200382299 CCV											
pH	7.00				7.00	SU		100		BEP2	02/17/03 17:26
QC1200382297 75096020 DUP											
pH		H	6.25	H	6.27	SU	0		(0%-5%)		
QC1200382298 LCS											
pH	7.00				7.00	SU		100	(95%-105%)		
Halogen Analysis											
Batch 235824											
QC1200385461 74624004 DUP											
Extractable Organic Halogens			113		111	mg/kg	2		(0%-32%)	LS	02/25/03 14:46
QC1200385463 LCS											
Extractable Organic Halogens	250				219	mg/kg		88	(76%-130%)		02/25/03 14:08
QC1200385460 MB											
Extractable Organic Halogens				U	ND	mg/kg					02/25/03 15:14
QC1200385462 74624004 MS											
[illegible]ctable Organic Halogens	250		113		322	mg/kg		84	(69%-129%)		02/25/03 15:02
[illegible] **Analysis-ICP**											
Batch 234821											
QC1200383009 75096020 DUP											
Arsenic		J	0.0393	U	ND	mg/L	N/A ^		(+/-0.050)	HSC	02/20/03 17:38
Barium			2.54		2.59	mg/L	2		(0%-20%)		
Cadmium		J	0.0112	J	0.0141	mg/L	N/A ^		(+/-0.050)		
Chromium		U	ND	U	ND	mg/L	N/A		(+/-0.050)		
Copper			23.5		24.0	mg/L	2		(0%-20%)		
Lead			6.00		6.12	mg/L	2		(0%-20%)		
Selenium		U	ND	U	ND	mg/L	N/A		(+/-0.050)		
Silver		U	ND	U	ND	mg/L	N/A		(+/-0.050)		
Zinc			6.45		6.57	mg/L	2		(0%-20%)		
QC1200383008 LCS											
Arsenic	5.00				5.25	mg/L		105	(80%-120%)		02/20/03 17:20
Barium	10.0				9.80	mg/L		98	(80%-120%)		
Cadmium	1.00				1.04	mg/L		104	(80%-120%)		
Chromium	5.00				5.00	mg/L		100	(80%-120%)		
Copper	2.00				2.03	mg/L		102	(80%-120%)		
Lead	5.00				5.28	mg/L		106	(80%-120%)		
Selenium	1.00				1.05	mg/L		105	(80%-120%)		
Silver	0.500				0.507	mg/L		101	(80%-120%)		
Zinc	2.00				2.03	mg/L		101	(80%-120%)		
QC1200383007 MB											
Arsenic				U	ND	mg/L					02/20/03 17:08
Barium				J	0.00408	mg/L					
Cadmium				U	ND	mg/L					
Chromium				U	ND	mg/L					
Copper				U	ND	mg/L					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75096

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP											
Batch 234821											
Lead				U	ND	mg/L					
Selenium				U	ND	mg/L					
Silver				U	ND	mg/L					
Zinc				U	ND	mg/L					
QC1200381951 75096020 MS											
Arsenic	5.26	J	0.0393		5.42	mg/L		102	(75%-125%)		02/20/03 17:44
Barium	10.5		2.54		12.0	mg/L		90	(75%-125%)		
Cadmium	1.05	J	0.0112		1.05	mg/L		99	(75%-125%)		
Chromium	5.26	U	ND		5.06	mg/L		96	(75%-125%)		
Copper	2.11		23.5		24.7	mg/L		N/A	(75%-125%)		
Lead	5.26		6.00		11.3	mg/L		100	(75%-125%)		
Selenium	1.05	U	ND		1.06	mg/L		101	(75%-125%)		
Silver	0.526	U	ND		0.517	mg/L		98	(75%-125%)		
Zinc	2.11		6.45		8.23	mg/L		85	(75%-125%)		
QC1200383011 75096020 SDILT											
Arsenic		J	3.93	U	ND	ug/L	N/A				02/20/03 17:32
Barium			254		53.0	ug/L	4.24				
Cadmium		J	1.12	U	ND	ug/L	N/A				
Chromium		U	ND	U	ND	ug/L	N/A				
[illegible]			2350		486	ug/L	3.48				
[illegible]			600		120	ug/L	.479				
Selenium		U	ND	U	ND	ug/L	N/A				
Silver		U	ND	U	ND	ug/L	N/A				
Zinc			645		132	ug/L	2.71				
QC1200381955 TB											
Arsenic				U	ND	mg/L					02/20/03 17:14
Barium				U	ND	mg/L					
Cadmium				U	ND	mg/L					
Chromium				U	ND	mg/L					
Copper				U	ND	mg/L					
Lead				U	ND	mg/L					
Selenium				U	ND	mg/L					
Silver				U	ND	mg/L					
Zinc				U	ND	mg/L					
Metals Analysis-Mercury											
Batch 234781											
QC1200382910 75096020 DUP											
Mercury		U	ND	U	ND	mg/L	N/A		(+/-0.002)	NOR1	02/21/03 12:49
QC1200382909 LCS											
Mercury	0.020				0.0201	mg/L		101	(80%-120%)		02/21/03 12:44
QC1200382908 MB											
Mercury				U	ND	mg/L					02/21/03 12:42
QC1200381952 75096020 MS											
Mercury	0.020	U	ND		0.0144	mg/L		72*	(75%-125%)		02/21/03 12:51
QC1200381955 TB											
Mercury				U	ND	mg/L					02/21/03 12:40
Rad Gamma Spec											
Batch 234961											

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75096

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 234961										
QC1200383378 75096001 DUP										
Actinium-228		1.07 +/-0.225		1.17 +/-0.187	pCi/g	9 ^		(+/-0.800)	CRB	03/12/03 18:04
Americium-241	UUI	0.00 +/-0.140	UUI	0.00 +/-0.124	pCi/g	6 ^		(+/-0.200)		
Antimony-124	U	-0.0114 +/-0.0269	U	-0.00862 +/-0.0111	pCi/g	N/A ^		(+/-0.100)		
Antimony-125	U	-0.00781 +/-0.0498	U	-0.0122 +/-0.0195	pCi/g	N/A ^		(+/-0.200)		
Barium-133	U	0.00738 +/-0.0247	U	0.0109 +/-0.00982	pCi/g	38 ^		(+/-0.100)		
Barium-140	U	-0.0592 +/-0.334	U	0.0704 +/-0.137	pCi/g	N/A ^		(+/-0.500)		
Beryllium-7		0.403 +/-0.357	UUI	0.00 +/-0.173	pCi/g	25 ^		(+/-0.700)		
Bismuth-212		0.801 +/-0.301		0.838 +/-0.184	pCi/g	4 ^		(+/-0.500)		
Bismuth-214		0.464 +/-0.115		0.441 +/-0.0685	pCi/g	5 ^		(+/-0.200)		
C -139	U	0.0551 +/-0.0401	UUI	0.00 +/-0.0315	pCi/g	123*^		(+/-0.050)		
Cerium-141	UUI	0.00 +/-1.75	UUI	0.00 +/-1.26	pCi/g	7 ^		(+/-0.100)		
Cerium-144	U	-0.338 +/-0.268	U	-0.147 +/-0.144	pCi/g	N/A ^		(+/-0.500)		
Cesium-134	U	-0.00964 +/-0.0222	U	-0.000975 +/-0.00781	pCi/g	N/A ^		(+/-0.100)		
Cesium-136	U	-0.0699 +/-0.127	U	0.00869 +/-0.0429	pCi/g	N/A ^		(+/-0.300)		
Cesium-137		0.366 +/-0.0651		0.311 +/-0.0417	pCi/g	16 ^		(+/-0.100)		
Chromium-51	U	-0.0398 +/-0.295	U	0.0392 +/-0.119	pCi/g	N/A ^		(+/-0.600)		
Cobalt-56	U	-0.0084 +/-0.0263	U	-0.00909 +/-0.00869	pCi/g	N/A ^		(+/-0.100)		
Cobalt-57	UUI	0.00 +/-0.0904	UUI	0.00 +/-0.0548	pCi/g	2 ^		(+/-0.050)		
Cobalt-58	U	0.0119 +/-0.0253	U	-0.00262 +/-0.0081	pCi/g	N/A ^		(+/-0.100)		
Cobalt-60	U	0.00415 +/-0.0205	U	-7.220E-05 +/-0.00714	pCi/g	N/A ^		(+/-0.100)		
Europium-152	UUI	0.00 +/-0.102	UUI	0.00 +/-0.0351	pCi/g	84 ^		(+/-0.200)		
Europium-154	U	-0.0665 +/-0.0611	U	0.00188 +/-0.0214	pCi/g	N/A ^		(+/-0.500)		
Europium-155	UUI	0.00 +/-0.329	UUI	0.00 +/-0.225	pCi/g	3 ^		(+/-0.500)		
Iridium-192	U	-0.0159	U	-0.00236	pCi/g	N/A ^		(+/-0.100)		

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75096

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 234961											
		+/-0.0221		+/-0.00977							
Iron-59	U	0.019	U	-5.520E-05	pCi/g	N/A ^		(+/-0.300)			
		+/-0.0613		+/-0.0365							
Lead-210		2.05	U	1.02	pCi/g	67 ^		(+/-4.00)			
		+/-1.20		+/-1.83							
Lead-212		1.37		1.31	pCi/g	5					
		+/-0.186		+/-0.140							
Lead-214		0.556		0.535	pCi/g	4					
		+/-0.112		+/-0.0698							
Manganese-54	U	0.0113	UUI	0.00	pCi/g	30 ^		(+/-0.100)			
		+/-0.0351		+/-0.00757							
Mercury-203	UUI	0.00	UUI	0.00	pCi/g	22 ^		(+/-0.100)			
		+/-0.0511		+/-0.0311							
Neodymium-147	U	-0.439	U	-0.148	pCi/g	N/A ^		(+/-1000)			
		+/-0.857		+/-0.334							
Neptunium-239	U	-0.187	U	0.0291	pCi/g	N/A ^		(+/-2.00)			
		+/-0.248		+/-0.187							
Niobium-94	U	-0.00167	U	0.00298	pCi/g	N/A ^		(+/-1.00)			
		+/-0.0197		+/-0.00706							
N[illegible]m-95	U	0.00279	U	0.0247	pCi/g	159 ^		(+/-0.050)			
		+/-0.0392		+/-0.0248							
Potassium-40		5.04		5.14	pCi/g	2					
		+/-0.743		+/-0.557							
Promethium-144	U	0.00989	U	0.00812	pCi/g	20 ^		(+/-0.080)			
		+/-0.0215		+/-0.00728							
Promethium-146	U	0.0255	U	0.00929	pCi/g	93 ^		(+/-1.00)			
		+/-0.0426		+/-0.0089							
Radium-226		0.464		0.441	pCi/g	5					
		+/-0.115		+/-0.0685							
Radium-228		1.07		1.17	pCi/g	9 ^		(+/-0.500)			
		+/-0.225		+/-0.187							
Ruthenium-106	U	0.0641	U	-0.0181	pCi/g	N/A ^		(+/-0.800)			
		+/-0.188		+/-0.0654							
Silver-110m	U	0.00945	U	0.00914	pCi/g	3 ^		(+/-0.080)			
		+/-0.0242		+/-0.0085							
Sodium-22	U	-0.0239	U	0.00068	pCi/g	N/A ^		(+/-0.080)			
		+/-0.022		+/-0.00772							
Thallium-208		0.431		0.370	pCi/g	15 ^		(+/-0.080)			
		+/-0.071		+/-0.0485							
Thorium-230		0.464		0.441	pCi/g	5 ^		(+/-1.00)			
		+/-0.115		+/-0.0685							
Thorium-234		3.17	UUI	0.00	pCi/g	49*^		(+/-2.00)			
		+/-1.57		+/-1.03							
Tin-113	U	-0.00573	U	0.00233	pCi/g	N/A ^		(+/-0.100)			
		+/-0.029		+/-0.0114							
Uranium-235		36.9		33.9	pCi/g	9					
		+/-7.00		+/-5.94							

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75096

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 234961										
Uranium-238		3.17 +/-1.57		1.92 +/-1.03	pCi/g	49*^		(+/-1.00)		
Yttrium-88		U -0.00759 +/-0.020	U	-0.00115 +/-0.00776	pCi/g	N/A ^		(+/-0.100)		
Zinc-65		U -0.00226 +/-0.0523	U	0.0062 +/-0.0191	pCi/g	N/A ^		(+/-0.300)		
Zirconium-95		U 0.0197 +/-0.0497	UUI	0.00 +/-0.0235	pCi/g	53 ^		(+/-0.200)		
QC1200383379 LCS										
Actinium-228			U	1.58 +/-3.88	pCi/g					03/13/03 07:54
Americium-241				1270 +/-135	pCi/g					
Antimony-124			U	-6.410E+11 +/-1.460E+12	pCi/g					
Antimony-125			U	3.12 +/-6.36	pCi/g					
Barium-133			U	0.259 +/-0.716	pCi/g					
F n-140				1.000E+41 +/-9.880E+40	pCi/g					
Beryllium-7				1.860E+14 +/-6.380E+14	pCi/g					
Bismuth-212			U	13.9 +/-32.0	pCi/g					
Bismuth-214			U	0.369 +/-0.642	pCi/g					
Cerium-139			U	-29900 +/-81500	pCi/g					
Cerium-141				1.230E+23 +/-1.190E+23	pCi/g					
Cerium-144				114 +/-805	pCi/g					
Cesium-134			U	-2.48 +/-3.11	pCi/g					
Cesium-136			U	-1.000E+41 +/-3.040E+42	pCi/g					
Cesium-137	441			455 +/-55.2	pCi/g		103			
Chromium-51				3.370E+27 +/-9.430E+27	pCi/g					
Cobalt-56			U	-1.160E+09 +/-1.930E+09	pCi/g					
Cobalt-57				358 +/-201	pCi/g					
Cobalt-58			U	-3.730E+09 +/-2.190E+10	pCi/g					
Cobalt-60				680	pCi/g					

QC Summary

Workorder: 75096

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 234961											
				+/-64.6							
Europium-152			U	-0.695	pCi/g						
				+/-1.40							
Europium-154			U	-0.698	pCi/g						
				+/-1.22							
Europium-155			U	0.954	pCi/g						
				+/-2.51							
Iridium-192				9.210E+09	pCi/g						
				+/-7.490E+09							
Iron-59			U	-5.790E+16	pCi/g						
				+/-1.360E+17							
Lead-210				15300	pCi/g						
				+/-2690							
Lead-212			U	1.94	pCi/g						
				+/-6.20							
Lead-214			U	0.0483	pCi/g						
				+/-0.720							
Manganese-54				85.9	pCi/g						
				+/-103							
[illegible]y-203			U	-2.040E+15	pCi/g						
				+/-7.370E+15							
Neodymium-147			U	-1.000E+41	pCi/g						
				+/-1.170E+41							
Neptunium-239			U	-0.723	pCi/g						
				+/-1.60							
Niobium-94			U	-0.0383	pCi/g						
				+/-0.297							
Niobium-95				3.810E+20	pCi/g						
				+/-2.040E+21							
Potassium-40			U	-0.799	pCi/g						
				+/-1.87							
Promethium-144			U	-10	pCi/g						
				+/-37.5							
Promethium-146			U	0.482	pCi/g						
				+/-1.29							
Radium-226			U	0.369	pCi/g						
				+/-0.642							
Radium-228			U	1.58	pCi/g						
				+/-3.88							
Ruthenium-106			U	153	pCi/g						
				+/-362							
Silver-110m				18400	pCi/g						
				+/-2340							
Sodium-22			U	-0.909	pCi/g						
				+/-1.59							
Thallium-208			U	3.37	pCi/g						
				+/-4.28							

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75096

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 234961										
Thorium-230			U	0.368 +/-0.641	pCi/g					
Thorium-234			U	-3.04 +/-9.14	pCi/g					
Tin-113			U	-1.200E+05 +/-1.950E+06	pCi/g					
Uranium-235			U	-0.0145 +/-1.91	pCi/g					
Uranium-238			U	-3.04 +/-9.14	pCi/g					
Yttrium-88			U	-7.700E+05 +/-2.810E+06	pCi/g					
Zinc-65				835 +/-1310	pCi/g					
Zirconium-95				4.580E+11 +/-5.110E+11	pCi/g					
QC1200383377 MB										
Actinium-228			U	0.0567 +/-0.0333	pCi/g					03/12/03 18:03
A ·ium-241			U	-3.000E-05 +/-0.0531	pCi/g					
Antimony-124			U	0.00247 +/-0.0108	pCi/g					
Antimony-125			UUI	0.00 +/-0.0249	pCi/g					
Barium-133			U	-0.0168 +/-0.0112	pCi/g					
Barium-140			U	0.00556 +/-0.0932	pCi/g					
Beryllium-7			U	-0.0171 +/-0.0807	pCi/g					
Bismuth-212			U	0.0515 +/-0.0676	pCi/g					
Bismuth-214			UUI	0.00 +/-0.0213	pCi/g					
Cerium-139			U	-0.0013 +/-0.00756	pCi/g					
Cerium-141			U	-0.00462 +/-0.0173	pCi/g					
Cerium-144			U	-0.0155 +/-0.0499	pCi/g					
Cesium-134			U	-0.0257 +/-0.00993	pCi/g					
Cesium-136			U	0.0178 +/-0.0333	pCi/g					
Cesium-137			U	0.00294 +/-0.00819	pCi/g					
Chromium-51			U	-0.0237	pCi/g					

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75096

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 234961											
				+/-0.113							
Cobalt-56			U	0.00293	pCi/g						
				+/-0.0105							
Cobalt-57			U	0.000425	pCi/g						
				+/-0.0064							
Cobalt-58			U	0.00592	pCi/g						
				+/-0.00924							
Cobalt-60			U	-0.00421	pCi/g						
				+/-0.00914							
Europium-152			U	0.0151	pCi/g						
				+/-0.024							
Europium-154			U	0.014	pCi/g						
				+/-0.0214							
Europium-155			U	0.00827	pCi/g						
				+/-0.0264							
Iridium-192			U	-0.00274	pCi/g						
				+/-0.00933							
Iron-59			U	0.0102	pCi/g						
				+/-0.0141							
L[illegible]10			U	1.49	pCi/g						
				+/-1.76							
Lead-212			U	0.0175	pCi/g						
				+/-0.0223							
Lead-214			UUI	0.00	pCi/g						
				+/-0.0187							
Manganese-54			U	0.00744	pCi/g						
				+/-0.00837							
Mercury-203			U	0.00516	pCi/g						
				+/-0.0106							
Neodymium-147			U	-0.019	pCi/g						
				+/-0.214							
Neptunium-239			U	0.0273	pCi/g						
				+/-0.0471							
Niobium-94			U	-0.00518	pCi/g						
				+/-0.00801							
Niobium-95			U	0.00207	pCi/g						
				+/-0.0115							
Potassium-40			U	0.0338	pCi/g						
				+/-0.158							
Promethium-144			U	0.00655	pCi/g						
				+/-0.00857							
Promethium-146			U	-0.005	pCi/g						
				+/-0.0108							
Radium-226			UUI	0.00	pCi/g						
				+/-0.0213							
Radium-228			U	0.0567	pCi/g						
				+/-0.0333							

QC Summary

Workorder: 75096

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 234961										
Ruthenium-106			U	-0.011 +/-0.0719	pCi/g					
Silver-110m			U	0.00695 +/-0.00807	pCi/g					
Sodium-22			U	0.00504 +/-0.00769	pCi/g					
Thallium-208			UUI	0.00 +/-0.00986	pCi/g					
Thorium-230			UUI	0.00 +/-0.0213	pCi/g					
Thorium-234			U	0.296 +/-0.449	pCi/g					
Tin-113			U	0.0065 +/-0.0115	pCi/g					
Uranium-235			U	-0.000275 +/-0.0508	pCi/g					
Uranium-238			U	0.296 +/-0.449	pCi/g					
Yttrium-88			U	-0.00454 +/-0.00829	pCi/g					
[illegible]5			U	0.0171 +/-0.018	pCi/g					
Zirconium-95			U	0.0139 +/-0.0163	pCi/g					
Rapid Flow Analysis (Alpkem)										
Batch 234561										
QC1200382438 74738001 DUP										
Reactive Releasable Cyanide	J	9.94	J	11.4	ug/kg	N/A ^		(+/-250000)	ADF	02/21/03 10:31
QC1200382437 LCS										
Reactive Releasable Cyanide	1000000		J	54100	ug/kg		5	(1%-29%)		02/21/03 10:29
QC1200382436 MB										
Reactive Releasable Cyanide			J	6.25	ug/kg					02/21/03 10:22
Semi-Volatiles-GC/MS										
Batch 234743										
QC1200382796 LCS										
1,4-Dichlorobenzene	100			66.2	ug/L		66	(48%-100%)	CAK	02/20/03 15:27
2,4,5-Trichlorophenol	100			69.5	ug/L		70	(53%-101%)		
2,4,6-Trichlorophenol	100			67.3	ug/L		67	(48%-98%)		
2,4-Dinitrotoluene	100			77.0	ug/L		77	(50%-107%)		
Hexachlorobenzene	100			77.7	ug/L		78	(64%-112%)		
Hexachlorobutadiene	100			62.6	ug/L		63	(50%-107%)		
Hexachloroethane	100			55.4	ug/L		55	(44%-100%)		
Nitrobenzene	100			80.0	ug/L		80	(57%-106%)		
Pentachlorophenol	100			45.4	ug/L		45	(32%-107%)		
Pyridine	100			47.9	ug/L		48	(22%-66%)		
m,p-Cresols	100			52.3	ug/L		52	(37%-80%)		
o-Cresol	100			60.0	ug/L		60	(48%-100%)		

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75096

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-GC/MS											
Batch 234743											
**2,4,6-Tribromophenol	100				59.7	ug/L		60	(28%-126%)		
**2-Fluorobiphenyl	50.0				34.9	ug/L		70	(32%-109%)		
**2-Fluorophenol	100				45.4	ug/L		45	(13%-73%)		
**Nitrobenzene-d5	50.0				38.5	ug/L		77	(33%-107%)		
**Phenol-d5	100				30.2	ug/L		30	(14%-66%)		
**p-Terphenyl-d14	50.0				35.8	ug/L		72	(36%-130%)		
QC1200382795 MB											
1,4-Dichlorobenzene				U	ND	ug/L					02/20/03 15:07
2,4,5-Trichlorophenol				U	ND	ug/L					
2,4,6-Trichlorophenol				U	ND	ug/L					
2,4-Dinitrotoluene				U	ND	ug/L					
Hexachlorobenzene				U	ND	ug/L					
Hexachlorobutadiene				U	ND	ug/L					
Hexachloroethane				U	ND	ug/L					
Nitrobenzene				U	ND	ug/L					
Pentachlorophenol				U	ND	ug/L					
Pyridine				U	ND	ug/L					
m,p-Cresols				U	ND	ug/L					
o-Cresol				U	ND	ug/L					
**[illegible] Tribromophenol	100				49.3	ug/L		49	(28%-126%)		
**[illegible]robiphenyl	50.0				34.7	ug/L		69	(32%-109%)		
**2-Fluorophenol	100				46.4	ug/L		46	(13%-73%)		
**Nitrobenzene-d5	50.0				37.0	ug/L		74	(33%-107%)		
**Phenol-d5	100				31.0	ug/L		31	(14%-66%)		
**p-Terphenyl-d14	50.0				35.6	ug/L		71	(36%-130%)		
QC1200382797 75096021 MS											
1,4-Dichlorobenzene	500	U	ND		341	ug/L		68	(36%-100%)		02/20/03 15:47
2,4,5-Trichlorophenol	500	U	ND		370	ug/L		74	(29%-131%)		
2,4,6-Trichlorophenol	500	U	ND		358	ug/L		72	(40%-113%)		
2,4-Dinitrotoluene	500	U	ND		396	ug/L		79	(45%-115%)		
Hexachlorobenzene	500	U	ND		390	ug/L		78	(52%-120%)		
Hexachlorobutadiene	500	U	ND		320	ug/L		64	(34%-122%)		
Hexachloroethane	500	U	ND		290	ug/L		58	(33%-104%)		
Nitrobenzene	500	U	ND		405	ug/L		81	(46%-114%)		
Pentachlorophenol	500	U	ND		247	ug/L		49	(27%-136%)		
Pyridine	500	U	ND		248	ug/L		50	(17%-82%)		
m,p-Cresols	500	U	ND		267	ug/L		53	(17%-94%)		
o-Cresol	500	U	ND		301	ug/L		60	(40%-97%)		
**2,4,6-Tribromophenol	500		275		309	ug/L		62	(28%-126%)		
**2-Fluorobiphenyl	250		155		172	ug/L		69	(32%-109%)		
**2-Fluorophenol	500		202		229	ug/L		46	(13%-73%)		
**Nitrobenzene-d5	250		163		186	ug/L		74	(33%-107%)		
**Phenol-d5	500		135		153	ug/L		31	(14%-66%)		
**p-Terphenyl-d14	250		184		196	ug/L		78	(36%-130%)		
QC1200382798 75096021 MSD											
1,4-Dichlorobenzene	500	U	ND		345	ug/L	1	69	(0%-18%)		02/20/03 16:07
2,4,5-Trichlorophenol	500	U	ND		366	ug/L	1	73	(0%-38%)		
2,4,6-Trichlorophenol	500	U	ND		346	ug/L	3	69	(0%-23%)		

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75096

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-GC/MS											
Batch 234743											
2,4-Dinitrotoluene	500	U	ND		388	ug/L	2	78	(0%-24%)		
Hexachlorobenzene	500	U	ND		389	ug/L	0	78	(0%-12%)		
Hexachlorobutadiene	500	U	ND		321	ug/L	0	64	(0%-15%)		
Hexachloroethane	500	U	ND		295	ug/L	2	59	(0%-19%)		
Nitrobenzene	500	U	ND		405	ug/L	0	81	(0%-20%)		
Pentachlorophenol	500	U	ND		256	ug/L	4	51	(0%-24%)		
Pyridine	500	U	ND		238	ug/L	4	48	(0%-42%)		
m,p-Cresols	500	U	ND		268	ug/L	1	54	(0%-40%)		
o-Cresol	500	U	ND		307	ug/L	2	61	(0%-38%)		
**2,4,6-Tribromophenol	500		275		314	ug/L		63	(28%-126%)		
**2-Fluorobiphenyl	250		155		169	ug/L		68	(32%-109%)		
**2-Fluorophenol	500		202		229	ug/L		46	(13%-73%)		
**Nitrobenzene-d5	250		163		205	ug/L		82	(33%-107%)		
**Phenol-d5	500		135		155	ug/L		31	(14%-66%)		
**p-Terphenyl-d14	250		184		181	ug/L		72	(36%-130%)		
QC1200381972 TB											
1,4-Dichlorobenzene				U	ND	ug/L					02/20/03 14:47
2,4,5-Trichlorophenol				U	ND	ug/L					
2,4,6-Trichlorophenol				U	ND	ug/L					
[illegible]initrotoluene				U	ND	ug/L					
[illegible]hlorobenzene				U	ND	ug/L					
Hexachlorobutadiene				U	ND	ug/L					
Hexachloroethane				U	ND	ug/L					
Nitrobenzene				U	ND	ug/L					
Pentachlorophenol				U	ND	ug/L					
Pyridine				U	ND	ug/L					
m,p-Cresols				U	ND	ug/L					
o-Cresol				U	ND	ug/L					
**2,4,6-Tribromophenol	500				268	ug/L		54	(28%-126%)		
**2-Fluorobiphenyl	250				161	ug/L		65	(32%-109%)		
**2-Fluorophenol	500				215	ug/L		43	(13%-73%)		
**Nitrobenzene-d5	250				171	ug/L		68	(33%-107%)		
**Phenol-d5	500				142	ug/L		28	(14%-66%)		
**p-Terphenyl-d14	250				176	ug/L		70	(36%-130%)		
Semi-Volatiles-HERB											
Batch 234741											
QC1200382792 LCS											
2,4,5-TP	0.0019			J	0.00171	mg/L		90	(54%-135%)	SAS1	02/20/03 13:47
2,4-D	0.0019			J	0.00193	mg/L		101	(61%-132%)		
**2,4-Dichlorophenylacetic acid	0.0095				0.00794	mg/L		84	(45%-140%)		
QC1200382791 MB											
2,4,5-TP				U	ND	mg/L					02/20/03 13:19
2,4-D				U	ND	mg/L					
**2,4-Dichlorophenylacetic acid	0.0095				0.00759	mg/L		80	(45%-140%)		
QC1200382793 75096020 MS											
2,4,5-TP	0.380	U	ND		0.302	mg/L		80	(53%-134%)		02/20/03 14:14
2,4-D	0.380	U	ND	J	0.352	mg/L		93	(56%-140%)		
**2,4-Dichlorophenylacetic acid	1.90		1.62		1.42	mg/L		75	(45%-140%)		

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75096

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-HERB											
Batch 234741											
QC1200382794 75096020 MSD											
2,4,5-TP	0.380	U	ND		0.306	mg/L	1	81	(0%-30%)		02/20/03 14:42
2,4-D	0.380	U	ND	J	0.349	mg/L	1	92	(0%-29%)		
**2,4-Dichlorophenylacetic acid	1.90		1.62		1.41	mg/L		74	(45%-140%)		
QC1200381972 TB											
2,4,5-TP				U	ND	mg/L					02/20/03 12:52
2,4-D				U	ND	mg/L					
**2,4-Dichlorophenylacetic acid	1.90				1.45	mg/L		77	(45%-140%)		
Semi-Volatiles-Pesticide & PCB											
Batch 234739											
QC1200382788 LCS											
Chlordane (tech.)				U	ND	mg/L			(70%-130%)	SJ	02/20/03 20:24
Endrin	0.005				0.00548	mg/L		110	(50%-141%)		
Heptachlor	0.005				0.00495	mg/L		99	(56%-136%)		
Heptachlor epoxide	0.005				0.00507	mg/L		101	(39%-143%)		
Methoxychlor	0.050				0.0506	mg/L		101	(43%-148%)		
Toxaphene				U	ND	mg/L			(39%-134%)		
gamma-BHC (Lindane)	0.005				0.00531	mg/L		106	(37%-135%)		
**4cmx	0.010				0.00936	mg/L		94	(34%-116%)		
**[illegible]hlorobiphenyl	0.010				0.00924	mg/L		92	(21%-122%)		
[illegible]1200382789 LCS											
Chlordane (tech.)				U	ND	mg/L			(70%-130%)		02/20/03 20:37
Endrin				U	ND	mg/L			(50%-141%)		
Heptachlor				U	ND	mg/L			(56%-136%)		
Heptachlor epoxide				U	ND	mg/L			(39%-143%)		
Methoxychlor				U	ND	mg/L			(43%-148%)		
Toxaphene	0.100				0.0892	mg/L		89	(39%-134%)		
gamma-BHC (Lindane)				U	ND	mg/L			(37%-135%)		
**4cmx	0.010				0.00941	mg/L		94	(34%-116%)		
**Decachlorobiphenyl	0.010				0.00923	mg/L		92	(21%-122%)		
QC1200382790 LCS											
Chlordane (tech.)	0.100				0.0848	mg/L		85	(70%-130%)		02/20/03 20:49
Endrin				U	ND	mg/L			(50%-141%)		
Heptachlor				U	ND	mg/L			(56%-136%)		
Heptachlor epoxide				U	ND	mg/L			(39%-143%)		
Methoxychlor				U	ND	mg/L			(43%-148%)		
Toxaphene				U	ND	mg/L			(39%-134%)		
gamma-BHC (Lindane)				U	ND	mg/L			(37%-135%)		
**4cmx	0.010				0.00843	mg/L		84	(34%-116%)		
**Decachlorobiphenyl	0.010				0.00817	mg/L		82	(21%-122%)		
QC1200382781 MB											
Chlordane (tech.)				U	ND	mg/L					02/20/03 20:12
Endrin				U	ND	mg/L					
Heptachlor				U	ND	mg/L					
Heptachlor epoxide				U	ND	mg/L					
Methoxychlor				U	ND	mg/L					
Toxaphene				U	ND	mg/L					
gamma-BHC (Lindane)				U	ND	mg/L					

QC Summary

Workorder: 75096

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-Pesticide & PCB											
Batch 234739											
**4cmx	0.010				0.00901	mg/L		90	(34%-116%)		
**Decachlorobiphenyl	0.010				0.00793	mg/L		79	(21%-122%)		
QC1200382782 75096020 MS											
Chlordane (tech.)		U	ND	U	ND	mg/L			(70%-130%)		02/20/03 21:01
Endrin	0.005	U	ND		0.00532	mg/L		106	(37%-144%)		
Heptachlor	0.005	U	ND		0.00444	mg/L		89	(39%-139%)		
Heptachlor epoxide	0.005	U	ND		0.00487	mg/L		98	(45%-131%)		
Methoxychlor	0.050	U	ND		0.0499	mg/L		100	(43%-149%)		
Toxaphene		U	ND	U	ND	mg/L			(29%-136%)		
gamma-BHC (Lindane)	0.005	U	ND		0.00498	mg/L		100	(35%-135%)		
**4cmx	0.010		0.00891		0.00891	mg/L		89	(34%-116%)		
**Decachlorobiphenyl	0.010		0.00867		0.00839	mg/L		84	(21%-122%)		
QC1200382783 75096020 MS											
Chlordane (tech.)		U	ND	U	ND	mg/L			(70%-130%)		02/20/03 21:13
Endrin		U	ND	U	ND	mg/L			(37%-144%)		
Heptachlor		U	ND	U	ND	mg/L			(39%-139%)		
Heptachlor epoxide		U	ND	U	ND	mg/L			(45%-131%)		
Methoxychlor		U	ND	U	ND	mg/L			(43%-149%)		
Toxaphene	0.100	U	ND		0.0835	mg/L		84	(29%-136%)		
gamma-BHC (Lindane)		U	ND	U	ND	mg/L			(35%-135%)		
**	0.010		0.00891		0.00824	mg/L		82	(34%-116%)		
**Decachlorobiphenyl	0.010		0.00867		0.00801	mg/L		80	(21%-122%)		
QC1200382784 75096020 MS											
Chlordane (tech.)	0.100	U	ND		0.0897	mg/L		90	(70%-130%)		02/20/03 21:25
Endrin		U	ND	U	ND	mg/L			(37%-144%)		
Heptachlor		U	ND	U	ND	mg/L			(39%-139%)		
Heptachlor epoxide		U	ND	U	ND	mg/L			(45%-131%)		
Methoxychlor		U	ND	U	ND	mg/L			(43%-149%)		
Toxaphene		U	ND	U	ND	mg/L			(29%-136%)		
gamma-BHC (Lindane)		U	ND	U	ND	mg/L			(35%-135%)		
**4cmx	0.010		0.00891		0.00906	mg/L		91	(34%-116%)		
**Decachlorobiphenyl	0.010		0.00867		0.00871	mg/L		87	(21%-122%)		
QC1200382785 75096020 MSD											
Chlordane (tech.)		U	ND	U	ND	mg/L			(0%-32%)		02/20/03 21:38
Endrin	0.005	U	ND		0.00564	mg/L	6	113	(0%-31%)		
Heptachlor	0.005	U	ND		0.00461	mg/L	4	92	(0%-24%)		
Heptachlor epoxide	0.005	U	ND		0.00507	mg/L	4	101	(0%-23%)		
Methoxychlor	0.050	U	ND		0.0539	mg/L	8	108	(0%-26%)		
Toxaphene		U	ND	U	ND	mg/L			(0%-24%)		
gamma-BHC (Lindane)	0.005	U	ND		0.00519	mg/L	4	104	(0%-27%)		
**4cmx	0.010		0.00891		0.00913	mg/L		91	(34%-116%)		
**Decachlorobiphenyl	0.010		0.00867		0.0089	mg/L		89	(21%-122%)		
QC1200382786 75096020 MSD											
Chlordane (tech.)		U	ND	U	ND	mg/L			(0%-32%)		02/20/03 21:50
Endrin		U	ND	U	ND	mg/L			(0%-31%)		
Heptachlor		U	ND	U	ND	mg/L			(0%-24%)		
Heptachlor epoxide		U	ND	U	ND	mg/L			(0%-23%)		
Methoxychlor		U	ND	U	ND	mg/L			(0%-26%)		

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75096

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-Pesticide & PCB											
Batch 234739											
Toxaphene	0.100	U	ND		0.0923	mg/L	10	92	(0%-24%)		
gamma-BHC (Lindane)		U	ND	U	ND	mg/L			(0%-27%)		
**4cmx	0.010		0.00891		0.00896	mg/L		90	(34%-116%)		
**Decachlorobiphenyl	0.010		0.00867		0.00829	mg/L		83	(21%-122%)		
QC1200382787 75096020 MSD											
Chlordane (tech.)	0.100	U	ND		0.0914	mg/L	2	91	(0%-32%)		02/20/03 22:02
Endrin		U	ND	U	ND	mg/L			(0%-31%)		
Heptachlor		U	ND	U	ND	mg/L			(0%-24%)		
Heptachlor epoxide		U	ND	U	ND	mg/L			(0%-23%)		
Methoxychlor		U	ND	U	ND	mg/L			(0%-26%)		
Toxaphene		U	ND	U	ND	mg/L			(0%-24%)		
gamma-BHC (Lindane)		U	ND	U	ND	mg/L			(0%-27%)		
**4cmx	0.010		0.00891		0.00956	mg/L		96	(34%-116%)		
**Decachlorobiphenyl	0.010		0.00867		0.00875	mg/L		88	(21%-122%)		
QC1200381972 TB											
Chlordane (tech.)				U	ND	mg/L					02/20/03 22:51
Endrin				U	ND	mg/L					
Heptachlor				U	ND	mg/L					
Heptachlor epoxide				U	ND	mg/L					
Methoxychlor				U	ND	mg/L					
Toxaphene				U	ND	mg/L					
gamma-BHC (Lindane)				U	ND	mg/L					
**4cmx	0.010				0.00965	mg/L		97	(34%-116%)		
**Decachlorobiphenyl	0.010				0.00845	mg/L		85	(21%-122%)		
Titration Analysis Federal											
Batch 234543											
QC1200382408 74738001 DUP											
Reactive Releasable Sulfide		U	ND	J	32.4	mg/kg	N/A		(+/-500)	POW1	02/20/03 12:00
QC1200382409 LCS											
Reactive Releasable Sulfide	570			J	439	mg/kg		77	(23%-117%)		
Reactive Releasable Sulfide	570			J	447	mg/kg		79	(23%-117%)		02/24/03 14:45
QC1200382407 MB											
Reactive Releasable Sulfide				U	ND	mg/kg					02/20/03 12:00
Reactive Releasable Sulfide				U	ND	mg/kg					02/24/03 14:45
Volatile-GC/MS											
Batch 235086											
QC1200383711 LCS											
1,1-Dichloroethylene	0.050				0.0504	mg/L		101	(72%-134%)	JEB	02/20/03 08:05
1,2-Dichloroethane	0.050				0.0465	mg/L		93	(68%-121%)		
1,4-Dichlorobenzene	0.050				0.0509	mg/L		102	(72%-129%)		
2-Butanone	0.250				0.299	mg/L		119	(58%-138%)		
Benzene	0.050				0.0526	mg/L		105	(76%-119%)		
Carbon tetrachloride	0.050				0.046	mg/L		92	(74%-134%)		
Chlorobenzene	0.050				0.0514	mg/L		103	(78%-120%)		
Chloroform	0.050				0.0567	mg/L		113	(79%-120%)		
Tetrachloroethylene	0.050				0.052	mg/L		104	(72%-135%)		
Trichloroethylene	0.050				0.0546	mg/L		109	(75%-125%)		
Vinyl chloride	0.050				0.0457	mg/L		92	(62%-135%)		

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75096

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 235086											
**Bromofluorobenzene	50.0				45.8	ug/L		92	(57%-140%)		
**Dibromofluoromethane	50.0				56.1	ug/L		112	(56%-137%)		
**Toluene-d8	50.0				48.8	ug/L		98	(54%-141%)		
QC1200383707 MB											
1,1-Dichloroethylene				U	ND	mg/L					02/20/03 10:13
1,2-Dichloroethane				U	ND	mg/L					
1,4-Dichlorobenzene				U	ND	mg/L					
2-Butanone				U	ND	mg/L					
Benzene				U	ND	mg/L					
Carbon tetrachloride				U	ND	mg/L					
Chlorobenzene				U	ND	mg/L					
Chloroform				U	ND	mg/L					
Tetrachloroethylene				U	ND	mg/L					
Trichloroethylene				U	ND	mg/L					
Vinyl chloride				U	ND	mg/L					
**Bromofluorobenzene	50.0				48.6	ug/L		97	(57%-140%)		
**Dibromofluoromethane	50.0				56.3	ug/L		113	(56%-137%)		
**Toluene-d8	50.0				50.8	ug/L		102	(54%-141%)		
QC1200383709 75096020 PS											
1,1-Dichloroethylene	50.0	U	ND		55.0	ug/L		110	(59%-131%)		02/20/03 16:21
chloroethane	50.0	U	ND		49.9	ug/L		100	(63%-120%)		
1,4-Dichlorobenzene	50.0	U	ND		54.0	ug/L		108	(63%-121%)		
2-Butanone	250	U	ND		261	ug/L		104	(50%-140%)		
Benzene	50.0	U	ND		55.1	ug/L		110	(70%-115%)		
Carbon tetrachloride	50.0	U	ND		48.0	ug/L		96	(63%-130%)		
Chlorobenzene	50.0	U	ND		53.2	ug/L		106	(70%-117%)		
Chloroform	50.0	U	ND		60.0	ug/L		120*	(74%-115%)		
Tetrachloroethylene	50.0	U	ND		54.1	ug/L		108	(57%-131%)		
Trichloroethylene	50.0	U	ND		58.0	ug/L		116	(64%-125%)		
Vinyl chloride	50.0	U	ND		47.9	ug/L		96	(49%-129%)		
**Bromofluorobenzene	50.0		48.3		47.0	ug/L		94	(57%-140%)		
**Dibromofluoromethane	50.0		56.6		56.4	ug/L		113	(56%-137%)		
**Toluene-d8	50.0		50.3		49.7	ug/L		99	(54%-141%)		
QC1200383710 75096020 PSD											
1,1-Dichloroethylene	50.0	U	ND		55.3	ug/L	1	111	(0%-30%)		02/20/03 16:50
1,2-Dichloroethane	50.0	U	ND		49.3	ug/L	1	99	(0%-30%)		
1,4-Dichlorobenzene	50.0	U	ND		54.6	ug/L	1	109	(0%-30%)		
2-Butanone	250	U	ND		279	ug/L	7	112	(0%-30%)		
Benzene	50.0	U	ND		55.2	ug/L	0	110	(0%-30%)		
Carbon tetrachloride	50.0	U	ND		47.7	ug/L	0	96	(0%-30%)		
Chlorobenzene	50.0	U	ND		54.0	ug/L	1	108	(0%-30%)		
Chloroform	50.0	U	ND		60.9	ug/L	2	122	(0%-30%)		
Tetrachloroethylene	50.0	U	ND		55.2	ug/L	2	110	(0%-30%)		
Trichloroethylene	50.0	U	ND		59.4	ug/L	2	119	(0%-30%)		
Vinyl chloride	50.0	U	ND		48.1	ug/L	0	96	(0%-30%)		
**Bromofluorobenzene	50.0		48.3		46.8	ug/L		94	(57%-140%)		
**Dibromofluoromethane	50.0		56.6		57.2	ug/L		114	(56%-137%)		
**Toluene-d8	50.0		50.3		50.1	ug/L		100	(54%-141%)		

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75096

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 235086										
QC1200381977 TB										
1,1-Dichloroethylene			U	ND	mg/L					02/20/03 14:29
1,2-Dichloroethane			U	ND	mg/L					
1,4-Dichlorobenzene			U	ND	mg/L					
2-Butanone			U	ND	mg/L					
Benzene			U	ND	mg/L					
Carbon tetrachloride			U	ND	mg/L					
Chlorobenzene			U	ND	mg/L					
Chloroform			U	ND	mg/L					
Tetrachloroethylene			U	ND	mg/L					
Trichloroethylene			U	ND	mg/L					
Vinyl chloride			U	ND	mg/L					
**Bromofluorobenzene	50.0			48.1	ug/L		96	(57%-140%)		
**Dibromofluoromethane	50.0			56.3	ug/L		113	(56%-137%)		
**Toluene-d8	50.0			50.3	ug/L		101	(54%-141%)		
Wet Chemistry General										
Batch 234793										
QC1200383162 75057001 DUP										
Paint Filter		PASS		PASS	N/A				?OW1	02/19/03 09:30

Notes:
The Qualifiers in this report are defined as follows:

- < Actual result is less than amount reported
- > Actual result is greater than amount reported
- B Analyte found in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration exceeds instrument calibration range
- H Holding time exceeded
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D
- U Indicates the compound was analyzed for but not detected above the detection limit
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier - must be fully described in case narrative and data summary package
- Y QC Samples were not spiked with this compound.

QC Summary

Workorder: 75096

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 20, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trench -1
Sample ID: 74742001
Matrix: Misc Solid
Collect Date: 05-FEB-03 13:30
Receive Date: 10-FEB-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Electrode Analysis											
SW9045C pH											
pH at Temp C	H	8.10	0.010	0.100	SU	1	VH1	02/10/03	1825	232689	1
Halogen Analysis											
SW9023 TOX (Extract. Halogen)											
Extractable Organic Halogens		23.0	8.21	15.0	mg/kg	1	LS	02/14/03	1432	233284	2
Mercury Analysis-CVAA											
Hg in Solid											
Mercury	U	ND	0.000472	0.002	mg/L	1	BCD1	02/13/03	1426	232869	3
Metals Analysis-ICP											
TCLP ICP Metals for Solid											
Arsenic	J	0.0386	0.0238	0.050	mg/L	10	RMJ	02/13/03	1254	232939	4
Barium		2.34	0.00393	0.050	mg/L	10					
Cadmium		0.0739	0.00386	0.050	mg/L	10					
Chromium	U	ND	0.00735	0.050	mg/L	10					
Copper		0.971	0.0117	0.050	mg/L	10					
Lead		148	0.0266	0.050	mg/L	10					
Selenium		0.0882	0.0338	0.050	mg/L	10					
Silver	U	ND	0.0118	0.050	mg/L	10					
Zinc		94.1	0.0209	0.050	mg/L	10					
Rapid Flow Analysis (Alpkem)											
SW 7.3.3 Reactivity, Releasable											
Reactive Releasable Cyanide	U	ND	4.19	250000	ug/kg	1	ADF	02/14/03	1354	233540	5
Semi-Volatiles-GC/MS											
TCLP BNA SOLID 8270C 3510C											
1,4-Dichlorobenzene	U	ND	1.55	50.0	ug/L	1	CAK	02/13/03	1246	232895	6
2,4,5-Trichlorophenol	U	ND	4.85	50.0	ug/L	1					
2,4,6-Trichlorophenol	U	ND	1.95	50.0	ug/L	1					
2,4-Dinitrotoluene	U	ND	3.50	50.0	ug/L	1					
Hexachlorobenzene	U	ND	3.25	50.0	ug/L	1					
Hexachlorobutadiene	U	ND	1.60	50.0	ug/L	1					
Hexachloroethane	U	ND	2.15	50.0	ug/L	1					
Nitrobenzene	U	ND	3.15	50.0	ug/L	1					
Pentachlorophenol	U	ND	25.0	50.0	ug/L	1					
Pyridine	U	ND	25.0	50.0	ug/L	1					
m,p-Cresols	U	ND	2.95	50.0	ug/L	1					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 20, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trench -1
Sample ID: 74742001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-GC/MS											
TCLP BNA SOLID 8270C 3510C											
o-Cresol	U	ND	2.25	50.0	ug/L	1					
Semi-Volatiles-HERB											
8151B TCLP HERB Soil											
2,4,5-TP	U	ND	0.0188	0.100	mg/L	20	SAS1	02/14/03	1818	232909	7
2,4-D	U	ND	0.018	1.00	mg/L	20					
Semi-Volatiles-Pesticide & PCB											
8081A/3510C TCLP PEST Solid											
Chlordane (tech.)	U	ND	0.00155	0.0025	mg/L	1	MM	02/13/03	1918	232919	9
Endrin	U	ND	0.000038	0.0004	mg/L	1					
[illegible]chlor	U	ND	0.000059	0.0002	mg/L	1					
[illegible]chlor epoxide	U	ND	0.00003	0.0002	mg/L	1					
Methoxychlor	U	ND	0.000278	0.002	mg/L	1					
Toxaphene	U	ND	0.00105	0.010	mg/L	1					
gamma-BHC (Lindane)	U	ND	0.000021	0.0002	mg/L	1					
Titration Analysis											
Reactive Sulfide SW846 Chapter 7.3.4											
Reactive Releasable Sulfide	J	74.7	15.4	500	mg/kg		BEP2	02/17/03	0706	233538	11
Volatile Organics											
TCLP Volatiles in Solid											
1,1-Dichloroethylene	U	ND	0.082	0.200	mg/L	200	JEB	02/11/03	1905	232831	12
1,2-Dichloroethane	U	ND	0.058	0.200	mg/L	200					
1,4-Dichlorobenzene	U	ND	0.050	0.200	mg/L	200					
2-Butanone	U	ND	0.462	1.00	mg/L	200					
Benzene	U	ND	0.066	0.200	mg/L	200					
Carbon tetrachloride	U	ND	0.058	0.200	mg/L	200					
Chlorobenzene	U	ND	0.064	0.200	mg/L	200					
Chloroform	U	ND	0.072	0.200	mg/L	200					
Tetrachloroethylene	U	ND	0.066	0.200	mg/L	200					
Trichloroethylene	U	ND	0.072	0.200	mg/L	200					
Vinyl chloride	U	ND	0.110	0.200	mg/L	200					
Wet Chemistry General											
SW9095 Paint Filter Test											
Paint Filter		PASS					BEP2	02/17/03	0715	234088	13

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/11/03	0907	232604
SW846 1311	SW846 1311 TCLP Leaching	AD1	02/10/03	1743	232621
S[illegible] 1311	SW846 1311 TCLP Leaching	ETL	02/10/03	1743	232622

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 20, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trench -1
Sample ID: 74742001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
SW846 1311	SW846 1311 TCLP Volatiles Prep			ETL	02/10/03	1743	232624			
SW846 3010A	ICP-TRACE TCLP by SW846 3010A			BCD1	02/12/03	0814	232938			
SW846 3510C	3510C BNA TCLP/SPLP Prep-8270C Analysis			SEK1	02/12/03	2136	232894			
SW846 3510C	3510C PEST TCLP Liquid Prep			MJM1	02/12/03	1100	232918			
SW846 7.3.3 Prep	SW 7.3.3 Reactivity, Releasable Cyanide			BEP2	02/14/03	0600	233539			
SW846 7470A Prep	EPA 7470A Mercury Prep TCLP Liquid			KHN	02/12/03	1400	232868			
SW846 8151A Prep	8151A HERB TCLP Prep in Liquid			MJM1	02/13/03	0900	232908			
SW846 9023 Prep	SW 9023 Halogen, Extractable(TOX) Prep			LS	02/13/03	1223	233283			

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9045C	
2	SW846 9023	
3	SW846 7470A	
4	SW846 3010/6010B	
5	SW846 7.3.3	
6	SW846 8270C	
7	SW846 8151A	
8	SW846 8151A	
9	SW846 8081A	
10	SW846 8081A	
11	SW846 Chpt. 7.3.4-TIT	
12	SW846 8260B	
13	SW846 9095	

Surrogate recovery	Test	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	TCLP BNA SOLID 8270C 3510C	69%	(28%-126%)
2-Fluorobiphenyl	TCLP BNA SOLID 8270C 3510C	64%	(32%-109%)
2-Fluorophenol	TCLP BNA SOLID 8270C 3510C	42%	(13%-73%)
Nitrobenzene-d5	TCLP BNA SOLID 8270C 3510C	68%	(33%-107%)
Phenol-d5	TCLP BNA SOLID 8270C 3510C	30%	(14%-66%)
p-Terphenyl-d14	TCLP BNA SOLID 8270C 3510C	56%	(36%-130%)
2,4-Dichlorophenylacetic acid	8151B TCLP HERB Soil	98%	(45%-140%)
4cmx	8081A/3510C TCLP PEST Solid	97%	(34%-116%)
Decachlorobiphenyl	8081A/3510C TCLP PEST Solid	93%	(21%-122%)
Bromofluorobenzene	TCLP Volatiles in Solid	101%	(57%-140%)

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 20, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trench -1
Sample ID: 74742001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Dibromofluoromethane		TCLP Volatiles in Solid		111%		(56%-137%)				
Toluene-d8		TCLP Volatiles in Solid		105%		(54%-141%)				

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
ı Holding time exceeded
. ıdicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 24, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Trench 1 (relog 74742001)	Project:	IEMI00100
Sample ID:	75109001	Client ID:	IEMI001
Matrix:	Solid		
Collect Date:	05-FEB-03 13:30		
Receive Date:	10-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.201	+/-0.0862	0.0808	0.800	pCi/g		CRB	03/06/03	1951	234625	1
Americium-241	U	ND	+/-0.0177	0.0317	0.200	pCi/g						
Antimony-124	U	ND	+/-0.0169	0.0308	0.100	pCi/g						
Antimony-125	U	ND	+/-0.0315	0.0562	0.200	pCi/g						
Barium-133	U	ND	+/-0.0164	0.0257	0.100	pCi/g						
Barium-140	U	ND	+/-0.210	0.374	0.500	pCi/g						
[illegible]lium-7	U	ND	+/-0.138	0.245	0.700	pCi/g						
[illegible]uth-212	U	ND	+/-0.145	0.180	0.500	pCi/g						
Bismuth-214		0.251	+/-0.0651	0.0426	0.200	pCi/g						
Cerium-139	U	ND	+/-0.0117	0.0184	0.050	pCi/g						
Cerium-141	UUI	ND	+/-0.0941	0.0614	0.100	pCi/g						
Cerium-144	U	ND	+/-0.0655	0.117	0.500	pCi/g						
Cesium-134	U	ND	+/-0.0144	0.021	0.100	pCi/g						
Cesium-136	U	ND	+/-0.0848	0.142	0.300	pCi/g						
Cesium-137		0.120	+/-0.0313	0.0236	0.100	pCi/g						
Chromium-51	U	ND	+/-0.184	0.316	0.600	pCi/g						
Cobalt-56	U	ND	+/-0.0174	0.0292	0.100	pCi/g						
Cobalt-57		0.0356	+/-0.0185	0.0145	0.050	pCi/g						
Cobalt-58	U	ND	+/-0.0166	0.0281	0.100	pCi/g						
Cobalt-60	U	ND	+/-0.0152	0.0272	0.100	pCi/g						
Europium-152	U	ND	+/-0.0329	0.0563	0.200	pCi/g						
Europium-154	U	ND	+/-0.0416	0.0715	0.500	pCi/g						
Europium-155	UUI	ND	+/-0.0628	0.0632	0.500	pCi/g						
Iridium-192	U	ND	+/-0.0136	0.0232	0.100	pCi/g						
Iron-59	U	ND	+/-0.0394	0.0689	0.300	pCi/g						
Lead-210		0.790	+/-0.408	0.277	4.00	pCi/g						
Lead-212		0.231	+/-0.044	0.0299	0.100	pCi/g						
Lead-214		0.301	+/-0.0613	0.0403	0.100	pCi/g						
Manganese-54	U	ND	+/-0.0149	0.0258	0.100	pCi/g						
Mercury-203	U	ND	+/-0.0183	0.0283	0.100	pCi/g						
Neodymium-147	U	ND	+/-0.512	0.878	1000	pCi/g						
Neptunium-239	U	ND	+/-0.0575	0.106	2.00	pCi/g						
Niobium-94	U	ND	+/-0.0116	0.0197	1.00	pCi/g						
Niobium-95	U	ND	+/-0.0245	0.0432	0.050	pCi/g						
Potassium-40		2.09	+/-0.378	0.229	1.00	pCi/g						
Promethium-144	U	ND	+/-0.0127	0.0218	0.080	pCi/g						
Promethium-146	U	ND	+/-0.0152	0.0274	1.00	pCi/g						
Radium-226		0.251	+/-0.0651	0.0426		pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 24, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trench 1 (relog 74742001)
Sample ID: 75109001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Radium-228		0.201	+/-0.0862	0.0808	0.500	pCi/g					
Ruthenium-106	U	ND	+/-0.122	0.209	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0143	0.0234	0.080	pCi/g					
Sodium-22	U	ND	+/-0.015	0.0258	0.080	pCi/g					
Thallium-208		0.0486	+/-0.0315	0.0239	0.080	pCi/g					
Thorium-230		0.251	+/-0.0651	0.0426	1.00	pCi/g					
Thorium-234		1.35	+/-0.523	0.297	2.00	pCi/g					
Tin-113	U	ND	+/-0.0155	0.029	0.100	pCi/g					
Uranium-235		1.43	+/-0.315	0.119	0.500	pCi/g					
Uranium-238		1.35	+/-0.523	0.297	1.00	pCi/g					
m-88	U	ND	+/-0.0138	0.0259	0.100	pCi/g					
[illegible]-65	U	ND	+/-0.0308	0.0515	0.300	pCi/g					
Zirconium-95	U	ND	+/-0.0306	0.0528	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1236	234404

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 24, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trench 1 (relog 74742001)
Sample ID: 75109001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 24, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Trench 2 (relog 74742002)	Project:	IEMI00100
Sample ID:	75109002	Client ID:	IEMI001
Matrix:	Solid		
Collect Date:	05-FEB-03 14:30		
Receive Date:	10-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		1.15	+/-0.198	0.0606	0.800	pCi/g		CRB 03/06/03	1952	234625	1
Americium-241	U	ND	+/-0.0658	0.118	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0148	0.0237	0.100	pCi/g					
Antimony-125	U	ND	+/-0.028	0.0482	0.200	pCi/g					
Barium-133	U	ND	+/-0.0144	0.0218	0.100	pCi/g					
Barium-140	U	ND	+/-0.160	0.285	0.500	pCi/g					
Beryllium-7	U	ND	+/-0.109	0.196	0.700	pCi/g					
[illegible]uth-212		0.823	+/-0.188	0.133	0.500	pCi/g					
[illegible]uth-214		0.702	+/-0.0933	0.033	0.200	pCi/g					
Cerium-139	U	ND	+/-0.0122	0.0195	0.050	pCi/g					
Cerium-141	UUI	ND	+/-0.0397	0.0517	0.100	pCi/g					
Cerium-144	U	ND	+/-0.0734	0.131	0.500	pCi/g					
Cesium-134	U	ND	+/-0.0108	0.0171	0.100	pCi/g					
Cesium-136	U	ND	+/-0.0664	0.115	0.300	pCi/g					
Cesium-137	U	ND	+/-0.0108	0.0186	0.100	pCi/g					
Chromium-51	U	ND	+/-0.165	0.285	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.0121	0.0211	0.100	pCi/g					
Cobalt-57	U	ND	+/-0.00907	0.0167	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.0127	0.0213	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.0105	0.0182	0.100	pCi/g					
Europium-152	U	ND	+/-0.0295	0.0497	0.200	pCi/g					
Europium-154	U	ND	+/-0.0329	0.0589	0.500	pCi/g					
Europium-155	UUI	ND	+/-0.066	0.0679	0.500	pCi/g					
Iridium-192	U	ND	+/-0.0121	0.021	0.100	pCi/g					
Iron-59	U	ND	+/-0.0327	0.0527	0.300	pCi/g					
Lead-210	U	ND	+/-2.48	3.52	4.00	pCi/g					
Lead-212		1.34	+/-0.149	0.0313	0.100	pCi/g					
Lead-214		0.967	+/-0.120	0.0365	0.100	pCi/g					
Manganese-54	UUI	ND	+/-0.0194	0.0178	0.100	pCi/g					
Mercury-203	UUI	ND	+/-0.0244	0.0273	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.389	0.696	1000	pCi/g					
Neptunium-239	U	ND	+/-0.074	0.121	2.00	pCi/g					
Niobium-94	U	ND	+/-0.0093	0.0166	1.00	pCi/g					
Niobium-95	U	ND	+/-0.0223	0.0352	0.050	pCi/g					
Potassium-40		16.9	+/-1.71	0.156	1.00	pCi/g					
Promethium-144	U	ND	+/-0.00992	0.0174	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0176	0.0233	1.00	pCi/g					
Radium-226		0.702	+/-0.0933	0.033		pCi/g					
[illegible]ium-228		1.15	+/-0.198	0.0606	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 24, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trench 2 (relog 74742002) Project: IEMI00100
Sample ID: 75109002 Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.091	0.158	0.800	pCi/g					
Silver-110m	U	ND	+/-0.010	0.0177	0.080	pCi/g					
Sodium-22	U	ND	+/-0.0119	0.0213	0.080	pCi/g					
Thallium-208		0.384	+/-0.0493	0.0175	0.080	pCi/g					
Thorium-230		0.702	+/-0.0933	0.033	1.00	pCi/g					
Thorium-234	U	ND	+/-0.823	0.964	2.00	pCi/g					
Tin-113	U	ND	+/-0.0145	0.0249	0.100	pCi/g					
Uranium-235		0.287	+/-0.141	0.140	0.500	pCi/g					
Uranium-238	U	ND	+/-0.823	0.964	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.0168	0.0168	0.100	pCi/g					
65	U	ND	+/-0.0284	0.0442	0.300	pCi/g					
onium-95	U	ND	+/-0.0236	0.0409	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1236	234404

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 24, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trench 2 (relog 74742002)
Sample ID: 75109002

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 24, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Trench 3 (relog 74742003)	Project:	IEMI00100
Sample ID:	75109003	Client ID:	IEMI001
Matrix:	Solid		
Collect Date:	06-FEB-03 08:15		
Receive Date:	10-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.308	+/-0.094	0.0695	0.800	pCi/g		CRB 03/06/03	1953	234625	1
Americium-241	UUI	ND	+/-0.0796	0.0969	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0152	0.0255	0.100	pCi/g					
Antimony-125	U	ND	+/-0.0283	0.0461	0.200	pCi/g					
Barium-133	U	ND	+/-0.0147	0.0214	0.100	pCi/g					
Barium-140	U	ND	+/-0.157	0.271	0.500	pCi/g					
Beryllium-7	U	ND	+/-0.111	0.194	0.700	pCi/g					
[illegible]th-212		0.330	+/-0.161	0.144	0.500	pCi/g					
[illegible]uth-214		0.223	+/-0.0526	0.037	0.200	pCi/g					
Cerium-139	UUI	ND	+/-0.0213	0.0314	0.050	pCi/g					
Cerium-141	UUI	ND	+/-0.386	0.154	0.100	pCi/g					
Cerium-144	U	ND	+/-0.121	0.199	0.500	pCi/g					
Cesium-134	U	ND	+/-0.0128	0.0177	0.100	pCi/g					
Cesium-136	U	ND	+/-0.0695	0.122	0.300	pCi/g					
Cesium-137		0.0335	+/-0.0166	0.0186	0.100	pCi/g					
Chromium-51	U	ND	+/-0.159	0.266	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.0157	0.0244	0.100	pCi/g					
Cobalt-57	UUI	ND	+/-0.0276	0.025	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.0125	0.0211	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.0111	0.0199	0.100	pCi/g					
Europium-152	U	ND	+/-0.0305	0.0507	0.200	pCi/g					
Europium-154	U	ND	+/-0.0383	0.0644	0.500	pCi/g					
Europium-155	UUI	ND	+/-0.103	0.128	0.500	pCi/g					
Iridium-192	U	ND	+/-0.0136	0.0199	0.100	pCi/g					
Iron-59	U	ND	+/-0.033	0.0576	0.300	pCi/g					
Lead-210	U	ND	+/-1.50	1.73	4.00	pCi/g					
Lead-212		0.361	+/-0.0505	0.0301	0.100	pCi/g					
Lead-214		0.297	+/-0.0624	0.0366	0.100	pCi/g					
Manganese-54	U	ND	+/-0.0113	0.0193	0.100	pCi/g					
Mercury-203	UUI	ND	+/-0.0401	0.0268	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.370	0.633	1000	pCi/g					
Neptunium-239	U	ND	+/-0.116	0.190	2.00	pCi/g					
Niobium-94	U	ND	+/-0.0105	0.0172	1.00	pCi/g					
Niobium-95	U	ND	+/-0.0216	0.0326	0.050	pCi/g					
Potassium-40		11.2	+/-1.21	0.174	1.00	pCi/g					
Promethium-144	U	ND	+/-0.011	0.0188	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0122	0.0215	1.00	pCi/g					
Radium-226		0.223	+/-0.0526	0.037		pCi/g					
[illegible]um-228		0.308	+/-0.094	0.0695	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 24, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trench 3 (relog 74742003)
Sample ID: 75109003

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.103	0.175	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0116	0.018	0.080	pCi/g					
Sodium-22	U	ND	+/-0.0138	0.0233	0.080	pCi/g					
Thallium-208		0.120	+/-0.0298	0.0181	0.080	pCi/g					
Thorium-230		0.223	+/-0.0526	0.037	1.00	pCi/g					
Thorium-234	UUI	ND	+/-0.807	0.912	2.00	pCi/g					
Tin-113	U	ND	+/-0.016	0.023	0.100	pCi/g					
Uranium-235		10.4	+/-1.84	0.196	0.500	pCi/g					
Uranium-238		0.968	+/-0.807	0.792	1.00	pCi/g					
Yttrium-88	U	ND	+/-0.0115	0.0211	0.100	pCi/g					
55	U	ND	+/-0.0327	0.050	0.300	pCi/g					
nium-95	U	ND	+/-0.024	0.0413	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1236	234404

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 24, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trench 3 (relog 74742003) Project: IEMI00100
Sample ID: 75109003 Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 24, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Trench 4 (relog 74742004)	Project:	IEMI00100
Sample ID:	75109004	Client ID:	IEMI001
Matrix:	Solid		
Collect Date:	06-FEB-03 09:00		
Receive Date:	10-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.468	+/-0.160	0.113	0.800	pCi/g		CRB 03/06/03	1953	234625	1
Americium-241	U	ND	+/-0.0948	0.139	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0286	0.0471	0.100	pCi/g					
Antimony-125	U	ND	+/-0.0502	0.0862	0.200	pCi/g					
Barium-133	U	ND	+/-0.0297	0.0402	0.100	pCi/g					
Barium-140	U	ND	+/-0.293	0.506	0.500	pCi/g					
Beryllium-7	U	ND	+/-0.219	0.396	0.700	pCi/g					
uth-212		0.366	+/-0.220	0.284	0.500	pCi/g					
.nuth-214		0.383	+/-0.0965	0.0733	0.200	pCi/g					
Cerium-139	U	ND	+/-0.0203	0.0295	0.050	pCi/g					
Cerium-141	UUI	ND	+/-0.0977	0.112	0.100	pCi/g					
Cerium-144	U	ND	+/-0.123	0.199	0.500	pCi/g					
Cesium-134	U	ND	+/-0.0237	0.0347	0.100	pCi/g					
Cesium-136	U	ND	+/-0.118	0.223	0.300	pCi/g					
Cesium-137	U	ND	+/-0.0312	0.0327	0.100	pCi/g					
Chromium-51	U	ND	+/-0.306	0.512	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.0281	0.0445	0.100	pCi/g					
Cobalt-57	U	ND	+/-0.0166	0.0257	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.0245	0.0417	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.0236	0.0416	0.100	pCi/g					
Europium-152	U	ND	+/-0.0579	0.0927	0.200	pCi/g					
Europium-154	U	ND	+/-0.0673	0.120	0.500	pCi/g					
Europium-155	U	ND	+/-0.0779	0.117	0.500	pCi/g					
Iridium-192	U	ND	+/-0.0223	0.0347	0.100	pCi/g					
Iron-59	U	ND	+/-0.0622	0.108	0.300	pCi/g					
Lead-210	U	ND	+/-2.74	3.76	4.00	pCi/g					
Lead-212		0.476	+/-0.0753	0.0478	0.100	pCi/g					
Lead-214		0.493	+/-0.100	0.0652	0.100	pCi/g					
Manganese-54	U	ND	+/-0.0221	0.0371	0.100	pCi/g					
Mercury-203	U	ND	+/-0.0295	0.047	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.728	1.25	1000	pCi/g					
Neptunium-239	U	ND	+/-0.110	0.179	2.00	pCi/g					
Niobium-94	U	ND	+/-0.0203	0.0333	1.00	pCi/g					
Niobium-95	U	ND	+/-0.0404	0.0595	0.050	pCi/g					
Potassium-40		4.89	+/-0.879	0.495	1.00	pCi/g					
Promethium-144	U	ND	+/-0.0198	0.0349	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0257	0.0455	1.00	pCi/g					
Radium-226		0.383	+/-0.0965	0.0733		pCi/g					
ium-228		0.468	+/-0.160	0.113	0.500	pCi/g					

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 24, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trench 4 (relog 74742004)
Sample ID: 75109004

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	ND	+/-0.178	0.298	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0229	0.0335	0.080	pCi/g					
Sodium-22	U	ND	+/-0.0243	0.0433	0.080	pCi/g					
Thallium-208		0.144	+/-0.0436	0.0361	0.080	pCi/g					
Thorium-230		0.383	+/-0.0965	0.0733	1.00	pCi/g					
Thorium-234	U	ND	+/-0.769	1.26	2.00	pCi/g					
Tin-113	U	ND	+/-0.028	0.0475	0.100	pCi/g					
Uranium-235		1.49	+/-0.331	0.214	0.500	pCi/g					
Uranium-238	U	ND	+/-0.769	1.26	1.00	pCi/g					
Y[illegible]ium-88	U	ND	+/-0.0266	0.0414	0.100	pCi/g					
[illegible]5	U	ND	+/-0.0583	0.0849	0.300	pCi/g					
[illegible]onium-95	U	ND	+/-0.0466	0.0798	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	02/18/03	1236	234404

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 24, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trench 4 (relog 74742004)
Sample ID: 75109004

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 20, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Trash Pile Drum	Project:	IEMI00100
Sample ID:	74742005	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	06-FEB-03 11:30		
Receive Date:	10-FEB-03		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Mercury Analysis-CVAA										
TCLP Hg in Solid										
Mercury	U	ND	0.000472	0.002	mg/L	1	BCD1 02/13/03	1428	232869	1
Metals Analysis-ICP										
TCLP ICP Metals for Solid										
Arsenic	U	ND	0.0238	0.050	mg/L	10	RMJ 02/13/03	1300	232939	2
Barium		0.150	0.00393	0.050	mg/L	10				
Cadmium	U	ND	0.00386	0.050	mg/L	10				
C[illegible]mium	U	ND	0.00735	0.050	mg/L	10				
[illegible]r		0.0657	0.0117	0.050	mg/L	10				
Lead	U	ND	0.0266	0.050	mg/L	10				
Selenium	U	ND	0.0338	0.050	mg/L	10				
Silver	U	ND	0.0118	0.050	mg/L	10				
Zinc		0.327	0.0209	0.050	mg/L	10				
Semi-Volatiles-GC/MS										
TCLP BNA SOLID 8270C 3510C										
1,4-Dichlorobenzene	U	ND	1.55	50.0	ug/L	1	CAK 02/13/03	1349	232895	3
2,4,5-Trichlorophenol	U	ND	4.85	50.0	ug/L	1				
2,4,6-Trichlorophenol	U	ND	1.95	50.0	ug/L	1				
2,4-Dinitrotoluene	U	ND	3.50	50.0	ug/L	1				
Hexachlorobenzene	U	ND	3.25	50.0	ug/L	1				
Hexachlorobutadiene	U	ND	1.60	50.0	ug/L	1				
Hexachloroethane	U	ND	2.15	50.0	ug/L	1				
Nitrobenzene	U	ND	3.15	50.0	ug/L	1				
Pentachlorophenol	U	ND	25.0	50.0	ug/L	1				
Pyridine	U	ND	25.0	50.0	ug/L	1				
m,p-Cresols	U	ND	2.95	50.0	ug/L	1				
o-Cresol	U	ND	2.25	50.0	ug/L	1				
Semi-Volatiles-HERB										
8151B TCLP HERB Soil										
2,4,5-TP	U	ND	0.0188	0.100	mg/L	20	SAS1 02/14/03	1846	232909	4
2,4-D	U	ND	0.018	1.00	mg/L	20				
Semi-Volatiles-Pesticide & PCB										
8081A/3510C TCLP PEST Solid										
Chlordane (tech.)	U	ND	0.00155	0.0025	mg/L	1	MM 02/13/03	1820	232919	6
Endrin	U	ND	0.000038	0.0004	mg/L	1				
Heptachlor	U	ND	0.000059	0.0002	mg/L	1				
Heptachlor epoxide	U	ND	0.00003	0.0002	mg/L	1				
Methoxychlor	U	ND	0.000278	0.002	mg/L	1				

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 20, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trash Pile Drum
Sample ID: 74742005

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-Pesticide & PCB											
8081A/3510C TCLP PEST Solid											
Toxaphene	U	ND	0.00105	0.010	mg/L	1					
gamma-BHC (Lindane)	U	ND	0.000021	0.0002	mg/L	1					
Volatile Organics											
TCLP Volatiles in Solid											
1,1-Dichloroethylene	U	ND	0.082	0.200	mg/L	200	JEB	02/11/03	1933	232831	8
1,2-Dichloroethane	U	ND	0.058	0.200	mg/L	200					
1,4-Dichlorobenzene	U	ND	0.050	0.200	mg/L	200					
2-Butanone	U	ND	0.462	1.00	mg/L	200					
Benzene	U	ND	0.066	0.200	mg/L	200					
C[illegible]on tetrachloride	U	ND	0.058	0.200	mg/L	200					
[illegible]obenzene	U	ND	0.064	0.200	mg/L	200					
Chloroform	U	ND	0.072	0.200	mg/L	200					
Tetrachloroethylene	U	ND	0.066	0.200	mg/L	200					
Trichloroethylene	U	ND	0.072	0.200	mg/L	200					
Vinyl chloride	U	ND	0.110	0.200	mg/L	200					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 1311	SW846 1311 TCLP Leaching	ADI	02/10/03	1743	232621
SW846 1311	SW846 1311 TCLP Leaching	ETL	02/10/03	1743	232622
SW846 1311	SW846 1311 TCLP Volatiles Prep	ETL	02/10/03	1743	232624
SW846 3010A	ICP-TRACE TCLP by SW846 3010A	BCDI	02/12/03	0814	232938
SW846 3510C	3510C BNA TCLP/SPLP Prep-8270C Analysis	SEKI	02/12/03	2136	232894
SW846 3510C	3510C PEST TCLP Liquid Prep	MJMI	02/12/03	1100	232918
SW846 7470A Prep	EPA 7470A Mercury Prep TCLP Liquid	KHN	02/12/03	1400	232868
SW846 8151A Prep	8151A HERB TCLP Prep in Liquid	MJMI	02/13/03	0900	232908

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 7470A	
2	SW846 3010/6010B	
3	SW846 8270C	
4	SW846 8151A	
5	SW846 8151A	
6	SW846 8081A	
7	SW846 8081A	
8	SW846 8260B	

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 20, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Trash Pile Drum
Sample ID: 74742005

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Surrogate recovery	Test	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	TCLP BNA SOLID 8270C 3510C	65%	(28%-126%)
2-Fluorobiphenyl	TCLP BNA SOLID 8270C 3510C	73%	(32%-109%)
2-Fluorophenol	TCLP BNA SOLID 8270C 3510C	46%	(13%-73%)
Nitrobenzene-d5	TCLP BNA SOLID 8270C 3510C	80%	(33%-107%)
Phenol-d5	TCLP BNA SOLID 8270C 3510C	32%	(14%-66%)
p-Terphenyl-d14	TCLP BNA SOLID 8270C 3510C	84%	(36%-130%)
2,4-Dichlorophenylacetic acid	8151B TCLP HERB Soil	97%	(45%-140%)
4cmx	8081A/3510C TCLP PEST Solid	76%	(34%-116%)
Decachlorobiphenyl	8081A/3510C TCLP PEST Solid	83%	(21%-122%)
F luorobenzene	TCLP Volatiles in Solid	100%	(57%-140%)
D. .nofluoromethane	TCLP Volatiles in Solid	109%	(56%-137%)
Toluene-d8	TCLP Volatiles in Solid	103%	(54%-141%)

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Client : IEM, Inc.
302 Westfield Road
Knoxville, Tennessee

Contact: Alan Duff

Workorder: 74742

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Electrode Analysis											
Batch 232689											
QC1200377942 74742001 DUP											
pH		H	8.10	H	8.10	SU	0		(0%-5%)	VH1	02/10/03 18:25
QC1200377943 LCS											
pH	7.00				6.99	SU		100	(95%-105%)		
Halogen Analysis											
Batch 233284											
QC1200379569 74742001 DUP											
Extractable Organic Halogens			23.0		18.2	mg/kg	23 ^		(+/-15.0)	LS	02/14/03 14:46
QC1200379571 LCS											
Extractable Organic Halogens	250				238	mg/kg		95	(76%-130%)		02/14/03 13:01
QC1200379568 MB											
Extractable Organic Halogens				J	14.7	mg/kg					02/14/03 12:27
QC1200380502 74742001 MS											
Extractable Organic Halogens	250		23.0		281	mg/kg		103	(69%-129%)		02/14/03 14:56
Metals Analysis-ICP											
' 232939											
QC1200378687 74742005 DUP											
Arsenic		U	ND	U	ND	mg/L	N/A		(+/-0.050)	RMJ	02/13/03 13:11
Barium			0.150		0.152	mg/L	1 ^		(+/-0.050)		
Cadmium		U	ND	U	ND	mg/L	N/A		(+/-0.050)		
Chromium		U	ND	U	ND	mg/L	N/A		(+/-0.050)		
Copper			0.0657		0.0636	mg/L	3 ^		(+/-0.050)		
Lead		U	ND	U	ND	mg/L	N/A		(+/-0.050)		
Selenium		U	ND	U	ND	mg/L	N/A		(+/-0.050)		
Silver		U	ND	U	ND	mg/L	N/A		(+/-0.050)		
Zinc			0.327		0.305	mg/L	7		(0%-20%)		
QC1200378686 LCS											
Arsenic	5.00				5.16	mg/L		103	(80%-120%)		02/13/03 12:48
Barium	10.0				9.65	mg/L		97	(80%-120%)		
Cadmium	1.00				0.969	mg/L		97	(80%-120%)		
Chromium	5.00				4.81	mg/L		96	(80%-120%)		
Copper	2.00				1.89	mg/L		94	(80%-120%)		
Lead	5.00				4.91	mg/L		98	(80%-120%)		
Selenium	1.00				0.970	mg/L		97	(80%-120%)		
Silver	0.500				0.470	mg/L		94	(80%-120%)		
Zinc	2.00				1.97	mg/L		98	(80%-120%)		
QC1200378685 MB											
Arsenic				U	ND	mg/L					02/13/03 12:34
Barium				U	ND	mg/L					
Cadmium				U	ND	mg/L					
Chromium				U	ND	mg/L					
Copper				U	ND	mg/L					
Lead				U	ND	mg/L					
Selenium				U	ND	mg/L					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 74742

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP											
Batch 232939											
Silver				U	ND	mg/L					
Zinc				U	ND	mg/L					
QC1200377747 74742005 MS											
Arsenic	5.26	U	ND		5.51	mg/L		105	(75%-125%)		02/13/03 13:17
Barium	10.5		0.150		10.5	mg/L		99	(75%-125%)		
Cadmium	1.05	U	ND		1.00	mg/L		95	(75%-125%)		
Chromium	5.26	U	ND		4.99	mg/L		95	(75%-125%)		
Copper	2.11		0.0657		2.21	mg/L		102	(75%-125%)		
Lead	5.26	U	ND		5.06	mg/L		96	(75%-125%)		
Selenium	1.05	U	ND		1.02	mg/L		97	(75%-125%)		
Silver	0.526	U	ND		0.502	mg/L		95	(75%-125%)		
Zinc	2.11		0.327		2.36	mg/L		96	(75%-125%)		
QC1200378689 74742005 SDILT											
Arsenic		U	ND	U	ND	ug/L	N/A				02/13/03 13:05
Barium			15.0	J	3.02	ug/L	.615				
Cadmium		U	ND	U	ND	ug/L	N/A				
Chromium		U	ND	U	ND	ug/L	N/A				
Copper			6.57	J	1.19	ug/L	9.61				
Lead		U	ND	U	ND	ug/L	N/A				
[illegible]		U	ND	U	ND	ug/L	N/A				
[illegible]		U	ND	U	ND	ug/L	N/A				
Zinc			32.7		7.57	ug/L	15.7				
QC1200377751 TB											
Arsenic				U	ND	mg/L					02/13/03 12:41
Barium				U	ND	mg/L					
Cadmium				U	ND	mg/L					
Chromium				U	ND	mg/L					
Copper				J	0.0149	mg/L					
Lead				U	ND	mg/L					
Selenium				U	ND	mg/L					
Silver				U	ND	mg/L					
Zinc				U	ND	mg/L					
Metals Analysis-Mercury											
Batch 232869											
QC1200378508 74742005 DUP											
Mercury		U	ND	U	ND	mg/L	N/A		(+/-0.002)	BCD1	02/13/03 14:30
QC1200378507 LCS											
Mercury	0.020				0.0211	mg/L		105	(80%-120%)		02/13/03 14:20
QC1200378506 MB											
Mercury				U	ND	mg/L					02/13/03 14:18
QC1200377748 74742005 MS											
Mercury	0.020	U	ND		0.0179	mg/L		89	(75%-125%)		02/13/03 14:32
QC1200377751 TB											
Mercury				U	ND	mg/L					02/13/03 14:16
Rapid Flow Analysis (Alpkem)											
Batch 233540											
QC1200380143 74742001 DUP											
Reactive Releasable Cyanide		U	ND	U	ND	ug/kg	N/A		(+/-250000)	ADF	02/14/03 13:59

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 74742

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rapid Flow Analysis (Alpkem)										
Batch 233540										
QC1200380142 LCS										
Reactive Releasable Cyanide	1000000		J	96800	ug/kg		10	(1%-29%)		02/14/03 13:54
QC1200380141 MB										
Reactive Releasable Cyanide			U	ND	ug/kg					02/14/03 13:47
Semi-Volatiles-GC/MS										
Batch 232895										
QC1200378584 LCS										
1,4-Dichlorobenzene	100			71.7	ug/L		72	(48%-100%)	CAK	02/13/03 11:44
2,4,5-Trichlorophenol	100			70.6	ug/L		71	(53%-101%)		
2,4,6-Trichlorophenol	100			69.8	ug/L		70	(48%-98%)		
2,4-Dinitrotoluene	100			82.9	ug/L		83	(50%-107%)		
Hexachlorobenzene	100			79.1	ug/L		79	(64%-112%)		
Hexachlorobutadiene	100			67.5	ug/L		68	(50%-107%)		
Hexachloroethane	100			68.1	ug/L		68	(44%-100%)		
Nitrobenzene	100			87.9	ug/L		88	(57%-106%)		
Pentachlorophenol	100			72.9	ug/L		73	(32%-107%)		
Pyridine	100			52.9	ug/L		53	(22%-66%)		
m,p-Cresols	100			57.9	ug/L		58	(37%-80%)		
o-Cresol	100			66.9	ug/L		67	(48%-100%)		
**[illegible]ribromophenol	100			73.0	ug/L		73	(28%-126%)		
**[illegible]robiphenyl	50.0			35.5	ug/L		71	(32%-109%)		
**2-Fluorophenol	100			50.3	ug/L		50	(13%-73%)		
**Nitrobenzene-d5	50.0			41.2	ug/L		82	(33%-107%)		
**Phenol-d5	100			34.7	ug/L		35	(14%-66%)		
**p-Terphenyl-d14	50.0			33.3	ug/L		67	(36%-130%)		
QC1200378580 MB										
1,4-Dichlorobenzene			U	ND	ug/L					02/13/03 11:23
2,4,5-Trichlorophenol			U	ND	ug/L					
2,4,6-Trichlorophenol			U	ND	ug/L					
2,4-Dinitrotoluene			U	ND	ug/L					
Hexachlorobenzene			U	ND	ug/L					
Hexachlorobutadiene			U	ND	ug/L					
Hexachloroethane			U	ND	ug/L					
Nitrobenzene			U	ND	ug/L					
Pentachlorophenol			U	ND	ug/L					
Pyridine			U	ND	ug/L					
m,p-Cresols			U	ND	ug/L					
o-Cresol			U	ND	ug/L					
**2,4,6-Tribromophenol	100			67.1	ug/L		67	(28%-126%)		
**2-Fluorobiphenyl	50.0			35.0	ug/L		70	(32%-109%)		
**2-Fluorophenol	100			46.2	ug/L		46	(13%-73%)		
**Nitrobenzene-d5	50.0			38.0	ug/L		76	(33%-107%)		
**Phenol-d5	100			31.8	ug/L		32	(14%-66%)		
**p-Terphenyl-d14	50.0			32.3	ug/L		65	(36%-130%)		
QC1200378581 74742005 MS										
1,4-Dichlorobenzene	500	U	ND	374	ug/L		75	(36%-100%)		02/13/03 13:07
2,4,5-Trichlorophenol	500	U	ND	402	ug/L		80	(29%-131%)		
2,4,6-Trichlorophenol	500	U	ND	397	ug/L		79	(40%-113%)		

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 74742

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-GC/MS											
Batch 232895											
2,4-Dinitrotoluene	500	U	ND		464	ug/L		93	(45%-115%)		
Hexachlorobenzene	500	U	ND		382	ug/L		76	(52%-120%)		
Hexachlorobutadiene	500	U	ND		342	ug/L		68	(34%-122%)		
Hexachloroethane	500	U	ND		340	ug/L		68	(33%-104%)		
Nitrobenzene	500	U	ND		473	ug/L		95	(46%-114%)		
Pentachlorophenol	500	U	ND		367	ug/L		73	(27%-136%)		
Pyridine	500	U	ND		208	ug/L		42	(17%-82%)		
m,p-Cresols	500	U	ND		305	ug/L		61	(17%-94%)		
o-Cresol	500	U	ND		345	ug/L		69	(40%-97%)		
**2,4,6-Tribromophenol	500		325		413	ug/L		83	(28%-126%)		
**2-Fluorobiphenyl	250		183		195	ug/L		78	(32%-109%)		
**2-Fluorophenol	500		229		258	ug/L		52	(13%-73%)		
**Nitrobenzene-d5	250		201		221	ug/L		88	(33%-107%)		
**Phenol-d5	500		159		181	ug/L		36	(14%-66%)		
**p-Terphenyl-d14	250		210		190	ug/L		76	(36%-130%)		
QC1200378583 74742005 MSD											
1,4-Dichlorobenzene	500	U	ND		373	ug/L	0	75	(0%-18%)		02/13/03 13:28
2,4,5-Trichlorophenol	500	U	ND		415	ug/L	3	83	(0%-38%)		
2.4.6-Trichlorophenol	500	U	ND		399	ug/L	1	80	(0%-23%)		
initrotoluene	500	U	ND		440	ug/L	5	88	(0%-24%)		
[illegible]chlorobenzene	500	U	ND		386	ug/L	1	77	(0%-12%)		
Hexachlorobutadiene	500	U	ND		343	ug/L	0	69	(0%-15%)		
Hexachloroethane	500	U	ND		345	ug/L	2	69	(0%-19%)		
Nitrobenzene	500	U	ND		459	ug/L	3	92	(0%-20%)		
Pentachlorophenol	500	U	ND		263	ug/L	33*	53	(0%-24%)		
Pyridine	500	U	ND		246	ug/L	17	49	(0%-42%)		
m,p-Cresols	500	U	ND		334	ug/L	9	67	(0%-40%)		
o-Cresol	500	U	ND		379	ug/L	9	76	(0%-38%)		
**2,4,6-Tribromophenol	500		325		396	ug/L		79	(28%-126%)		
**2-Fluorobiphenyl	250		183		185	ug/L		74	(32%-109%)		
**2-Fluorophenol	500		229		277	ug/L		55	(13%-73%)		
**Nitrobenzene-d5	250		201		218	ug/L		87	(33%-107%)		
**Phenol-d5	500		159		203	ug/L		41	(14%-66%)		
**p-Terphenyl-d14	250		210		213	ug/L		85	(36%-130%)		
QC1200377752 TB											
1,4-Dichlorobenzene				U	ND	ug/L					02/13/03 10:41
2,4,5-Trichlorophenol				U	ND	ug/L					
2,4,6-Trichlorophenol				U	ND	ug/L					
2,4-Dinitrotoluene				U	ND	ug/L					
Hexachlorobenzene				U	ND	ug/L					
Hexachlorobutadiene				U	ND	ug/L					
Hexachloroethane				U	ND	ug/L					
Nitrobenzene				U	ND	ug/L					
Pentachlorophenol				U	ND	ug/L					
Pyridine				U	ND	ug/L					
m,p-Cresols				U	ND	ug/L					
o-Cresol				U	ND	ug/L					
**2.4.6-Tribromophenol	500				299	ug/L		60	(28%-126%)		

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 74742

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-GC/MS										
Batch 232895										
**2-Fluorobiphenyl	250			157	ug/L		63	(32%-109%)		
**2-Fluorophenol	500			184	ug/L		37	(13%-73%)		
**Nitrobenzene-d5	250			160	ug/L		64	(33%-107%)		
**Phenol-d5	500			124	ug/L		25	(14%-66%)		
**p-Terphenyl-d14	250			137	ug/L		55	(36%-130%)		
QC1200377923 TB										
1,4-Dichlorobenzene			U	ND	ug/L					02/13/03 11:02
2,4,5-Trichlorophenol			U	ND	ug/L					
2,4,6-Trichlorophenol			U	ND	ug/L					
2,4-Dinitrotoluene			U	ND	ug/L					
Hexachlorobenzene			U	ND	ug/L					
Hexachlorobutadiene			U	ND	ug/L					
Hexachloroethane			U	ND	ug/L					
Nitrobenzene			U	ND	ug/L					
Pentachlorophenol			U	ND	ug/L					
Pyridine			U	ND	ug/L					
m,p-Cresols			U	ND	ug/L					
o-Cresol			U	ND	ug/L					
**2,4,6-Tribromophenol	500			310	ug/L		62	(28%-126%)		
**2-Fluorobiphenyl	250			144	ug/L		58	(32%-109%)		
**2-Fluorophenol	500			193	ug/L		39	(13%-73%)		
**Nitrobenzene-d5	250			154	ug/L		62	(33%-107%)		
**Phenol-d5	500			133	ug/L		27	(14%-66%)		
**p-Terphenyl-d14	250			146	ug/L		59	(36%-130%)		
Semi-Volatiles-HERB										
Batch 232909										
QC1200378605 LCS										
2,4,5-TP	0.0019		J	0.00181	mg/L		95	(54%-135%)	SAS1	02/14/03 16:56
2,4-D	0.0019		J	0.00184	mg/L		97	(61%-132%)		
**2,4-Dichlorophenylacetic acid	0.0095			0.00826	mg/L		87	(45%-140%)		
QC1200378601 MB										
2,4,5-TP			U	ND	mg/L					02/14/03 16:28
2,4-D			U	ND	mg/L					
**2,4-Dichlorophenylacetic acid	0.0095			0.00873	mg/L		92	(45%-140%)		
QC1200378603 74742001 MS										
2,4,5-TP	0.380 U	ND		0.380	mg/L		100	(53%-134%)		02/14/03 17:23
2,4-D	0.380 U	ND	J	0.390	mg/L		103	(56%-140%)		
**2,4-Dichlorophenylacetic acid	1.90	1.87		1.72	mg/L		91	(45%-140%)		
QC1200378604 74742001 MSD										
2,4,5-TP	0.380 U	ND		0.383	mg/L	1	101	(0%-30%)		02/14/03 17:51
2,4-D	0.380 U	ND	J	0.394	mg/L	1	104	(0%-29%)		
**2,4-Dichlorophenylacetic acid	1.90	1.87		1.74	mg/L		92	(45%-140%)		
QC1200377752 TB										
2,4,5-TP			U	ND	mg/L					02/14/03 16:00
2,4-D			U	ND	mg/L					
**2,4-Dichlorophenylacetic acid	1.90			1.77	mg/L		93	(45%-140%)		
Semi-Volatiles-Pesticide & PCB										
Batch 232919										

QC Summary

Workorder: 74742

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-Pesticide & PCB											
Batch 232919											
QC1200378628 LCS											
Chlordane (tech.)				U	ND	mg/L			(70%-130%)	MM	02/13/03 17:15
Endrin	0.005				0.00539	mg/L		108	(50%-141%)		
Heptachlor	0.005			J	0.00493	mg/L		99	(56%-136%)		
Heptachlor epoxide	0.005			J	0.00502	mg/L		100	(39%-143%)		
Methoxychlor	0.050			J	0.0581	mg/L		116	(43%-148%)		
Toxaphene				U	ND	mg/L			(39%-134%)		
gamma-BHC (Lindane)	0.005			J	0.00538	mg/L		108	(37%-135%)		
**4cmx	0.010				0.0101	mg/L		101	(34%-116%)		
**Decachlorobiphenyl	0.010				0.00903	mg/L		90	(21%-122%)		
QC1200378629 LCS											
Chlordane (tech.)				U	ND	mg/L			(70%-130%)		02/13/03 17:23
Endrin				U	ND	mg/L			(50%-141%)		
Heptachlor				U	ND	mg/L			(56%-136%)		
Heptachlor epoxide				U	ND	mg/L			(39%-143%)		
Methoxychlor				U	ND	mg/L			(43%-148%)		
Toxaphene	0.100				0.100	mg/L		100	(39%-134%)		
gamma-BHC (Lindane)				U	ND	mg/L			(37%-135%)		
**4cmx	0.010				0.0104	mg/L		104	(34%-116%)		
** chlorobiphenyl	0.010				0.00912	mg/L		91	(21%-122%)		
1200378630 LCS											
Chlordane (tech.)	0.100				0.110	mg/L		110	(70%-130%)		02/13/03 17:31
Endrin				U	ND	mg/L			(50%-141%)		
Heptachlor				U	ND	mg/L			(56%-136%)		
Heptachlor epoxide				U	ND	mg/L			(39%-143%)		
Methoxychlor				U	ND	mg/L			(43%-148%)		
Toxaphene				U	ND	mg/L			(39%-134%)		
gamma-BHC (Lindane)				U	ND	mg/L			(37%-135%)		
**4cmx	0.010				0.0105	mg/L		105	(34%-116%)		
**Decachlorobiphenyl	0.010				0.00917	mg/L		92	(21%-122%)		
QC1200378618 MB											
Chlordane (tech.)				U	ND	mg/L					02/13/03 17:07
Endrin				U	ND	mg/L					
Heptachlor				U	ND	mg/L					
Heptachlor epoxide				U	ND	mg/L					
Methoxychlor				U	ND	mg/L					
Toxaphene				U	ND	mg/L					
gamma-BHC (Lindane)				U	ND	mg/L					
**4cmx	0.010				0.00994	mg/L		99	(34%-116%)		
**Decachlorobiphenyl	0.010				0.00939	mg/L		94	(21%-122%)		
QC1200378622 74742005 MS											
Chlordane (tech.)		U	ND	U	ND	mg/L			(70%-130%)		02/13/03 18:28
Endrin	0.005	U	ND		0.00495	mg/L		99	(37%-144%)		
Heptachlor	0.005	U	ND	J	0.00428	mg/L		86	(39%-139%)		
Heptachlor epoxide	0.005	U	ND	J	0.00427	mg/L		85	(45%-131%)		
Methoxychlor	0.050	U	ND	J	0.0554	mg/L		111	(43%-149%)		
Toxaphene		U	ND	U	ND	mg/L			(29%-136%)		
gamma-BHC (Lindane)	0.005	U	ND	J	0.00516	mg/L		103	(35%-135%)		

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 74742

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-Pesticide & PCB											
Batch 232919											
**4cmx	0.010		0.00765		0.00844	mg/L		84	(34%-116%)		
**Decachlorobiphenyl	0.010		0.00827		0.00908	mg/L		91	(21%-122%)		
QC1200378623 74742005 MS											
Chlordane (tech.)		U	ND	U	ND	mg/L			(70%-130%)		02/13/03 18:37
Endrin		U	ND	U	ND	mg/L			(37%-144%)		
Heptachlor		U	ND	U	ND	mg/L			(39%-139%)		
Heptachlor epoxide		U	ND	U	ND	mg/L			(45%-131%)		
Methoxychlor		U	ND	U	ND	mg/L			(43%-149%)		
Toxaphene	0.100	U	ND		0.085	mg/L		85	(29%-136%)		
gamma-BHC (Lindane)		U	ND	U	ND	mg/L			(35%-135%)		
**4cmx	0.010		0.00765		0.00848	mg/L		85	(34%-116%)		
**Decachlorobiphenyl	0.010		0.00827		0.00819	mg/L		82	(21%-122%)		
QC1200378624 74742005 MS											
Chlordane (tech.)	0.100	U	ND		0.100	mg/L		100	(70%-130%)		02/13/03 18:45
Endrin		U	ND	U	ND	mg/L			(37%-144%)		
Heptachlor		U	ND	U	ND	mg/L			(39%-139%)		
Heptachlor epoxide		U	ND	U	ND	mg/L			(45%-131%)		
Methoxychlor		U	ND	U	ND	mg/L			(43%-149%)		
Toxaphene		U	ND	U	ND	mg/L			(29%-136%)		
' ıa-BHC (Lindane)		U	ND	U	ND	mg/L			(35%-135%)		
**	0.010		0.00765		0.0087	mg/L		87	(34%-116%)		
**Decachlorobiphenyl	0.010		0.00827		0.00835	mg/L		84	(21%-122%)		
QC1200378625 74742005 MSD											
Chlordane (tech.)		U	ND	U	ND	mg/L			(0%-32%)		02/13/03 18:53
Endrin	0.005	U	ND		0.00456	mg/L	8	91	(0%-31%)		
Heptachlor	0.005	U	ND	J	0.00399	mg/L	7	80	(0%-24%)		
Heptachlor epoxide	0.005	U	ND	J	0.00397	mg/L	7	80	(0%-23%)		
Methoxychlor	0.050	U	ND	J	0.050	mg/L	10	100	(0%-26%)		
Toxaphene		U	ND	U	ND	mg/L			(0%-24%)		
gamma-BHC (Lindane)	0.005	U	ND	J	0.00449	mg/L	14	90	(0%-27%)		
**4cmx	0.010		0.00765		0.00794	mg/L		79	(34%-116%)		
**Decachlorobiphenyl	0.010		0.00827		0.00802	mg/L		80	(21%-122%)		
QC1200378626 74742005 MSD											
Chlordane (tech.)		U	ND	U	ND	mg/L			(0%-32%)		02/13/03 19:01
Endrin		U	ND	U	ND	mg/L			(0%-31%)		
Heptachlor		U	ND	U	ND	mg/L			(0%-24%)		
Heptachlor epoxide		U	ND	U	ND	mg/L			(0%-23%)		
Methoxychlor		U	ND	U	ND	mg/L			(0%-26%)		
Toxaphene	0.100	U	ND		0.095	mg/L	11	95	(0%-24%)		
gamma-BHC (Lindane)		U	ND	U	ND	mg/L			(0%-27%)		
**4cmx	0.010		0.00765		0.00838	mg/L		84	(34%-116%)		
**Decachlorobiphenyl	0.010		0.00827		0.0083	mg/L		83	(21%-122%)		
QC1200378627 74742005 MSD											
Chlordane (tech.)	0.100	U	ND		0.100	mg/L	0	100	(0%-32%)		02/13/03 19:09
Endrin		U	ND	U	ND	mg/L			(0%-31%)		
Heptachlor		U	ND	U	ND	mg/L			(0%-24%)		
Heptachlor epoxide		U	ND	U	ND	mg/L			(0%-23%)		
Methoxychlor		U	ND	U	ND	mg/L			(0%-26%)		

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 74742

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-Pesticide & PCB											
Batch 232919											
Toxaphene		U	ND	U	ND	mg/L			(0%-24%)		
gamma-BHC (Lindane)		U	ND	U	ND	mg/L			(0%-27%)		
**4cmx	0.010		0.00765		0.00857	mg/L		86	(34%-116%)		
**Decachlorobiphenyl	0.010		0.00827		0.00834	mg/L		83	(21%-122%)		
QC1200377752 TB											
Chlordane (tech.)				U	ND	mg/L					02/13/03 16:50
Endrin				U	ND	mg/L					
Heptachlor				U	ND	mg/L					
Heptachlor epoxide				U	ND	mg/L					
Methoxychlor				U	ND	mg/L					
Toxaphene				U	ND	mg/L					
gamma-BHC (Lindane)				U	ND	mg/L					
**4cmx	0.010				0.00986	mg/L		99	(34%-116%)		
**Decachlorobiphenyl	0.010				0.00925	mg/L		93	(21%-122%)		
QC1200377923 TB											
Chlordane (tech.)				U	ND	mg/L					02/13/03 16:59
Endrin				U	ND	mg/L					
Heptachlor				U	ND	mg/L					
Heptachlor epoxide				U	ND	mg/L					
[illegible]xychlor				U	ND	mg/L					
[illegible]phene				U	ND	mg/L					
gamma-BHC (Lindane)				U	ND	mg/L					
**4cmx	0.010				0.00994	mg/L		99	(34%-116%)		
**Decachlorobiphenyl	0.010				0.00873	mg/L		87	(21%-122%)		
Titration Analysis											
Batch 233538											
QC1200380139 74742001 DUP											
Reactive Releasable Sulfide		J	74.7	J	74.7	mg/kg	N/A ^		(+/-500)	BEP2	02/17/03 07:06
QC1200380140 LCS											
Reactive Releasable Sulfide	570			J	170	mg/kg		30	(23%-117%)		
QC1200380138 MB											
Reactive Releasable Sulfide				U	ND	mg/kg					
Volatile-GC/MS											
Batch 232831											
QC1200378415 LCS											
1,1-Dichloroethylene	0.050				0.0543	mg/L		109	(72%-134%)	JEB	02/11/03 09:51
1,2-Dichloroethane	0.050				0.0521	mg/L		104	(68%-121%)		
1,4-Dichlorobenzene	0.050				0.0546	mg/L		109	(72%-129%)		
2-Butanone	0.250				0.283	mg/L		113	(58%-138%)		
Benzene	0.050				0.0549	mg/L		110	(76%-119%)		
Carbon tetrachloride	0.050				0.0613	mg/L		123	(74%-134%)		
Chlorobenzene	0.050				0.0547	mg/L		109	(78%-120%)		
Chloroform	0.050				0.0596	mg/L		119	(79%-120%)		
Tetrachloroethylene	0.050				0.0551	mg/L		110	(72%-135%)		
Trichloroethylene	0.050				0.0584	mg/L		117	(75%-125%)		
Vinyl chloride	0.050				0.0491	mg/L		98	(62%-135%)		
**Bromofluorobenzene	50.0				49.4	ug/L		99	(57%-140%)		
**[illegible]omofluoromethane	50.0				56.5	ug/L		113	(56%-137%)		

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 74742

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 232831											
**Toluene-d8	50.0				51.0	ug/L		102	(54%-141%)		
QC1200378409 MB											
1,1-Dichloroethylene				U	ND	mg/L					02/11/03 11:54
1,2-Dichloroethane				U	ND	mg/L					
1,4-Dichlorobenzene				U	ND	mg/L					
2-Butanone				U	ND	mg/L					
Benzene				U	ND	mg/L					
Carbon tetrachloride				U	ND	mg/L					
Chlorobenzene				U	ND	mg/L					
Chloroform				U	ND	mg/L					
Tetrachloroethylene				U	ND	mg/L					
Trichloroethylene				U	ND	mg/L					
Vinyl chloride				U	ND	mg/L					
**Bromofluorobenzene	50.0				50.6	ug/L		101	(57%-140%)		
**Dibromofluoromethane	50.0				56.4	ug/L		113	(56%-137%)		
**Toluene-d8	50.0				52.0	ug/L		104	(54%-141%)		
QC1200378519 74742001 PS											
1,1-Dichloroethylene	50.0	U	ND		42.0	ug/L		84	(59%-131%)		02/12/03 01:20
1,2-Dichloroethane	50.0	U	ND		44.6	ug/L		89	(63%-120%)		
[illegible]chlorobenzene	50.0	U	ND		50.7	ug/L		101	(63%-121%)		
[illegible]anone	250	U	ND		193	ug/L		77	(50%-140%)		
Benzene	50.0	U	ND		50.9	ug/L		102	(70%-115%)		
Carbon tetrachloride	50.0	U	ND		46.0	ug/L		92	(63%-130%)		
Chlorobenzene	50.0	U	ND		51.0	ug/L		102	(70%-117%)		
Chloroform	50.0	U	ND		52.8	ug/L		106	(74%-115%)		
Tetrachloroethylene	50.0	U	ND		47.0	ug/L		94	(57%-131%)		
Trichloroethylene	50.0	U	ND		49.7	ug/L		99	(64%-125%)		
Vinyl chloride	50.0	U	ND		36.5	ug/L		73	(49%-129%)		
**Bromofluorobenzene	50.0		50.5		47.4	ug/L		95	(57%-140%)		
**Dibromofluoromethane	50.0		55.7		55.3	ug/L		111	(56%-137%)		
**Toluene-d8	50.0		52.3		50.4	ug/L		101	(54%-141%)		
QC1200376274 TB											
1,1-Dichloroethylene				U	ND	mg/L					02/11/03 15:23
1,2-Dichloroethane				U	ND	mg/L					
1,4-Dichlorobenzene				U	ND	mg/L					
2-Butanone				U	ND	mg/L					
Benzene				U	ND	mg/L					
Carbon tetrachloride				U	ND	mg/L					
Chlorobenzene				U	ND	mg/L					
Chloroform				U	ND	mg/L					
Tetrachloroethylene				U	ND	mg/L					
Trichloroethylene				U	ND	mg/L					
Vinyl chloride				U	ND	mg/L					
**Bromofluorobenzene	50.0				49.2	ug/L		98	(57%-140%)		
**Dibromofluoromethane	50.0				54.6	ug/L		109	(56%-137%)		
**Toluene-d8	50.0				51.2	ug/L		102	(54%-141%)		
QC1200376498 TB											
1,1-Dichloroethylene				U	ND	mg/L					02/11/03 16:18

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 74742

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS										
Batch 232831										
1,2-Dichloroethane			U	ND	mg/L					
1,4-Dichlorobenzene			U	ND	mg/L					
2-Butanone			U	ND	mg/L					
Benzene			U	ND	mg/L					
Carbon tetrachloride			U	ND	mg/L					
Chlorobenzene			U	ND	mg/L					
Chloroform			U	ND	mg/L					
Tetrachloroethylene			U	ND	mg/L					
Trichloroethylene			U	ND	mg/L					
Vinyl chloride			U	ND	mg/L					
**Bromofluorobenzene	50.0			49.8	ug/L		100	(57%-140%)		
**Dibromofluoromethane	50.0			54.4	ug/L		109	(56%-137%)		
**Toluene-d8	50.0			51.4	ug/L		103	(54%-141%)		
QC1200376851 TB										
1,1-Dichloroethylene			U	ND	mg/L					02/11/03 16:46
1,2-Dichloroethane			U	ND	mg/L					
1,4-Dichlorobenzene			U	ND	mg/L					
2-Butanone			U	ND	mg/L					
Benzene			U	ND	mg/L					
[illegible]n tetrachloride			U	ND	mg/L					
[illegible]obenzene			U	ND	mg/L					
Chloroform			U	ND	mg/L					
Tetrachloroethylene			U	ND	mg/L					
Trichloroethylene			U	ND	mg/L					
Vinyl chloride			U	ND	mg/L					
**Bromofluorobenzene	50.0			50.0	ug/L		100	(57%-140%)		
**Dibromofluoromethane	50.0			55.7	ug/L		111	(56%-137%)		
**Toluene-d8	50.0			51.9	ug/L		104	(54%-141%)		
QC1200377757 TB										
1,1-Dichloroethylene			U	ND	mg/L					02/11/03 17:14
1,2-Dichloroethane			U	ND	mg/L					
1,4-Dichlorobenzene			U	ND	mg/L					
2-Butanone			U	ND	mg/L					
Benzene			U	ND	mg/L					
Carbon tetrachloride			U	ND	mg/L					
Chlorobenzene			U	ND	mg/L					
Chloroform			U	ND	mg/L					
Tetrachloroethylene			U	ND	mg/L					
Trichloroethylene			U	ND	mg/L					
Vinyl chloride			U	ND	mg/L					
**Bromofluorobenzene	50.0			50.4	ug/L		101	(57%-140%)		
**Dibromofluoromethane	50.0			54.4	ug/L		109	(56%-137%)		
**Toluene-d8	50.0			51.5	ug/L		103	(54%-141%)		
Wet Chemistry General										
Batch 234088										
QC1200381308 74742001 DUP										
Paint Filter		PASS		PASS	N/A				BEP2	02/17/03 07:16

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

QC Summary

Workorder: 74742

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

Notes:
The Qualifiers in this report are defined as follows:

- < Actual result is less than amount reported
- > Actual result is greater than amount reported
- B Analyte found in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration exceeds instrument calibration range
- H Holding time exceeded
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D
- U Indicates the compound was analyzed for but not detected above the detection limit
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier - must be fully described in case narrative and data summary package
- Y QC Samples were not spiked with this compound.

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than ve times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Client : IEM, Inc.
302 Westfield Road
Knoxville, Tennessee

Contact: Alan Duff

Workorder: 75109

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 234625										
QC1200382529 75109001 DUP										
Actinium-228		0.201 +/-0.0862	UUI	0.00 +/-0.175	pCi/g	15 ^		(+/-0.800)	CRB	03/10/03 17:40
Americium-241	U	0.0241 +/-0.0177	U	0.0115 +/-0.0275	pCi/g	71 ^		(+/-0.200)		
Antimony-124	U	0.0191 +/-0.0169	U	0.018 +/-0.0352	pCi/g	6 ^		(+/-0.100)		
Antimony-125	U	-0.00893 +/-0.0315	U	0.000392 +/-0.0496	pCi/g	N/A ^		(+/-0.200)		
Barium-133	U	0.0108 +/-0.0164	U	0.015 +/-0.020	pCi/g	33 ^		(+/-0.100)		
Barium-140	U	0.0221 +/-0.210	U	0.141 +/-0.399	pCi/g	146 ^		(+/-0.500)		
Beryllium-7	U	-0.0228 +/-0.138	U	-0.0852 +/-0.218	pCi/g	N/A ^		(+/-0.700)		
I h-212	U	0.158 +/-0.145	U	0.224 +/-0.173	pCi/g	35 ^		(+/-0.500)		
Bismuth-214		0.251 +/-0.0651		0.229 +/-0.0977	pCi/g	9 ^		(+/-0.200)		
Cerium-139	U	-0.00859 +/-0.0117	U	-0.0078 +/-0.0177	pCi/g	N/A ^		(+/-0.050)		
Cerium-141	UUI	0.00 +/-0.0941	UUI	0.00 +/-0.124	pCi/g	11 ^		(+/-0.100)		
Cerium-144	U	-0.0425 +/-0.0655	U	-0.106 +/-0.113	pCi/g	N/A ^		(+/-0.500)		
Cesium-134	U	-0.0112 +/-0.0144	U	-0.00465 +/-0.0291	pCi/g	N/A ^		(+/-0.100)		
Cesium-136	U	-0.0774 +/-0.0848	U	0.0155 +/-0.181	pCi/g	N/A ^		(+/-0.300)		
Cesium-137		0.120 +/-0.0313		0.101 +/-0.0342	pCi/g	16 ^		(+/-0.100)		
Chromium-51	U	0.00795 +/-0.184	U	-0.0565 +/-0.288	pCi/g	N/A ^		(+/-0.600)		
Cobalt-56	U	-0.00409 +/-0.0174	U	-0.0091 +/-0.0301	pCi/g	N/A ^		(+/-0.100)		
Cobalt-57		0.0356 +/-0.0185	UUI	0.00 +/-0.0322	pCi/g	36 ^		(+/-0.050)		
Cobalt-58	U	-0.0035 +/-0.0166	U	0.00377 +/-0.0287	pCi/g	N/A ^		(+/-0.100)		
Cobalt-60	U	0.00691 +/-0.0152	U	0.00765 +/-0.0241	pCi/g	10 ^		(+/-0.100)		
Europium-152	U	0.00249 +/-0.0329	U	-0.0297 +/-0.0511	pCi/g	N/A ^		(+/-0.200)		
F pium-154	U	-0.00876	U	-0.0656	pCi/g	N/A ^		(+/-0.500)		

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75109

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 234625											
		+/-0.0416		+/-0.0626							
Europium-155	UUI	0.00	UUI	0.00	pCi/g	36 ^		(+/-0.500)			
		+/-0.0628		+/-0.0988							
Iridium-192	U	-0.003	UUI	0.00	pCi/g	N/A ^		(+/-0.100)			
		+/-0.0136		+/-0.0325							
Iron-59	U	-0.00661	U	0.0555	pCi/g	N/A ^		(+/-0.300)			
		+/-0.0394		+/-0.0719							
Lead-210		0.790		0.799	pCi/g	1 ^		(+/-4.00)			
		+/-0.408		+/-0.692							
Lead-212		0.231		0.227	pCi/g	2 ^		(+/-0.100)			
		+/-0.044		+/-0.0571							
Lead-214		0.301		0.312	pCi/g	3 ^		(+/-0.100)			
		+/-0.0613		+/-0.0814							
Manganese-54	U	0.00581	U	-0.00628	pCi/g	N/A ^		(+/-0.100)			
		+/-0.0149		+/-0.0214							
Mercury-203	U	0.0006	U	-0.00513	pCi/g	N/A ^		(+/-0.100)			
		+/-0.0183		+/-0.0235							
Neodymium-147	U	-0.325	U	-0.00731	pCi/g	N/A ^		(+/-1000)			
		+/-0.512		+/-1.11							
Neptunium-239	U	-0.00315	U	-0.0395	pCi/g	N/A ^		(+/-2.00)			
		+/-0.0575		+/-0.0992							
Niobium-94	U	-0.00479	U	0.0158	pCi/g	N/A ^		(+/-1.00)			
		+/-0.0116		+/-0.0224							
Niobium-95	U	0.0149	U	0.0182	pCi/g	20 ^		(+/-0.050)			
		+/-0.0245		+/-0.0399							
Potassium-40		2.09		1.68	pCi/g	22 ^		(+/-1.00)			
		+/-0.378		+/-0.571							
Promethium-144	U	-0.00224	U	0.00808	pCi/g	N/A ^		(+/-0.080)			
		+/-0.0127		+/-0.0202							
Promethium-146	U	0.00302	U	-0.00644	pCi/g	N/A ^		(+/-1.00)			
		+/-0.0152		+/-0.0254							
Radium-226		0.251		0.229	pCi/g	9					
		+/-0.0651		+/-0.0977							
Radium-228		0.201	UUI	0.00	pCi/g	15 ^		(+/-0.500)			
		+/-0.0862		+/-0.175							
Ruthenium-106	U	-0.0475	U	0.0821	pCi/g	N/A ^		(+/-0.800)			
		+/-0.122		+/-0.178							
Silver-110m	U	0.0154	U	0.0155	pCi/g	1 ^		(+/-0.080)			
		+/-0.0143		+/-0.0275							
Sodium-22	U	-0.00318	U	-0.0236	pCi/g	N/A ^		(+/-0.080)			
		+/-0.015		+/-0.0226							
Thallium-208		0.0486		0.0805	pCi/g	49 ^		(+/-0.080)			
		+/-0.0315		+/-0.0373							
Thorium-230		0.251		0.229	pCi/g	9 ^		(+/-1.00)			
		+/-0.0651		+/-0.0977							
Thorium-234		1.35	U	0.684	pCi/g	66 ^		(+/-2.00)			
		+/-0.523		+/-0.585							

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75109

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 234625										
Tin-113	U	0.0133 +/-0.0155	U	-0.0127 +/-0.0254	pCi/g	N/A ^		(+/-0.100)		
Uranium-235		1.43 +/-0.315		1.48 +/-0.357	pCi/g	3 ^		(+/-0.500)		
Uranium-238		1.35 +/-0.523		0.684 +/-0.585	pCi/g	66 ^		(+/-1.00)		
Yttrium-88	U	0.00481 +/-0.0138	U	0.0201 +/-0.0183	pCi/g	123 ^		(+/-0.100)		
Zinc-65	U	0.0303 +/-0.0308	U	0.0152 +/-0.0439	pCi/g	67 ^		(+/-0.300)		
Zirconium-95	U	0.00199 +/-0.0306	U	0.0142 +/-0.0527	pCi/g	151 ^		(+/-0.200)		
QC1200382530 LCS										
Actinium-228			U	0.201 +/-6.87	pCi/g					03/07/03 12:53
Americium-241				1270 +/-134	pCi/g					
Antimony-124				4.500E+10 +/-2.520E+12	pCi/g					
ony-125			U	4.73 +/-10.3	pCi/g					
Barium-133			U	0.165 +/-1.14	pCi/g					
Barium-140			U	-1.000E+41 +/-4.320E+41	pCi/g					
Beryllium-7			U	-5.060E+14 +/-1.040E+15	pCi/g					
Bismuth-212			U	-29.4 +/-57.6	pCi/g					
Bismuth-214			U	1.28 +/-1.21	pCi/g					
Cerium-139			U	-20200 +/-1.220E+05	pCi/g					
Cerium-141			U	-1.380E+23 +/-1.620E+23	pCi/g					
Cerium-144			U	-836 +/-1220	pCi/g					
Cesium-134			U	-4.24 +/-5.78	pCi/g					
Cesium-136			U	-1.000E+41 +/-4.150E+42	pCi/g					
Cesium-137	441			449 +/-48.9	pCi/g		102			
Chromium-51			U	-2.300E+27 +/-1.310E+28	pCi/g					
Cobalt-56				4.520E+08 +/-3.860E+09	pCi/g					
Cobalt-57				404	pCi/g					

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75109

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 234625											
				+/-256							
Cobalt-58				1.140E+10	pCi/g						
				+/-3.820E+10							
Cobalt-60				682	pCi/g						
				+/-58.2							
Europium-152			U	-0.22	pCi/g						
				+/-2.26							
Europium-154			U	0.322	pCi/g						
				+/-2.28							
Europium-155			U	0.284	pCi/g						
				+/-3.79							
Iridium-192			U	-8.200E+09	pCi/g						
				+/-9.410E+09							
Iron-59			U	-3.920E+16	pCi/g						
				+/-1.880E+17							
Lead-210				15400	pCi/g						
				+/-2680							
Lead-212			U	4.25	pCi/g						
				+/-9.36							
Lead-214			U	0.391	pCi/g						
				+/-1.16							
Manganese-54				21.4	pCi/g						
				+/-188							
Mercury-203				7.320E+15	pCi/g						
				+/-1.070E+16							
Neodymium-147			U	-1.000E+41	pCi/g						
				+/-2.150E+42							
Neptunium-239			U	0.200	pCi/g						
				+/-2.38							
Niobium-94			U	-0.462	pCi/g						
				+/-0.561							
Niobium-95			U	-1.460E+20	pCi/g						
				+/-3.220E+21							
Potassium-40			U	0.521	pCi/g						
				+/-2.47							
Promethium-144			U	-39	pCi/g						
				+/-71.8							
Promethium-146			U	2.38	pCi/g						
				+/-2.63							
Radium-226			U	1.28	pCi/g						
				+/-1.21							
Radium-228			U	0.201	pCi/g						
				+/-6.87							
Ruthenium-106			U	104	pCi/g						
				+/-669							
Silver-110m				5170	pCi/g						
				+/-1060							

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75109

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 234625											
Sodium-22			U	0.462 +/-2.97	pCi/g						
Thallium-208			U	0.502 +/-7.87	pCi/g						
Thorium-230			U	1.28 +/-1.20	pCi/g						
Thorium-234			U	9.02 +/-11.2	pCi/g						
Tin-113			U	-1.500E+06 +/-3.060E+06	pCi/g						
Uranium-235			U	-0.735 +/-2.62	pCi/g						
Uranium-238			U	9.02 +/-11.2	pCi/g						
Yttrium-88				5.800E+05 +/-2.980E+06	pCi/g						
Zinc-65				2640 +/-2230	pCi/g						
Zirconium-95				4.300E+11 +/-8.350E+11	pCi/g						
[illegible]C1200382528	MB										
Actinium-228			U	0.0673 +/-0.0488	pCi/g					03/06/03	19:54
Americium-241			U	-0.0106 +/-0.0367	pCi/g						
Antimony-124			U	0.00221 +/-0.0177	pCi/g						
Antimony-125			U	0.013 +/-0.0297	pCi/g						
Barium-133			U	0.00353 +/-0.0151	pCi/g						
Barium-140			U	0.0666 +/-0.123	pCi/g						
Beryllium-7			U	0.109 +/-0.115	pCi/g						
Bismuth-212			U	0.0541 +/-0.0916	pCi/g						
Bismuth-214			U	0.036 +/-0.0362	pCi/g						
Cerium-139			U	-0.00863 +/-0.00939	pCi/g						
Cerium-141			U	-0.012 +/-0.0217	pCi/g						
Cerium-144			U	0.0208 +/-0.0601	pCi/g						
Cesium-134			U	-0.0165 +/-0.0127	pCi/g						
Cesium-136			U	-0.00198	pCi/g						

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75109

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 234625											
				+/-0.0457							
Cesium-137			U	0.00979	pCi/g						
				+/-0.0102							
Chromium-51			U	0.0266	pCi/g						
				+/-0.146							
Cobalt-56			U	-0.00529	pCi/g						
				+/-0.0163							
Cobalt-57			U	0.000663	pCi/g						
				+/-0.00752							
Cobalt-58			U	0.00293	pCi/g						
				+/-0.0132							
Cobalt-60			U	0.00097	pCi/g						
				+/-0.0131							
Europium-152			U	0.0154	pCi/g						
				+/-0.0317							
Europium-154			U	0.0143	pCi/g						
				+/-0.0365							
Europium-155			U	-0.00301	pCi/g						
				+/-0.0284							
[illegible]m-192			U	-0.0036	pCi/g						
				+/-0.0114							
Iron-59			U	-0.00414	pCi/g						
				+/-0.0313							
Lead-210			U	0.852	pCi/g						
				+/-1.85							
Lead-212			UUI	0.00	pCi/g						
				+/-0.0392							
Lead-214			U	0.0291	pCi/g						
				+/-0.0418							
Manganese-54			U	-0.00434	pCi/g						
				+/-0.0112							
Mercury-203			U	0.00665	pCi/g						
				+/-0.0175							
Neodymium-147			U	0.0383	pCi/g						
				+/-0.266							
Neptunium-239			U	0.00667	pCi/g						
				+/-0.0557							
Niobium-94			U	0.000504	pCi/g						
				+/-0.0106							
Niobium-95			U	0.00533	pCi/g						
				+/-0.017							
Potassium-40				0.212	pCi/g						
				+/-0.217							
Promethium-144			U	0.0087	pCi/g						
				+/-0.012							
Promethium-146			U	0.00434	pCi/g						
				+/-0.0138							

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75109

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 234625											
Radium-226			U	0.036 +/-0.0362	pCi/g						
Radium-228			U	0.0673 +/-0.0488	pCi/g						
Ruthenium-106			U	-0.0235 +/-0.114	pCi/g						
Silver-110m			U	0.000745 +/-0.0134	pCi/g						
Sodium-22			U	0.00523 +/-0.0131	pCi/g						
Thallium-208			U	0.022 +/-0.0145	pCi/g						
Thorium-230			U	0.036 +/-0.0362	pCi/g						
Thorium-234			U	0.414 +/-0.329	pCi/g						
Tin-113			U	0.00668 +/-0.0153	pCi/g						
Uranium-235			U	0.0391 +/-0.0622	pCi/g						
Uranium-238			U	0.414 +/-0.329	pCi/g						
Yttrium-88			U	-0.0111 +/-0.0146	pCi/g						
Zinc-65			U	-0.0203 +/-0.0296	pCi/g						
Zirconium-95			U	-0.0138 +/-0.0237	pCi/g						

Notes:
The Qualifiers in this report are defined as follows:

- < Actual result is less than amount reported
- > Actual result is greater than amount reported
- B Analyte found in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration exceeds instrument calibration range
- H Holding time exceeded
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D
- U Indicates the compound was analyzed for but not detected above the detection limit
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier - must be fully described in case narrative and data summary package
- Y QC Samples were not spiked with this compound.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 75109

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 25, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	Waste Pile/Roofing Material	Project:	IEMI00100
Sample ID:	76633001	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	17-MAR-03 11:30		
Receive Date:	18-MAR-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid											
Actinium-228		0.101	+/-0.0954	0.0741	0.800	pCi/g		CRB 03/22/03	1516	240334	1
Americium-241	U	ND	+/-0.0127	0.0192	0.200	pCi/g					
Antimony-124	U	ND	+/-0.0121	0.020	0.100	pCi/g					
Antimony-125	U	ND	+/-0.0307	0.0495	0.200	pCi/g					
Barium-133	U	ND	+/-0.0143	0.0224	0.100	pCi/g					
Barium-140	U	ND	+/-0.0496	0.0848	0.500	pCi/g					
[illegible]ium-7		0.342	+/-0.169	0.155	0.700	pCi/g					
[illegible]th-212		0.211	+/-0.204	0.161	0.500	pCi/g					
Bismuth-214	UUI	ND	+/-0.0543	0.0547	0.200	pCi/g					
Cerium-139	U	ND	+/-0.00772	0.0127	0.050	pCi/g					
Cerium-141	U	ND	+/-0.0129	0.0211	0.100	pCi/g					
Cerium-144	U	ND	+/-0.0471	0.0784	0.500	pCi/g					
Cesium-134	U	ND	+/-0.0133	0.0187	0.100	pCi/g					
Cesium-136	U	ND	+/-0.0214	0.0357	0.300	pCi/g					
Cesium-137	U	ND	+/-0.0125	0.0214	0.100	pCi/g					
Chromium-51	U	ND	+/-0.0944	0.150	0.600	pCi/g					
Cobalt-56	U	ND	+/-0.0136	0.0221	0.100	pCi/g					
Cobalt-57	U	ND	+/-0.00565	0.00951	0.050	pCi/g					
Cobalt-58	U	ND	+/-0.0117	0.019	0.100	pCi/g					
Cobalt-60	U	ND	+/-0.0133	0.0213	0.100	pCi/g					
Europium-152	U	ND	+/-0.0316	0.0502	0.200	pCi/g					
Europium-154	U	ND	+/-0.034	0.0594	0.500	pCi/g					
Europium-155	U	ND	+/-0.0239	0.0358	0.500	pCi/g					
Iridium-192	U	ND	+/-0.00991	0.0161	0.100	pCi/g					
Iron-59	U	ND	+/-0.0236	0.0411	0.300	pCi/g					
Lead-210		0.689	+/-0.273	0.179	4.00	pCi/g					
Lead-212		0.0919	+/-0.0358	0.025	0.100	pCi/g					
Lead-214		0.0624	+/-0.0452	0.0351	0.100	pCi/g					
Manganese-54	U	ND	+/-0.012	0.0195	0.100	pCi/g					
Mercury-203	U	ND	+/-0.0108	0.0175	0.100	pCi/g					
Neodymium-147	U	ND	+/-0.101	0.169	1000	pCi/g					
Neptunium-239	U	ND	+/-0.0418	0.0689	2.00	pCi/g					
Niobium-94	U	ND	+/-0.0119	0.0197	1.00	pCi/g					
Niobium-95	U	ND	+/-0.0133	0.022	0.050	pCi/g					
Potassium-40		0.726	+/-0.406	0.208	1.00	pCi/g					
Promethium-144	U	ND	+/-0.0125	0.0208	0.080	pCi/g					
Promethium-146	U	ND	+/-0.0137	0.0229	1.00	pCi/g					
Radium-228		0.101	+/-0.0954	0.0741	0.500	pCi/g					

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 25, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Waste Pile/Roofing Material
Sample ID: 76633001
Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid											
Ruthenium-106	U	ND	+/-0.102	0.169	0.800	pCi/g					
Silver-110m	U	ND	+/-0.0112	0.0188	0.080	pCi/g					
Sodium-22	U	ND	+/-0.0121	0.0211	0.080	pCi/g					
Thallium-208	U	ND	+/-0.0275	0.0297	0.080	pCi/g					
Thorium-230		0.0647	+/-0.0543	0.0384	1.00	pCi/g					
Thorium-234	UUI	ND	+/-0.395	0.316	2.00	pCi/g					
Tin-113	U	ND	+/-0.0132	0.020	0.100	pCi/g					
Uranium-235	U	ND	+/-0.0577	0.094	0.500	pCi/g					
Uranium-238	UUI	ND	+/-0.395	0.316	1.00	pCi/g					
Y[illegible]ium-88	U	ND	+/-0.0167	0.0249	0.100	pCi/g					
[illegible] 5	U	ND	+/-0.0265	0.0441	0.300	pCi/g					
Z[illegible]nium-95	U	ND	+/-0.0205	0.0354	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	AWB	03/19/03	1356	240101

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: March 25, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: Waste Pile/Roofing Material
Sample ID: 76633001
Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Client : IEM, Inc.
302 Westfield Road
Knoxville, Tennessee

Contact: Alan Duff

Workorder: 76633

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 240334										
QC1200396609 76687001 DUP										
Actinium-228		1.66 +/-0.415		1.51 +/-0.340	pCi/g	10 ^		(+/-0.800)	CRB	03/23/03 11:48
Americium-241	U	-0.0184 +/-0.0309	U	-0.126 +/-0.150	pCi/g	N/A ^		(+/-0.200)		
Antimony-124	U	0.0131 +/-0.0314	U	-0.0717 +/-0.0274	pCi/g	N/A ^		(+/-0.100)		
Antimony-125	U	-0.00481 +/-0.0759	U	0.0224 +/-0.0562	pCi/g	N/A ^		(+/-0.200)		
Barium-133	U	0.000907 +/-0.0318	U	-0.0036 +/-0.0293	pCi/g	N/A ^		(+/-0.100)		
Barium-140	U	0.118 +/-0.259	U	-0.0439 +/-0.148	pCi/g	N/A ^		(+/-0.500)		
Beryllium-7	U	0.0119 +/-0.265	U	-0.0441 +/-0.182	pCi/g	N/A ^		(+/-0.700)		
th-212	U	0.397 +/-0.490		0.874 +/-0.312	pCi/g	75 ^		(+/-0.500)		
Bismuth-214		1.15 +/-0.247	UUI	0.00 +/-0.164	pCi/g	23*^		(+/-0.200)		
Cerium-139	U	-0.00338 +/-0.0189	U	0.0116 +/-0.0195	pCi/g	N/A ^		(+/-0.050)		
Cerium-141	U	-0.0502 +/-0.037	U	0.0102 +/-0.0519	pCi/g	N/A ^		(+/-0.100)		
Cerium-144	U	-0.0399 +/-0.119	U	-0.0263 +/-0.121	pCi/g	N/A ^		(+/-0.500)		
Cesium-134	U	-0.0179 +/-0.0313	U	-0.0115 +/-0.0246	pCi/g	N/A ^		(+/-0.100)		
Cesium-136	U	0.0701 +/-0.0884	U	-0.0117 +/-0.0626	pCi/g	N/A ^		(+/-0.300)		
Cesium-137		0.642 +/-0.116		0.582 +/-0.101	pCi/g	10				
Chromium-51	U	0.156 +/-0.240	U	-0.103 +/-0.209	pCi/g	N/A ^		(+/-0.600)		
Cobalt-56	U	0.0151 +/-0.0362	U	0.00728 +/-0.0244	pCi/g	70 ^		(+/-0.100)		
Cobalt-57	U	0.012 +/-0.0142	U	-0.0154 +/-0.0155	pCi/g	N/A ^		(+/-0.050)		
Cobalt-58	U	0.0116 +/-0.0354	U	-0.0193 +/-0.0226	pCi/g	N/A ^		(+/-0.100)		
Cobalt-60	U	0.0152 +/-0.0395	U	0.0121 +/-0.0246	pCi/g	23 ^		(+/-0.100)		
Europium-152	U	0.0409 +/-0.0693	U	-0.0247 +/-0.0576	pCi/g	N/A ^		(+/-0.200)		
Europium-154	U	-0.0582	U	-0.00668	pCi/g	N/A ^		(+/-0.500)		

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 76633

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 240334											
		+/-0.109		+/-0.0742							
Europium-155	UUI	0.00	UUI	0.00	pCi/g	0 ^		(+/-0.500)			
		+/-0.0851		+/-0.0958							
Iridium-192	U	-0.0129	U	0.00408	pCi/g	N/A ^		(+/-0.100)			
		+/-0.0227		+/-0.020							
Iron-59	U	-0.0934	U	-0.0256	pCi/g	N/A ^		(+/-0.300)			
		+/-0.0822		+/-0.0526							
Lead-210		0.470	U	0.652	pCi/g	33 ^		(+/-4.00)			
		+/-0.640		+/-7.13							
Lead-212		1.39		1.46	pCi/g	5					
		+/-0.207		+/-0.167							
Lead-214		1.10		1.13	pCi/g	2					
		+/-0.187		+/-0.166							
Manganese-54	UUI	0.00	U	0.00557	pCi/g	172 ^		(+/-0.100)			
		+/-0.0471		+/-0.0233							
Mercury-203	UUI	0.00	UUI	0.00	pCi/g	0 ^		(+/-0.100)			
		+/-0.0404		+/-0.0279							
Neodymium-147	U	-0.037	U	0.169	pCi/g	N/A ^		(+/-1000)			
		+/-0.398		+/-0.272							
Neptunium-239	U	-0.0326	U	0.0394	pCi/g	N/A ^		(+/-2.00)			
		+/-0.105		+/-0.118							
Niobium-94	U	0.00476	U	0.00166	pCi/g	97 ^		(+/-1.00)			
		+/-0.0305		+/-0.0209							
Niobium-95	U	0.0233	UUI	0.00	pCi/g	71 ^		(+/-0.050)			
		+/-0.0457		+/-0.0298							
Potassium-40		22.5		23.8	pCi/g	5					
		+/-2.49		+/-2.67							
Promethium-144	U	-0.0229	U	0.011	pCi/g	N/A ^		(+/-0.080)			
		+/-0.0309		+/-0.0211							
Promethium-146	U	0.00575	U	0.00734	pCi/g	24 ^		(+/-1.00)			
		+/-0.0345		+/-0.0266							
Radium-228		1.66		1.51	pCi/g	10 ^		(+/-0.500)			
		+/-0.415		+/-0.340							
Ruthenium-106	U	-0.109	U	-0.0364	pCi/g	N/A ^		(+/-0.800)			
		+/-0.266		+/-0.192							
Silver-110m	U	0.0226	UUI	0.00	pCi/g	89 ^		(+/-0.080)			
		+/-0.0332		+/-0.0258							
Sodium-22	U	-0.0209	U	-0.00232	pCi/g	N/A ^		(+/-0.080)			
		+/-0.0387		+/-0.0265							
Thallium-208		0.434		0.392	pCi/g	10 ^		(+/-0.080)			
		+/-0.101		+/-0.072							
Thorium-230		1.15		0.915	pCi/g	23 ^		(+/-1.00)			
		+/-0.247		+/-0.164							
Thorium-234		0.846		1.70	pCi/g	67 ^		(+/-2.00)			
		+/-0.737		+/-1.71							
Tin-113	U	0.00779	U	0.0192	pCi/g	84 ^		(+/-0.100)			
		+/-0.0334		+/-0.0223							

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 76633

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 240334											
Uranium-235	UUI	0.00 +/-0.136	U	0.0431 +/-0.219	pCi/g	133 ^		(+/-0.500)			
Uranium-238		0.846 +/-0.737		1.70 +/-1.71	pCi/g	67 ^		(+/-1.00)			
Yttrium-88	U	-0.000909 +/-0.0383	U	0.00151 +/-0.0229	pCi/g	N/A ^		(+/-0.100)			
Zinc-65	U	-0.0155 +/-0.0933	U	0.032 +/-0.0415	pCi/g	N/A ^		(+/-0.300)			
Zirconium-95	U	0.00268 +/-0.0607	U	0.0313 +/-0.0419	pCi/g	168 ^		(+/-0.200)			
QC1200396610 LCS											
Actinium-228			U	-0.77 +/-3.43	pCi/g						
Americium-241				4730 +/-500	pCi/g						
Antimony-124				4.340E+06 +/-1.640E+07	pCi/g						
Antimony-125			U	-2.74 +/-3.17	pCi/g						
n-133			U	-0.135 +/-0.649	pCi/g						
Barium-140				6.980E+35 +/-2.430E+36	pCi/g						
Beryllium-7				1.720E+08 +/-1.620E+09	pCi/g						
Bismuth-212			U	5.07 +/-14.3	pCi/g						
Bismuth-214			U	0.610 +/-0.759	pCi/g						
Cerium-139				2040 +/-672	pCi/g						
Cerium-141			U	-5.580E+13 +/-6.640E+13	pCi/g						
Cerium-144			U	-98.6 +/-74.8	pCi/g						
Cesium-134			U	-0.211 +/-1.53	pCi/g						
Cesium-136			U	-7.250E+34 +/-1.490E+35	pCi/g						
Cesium-137	1820			1720 +/-299	pCi/g		94				
Chromium-51			U	-8.420E+16 +/-1.400E+17	pCi/g						
Cobalt-56				2.440E+05 +/-3.740E+05	pCi/g						
Cobalt-57				1370 +/-148	pCi/g						
Cobalt-58			U	-1.290E+06	pCi/g						

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 76633

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 240334											
				+/-1.570E+06							
Cobalt-60				2860	pCi/g						
				+/-295							
Europium-152			U	0.391	pCi/g						
				+/-1.39							
Europium-154			U	0.638	pCi/g						
				+/-1.30							
Europium-155				2.77	pCi/g						
				+/-1.68							
Iridium-192				1.570E+05	pCi/g						
				+/-5.310E+05							
Iron-59				9.730E+09	pCi/g						
				+/-2.570E+10							
Lead-210				58900	pCi/g						
				+/-8040							
Lead-212			U	-0.21	pCi/g						
				+/-2.10							
Lead-214				1.38	pCi/g						
				+/-0.920							
[illegible]ganese-54			U	9.84	pCi/g						
				+/-14.0							
Mercury-203			U	-1.380E+09	pCi/g						
				+/-2.580E+09							
Neodymium-147				1.000E+41	pCi/g						
				+/-2.680E+41							
Neptunium-239			U	0.173	pCi/g						
				+/-1.50							
Niobium-94			U	-0.0125	pCi/g						
				+/-0.344							
Niobium-95			U	-1.450E+12	pCi/g						
				+/-7.060E+12							
Potassium-40			U	2.37	pCi/g						
				+/-2.75							
Promethium-144			U	-0.357	pCi/g						
				+/-6.49							
Promethium-146			U	-0.578	pCi/g						
				+/-0.919							
Radium-228			U	-0.77	pCi/g						
				+/-3.43							
Ruthenium-106			U	22.1	pCi/g						
				+/-59.8							
Silver-110m				3660	pCi/g						
				+/-638							
Sodium-22			U	0.495	pCi/g						
				+/-1.02							
Thallium-208			U	1.10	pCi/g						
				+/-1.65							

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 76633

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 240334										
Thorium-230			U	0.609 +/-0.758	pCi/g					
Thorium-234			U	-28.5 +/-11.0	pCi/g					
Tin-113				3620 +/-5510	pCi/g					
Uranium-235			U	-0.299 +/-1.56	pCi/g					
Uranium-238			U	-28.5 +/-11.0	pCi/g					
Yttrium-88				10300 +/-7370	pCi/g					
Zinc-65			U	127 +/-90.9	pCi/g					
Zirconium-95			U	-1.260E+06 +/-1.270E+07	pCi/g					
QC1200396608 MB										
Actinium-228			U	0.233 +/-0.645	pCi/g					03/23/03 11:47
cium-241			U	0.00947 +/-0.0676	pCi/g					
Antimony-124			U	-0.0138 +/-0.0647	pCi/g					
Antimony-125			U	-0.0236 +/-0.150	pCi/g					
Barium-133			U	0.0147 +/-0.0989	pCi/g					
Barium-140			U	-0.0555 +/-0.227	pCi/g					
Beryllium-7			U	0.336 +/-0.471	pCi/g					
Bismuth-212			U	0.527 +/-0.566	pCi/g					
Bismuth-214			UU1	0.00 +/-0.144	pCi/g					
Cerium-139			U	0.0103 +/-0.0718	pCi/g					
Cerium-141			U	0.0204 +/-0.0603	pCi/g					
Cerium-144			U	-0.0393 +/-0.233	pCi/g					
Cesium-134			U	-0.0397 +/-0.0645	pCi/g					
Cesium-136			U	-0.0337 +/-0.109	pCi/g					
Cesium-137			U	0.0518 +/-0.0732	pCi/g					
Chromium-51			U	0.481	pCi/g					

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 76633

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 240334											
				+/-0.558							
Cobalt-56			U	0.0256	pCi/g						
				+/-0.0745							
Cobalt-57			U	-0.0174	pCi/g						
				+/-0.0294							
Cobalt-58			U	-0.0686	pCi/g						
				+/-0.0717							
Cobalt-60			U	0.0121	pCi/g						
				+/-0.0827							
Europium-152			U	0.193	pCi/g						
				+/-0.174							
Europium-154			U	0.140	pCi/g						
				+/-0.205							
Europium-155			U	0.114	pCi/g						
				+/-0.218							
Iridium-192			U	0.0202	pCi/g						
				+/-0.0509							
Iron-59			U	-0.06	pCi/g						
				+/-0.139							
Lead-210				1.28	pCi/g						
				+/-1.62							
Lead-212			UUI	0.00	pCi/g						
				+/-0.108							
Lead-214			U	0.175	pCi/g						
				+/-0.238							
Manganese-54			U	-0.000397	pCi/g						
				+/-0.0731							
Mercury-203			U	-0.00814	pCi/g						
				+/-0.0514							
Neodymium-147			U	-0.186	pCi/g						
				+/-0.454							
Neptunium-239			U	-0.0581	pCi/g						
				+/-0.215							
Niobium-94			U	-0.0198	pCi/g						
				+/-0.0633							
Niobium-95			U	0.0384	pCi/g						
				+/-0.0728							
Potassium-40			UUI	0.00	pCi/g						
				+/-1.78							
Promethium-144			U	0.00496	pCi/g						
				+/-0.0681							
Promethium-146			U	0.00763	pCi/g						
				+/-0.0718							
Radium-228			U	0.233	pCi/g						
				+/-0.645							
Ruthenium-106			U	-0.0179	pCi/g						
				+/-0.594							

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 76633

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 240334											
Silver-110m			U	-0.0228 +/-0.0653	pCi/g						
Sodium-22			U	0.050 +/-0.073	pCi/g						
Thallium-208			UUI	0.00 +/-0.0771	pCi/g						
Thorium-230			UUI	0.00 +/-0.144	pCi/g						
Thorium-234			U	0.191 +/-1.85	pCi/g						
Tin-113			U	-0.0175 +/-0.0665	pCi/g						
Uranium-235			UUI	0.00 +/-0.342	pCi/g						
Uranium-238			U	0.191 +/-1.85	pCi/g						
Yttrium-88			U	0.0101 +/-0.0622	pCi/g						
Zinc-65			U	-0.229 +/-0.157	pCi/g						
Zirconium-95			U	0.00378 +/-0.120	pCi/g						

Notes:
The Qualifiers in this report are defined as follows:

- < Actual result is less than amount reported
- > Actual result is greater than amount reported
- B Analyte found in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration exceeds instrument calibration range
- H Holding time exceeded
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D
- U Indicates the compound was analyzed for but not detected above the detection limit
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier - must be fully described in case narrative and data summary package
- Y QC Samples were not spiked with this compound.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

QC Summary

Workorder: 76633

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: April 18, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	#7 Geoprobe Tube Top	Project:	IEMI00100
Sample ID:	78159001	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	15-FEB-03 12:00		
Receive Date:	11-APR-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid											
Actinium-228		1.17	+/-0.216	0.0947	0.800	pCi/g		SRB 04/16/03	1227	245009	1
Americium-241		0.173	+/-0.189	0.168	0.200	pCi/g					
Antimony-124	U	0.000599	+/-0.0275	0.0499	0.100	pCi/g					
Antimony-125	U	0.0314	+/-0.0439	0.0837	0.200	pCi/g					
Barium-133	U	-0.00292	+/-0.0213	0.0328	0.100	pCi/g					
Barium-140	U	0.274	+/-1.30	2.40	0.500	pCi/g					
[illegible]ium-7	U	0.0598	+/-0.254	0.473	0.700	pCi/g					
[illegible]uth-212		1.01	+/-0.304	0.238	0.500	pCi/g					
Bismuth-214		0.996	+/-0.149	0.0532	0.200	pCi/g					
Cerium-139	U	0.000421	+/-0.0177	0.0291	0.050	pCi/g					
Cerium-141	U	0.0106	+/-0.0882	0.140	0.100	pCi/g					
Cerium-144	U	-0.0818	+/-0.103	0.184	0.500	pCi/g					
Cesium-134	U	-0.000365	+/-0.0167	0.0266	0.100	pCi/g					
Cesium-136	U	0.112	+/-0.507	0.908	0.300	pCi/g					
Cesium-137	U	0.0144	+/-0.0183	0.031	0.100	pCi/g					
Chromium-51	U	-0.349	+/-0.538	0.913	0.600	pCi/g					
Cobalt-56	UI	0.0605	+/-0.0453	0.0443	0.100	pCi/g					
Cobalt-57	U	-0.012	+/-0.0127	0.0229	0.050	pCi/g					
Cobalt-58	U	0.00514	+/-0.0291	0.0464	0.100	pCi/g					
Cobalt-60	U	0.00356	+/-0.0181	0.0338	0.100	pCi/g					
Europium-152	U	-0.0191	+/-0.0458	0.0783	0.200	pCi/g					
Europium-154	U	-0.00352	+/-0.051	0.0927	0.500	pCi/g					
Europium-155	U	0.0523	+/-0.0516	0.0996	0.500	pCi/g					
Iridium-192	U	0.00807	+/-0.0242	0.0432	0.100	pCi/g					
Iron-59	U	0.0276	+/-0.0754	0.143	0.300	pCi/g					
Lead-210	U	2.60	+/-4.08	6.87	4.00	pCi/g					
Lead-212		1.46	+/-0.170	0.0498	0.100	pCi/g					
Lead-214		1.18	+/-0.161	0.0564	0.100	pCi/g					
Manganese-54	U	-0.00537	+/-0.0194	0.0335	0.100	pCi/g					
Mercury-203	U	0.0589	+/-0.0593	0.0602	0.100	pCi/g					
Neodymium-147	U	-0.689	+/-4.18	7.59	1000	pCi/g					
Neptunium-239	U	0.0405	+/-0.0884	0.168	2.00	pCi/g					
Niobium-94	U	0.0171	+/-0.0157	0.0298	1.00	pCi/g					
Niobium-95	U	0.0589	+/-0.057	0.0975	0.050	pCi/g					
Potassium-40		6.56	+/-0.852	0.262	1.00	pCi/g					
Promethium-144	U	0.00672	+/-0.0164	0.0302	0.080	pCi/g					
Promethium-146	U	0.00888	+/-0.0197	0.0372	1.00	pCi/g					
R[illegible]ium-228		1.17	+/-0.216	0.0947	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: April 18, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: #7 Geoprobe Tube Top
Sample ID: 78159001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid											
Ruthenium-106	U	-0.0101	+/-0.152	0.274	0.800	pCi/g					
Silver-110m	U	-0.00526	+/-0.0177	0.0312	0.080	pCi/g					
Sodium-22	U	-0.00117	+/-0.0187	0.034	0.080	pCi/g					
Thallium-208		0.414	+/-0.0666	0.0315	0.080	pCi/g					
Thorium-230		0.996	+/-0.149	0.0532	1.00	pCi/g					
Thorium-234		1.71	+/-1.66	1.43	2.00	pCi/g					
Tin-113	U	0.0105	+/-0.0261	0.0463	0.100	pCi/g					
Uranium-235	U	0.0195	+/-0.163	0.184	0.500	pCi/g					
Uranium-238		1.71	+/-1.66	1.43	1.00	pCi/g					
Yttrium-88	U	-0.00218	+/-0.0181	0.0334	0.100	pCi/g					
65	U	-0.0249	+/-0.0465	0.0697	0.300	pCi/g					
nium-95	U	0.0686	+/-0.0732	0.102	0.200	pCi/g					
Solid Preparation											
Laboratory Composite											

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	AWB	04/14/03	1149	244741
GL-RAD-A-026	Laboratory sample composite	TCD	04/14/03	1130	244954

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	
2	GL-RAD-A-026	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
Y Lab-specific qualifier - must be fully described in case narrative and data summary package

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: April 18, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: #7 Geoprobe Tube Top
Sample ID: 78159001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: April 18, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	#8-2 Geoprobe Tube Bottom	Project:	IEMI00100
Sample ID:	78159002	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	15-FEB-03 12:00		
Receive Date:	11-APR-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid												
Actinium-228		0.485	+/-0.136	0.0732	0.800	pCi/g		SRB	04/16/03	1249	245009	1
Americium-241	U	-0.0208	+/-0.0528	0.0936	0.200	pCi/g						
Antimony-124	U	0.00844	+/-0.0219	0.0422	0.100	pCi/g						
Antimony-125	U	0.020	+/-0.030	0.0569	0.200	pCi/g						
Barium-133	U	-0.00365	+/-0.0143	0.0253	0.100	pCi/g						
Barium-140	U	0.239	+/-0.981	1.89	0.500	pCi/g						
Beryllium-7	U	0.165	+/-0.195	0.390	0.700	pCi/g						
[illegible]uth-212		0.267	+/-0.173	0.191	0.500	pCi/g						
[illegible]uth-214		0.252	+/-0.0643	0.0436	0.200	pCi/g						
Cerium-139	U	0.00235	+/-0.012	0.0229	0.050	pCi/g						
Cerium-141	U	0.0285	+/-0.0553	0.107	0.100	pCi/g						
Cerium-144	U	-0.0194	+/-0.0738	0.139	0.500	pCi/g						
Cesium-134	U	0.00337	+/-0.0131	0.0222	0.100	pCi/g						
Cesium-136	U	-0.218	+/-0.430	0.736	0.300	pCi/g						
Cesium-137	U	0.00601	+/-0.0119	0.0233	0.100	pCi/g						
Chromium-51	U	0.147	+/-0.386	0.720	0.600	pCi/g						
Cobalt-56	U	-0.00543	+/-0.0196	0.0353	0.100	pCi/g						
Cobalt-57	U	-0.00142	+/-0.00922	0.0176	0.050	pCi/g						
Cobalt-58	U	-0.00753	+/-0.0187	0.0335	0.100	pCi/g						
Cobalt-60	U	0.00781	+/-0.0142	0.0286	0.100	pCi/g						
Europium-152	U	-0.0118	+/-0.0349	0.0616	0.200	pCi/g						
Europium-154	U	-0.0051	+/-0.0402	0.0754	0.500	pCi/g						
Europium-155	U	0.0392	+/-0.0335	0.068	0.500	pCi/g						
Iridium-192	U	0.00158	+/-0.0171	0.0314	0.100	pCi/g						
Iron-59	U	-0.00505	+/-0.0713	0.112	0.300	pCi/g						
Lead-210	U	0.0733	+/-1.48	2.51	4.00	pCi/g						
Lead-212		0.566	+/-0.0778	0.0367	0.100	pCi/g						
Lead-214		0.260	+/-0.0649	0.0435	0.100	pCi/g						
Manganese-54	U	-0.00217	+/-0.0143	0.0259	0.100	pCi/g						
Mercury-203	UUI	0.00	+/-0.0444	0.0423	0.100	pCi/g						
Neodymium-147	U	-0.508	+/-3.16	5.95	1000	pCi/g						
Neptunium-239	U	-0.0164	+/-0.0632	0.121	2.00	pCi/g						
Niobium-94	U	-0.00438	+/-0.0129	0.0201	1.00	pCi/g						
Niobium-95	U	0.00791	+/-0.0399	0.0749	0.050	pCi/g						
Potassium-40		8.00	+/-0.969	0.202	1.00	pCi/g						
Promethium-144	U	0.017	+/-0.0157	0.0235	0.080	pCi/g						
Promethium-146	U	0.0038	+/-0.0139	0.0271	1.00	pCi/g						
Radium-228		0.485	+/-0.136	0.0732	0.500	pCi/g						
[illegible]henium-106	U	0.0819	+/-0.109	0.217	0.800	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: April 18, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: #8-2 Geoprobe Tube Bottom
Sample ID: 78159002

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid											
Silver-110m	U	-0.0198	+/-0.0119	0.0185	0.080	pCi/g					
Sodium-22	U	-0.00194	+/-0.0147	0.0276	0.080	pCi/g					
Thallium-208		0.154	+/-0.0346	0.0262	0.080	pCi/g					
Thorium-230		0.252	+/-0.0643	0.0436	1.00	pCi/g					
Thorium-234	U	0.732	+/-0.951	0.797	2.00	pCi/g					
Tin-113	U	0.00875	+/-0.0198	0.0367	0.100	pCi/g					
Uranium-235	U	0.0433	+/-0.0693	0.134	0.500	pCi/g					
Uranium-238	U	0.732	+/-0.951	0.797	1.00	pCi/g					
Yttrium-88	U	0.00839	+/-0.0128	0.0296	0.100	pCi/g					
Zinc-65	U	0.0318	+/-0.0353	0.0692	0.300	pCi/g					
›nium-95	U	-0.00194	+/-0.0373	0.0692	0.200	pCi/g					
S ›reparation											
Laboratory Composite											

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	AWB	04/14/03	1149	244741
GL-RAD-A-026	Laboratory sample composite	TCD	04/14/03	1130	244954

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	
2	GL-RAD-A-026	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
* QC Samples were not spiked with this compound.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: April 18, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: #8-2 Geoprobe Tube Bottom
Sample ID: 78159002

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison
Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC

a Member of THE GEL GROUP, INC.

Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: April 18, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	#9-2 Geoprobe Tube Top	Project:	IEMI00100
Sample ID:	78159003	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	15-FEB-03 12:00		
Receive Date:	11-APR-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid											
Actinium-228		0.780	+/-0.196	0.110	0.800	pCi/g		SRB 04/15/03	1620	245009	1
Americium-241	UUI	0.00	+/-0.0608	0.0533	0.200	pCi/g					
Antimony-124	U	0.0221	+/-0.0314	0.0587	0.100	pCi/g					
Antimony-125	U	-0.0276	+/-0.0408	0.0738	0.200	pCi/g					
Barium-133	U	-0.00123	+/-0.0218	0.0341	0.100	pCi/g					
Barium-140	U	1.46	+/-2.08	2.39	0.500	pCi/g					
Beryllium-7	U	0.292	+/-0.264	0.512	0.700	pCi/g					
ıth-212		0.824	+/-0.361	0.251	0.500	pCi/g					
ıth-214		0.445	+/-0.100	0.0622	0.200	pCi/g					
Cerium-139	U	0.00109	+/-0.0206	0.0348	0.050	pCi/g					
Cerium-141	UUI	0.00	+/-0.449	0.217	0.100	pCi/g					
Cerium-144	U	-0.0741	+/-0.118	0.220	0.500	pCi/g					
Cesium-134	U	0.0106	+/-0.0193	0.0317	0.100	pCi/g					
Cesium-136	U	0.170	+/-0.537	0.995	0.300	pCi/g					
Cesium-137	U	0.0163	+/-0.0248	0.0314	0.100	pCi/g					
Chromium-51	U	-0.0411	+/-0.520	0.925	0.600	pCi/g					
Cobalt-56	U	0.0129	+/-0.0285	0.0516	0.100	pCi/g					
Cobalt-57	UUI	0.00	+/-0.0334	0.0288	0.050	pCi/g					
Cobalt-58	U	0.0195	+/-0.0305	0.0559	0.100	pCi/g					
Cobalt-60	U	-0.013	+/-0.0205	0.0289	0.100	pCi/g					
Europium-152	U	-0.00572	+/-0.0435	0.0767	0.200	pCi/g					
Europium-154	U	-0.0255	+/-0.0556	0.0956	0.500	pCi/g					
Europium-155	UUI	0.00	+/-0.158	0.106	0.500	pCi/g					
Iridium-192	U	-0.0108	+/-0.0231	0.0403	0.100	pCi/g					
Iron-59	U	0.0192	+/-0.0773	0.143	0.300	pCi/g					
Lead-210		1.21	+/-0.641	0.441	4.00	pCi/g					
Lead-212		0.854	+/-0.123	0.0472	0.100	pCi/g					
Lead-214		0.599	+/-0.111	0.0522	0.100	pCi/g					
Manganese-54	U	0.0043	+/-0.0205	0.0364	0.100	pCi/g					
Mercury-203	U	0.0477	+/-0.0355	0.0668	0.100	pCi/g					
Neodymium-147	U	0.0948	+/-4.34	7.98	1000	pCi/g					
Neptunium-239	U	-0.011	+/-0.0992	0.191	2.00	pCi/g					
Niobium-94	U	0.00798	+/-0.0167	0.0306	1.00	pCi/g					
Niobium-95	U	0.0674	+/-0.0645	0.108	0.050	pCi/g					
Potassium-40		8.54	+/-0.992	0.300	1.00	pCi/g					
Promethium-144	U	0.019	+/-0.0189	0.0353	0.080	pCi/g					
Promethium-146	U	0.00479	+/-0.0189	0.0358	1.00	pCi/g					
Radium-228		0.780	+/-0.196	0.110	0.500	pCi/g					
P···henium-106	U	-0.13	+/-0.169	0.290	0.800	pCi/g					

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: April 18, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: #9-2 Geoprobe Tube Top
Sample ID: 78159003

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid											
Silver-110m	U	0.0191	+/-0.0231	0.0338	0.080	pCi/g					
Sodium-22	U	-0.00933	+/-0.0204	0.035	0.080	pCi/g					
Thallium-208		0.223	+/-0.0504	0.0337	0.080	pCi/g					
Thorium-230		0.445	+/-0.100	0.0622	1.00	pCi/g					
Thorium-234		1.82	+/-0.819	0.549	2.00	pCi/g					
Tin-113	U	-0.00567	+/-0.0244	0.0456	0.100	pCi/g					
Uranium-235		4.62	+/-0.908	0.195	0.500	pCi/g					
Uranium-238		1.82	+/-0.819	0.549	1.00	pCi/g					
Yttrium-88	U	0.019	+/-0.033	0.0415	0.100	pCi/g					
Zinc-65	U	-0.0289	+/-0.052	0.0766	0.300	pCi/g					
nium-95	U	0.0806	+/-0.0871	0.110	0.200	pCi/g					
S reparation											
Laboratory Composite											

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	AWB	04/14/03	1149	244741
GL-RAD-A-026	Laboratory sample composite	TCD	04/14/03	1130	244954

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	
2	GL-RAD-A-026	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: April 18, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: #9-2 Geoprobe Tube Top
Sample ID: 78159003

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure. Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison

R wed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC

a Member of THE GEL GROUP, INC.

Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: April 18, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	#15 Geoprobe Tube Top	Project:	IEMI00100
Sample ID:	78159004	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	15-FEB-03 12:00		
Receive Date:	11-APR-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid												
Actinium-228		1.47	+/-0.273	0.0927	0.800	pCi/g		SRB	04/15/03	1621	245009	1
Americium-241	U	0.038	+/-0.121	0.190	0.200	pCi/g						
Antimony-124	U	-0.0158	+/-0.0353	0.0524	0.100	pCi/g						
Antimony-125	U	-0.04	+/-0.0479	0.0779	0.200	pCi/g						
Barium-133	U	0.00424	+/-0.0244	0.037	0.100	pCi/g						
Barium-140	U	0.649	+/-1.29	2.32	0.500	pCi/g						
Beryllium-7	U	0.046	+/-0.262	0.472	0.700	pCi/g						
uth-212		1.11	+/-0.281	0.219	0.500	pCi/g						
uth-214		1.16	+/-0.163	0.0549	0.200	pCi/g						
Cerium-139	U	-0.00247	+/-0.0206	0.0365	0.050	pCi/g						
Cerium-141	U	-0.00589	+/-0.102	0.160	0.100	pCi/g						
Cerium-144	U	-0.165	+/-0.126	0.215	0.500	pCi/g						
Cesium-134	U	0.00344	+/-0.0189	0.0292	0.100	pCi/g						
Cesium-136	U	0.137	+/-0.470	0.825	0.300	pCi/g						
Cesium-137	U	-0.0101	+/-0.0197	0.0289	0.100	pCi/g						
Chromium-51	U	-0.122	+/-0.573	0.981	0.600	pCi/g						
Cobalt-56	U	-0.0149	+/-0.0255	0.0426	0.100	pCi/g						
Cobalt-57	U	0.000875	+/-0.0156	0.0283	0.050	pCi/g						
Cobalt-58	U	-0.00446	+/-0.0266	0.0459	0.100	pCi/g						
Cobalt-60	U	0.00341	+/-0.0172	0.031	0.100	pCi/g						
Europium-152	U	-0.0287	+/-0.050	0.0838	0.200	pCi/g						
Europium-154	U	-0.0505	+/-0.0493	0.0803	0.500	pCi/g						
Europium-155	U	0.0156	+/-0.0621	0.114	0.500	pCi/g						
Iridium-192	U	0.0195	+/-0.0259	0.046	0.100	pCi/g						
Iron-59	U	-0.0596	+/-0.088	0.120	0.300	pCi/g						
Lead-210	U	1.99	+/-4.61	5.77	4.00	pCi/g						
Lead-212		1.78	+/-0.204	0.0534	0.100	pCi/g						
Lead-214		1.41	+/-0.185	0.0606	0.100	pCi/g						
Manganese-54	U	-0.0034	+/-0.0209	0.0357	0.100	pCi/g						
Mercury-203	U	0.00012	+/-0.0485	0.0737	0.100	pCi/g						
Neodymium-147	U	-1.11	+/-4.27	7.51	1000	pCi/g						
Neptunium-239	U	0.0955	+/-0.104	0.193	2.00	pCi/g						
Niobium-94	U	0.0117	+/-0.0157	0.0284	1.00	pCi/g						
Niobium-95	UUI	0.00	+/-0.0833	0.112	0.050	pCi/g						
Potassium-40		5.55	+/-0.737	0.252	1.00	pCi/g						
Promethium-144	U	-0.00165	+/-0.0167	0.0291	0.080	pCi/g						
Promethium-146	U	0.0109	+/-0.0212	0.0369	1.00	pCi/g						
Radium-228		1.47	+/-0.273	0.0927	0.500	pCi/g						
Ruthenium-106	U	0.076	+/-0.157	0.284	0.800	pCi/g						

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: April 18, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: #15 Geoprobe Tube Top
Sample ID: 78159004

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid											
Silver-110m	U	-0.0063	+/-0.0172	0.0297	0.080	pCi/g					
Sodium-22	U	-0.0185	+/-0.018	0.0294	0.080	pCi/g					
Thallium-208		0.518	+/-0.0733	0.0311	0.080	pCi/g					
Thorium-230		1.16	+/-0.163	0.0549	1.00	pCi/g					
Thorium-234		1.83	+/-1.78	1.53	2.00	pCi/g					
Tin-113	U	0.0116	+/-0.0288	0.050	0.100	pCi/g					
Uranium-235	U	0.0966	+/-0.194	0.200	0.500	pCi/g					
Uranium-238		1.83	+/-1.78	1.53	1.00	pCi/g					
Yttrium-88	U	0.0121	+/-0.0214	0.0402	0.100	pCi/g					
Zinc-65	UUI	0.00	+/-0.0483	0.0843	0.300	pCi/g					
[illegible]nium-95	U	0.0256	+/-0.0635	0.0973	0.200	pCi/g					
Sc[illegible] Preparation											
Laboratory Composite											

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	AWB	04/14/03	1149	244741
GL-RAD-A-026	Laboratory sample composite	TCD	04/14/03	1130	244954

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	
2	GL-RAD-A-026	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
* [illegible]C Samples were not spiked with this compound.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: April 18, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: #15 Geoprobe Tube Top
Sample ID: 78159004

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure. Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison

Reviewed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: April 18, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	#4 Geoprobe Tube Bottom	Project:	IEMI00100
Sample ID:	78159005	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	15-FEB-03 12:00		
Receive Date:	11-APR-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid												
Actinium-228		0.693	+/-0.149	0.0678	0.800	pCi/g		SRB	04/15/03	1623	245009	1
Americium-241	U	0.0523	+/-0.0892	0.110	0.200	pCi/g						
Antimony-124	U	-0.0245	+/-0.0198	0.0333	0.100	pCi/g						
Antimony-125	U	-0.013	+/-0.0258	0.0445	0.200	pCi/g						
Barium-133	U	0.0128	+/-0.0136	0.0226	0.100	pCi/g						
Barium-140	U	-0.354	+/-0.783	1.39	0.500	pCi/g						
Beryllium-7	U	-0.179	+/-0.158	0.275	0.700	pCi/g						
[illegible]th-212		0.512	+/-0.200	0.154	0.500	pCi/g						
[illegible]uth-214		0.388	+/-0.0669	0.0378	0.200	pCi/g						
Cerium-139	UUI	0.00	+/-0.025	0.0411	0.050	pCi/g						
Cerium-141	UUI	0.00	+/-0.726	0.293	0.100	pCi/g						
Cerium-144	U	-0.147	+/-0.136	0.239	0.500	pCi/g						
Cesium-134	U	0.00651	+/-0.0115	0.0187	0.100	pCi/g						
Cesium-136	U	0.162	+/-0.324	0.596	0.300	pCi/g						
Cesium-137	U	-0.00649	+/-0.0106	0.0183	0.100	pCi/g						
Chromium-51	U	0.0149	+/-0.339	0.620	0.600	pCi/g						
Cobalt-56	U	-0.01	+/-0.0164	0.0288	0.100	pCi/g						
Cobalt-57	UUI	0.00	+/-0.0325	0.0317	0.050	pCi/g						
Cobalt-58	U	-0.0093	+/-0.0167	0.0297	0.100	pCi/g						
Cobalt-60	U	0.0119	+/-0.0127	0.0217	0.100	pCi/g						
Europium-152	U	-0.0197	+/-0.0285	0.050	0.200	pCi/g						
Europium-154	U	-0.00946	+/-0.0371	0.0634	0.500	pCi/g						
Europium-155	UUI	0.00	+/-0.154	0.139	0.500	pCi/g						
Iridium-192	U	-0.00646	+/-0.0154	0.0277	0.100	pCi/g						
Iron-59	U	0.00132	+/-0.060	0.0914	0.300	pCi/g						
Lead-210	U	1.61	+/-1.91	1.89	4.00	pCi/g						
Lead-212		0.849	+/-0.102	0.0323	0.100	pCi/g						
Lead-214		0.519	+/-0.0776	0.0367	0.100	pCi/g						
Manganese-54	U	0.00466	+/-0.0125	0.0232	0.100	pCi/g						
Mercury-203	U	0.00778	+/-0.0252	0.0468	0.100	pCi/g						
Neodymium-147	U	0.183	+/-2.60	4.80	1000	pCi/g						
Neptunium-239	U	-0.049	+/-0.118	0.215	2.00	pCi/g						
Niobium-94	U	0.00436	+/-0.00966	0.0176	1.00	pCi/g						
Niobium-95	U	0.0366	+/-0.038	0.0618	0.050	pCi/g						
Potassium-40		8.60	+/-0.954	0.168	1.00	pCi/g						
Promethium-144	U	-0.00514	+/-0.0109	0.0189	0.080	pCi/g						
Promethium-146	U	0.0181	+/-0.0123	0.024	1.00	pCi/g						
Radium-228		0.693	+/-0.149	0.0678	0.500	pCi/g						
[illegible]enium-106	U	0.0407	+/-0.0988	0.182	0.800	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: April 18, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: #4 Geoprobe Tube Bottom
Sample ID: 78159005

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid											
Silver-110m	U	-0.00163	+/-0.0109	0.0194	0.080	pCi/g					
Sodium-22	U	-0.0035	+/-0.0136	0.0232	0.080	pCi/g					
Thallium-208		0.220	+/-0.0395	0.0188	0.080	pCi/g					
Thorium-230		0.388	+/-0.0669	0.0378	1.00	pCi/g					
Thorium-234		1.19	+/-1.34	0.926	2.00	pCi/g					
Tin-113	U	0.00386	+/-0.0184	0.0293	0.100	pCi/g					
Uranium-235		9.52	+/-1.72	0.212	0.500	pCi/g					
Uranium-238		1.19	+/-1.34	0.926	1.00	pCi/g					
Yttrium-88	U	0.00915	+/-0.0133	0.0258	0.100	pCi/g					
Zinc-65	U	-0.0308	+/-0.0342	0.0471	0.300	pCi/g					
nium-95	U	0.0388	+/-0.0339	0.0631	0.200	pCi/g					
S. . reparation											
Laboratory Composite											

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	AWB	04/14/03	1149	244741
GL-RAD-A-026	Laboratory sample composite	TCD	04/14/03	1130	244954

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	
2	GL-RAD-A-026	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
\ ?C Samples were not spiked with this compound.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: April 18, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: #4 Geoprobe Tube Bottom
Sample ID: 78159005

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure. Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison

P wed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: April 18, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID:	#14 Top Geoprobe Tube Botto	Project:	IEMI00100
Sample ID:	78159006	Client ID:	IEMI001
Matrix:	Misc Solid		
Collect Date:	15-FEB-03 12:00		
Receive Date:	11-APR-03		
Collector:	Client		

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid												
Actinium-228		0.711	+/-0.123	0.0394	0.800	pCi/g		SRB	04/15/03	2144	245009	1
Americium-241	UUI	0.00	+/-0.0866	0.0725	0.200	pCi/g						
Antimony-124	U	-0.0345	+/-0.0134	0.0214	0.100	pCi/g						
Antimony-125	U	0.00287	+/-0.0178	0.0311	0.200	pCi/g						
Barium-133	U	0.000524	+/-0.00902	0.014	0.100	pCi/g						
Barium-140	U	-0.0296	+/-0.523	0.946	0.500	pCi/g						
Beryllium-7	U	0.0444	+/-0.102	0.189	0.700	pCi/g						
uth-212		0.561	+/-0.142	0.0909	0.500	pCi/g						
uth-214		0.361	+/-0.0513	0.0222	0.200	pCi/g						
Cerium-139	U	-0.00145	+/-0.00755	0.014	0.050	pCi/g						
Cerium-141	U	0.0438	+/-0.0538	0.0623	0.100	pCi/g						
Cerium-144	U	0.0396	+/-0.048	0.091	0.500	pCi/g						
Cesium-134	U	0.00394	+/-0.00726	0.0115	0.100	pCi/g						
Cesium-136	U	-0.0082	+/-0.208	0.356	0.300	pCi/g						
Cesium-137	U	-0.00325	+/-0.0064	0.0112	0.100	pCi/g						
Chromium-51	U	0.126	+/-0.223	0.402	0.600	pCi/g						
Cobalt-56	U	0.00244	+/-0.0122	0.0186	0.100	pCi/g						
Cobalt-57	U	0.000352	+/-0.00595	0.0113	0.050	pCi/g						
Cobalt-58	U	-0.00221	+/-0.0105	0.0182	0.100	pCi/g						
Cobalt-60	U	-0.00218	+/-0.00661	0.0115	0.100	pCi/g						
Europium-152	U	-0.0135	+/-0.0217	0.0327	0.200	pCi/g						
Europium-154	U	-0.0194	+/-0.0208	0.035	0.500	pCi/g						
Europium-155	U	0.0369	+/-0.0415	0.0451	0.500	pCi/g						
Iridium-192	U	-0.00835	+/-0.0101	0.0175	0.100	pCi/g						
Iron-59	U	0.0178	+/-0.0374	0.0564	0.300	pCi/g						
Lead-210	U	0.937	+/-2.44	2.22	4.00	pCi/g						
Lead-212		0.863	+/-0.0969	0.0203	0.100	pCi/g						
Lead-214		0.464	+/-0.0616	0.0234	0.100	pCi/g						
Manganese-54	UUI	0.00	+/-0.00827	0.0122	0.100	pCi/g						
Mercury-203	U	0.0208	+/-0.0329	0.0265	0.100	pCi/g						
Neodymium-147	U	0.314	+/-1.70	3.10	1000	pCi/g						
Neptunium-239	U	-0.0212	+/-0.0401	0.0757	2.00	pCi/g						
Niobium-94	U	-0.00613	+/-0.00622	0.0106	1.00	pCi/g						
Niobium-95	UUI	0.00	+/-0.0325	0.0401	0.050	pCi/g						
Potassium-40		9.24	+/-0.946	0.0946	1.00	pCi/g						
Promethium-144	U	0.00296	+/-0.00704	0.0126	0.080	pCi/g						
Promethium-146	U	0.0097	+/-0.0113	0.0141	1.00	pCi/g						
Radium-228		0.711	+/-0.123	0.0394	0.500	pCi/g						
henium-106	U	0.0516	+/-0.0625	0.114	0.800	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: April 18, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: #14 Top Geoprobe Tube Botto
Sample ID: 78159006
Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid											
Silver-110m	U	-0.000897	+/-0.00658	0.0117	0.080	pCi/g					
Sodium-22	U	-0.00714	+/-0.00761	0.0128	0.080	pCi/g					
Thallium-208		0.221	+/-0.0299	0.0121	0.080	pCi/g					
Thorium-230		0.361	+/-0.0513	0.0222	1.00	pCi/g					
Thorium-234		0.857	+/-0.820	0.574	2.00	pCi/g					
Tin-113	U	-0.0115	+/-0.0111	0.0187	0.100	pCi/g					
Uranium-235	U	0.0716	+/-0.0874	0.0829	0.500	pCi/g					
Uranium-238		0.857	+/-0.820	0.574	1.00	pCi/g					
Yttrium-88	U	0.00157	+/-0.00777	0.0137	0.100	pCi/g					
Zinc-65	U	0.0193	+/-0.0196	0.0315	0.300	pCi/g					
nium-95	U	-0.000797	+/-0.0199	0.0351	0.200	pCi/g					
S. .'reparation											
Laboratory Composite											

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	AWB	04/14/03	1149	244741
GL-RAD-A-026	Laboratory sample composite	TCD	04/14/03	1130	244954

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	DOE EML HASL 300	
2	GL-RAD-A-026	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y ?C Samples were not spiked with this compound.

GENERAL ENGINEERING LABORATORIES, LLC
a Member of THE GEL GROUP, INC.
Meeting Today's Needs with a Vision for Tomorrow

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: April 18, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: #14 Top Geoprobe Tube Botto
Sample ID: 78159006

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

The above sample is reported on a dry weight basis *except where prohibited by the analytical procedure.*
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison

P wed by

P.O. Box 30712 • Charleston, SC 29417 • 2040 Savage Road (29407)
Phone (843) 556-8171 • Fax (843) 766-1178 • www.gel.com

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-Haz
Sample ID: 78713001
Matrix: Soil
Collect Date: 22-APR-03 12:05
Receive Date: 23-APR-03
Collector: Client
Moisture: 21.5%

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Electrode Analysis											
SW9045C pH											
pH at Temp C	H	8.08	0.010	0.100	SU	1	VH1	04/23/03	2024	246909	1
Halogen Analysis											
SW9023 TOX (Extract. Halogen)											
F··· ·ctable Organic ·ens	U	ND	10.5	19.1	mg/kg	1	LS	04/28/03	1300	247292	2
Me··ury Analysis-CVAA											
TCLP Hg in Solid											
Mercury	U	ND	0.000472	0.002	mg/L	1	NOR1	04/29/03	1206	247387	3
Metals Analysis-ICP											
TCLP ICP Metals for Solid											
Arsenic	U	ND	0.0115	0.050	mg/L	10	RMJ	04/28/03	1217	247405	4
Barium		0.322	0.00305	0.050	mg/L	10					
Cadmium	U	ND	0.00158	0.050	mg/L	10					
Chromium	U	ND	0.0174	0.050	mg/L	10					
Copper		1.87	0.0176	0.050	mg/L	10					
Lead		2.25	0.0112	0.050	mg/L	10					
Selenium		0.0758	0.0237	0.050	mg/L	10					
Silver	U	ND	0.0189	0.050	mg/L	10					
Zinc		1.28	0.00852	0.050	mg/L	10					
Rapid Flow Analysis (Alpkem)											
SW 7.3.3 Reactivity, Releasable											
Reactive Releasable Cyanide	U	ND	5.34	250000	ug/kg	1	ADF	05/02/03	1033	248561	5
Semi-Volatiles-GC/MS											
TCLP BNA SOLID 8270C 3510C											
1,4-Dichlorobenzene	U	ND	1.55	50.0	ug/L	1	RMB	04/29/03	1103	247430	6
2,4,5-Trichlorophenol	U	ND	4.85	50.0	ug/L	1					
2,4,6-Trichlorophenol	U	ND	1.95	50.0	ug/L	1					
2,4-Dinitrotoluene	U	ND	3.50	50.0	ug/L	1					
Hexachlorobenzene	U	ND	3.25	50.0	ug/L	1					
Hexachlorobutadiene	U	ND	1.60	50.0	ug/L	1					
Hexachloroethane	U	ND	2.15	50.0	ug/L	1					
Nitrobenzene	U	ND	3.15	50.0	ug/L	1					
P ·achlorophenol	U	ND	25.0	50.0	ug/L	1					

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-Haz
Sample ID: 78713001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Semi-Volatiles-GC/MS											
TCLP BNA SOLID 8270C 3510C											
Pyridine	U	ND	25.0	50.0	ug/L	1					
m,p-Cresols	U	ND	2.95	50.0	ug/L	1					
o-Cresol	U	ND	2.25	50.0	ug/L	1					
Semi-Volatiles-HERB											
8151A TCLP HERB Soil											
2,4,5-TP	U	ND	0.0188	0.100	mg/L	20	YS1	04/30/03	1122	247455	7
2,4-D	U	ND	0.018	1.00	mg/L	20					
Semi-Volatiles-Pesticide & PCB											
8081A/3510C TCLP PEST Solid											
Chlordane (tech.)	U	ND	0.00155	0.0025	mg/L	1	MM	04/29/03	1307	247466	8
[illegible]	U	ND	0.000038	0.0004	mg/L	1					
[illegible]chlor	U	ND	0.000059	0.0002	mg/L	1					
Heptachlor epoxide	U	ND	0.00003	0.0002	mg/L	1					
Methoxychlor	U	ND	0.000278	0.002	mg/L	1					
Toxaphene	U	ND	0.00105	0.010	mg/L	1					
gamma-BHC (Lindane)	U	ND	0.000021	0.0002	mg/L	1					
Titration Analysis											
Reactive Sulfide SW846 Chapter 7.3.4											
Reactive Releasable Sulfide	J	33.9	19.7	500	mg/kg		BEP2	04/28/03	1419	247017	9
Volatile Organics											
TCLP Volatiles in Solid											
1,1-Dichloroethylene	U	ND	0.082	0.200	mg/L	200	JEB	05/01/03	1752	248393	10
1,2-Dichloroethane	U	ND	0.058	0.200	mg/L	200					
1,4-Dichlorobenzene	U	ND	0.050	0.200	mg/L	200					
2-Butanone	U	ND	0.462	1.00	mg/L	200					
Benzene	U	ND	0.066	0.200	mg/L	200					
Carbon tetrachloride	U	ND	0.058	0.200	mg/L	200					
Chlorobenzene	U	ND	0.064	0.200	mg/L	200					
Chloroform	U	ND	0.072	0.200	mg/L	200					
Tetrachloroethylene	U	ND	0.066	0.200	mg/L	200					
Trichloroethylene	U	ND	0.072	0.200	mg/L	200					
Vinyl chloride	U	ND	0.110	0.200	mg/L	200					
Wet Chemistry General											
SW9095 Paint Filter Test											
Paint Filter		PASS					BEP2	05/02/03	0800	248563	11

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 1311	SW846 1311 TCLP Leaching	ETL	04/24/03	1531	247047
SW[illegible]5 1311	SW846 1311 TCLP Leaching	ETL	04/24/03	1531	247050

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-Haz
Sample ID: 78713001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
SW846 1311	SW846 1311 TCLP Volatiles Prep			ETL	04/24/03	1531	247049			
SW846 3010A	ICP-TRACE TCLP by SW846 3010A			CWS1	04/26/03	1116	247404			
SW846 3510C	3510C BNA TCLP/SPLP Prep-8270C Analysis			JPB	04/28/03	1327	247429			
SW846 3510C	3510C PEST TCLP Liquid Prep			MJM1	04/28/03	1329	247465			
SW846 7.3.3 Prep	SW 7.3.3 Reactivity, Releasable Cyanide			BEP2	05/01/03	1300	248560			
SW846 7470A Prep	EPA 7470A Mercury Prep TCLP Liquid			KHN	04/28/03	1200	247386			
SW846 8151A Prep	8151A HERB TCLP Prep in Liquid			NAC1	04/28/03	1326	247454			
SW846 9023 Prep	SW 9023 Halogen, Extractable(TOX) Prep			LS	04/28/03	1215	247291			

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9045C	
2	SW846 9023	
3	SW846 7470A	
4	SW846 3010/6010B	
5	SW846 7.3.3	
6	SW846 8270C	
7	SW846 8151A	
8	SW846 8081A	
9	SW846 Chpt. 7.3.4-TIT	
10	SW846 8260B	
11	SW846 9095	

Surrogate recovery	Test	Recovery%	Acceptable Limits
2,4,6-Tribromophenol	TCLP BNA SOLID 8270C 3510C	83%	(35%-123%)
2-Fluorobiphenyl	TCLP BNA SOLID 8270C 3510C	77%	(43%-107%)
2-Fluorophenol	TCLP BNA SOLID 8270C 3510C	48%	(20%-68%)
Nitrobenzene-d5	TCLP BNA SOLID 8270C 3510C	76%	(26%-125%)
Phenol-d5	TCLP BNA SOLID 8270C 3510C	30%	(9%-53%)
p-Terphenyl-d14	TCLP BNA SOLID 8270C 3510C	94%	(31%-127%)
2,4-Dichlorophenylacetic acid	8151A TCLP HERB Soil	105%	(56%-121%)
4cmx	8081A/3510C TCLP PEST Solid	83%	(33%-126%)
Decachlorobiphenyl	8081A/3510C TCLP PEST Solid	88%	(30%-135%)
Bromofluorobenzene	TCLP Volatiles in Solid	94%	(71%-140%)
Dibromofluoromethane	TCLP Volatiles in Solid	107%	(79%-139%)
Toluene-d8	TCLP Volatiles in Solid	101%	(80%-132%)

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-Haz
Sample ID: 78713001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
U Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.
Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: May 22, 2003

Client : IEM, Inc.
302 Westfield Road
Knoxville, Tennessee

Contact: Alan Duff

Workorder: 78713

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Electrode Analysis											
Batch 246909											
QC1200413164 78713001 DUP											
pH		H	8.08	H	8.09	SU	0		(0%-10%)	VH1	04/23/03 20:26
QC1200413165 LCS											
pH	7.00				6.98	SU		100	(95%-105%)		04/23/03 20:19
Halogen Analysis											
Batch 247292											
QC1200414172 78713001 DUP											
Extractable Organic Halogens		U	ND	U	ND	mg/kg	N/A		(+/-19.1)	LS	04/28/03 13:09
QC1200414174 LCS											
Extractable Organic Halogens	250				239	mg/kg		96	(80%-120%)		04/28/03 12:46
QC1200414171 MB											
Extractable Organic Halogens				U	ND	mg/kg					04/28/03 12:36
QC1200414173 78713001 MS											
Extractable Organic Halogens	318	U	ND		292	mg/kg		92	(70%-130%)		04/28/03 13:53
Metals Analysis-ICP											
F 247405											
QC1200414429 78713001 DUP											
Arsenic		U	ND	U	ND	mg/L	N/A		(+/-0.050)	RMJ	04/28/03 12:36
Barium			0.322		0.317	mg/L	2		(0%-20%)		
Cadmium		U	ND	U	ND	mg/L	N/A		(+/-0.050)		
Chromium		U	ND	U	ND	mg/L	N/A		(+/-0.050)		
Copper			1.87		1.83	mg/L	2		(0%-20%)		
Lead			2.25		2.22	mg/L	2		(0%-20%)		
Selenium			0.0758		0.0624	mg/L	19 ^		(+/-0.050)		
Silver		U	ND	U	ND	mg/L	N/A		(+/-0.050)		
Zinc			1.28		1.26	mg/L	2		(0%-20%)		
QC1200414428 LCS											
Arsenic	5.00				5.43	mg/L		109	(80%-120%)		04/28/03 12:10
Barium	10.0				10.6	mg/L		106	(80%-120%)		
Cadmium	1.00				1.06	mg/L		106	(80%-120%)		
Chromium	5.00				5.28	mg/L		106	(80%-120%)		
Copper	2.00				2.11	mg/L		105	(80%-120%)		
Lead	5.00				5.42	mg/L		108	(80%-120%)		
Selenium	1.00				1.02	mg/L		102	(80%-120%)		
Silver	0.500				0.522	mg/L		104	(80%-120%)		
Zinc	2.00				2.14	mg/L		107	(80%-120%)		
QC1200414427 MB											
Arsenic				U	ND	mg/L					04/28/03 11:58
Barium				U	ND	mg/L					
Cadmium				U	ND	mg/L					
Chromium				U	ND	mg/L					
Copper				J	0.0221	mg/L					
Lead				J	0.0137	mg/L					
Selenium				U	ND	mg/L					04/28/03 15:22

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 78713

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Metals Analysis-ICP											
Batch 247405											
Silver				U	ND	mg/L					
Zinc				J	0.0103	mg/L					
QC1200413551 78713001 MS											
Arsenic	5.26	U	ND		5.07	mg/L		96	(75%-125%)		04/28/03 12:30
Barium	10.5		0.322		9.76	mg/L		90	(75%-125%)		
Cadmium	1.05	U	ND		0.950	mg/L		90	(75%-125%)		
Chromium	5.26	U	ND		4.76	mg/L		90	(75%-125%)		
Copper	2.11		1.87		3.79	mg/L		92	(75%-125%)		
Lead	5.26		2.25		7.05	mg/L		91	(75%-125%)		
Selenium	1.05		0.0758		1.02	mg/L		89	(75%-125%)		
Silver	0.526	U	ND		0.477	mg/L		90	(75%-125%)		
Zinc	2.11		1.28		3.14	mg/L		88	(75%-125%)		
QC1200414431 78713001 SDILT											
Arsenic		U	ND	J	1.34	ug/L	N/A				04/28/03 12:23
Barium			32.2		6.41	ug/L	.516				
Cadmium		U	ND	U	ND	ug/L	N/A				
Chromium		U	ND	U	ND	ug/L	N/A				
Copper			187		36.0	ug/L	3.46				
Lead			225		44.8	ug/L	.624				
S ium			7.58	U	ND	ug/L	N/A				
		U	ND	U	ND	ug/L	N/A				
Zinc			128		24.7	ug/L	3.56				
QC1200413555 TB											
Arsenic				J	0.0288	mg/L					04/28/03 12:04
Barium				J	0.00398	mg/L					
Cadmium				U	ND	mg/L					
Chromium				U	ND	mg/L					
Copper				J	0.0283	mg/L					
Lead				J	0.0204	mg/L					
Selenium				J	0.0342	mg/L					
Silver				U	ND	mg/L					
Zinc				J	0.0113	mg/L					
Metals Analysis-Mercury											
Batch 247387											
QC1200414391 78713001 DUP											
Mercury		U	ND	U	ND	mg/L	N/A		(+/-0.002)	NOR1	04/29/03 12:12
QC1200414390 LCS											
Mercury	0.020				0.0216	mg/L		108	(80%-120%)		04/29/03 12:04
QC1200414389 MB											
Mercury				U	ND	mg/L					04/29/03 12:02
QC1200413552 78713001 MS											
Mercury	0.020	U	ND		0.0186	mg/L		93	(75%-125%)		04/29/03 12:14
QC1200413555 TB											
Mercury				U	ND	mg/L					04/29/03 12:00
Rapid Flow Analysis (Alpkem)											
Batch 248561											
QC1200417152 78713001 DUP											
Reactive Releasable Cyanide		U	ND	U	ND	ug/kg	N/A		(+/-250000)	ADF	05/02/03 10:34

GENERAL ENGINEERING LABORATORIES, LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 78713

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rapid Flow Analysis (Alpkem)										
Batch 248561										
QC1200417151 LCS										
Reactive Releasable Cyanide	1000000		J	211000	ug/kg		21	(0%-27%)		05/02/03 10:32
QC1200417150 MB										
Reactive Releasable Cyanide			U	ND	ug/kg					05/02/03 10:25
Semi-Volatiles-GC/MS										
Batch 247430										
QC1200414491 LCS										
1,4-Dichlorobenzene	100			67.8	ug/L		68	(49%-93%)	RMB	04/29/03 10:42
2,4,5-Trichlorophenol	100			78.6	ug/L		79	(60%-109%)		
2,4,6-Trichlorophenol	100			73.6	ug/L		74	(58%-107%)		
2,4-Dinitrotoluene	100			68.0	ug/L		68	(61%-118%)		
Hexachlorobenzene	100			86.4	ug/L		86	(66%-106%)		
Hexachlorobutadiene	100			82.1	ug/L		82	(43%-97%)		
Hexachloroethane	100			59.0	ug/L		59	(45%-95%)		
Nitrobenzene	100			76.2	ug/L		76	(56%-106%)		
Pentachlorophenol	100			73.2	ug/L		73	(38%-120%)		
Pyridine	100			41.3	ug/L		41	(10%-150%)		
m,p-Cresols	100			51.8	ug/L		52	(38%-81%)		
o-Cresol	100			61.3	ug/L		61	(40%-90%)		
** Tribromophenol	100			85.8	ug/L		86	(35%-123%)		
**. .orobiphenyl	50.0			38.6	ug/L		77	(43%-107%)		
**2-Fluorophenol	100			45.3	ug/L		45	(20%-68%)		
**Nitrobenzene-d5	50.0			45.1	ug/L		90	(26%-125%)		
**Phenol-d5	100			29.5	ug/L		30	(9%-53%)		
**p-Terphenyl-d14	50.0			44.8	ug/L		90	(31%-127%)		
QC1200414490 MB										
1,4-Dichlorobenzene			U	ND	ug/L					04/29/03 10:21
2,4,5-Trichlorophenol			U	ND	ug/L					
2,4,6-Trichlorophenol			U	ND	ug/L					
2,4-Dinitrotoluene			U	ND	ug/L					
Hexachlorobenzene			U	ND	ug/L					
Hexachlorobutadiene			U	ND	ug/L					
Hexachloroethane			U	ND	ug/L					
Nitrobenzene			U	ND	ug/L					
Pentachlorophenol			U	ND	ug/L					
Pyridine			U	ND	ug/L					
m,p-Cresols			U	ND	ug/L					
o-Cresol			U	ND	ug/L					
**2,4,6-Tribromophenol	100			82.1	ug/L		82	(35%-123%)		
**2-Fluorobiphenyl	50.0			40.3	ug/L		81	(43%-107%)		
**2-Fluorophenol	100			46.8	ug/L		47	(20%-68%)		
**Nitrobenzene-d5	50.0			38.1	ug/L		76	(26%-125%)		
**Phenol-d5	100			29.8	ug/L		30	(9%-53%)		
**p-Terphenyl-d14	50.0			45.4	ug/L		91	(31%-127%)		
QC1200414492 78713001 MS										
1,4-Dichlorobenzene	500	U	ND	346	ug/L		69	(40%-101%)		04/29/03 11:24
2,4,5-Trichlorophenol	500	U	ND	412	ug/L		83	(45%-125%)		
2,4,6-Trichlorophenol	500	U	ND	390	ug/L		78	(41%-120%)		

QC Summary

Workorder: 78713

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-GC/MS											
Batch 247430											
2,4-Dinitrotoluene	500	U	ND		357	ug/L		71	(44%-127%)		
Hexachlorobenzene	500	U	ND		433	ug/L		87	(49%-117%)		
Hexachlorobutadiene	500	U	ND		416	ug/L		83	(35%-108%)		
Hexachloroethane	500	U	ND		303	ug/L		61	(37%-102%)		
Nitrobenzene	500	U	ND		397	ug/L		79	(46%-120%)		
Pentachlorophenol	500	U	ND		420	ug/L		84	(28%-134%)		
Pyridine	500	U	ND		244	ug/L		49	(33%-158%)		
m,p-Cresols	500	U	ND		270	ug/L		54	(25%-102%)		
o-Cresol	500	U	ND		313	ug/L		63	(30%-104%)		
**2,4,6-Tribromophenol	500		416		474	ug/L		95	(35%-123%)		
**2-Fluorobiphenyl	250		192		197	ug/L		79	(43%-107%)		
**2-Fluorophenol	500		239		238	ug/L		48	(20%-68%)		
**Nitrobenzene-d5	250		190		235	ug/L		94	(26%-125%)		
**Phenol-d5	500		151		153	ug/L		31	(9%-53%)		
**p-Terphenyl-d14	250		235		221	ug/L		89	(31%-127%)		
QC1200414493 78713001 MSD											
1,4-Dichlorobenzene	500	U	ND		342	ug/L	1	69	(0%-30%)		04/29/03 11:46
2,4,5-Trichlorophenol	500	U	ND		421	ug/L	2	84	(0%-20%)		
2,4,6-Trichlorophenol	500	U	ND		390	ug/L	0	78	(0%-23%)		
[illegible] nitrotoluene	500	U	ND		381	ug/L	7	76	(0%-30%)		
[illegible] nlorobenzene	500	U	ND		438	ug/L	1	88	(0%-30%)		
Hexachlorobutadiene	500	U	ND		411	ug/L	1	82	(0%-30%)		
Hexachloroethane	500	U	ND		301	ug/L	1	60	(0%-21%)		
Nitrobenzene	500	U	ND		397	ug/L	0	79	(0%-30%)		
Pentachlorophenol	500	U	ND		417	ug/L	1	83	(0%-26%)		
Pyridine	500	U	ND		230	ug/L	6	46	(0%-30%)		
m,p-Cresols	500	U	ND		262	ug/L	3	52	(0%-22%)		
o-Cresol	500	U	ND		313	ug/L	0	63	(0%-22%)		
**2,4,6-Tribromophenol	500		416		473	ug/L		95	(35%-123%)		
**2-Fluorobiphenyl	250		192		189	ug/L		76	(43%-107%)		
**2-Fluorophenol	500		239		226	ug/L		45	(20%-68%)		
**Nitrobenzene-d5	250		190		230	ug/L		92	(26%-125%)		
**Phenol-d5	500		151		150	ug/L		30	(9%-53%)		
**p-Terphenyl-d14	250		235		235	ug/L		94	(31%-127%)		
QC1200413541 TB											
1,4-Dichlorobenzene				U	ND	ug/L					04/29/03 10:01
2,4,5-Trichlorophenol				U	ND	ug/L					
2,4,6-Trichlorophenol				U	ND	ug/L					
2,4-Dinitrotoluene				U	ND	ug/L					
Hexachlorobenzene				U	ND	ug/L					
Hexachlorobutadiene				U	ND	ug/L					
Hexachloroethane				U	ND	ug/L					
Nitrobenzene				U	ND	ug/L					
Pentachlorophenol				U	ND	ug/L					
Pyridine				U	ND	ug/L					
m,p-Cresols				U	ND	ug/L					
o-Cresol				U	ND	ug/L					
**2,4,6-Tribromophenol	500				396	ug/L		79	(35%-123%)		

QC Summary

Workorder: 78713

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-GC/MS											
Batch 247430											
**2-Fluorobiphenyl	250				166	ug/L		67	(43%-107%)		
**2-Fluorophenol	500				203	ug/L		41	(20%-68%)		
**Nitrobenzene-d5	250				168	ug/L		67	(26%-125%)		
**Phenol-d5	500				131	ug/L		26	(9%-53%)		
**p-Terphenyl-d14	250				237	ug/L		95	(31%-127%)		
Semi-Volatiles-HERB											
Batch 247455											
QC1200414543 LCS											
2,4,5-TP	0.0019			J	0.00165	mg/L		87	(69%-135%)	YS1	04/30/03 09:31
2,4-D	0.0019			J	0.0016	mg/L		84	(58%-139%)		
**2,4-Dichlorophenylacetic acid	0.0095				0.008	mg/L		84	(56%-121%)		
QC1200414542 MB											
2,4,5-TP				U	ND	mg/L					04/30/03 09:04
2,4-D				U	ND	mg/L					
**2,4-Dichlorophenylacetic acid	0.0095				0.000635	mg/L		7*	(56%-121%)		
QC1200414544 78713001 MS											
2,4,5-TP	0.380	U	ND		0.328	mg/L		86	(61%-143%)		04/30/03 10:27
2,4-D	0.380	U	ND	J	0.320	mg/L		84	(46%-150%)		
**2,4-Dichlorophenylacetic acid	1.90		1.99		1.57	mg/L		83	(56%-121%)		
1200414545 78713001 MSD											
2,[illegible]TP	0.380	U	ND		0.325	mg/L	1	86	(0%-24%)		04/30/03 10:54
2,4-D	0.380	U	ND	J	0.315	mg/L	1	83	(0%-27%)		
**2,4-Dichlorophenylacetic acid	1.90		1.99		1.60	mg/L		84	(56%-121%)		
QC1200413541 TB											
2,4,5-TP				U	ND	mg/L					04/30/03 08:36
2,4-D				U	ND	mg/L					
**2,4-Dichlorophenylacetic acid	1.90				1.33	mg/L		70	(56%-121%)		
Semi-Volatiles-Pesticide & PCB											
Batch 247466											
QC1200414568 LCS											
Chlordane (tech.)				U	ND	mg/L			(48%-145%)	MM	04/29/03 11:29
Endrin	0.005				0.0049	mg/L		98	(57%-131%)		
Heptachlor	0.005				0.00478	mg/L		96	(60%-123%)		
Heptachlor epoxide	0.005				0.0048	mg/L		96	(62%-123%)		
Methoxychlor	0.050				0.0597	mg/L		119	(53%-138%)		
Toxaphene				U	ND	mg/L			(56%-131%)		
gamma-BHC (Lindane)	0.005				0.00501	mg/L		100	(54%-128%)		
**4cmx	0.010				0.00799	mg/L		80	(33%-126%)		
**Decachlorobiphenyl	0.010				0.00857	mg/L		86	(30%-135%)		
QC1200414569 LCS											
Chlordane (tech.)				U	ND	mg/L			(48%-145%)		04/29/03 11:37
Endrin				U	ND	mg/L			(57%-131%)		
Heptachlor				U	ND	mg/L			(60%-123%)		
Heptachlor epoxide				U	ND	mg/L			(62%-123%)		
Methoxychlor				U	ND	mg/L			(53%-138%)		
Toxaphene	0.100				0.0938	mg/L		94	(56%-131%)		
gamma-BHC (Lindane)				U	ND	mg/L			(54%-128%)		
**4cmx	0.010				0.00761	mg/L		76	(33%-126%)		

QC Summary

Workorder: 78713

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-Pesticide & PCB											
Batch 247466											
**Decachlorobiphenyl	0.010				0.00874	mg/L		87	(30%-135%)		
QC1200414570 LCS											
Chlordane (tech.)	0.100				0.121	mg/L		121	(48%-145%)		04/29/03 11:45
Endrin				U	ND	mg/L			(57%-131%)		
Heptachlor				U	ND	mg/L			(60%-123%)		
Heptachlor epoxide				U	ND	mg/L			(62%-123%)		
Methoxychlor				U	ND	mg/L			(53%-138%)		
Toxaphene				U	ND	mg/L			(56%-131%)		
gamma-BHC (Lindane)				U	ND	mg/L			(54%-128%)		
**4cmx	0.010				0.00887	mg/L		89	(33%-126%)		
**Decachlorobiphenyl	0.010				0.00851	mg/L		85	(30%-135%)		
QC1200414561 MB											
Chlordane (tech.)				U	ND	mg/L					04/29/03 11:21
Endrin				U	ND	mg/L					
Heptachlor				U	ND	mg/L					
Heptachlor epoxide				U	ND	mg/L					
Methoxychlor				U	ND	mg/L					
Toxaphene				U	ND	mg/L					
gamma-BHC (Lindane)				U	ND	mg/L					
**	0.010				0.00609	mg/L		61	(33%-126%)		
** [illegible]chlorobiphenyl	0.010				0.00536	mg/L		54	(30%-135%)		
QC1200414562 78713001 MS											
Chlordane (tech.)		U	ND	U	ND	mg/L			(34%-151%)		04/29/03 11:53
Endrin	0.005	U	ND		0.00536	mg/L		107	(42%-136%)		
Heptachlor	0.005	U	ND		0.00462	mg/L		92	(41%-135%)		
Heptachlor epoxide	0.005	U	ND		0.00473	mg/L		95	(43%-158%)		
Methoxychlor	0.050	U	ND		0.0561	mg/L		112	(49%-153%)		
Toxaphene		U	ND	U	ND	mg/L			(33%-139%)		
gamma-BHC (Lindane)	0.005	U	ND		0.00482	mg/L		96	(46%-132%)		
**4cmx	0.010		0.00831		0.00738	mg/L		74	(33%-126%)		
**Decachlorobiphenyl	0.010		0.00879		0.00772	mg/L		77	(30%-135%)		
QC1200414563 78713001 MS											
Chlordane (tech.)		U	ND	U	ND	mg/L			(34%-151%)		04/29/03 12:01
Endrin		U	ND	U	ND	mg/L			(42%-136%)		
Heptachlor		U	ND	U	ND	mg/L			(41%-135%)		
Heptachlor epoxide		U	ND	U	ND	mg/L			(43%-158%)		
Methoxychlor		U	ND	U	ND	mg/L			(49%-153%)		
Toxaphene	0.100	U	ND		0.0976	mg/L		98	(33%-139%)		
gamma-BHC (Lindane)		U	ND	U	ND	mg/L			(46%-132%)		
**4cmx	0.010		0.00831		0.00881	mg/L		88	(33%-126%)		
**Decachlorobiphenyl	0.010		0.00879		0.00902	mg/L		90	(30%-135%)		
QC1200414564 78713001 MS											
Chlordane (tech.)	0.100	U	ND		0.115	mg/L		115	(34%-151%)		04/29/03 12:10
Endrin		U	ND	U	ND	mg/L			(42%-136%)		
Heptachlor		U	ND	U	ND	mg/L			(41%-135%)		
Heptachlor epoxide		U	ND	U	ND	mg/L			(43%-158%)		
Methoxychlor		U	ND	U	ND	mg/L			(49%-153%)		
Toxaphene		U	ND	U	ND	mg/L			(33%-139%)		

QC Summary

Workorder: 78713

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Semi-Volatiles-Pesticide & PCB											
Batch 247466											
gamma-BHC (Lindane)		U	ND	U	ND	mg/L			(46%-132%)		
**4cmx	0.010		0.00831		0.00852	mg/L		85	(33%-126%)		
**Decachlorobiphenyl	0.010		0.00879		0.00765	mg/L		77	(30%-135%)		
QC1200414565 78713001 MSD											
Chlordane (tech.)		U	ND	U	ND	mg/L			(0%-28%)		04/29/03 12:18
Endrin	0.005	U	ND		0.00535	mg/L	0	107	(0%-20%)		
Heptachlor	0.005	U	ND		0.00506	mg/L	9	101	(0%-26%)		
Heptachlor epoxide	0.005	U	ND		0.00504	mg/L	6	101	(0%-22%)		
Methoxychlor	0.050	U	ND		0.0578	mg/L	3	116	(0%-28%)		
Toxaphene		U	ND	U	ND	mg/L			(0%-31%)		
gamma-BHC (Lindane)	0.005	U	ND		0.00519	mg/L	7	104	(0%-22%)		
**4cmx	0.010		0.00831		0.00829	mg/L		83	(33%-126%)		
**Decachlorobiphenyl	0.010		0.00879		0.00894	mg/L		89	(30%-135%)		
QC1200414566 78713001 MSD											
Chlordane (tech.)		U	ND	U	ND	mg/L			(0%-28%)		04/29/03 12:26
Endrin		U	ND	U	ND	mg/L			(0%-20%)		
Heptachlor		U	ND	U	ND	mg/L			(0%-26%)		
Heptachlor epoxide		U	ND	U	ND	mg/L			(0%-22%)		
Methoxychlor		U	ND	U	ND	mg/L			(0%-28%)		
[illegible]hene	0.100	U	ND		0.0994	mg/L	2	99	(0%-31%)		
[illegible]a-BHC (Lindane)		U	ND	U	ND	mg/L			(0%-22%)		
**4cmx	0.010		0.00831		0.00873	mg/L		87	(33%-126%)		
**Decachlorobiphenyl	0.010		0.00879		0.00931	mg/L		93	(30%-135%)		
QC1200414567 78713001 MSD											
Chlordane (tech.)	0.100	U	ND		0.123	mg/L	7	123	(0%-28%)		04/29/03 12:59
Endrin		U	ND	U	ND	mg/L			(0%-20%)		
Heptachlor		U	ND	U	ND	mg/L			(0%-26%)		
Heptachlor epoxide		U	ND	U	ND	mg/L			(0%-22%)		
Methoxychlor		U	ND	U	ND	mg/L			(0%-28%)		
Toxaphene		U	ND	U	ND	mg/L			(0%-31%)		
gamma-BHC (Lindane)		U	ND	U	ND	mg/L			(0%-22%)		
**4cmx	0.010		0.00831		0.00888	mg/L		89	(33%-126%)		
**Decachlorobiphenyl	0.010		0.00879		0.0089	mg/L		89	(30%-135%)		
QC1200413541 TB											
Chlordane (tech.)				U	ND	mg/L					04/29/03 11:12
Endrin				U	ND	mg/L					
Heptachlor				U	ND	mg/L					
Heptachlor epoxide				U	ND	mg/L					
Methoxychlor				U	ND	mg/L					
Toxaphene				U	ND	mg/L					
gamma-BHC (Lindane)				U	ND	mg/L					
**4cmx	0.010				0.0079	mg/L		79	(33%-126%)		
**Decachlorobiphenyl	0.010				0.00879	mg/L		88	(30%-135%)		
Titration Analysis Federal											
Batch 247017											
QC1200413469 LCS											
Reactive Releasable Sulfide	570			J	435	mg/kg		76	(10%-80%)	BEP2	04/28/03 14:02
QC1200413467 MB											

QC Summary

Workorder: 78713

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Titration Analysis Federal											
Batch 247017											
Reactive Releasable Sulfide				U	ND	mg/kg					
Volatile-GC/MS											
Batch 248393											
QC1200416777 LCS											
1,1-Dichloroethylene	0.050				0.047	mg/L		94	(72%-124%)	JEB	05/01/03 10:09
1,2-Dichloroethane	0.050				0.0509	mg/L		102	(73%-125%)		
1,4-Dichlorobenzene	0.050				0.0595	mg/L		119	(78%-123%)		
2-Butanone	0.250				0.286	mg/L		114	(60%-138%)		
Benzene	0.050				0.0543	mg/L		109	(78%-118%)		
Carbon tetrachloride	0.050				0.0655	mg/L		131	(61%-147%)		
Chlorobenzene	0.050				0.0566	mg/L		113	(84%-117%)		
Chloroform	0.050				0.053	mg/L		106	(84%-120%)		
Tetrachloroethylene	0.050				0.0633	mg/L		127	(78%-135%)		
Trichloroethylene	0.050				0.056	mg/L		112	(82%-127%)		
Vinyl chloride	0.050				0.0442	mg/L		88	(62%-151%)		
**Bromofluorobenzene	50.0				46.1	ug/L		92	(71%-140%)		
**Dibromofluoromethane	50.0				49.9	ug/L		100	(79%-139%)		
**Toluene-d8	50.0				50.9	ug/L		102	(80%-132%)		
QC1200416774 MB											
[illegible]hloroethylene				U	ND	mg/L					05/01/03 12:25
1,[illegible]ichloroethane				U	ND	mg/L					
1,4-Dichlorobenzene				U	ND	mg/L					
2-Butanone				U	ND	mg/L					
Benzene				U	ND	mg/L					
Carbon tetrachloride				U	ND	mg/L					
Chlorobenzene				U	ND	mg/L					
Chloroform				U	ND	mg/L					
Tetrachloroethylene				U	ND	mg/L					
Trichloroethylene				U	ND	mg/L					
Vinyl chloride				U	ND	mg/L					
**Bromofluorobenzene	50.0				45.1	ug/L		90	(71%-140%)		
**Dibromofluoromethane	50.0				51.2	ug/L		102	(79%-139%)		
**Toluene-d8	50.0				48.7	ug/L		98	(80%-132%)		
QC1200416775 78713001 PS											
1,1-Dichloroethylene	50.0	U	ND		44.2	ug/L		88	(59%-126%)		05/01/03 20:42
1,2-Dichloroethane	50.0	U	ND		48.4	ug/L		97	(67%-125%)		
1,4-Dichlorobenzene	50.0	U	ND		54.6	ug/L		109	(71%-120%)		
2-Butanone	250	U	ND		259	ug/L		103	(57%-122%)		
Benzene	50.0	U	ND		51.1	ug/L		102	(71%-119%)		
Carbon tetrachloride	50.0	U	ND		64.1	ug/L		128	(50%-143%)		
Chlorobenzene	50.0	U	ND		54.1	ug/L		108	(77%-117%)		
Chloroform	50.0	U	ND		51.9	ug/L		104	(71%-125%)		
Tetrachloroethylene	50.0	U	ND		57.8	ug/L		116	(67%-133%)		
Trichloroethylene	50.0	U	ND		52.5	ug/L		105	(60%-143%)		
Vinyl chloride	50.0	U	ND		44.9	ug/L		90	(42%-147%)		
**Bromofluorobenzene	50.0		46.8		45.6	ug/L		91	(71%-140%)		
**Dibromofluoromethane	50.0		53.5		49.8	ug/L		100	(79%-139%)		
**Toluene-d8	50.0		50.7		50.0	ug/L		100	(80%-132%)		

GENERAL ENGINEERING LABORATORIES, LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 78713

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Volatile-GC/MS											
Batch 248393											
QC1200416776 78713001 PSD											
1,1-Dichloroethylene	50.0	U	ND		42.5	ug/L	4	85	(0%-20%)		05/01/03 21:10
1,2-Dichloroethane	50.0	U	ND		47.5	ug/L	2	95	(0%-20%)		
1,4-Dichlorobenzene	50.0	U	ND		52.7	ug/L	4	105	(0%-20%)		
2-Butanone	250	U	ND		242	ug/L	7	97	(0%-20%)		
Benzene	50.0	U	ND		49.4	ug/L	3	99	(0%-20%)		
Carbon tetrachloride	50.0	U	ND		60.6	ug/L	6	121	(0%-20%)		
Chlorobenzene	50.0	U	ND		52.4	ug/L	3	105	(0%-20%)		
Chloroform	50.0	U	ND		50.1	ug/L	4	100	(0%-20%)		
Tetrachloroethylene	50.0	U	ND		54.5	ug/L	6	109	(0%-20%)		
Trichloroethylene	50.0	U	ND		50.6	ug/L	4	101	(0%-20%)		
Vinyl chloride	50.0	U	ND		42.5	ug/L	6	85	(0%-20%)		
**Bromofluorobenzene	50.0		46.8		44.3	ug/L		89	(71%-140%)		
**Dibromofluoromethane	50.0		53.5		48.5	ug/L		97	(79%-139%)		
**Toluene-d8	50.0		50.7		47.9	ug/L		96	(80%-132%)		
QC1200413549 TB											
1,1-Dichloroethylene				U	ND	mg/L					05/01/03 16:27
1,2-Dichloroethane				U	ND	mg/L					
1,4-Dichlorobenzene				U	ND	mg/L					
2 [illegible]none				U	ND	mg/L					
[illegible]e				U	ND	mg/L					
Carbon tetrachloride				U	ND	mg/L					
Chlorobenzene				U	ND	mg/L					
Chloroform				U	ND	mg/L					
Tetrachloroethylene				U	ND	mg/L					
Trichloroethylene				U	ND	mg/L					
Vinyl chloride				U	ND	mg/L					
**Bromofluorobenzene	50.0				46.8	ug/L		94	(71%-140%)		
**Dibromofluoromethane	50.0				56.2	ug/L		112	(79%-139%)		
**Toluene-d8	50.0				51.4	ug/L		103	(80%-132%)		
QC1200414895 TB											
1,1-Dichloroethylene				U	ND	mg/L					05/01/03 16:55
1,2-Dichloroethane				U	ND	mg/L					
1,4-Dichlorobenzene				U	ND	mg/L					
2-Butanone				U	ND	mg/L					
Benzene				U	ND	mg/L					
Carbon tetrachloride				U	ND	mg/L					
Chlorobenzene				U	ND	mg/L					
Chloroform				U	ND	mg/L					
Tetrachloroethylene				U	ND	mg/L					
Trichloroethylene				U	ND	mg/L					
Vinyl chloride				U	ND	mg/L					
**Bromofluorobenzene	50.0				46.6	ug/L		93	(71%-140%)		
**Dibromofluoromethane	50.0				52.6	ug/L		105	(79%-139%)		
**Toluene-d8	50.0				49.7	ug/L		99	(80%-132%)		
Wet Chemistry General											
Batch 248563											
QC1200417156 78713001 DUP											

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 78713

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Wet Chemistry General										
Batch 248563										
Paint Filter		PASS		PASS	N/A				BEP2	05/02/03 08:06

Notes:
The Qualifiers in this report are defined as follows:

- < Actual result is less than amount reported
- > Actual result is greater than amount reported
- B Analyte found in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration exceeds instrument calibration range
- H Holding time exceeded
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D
- U Indicates the compound was analyzed for but not detected above the detection limit
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier - must be fully described in case narrative and data summary package
- · QC Samples were not spiked with this compound.

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-1
Sample ID: 78712001
Matrix: Soil
Collect Date: 22-APR-03 09:40
Receive Date: 23-APR-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		1.10	+/-0.215	0.0863	0.800	pCi/g		SRB 05/20/03	1725	246987	1
Americium-241	U	9.150E-06	+/-0.0903	0.172	0.200	pCi/g					
Antimony-124	U	-0.019	+/-0.0187	0.0325	0.100	pCi/g					
Antimony-125	U	0.0266	+/-0.0382	0.0708	0.200	pCi/g					
Barium-133	U	0.0209	+/-0.0188	0.0318	0.100	pCi/g					
[illegible]um-140	U	-0.0313	+/-0.200	0.370	0.500	pCi/g					
[illegible]ium-7	U	0.0275	+/-0.144	0.273	0.700	pCi/g					
Bismuth-212		0.679	+/-0.225	0.198	0.500	pCi/g					
Bismuth-214		0.610	+/-0.106	0.0489	0.200	pCi/g					
Cerium-139	U	0.000551	+/-0.0166	0.0281	0.050	pCi/g					
Cerium-141	U	0.0443	+/-0.0541	0.072	0.100	pCi/g					
Cerium-144	U	-0.0863	+/-0.102	0.192	0.500	pCi/g					
Cesium-134	U	-0.00238	+/-0.0144	0.0229	0.100	pCi/g					
Cesium-136	U	-0.0244	+/-0.104	0.153	0.300	pCi/g					
Cesium-137		0.0653	+/-0.0246	0.0248	0.100	pCi/g					
Chromium-51	U	0.226	+/-0.220	0.418	0.600	pCi/g					
Cobalt-56	UUI	0.00	+/-0.0326	0.0308	0.100	pCi/g					
Cobalt-57	UUI	0.00	+/-0.0232	0.0242	0.050	pCi/g					
Cobalt-58	U	-0.0122	+/-0.0166	0.0285	0.100	pCi/g					
Cobalt-60	U	0.00081	+/-0.0132	0.0244	0.100	pCi/g					
Europium-152	U	-0.025	+/-0.0402	0.0711	0.200	pCi/g					
Europium-154	U	-0.00845	+/-0.046	0.0823	0.500	pCi/g					
Europium-155	U	0.0472	+/-0.0836	0.0983	0.500	pCi/g					
Iridium-192	U	-0.0087	+/-0.0159	0.0284	0.100	pCi/g					
Iron-59	U	-0.0219	+/-0.0423	0.0714	0.300	pCi/g					
Lead-210	U	-1.11	+/-2.66	5.08	4.00	pCi/g					
Lead-212		1.36	+/-0.162	0.0434	0.100	pCi/g					
Lead-214		0.783	+/-0.124	0.0505	0.100	pCi/g					
Manganese-54	U	0.00639	+/-0.0347	0.0277	0.100	pCi/g					
Mercury-203	UUI	0.00	+/-0.0314	0.0356	0.100	pCi/g					
Neodymium-147	U	0.128	+/-0.508	0.960	1000	pCi/g					
Neptunium-239	U	-0.119	+/-0.102	0.169	2.00	pCi/g					
Niobium-94	U	-0.00271	+/-0.013	0.0234	1.00	pCi/g					
Niobium-95	U	0.0218	+/-0.0277	0.0459	0.050	pCi/g					
Potassium-40		15.7	+/-1.67	0.211	1.00	pCi/g					
Promethium-144	U	0.00334	+/-0.0138	0.0254	0.080	pCi/g					
Promethium-146	U	0.00733	+/-0.0172	0.0315	1.00	pCi/g					
[illegible]m-226		0.610	+/-0.106	0.0489		pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-1
Sample ID: 78712001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Radium-228		1.10	+/-0.215	0.0863	0.500	pCi/g					
Ruthenium-106	U	-0.0502	+/-0.120	0.216	0.800	pCi/g					
Silver-110m	U	0.0105	+/-0.0133	0.0229	0.080	pCi/g					
Sodium-22	U	-0.00322	+/-0.0166	0.0296	0.080	pCi/g					
Thallium-208		0.352	+/-0.056	0.0257	0.080	pCi/g					
Thorium-230		0.610	+/-0.106	0.0489	1.00	pCi/g					
Thorium-234	U	1.30	+/-1.56	1.42	2.00	pCi/g					
Tin-113	U	0.0201	+/-0.0193	0.0365	0.100	pCi/g					
Uranium-235		0.227	+/-0.208	0.203	0.500	pCi/g					
Uranium-238	U	1.30	+/-1.56	1.42	1.00	pCi/g					
Yttrium-88	U	-0.0013	+/-0.0138	0.0248	0.100	pCi/g					
55	U	0.00892	+/-0.0382	0.0616	0.300	pCi/g					
[illegible]onium-95	U	0.0338	+/-0.0404	0.059	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	04/25/03	1656	246759

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-1
Sample ID: 78712001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-2
Sample ID: 78712002
Matrix: Soil
Collect Date: 22-APR-03 09:30
Receive Date: 23-APR-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.625	+/-0.164	0.0862	0.800	pCi/g		SRB	05/21/03	0739	246987	1
Americium-241	U	-0.00345	+/-0.0568	0.113	0.200	pCi/g						
Antimony-124	U	-0.00761	+/-0.0197	0.031	0.100	pCi/g						
Antimony-125	U	-0.0123	+/-0.0359	0.062	0.200	pCi/g						
Barium-133	U	-0.00536	+/-0.0183	0.0285	0.100	pCi/g						
Barium-140	U	-0.167	+/-0.206	0.352	0.500	pCi/g						
[illegible]lium-7	U	-0.0141	+/-0.145	0.273	0.700	pCi/g						
[illegible]th-212		0.492	+/-0.240	0.189	0.500	pCi/g						
Bismuth-214		0.461	+/-0.0849	0.0473	0.200	pCi/g						
Cerium-139	U	-0.00109	+/-0.0116	0.0217	0.050	pCi/g						
Cerium-141	U	0.00211	+/-0.0318	0.0602	0.100	pCi/g						
Cerium-144		0.201	+/-0.136	0.138	0.500	pCi/g						
Cesium-134	U	-0.00356	+/-0.013	0.0236	0.100	pCi/g						
Cesium-136	U	-0.0803	+/-0.0861	0.139	0.300	pCi/g						
Cesium-137	U	-0.0109	+/-0.0134	0.0231	0.100	pCi/g						
Chromium-51	U	0.0248	+/-0.202	0.367	0.600	pCi/g						
Cobalt-56	U	-0.00523	+/-0.017	0.0303	0.100	pCi/g						
Cobalt-57	U	0.00377	+/-0.00988	0.0191	0.050	pCi/g						
Cobalt-58	U	-0.00728	+/-0.0175	0.0309	0.100	pCi/g						
Cobalt-60	U	-0.0014	+/-0.0151	0.0282	0.100	pCi/g						
Europium-152	U	-0.038	+/-0.0374	0.0625	0.200	pCi/g						
Europium-154	U	0.0013	+/-0.0463	0.087	0.500	pCi/g						
Europium-155	U	0.0442	+/-0.0701	0.0752	0.500	pCi/g						
Iridium-192	U	0.00324	+/-0.0151	0.0277	0.100	pCi/g						
Iron-59	U	0.0116	+/-0.048	0.0874	0.300	pCi/g						
Lead-210	U	1.54	+/-3.72	2.77	4.00	pCi/g						
Lead-212		0.839	+/-0.105	0.0402	0.100	pCi/g						
Lead-214		0.609	+/-0.113	0.0483	0.100	pCi/g						
Manganese-54	U	0.0148	+/-0.0147	0.0289	0.100	pCi/g						
Mercury-203	U	0.0195	+/-0.0329	0.0365	0.100	pCi/g						
Neodymium-147	U	0.0962	+/-0.511	0.975	1000	pCi/g						
Neptunium-239	U	0.00795	+/-0.0709	0.136	2.00	pCi/g						
Niobium-94	U	0.00676	+/-0.0137	0.026	1.00	pCi/g						
Niobium-95	U	0.0336	+/-0.0261	0.0476	0.050	pCi/g						
Potassium-40		8.66	+/-1.03	0.211	1.00	pCi/g						
Promethium-144	U	-0.00585	+/-0.0135	0.024	0.080	pCi/g						
Promethium-146	U	-0.00459	+/-0.0158	0.0294	1.00	pCi/g						
Radium-226		0.461	+/-0.0849	0.0473		pCi/g						
[illegible]m-228		0.625	+/-0.164	0.0862	0.500	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-2
Sample ID: 78712002

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.00205	+/-0.125	0.234	0.800	pCi/g					
Silver-110m	U	0.00749	+/-0.0129	0.0251	0.080	pCi/g					
Sodium-22	U	0.000468	+/-0.0167	0.0314	0.080	pCi/g					
Thallium-208		0.216	+/-0.0449	0.0241	0.080	pCi/g					
Thorium-230		0.461	+/-0.0849	0.0473	1.00	pCi/g					
Thorium-234	U	0.868	+/-0.903	0.931	2.00	pCi/g					
Tin-113	U	0.00823	+/-0.0177	0.0326	0.100	pCi/g					
Uranium-235	U	0.0286	+/-0.0772	0.148	0.500	pCi/g					
Uranium-238	U	0.868	+/-0.903	0.931	1.00	pCi/g					
Yttrium-88	U	0.0119	+/-0.0152	0.0327	0.100	pCi/g					
Zinc-65	U	0.016	+/-0.039	0.0644	0.300	pCi/g					
nium-95	U	0.0347	+/-0.0582	0.0609	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	04/25/03	1656	246759

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-2
Sample ID: 78712002

Proiect: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-3
Sample ID: 78712003
Matrix: Soil
Collect Date: 22-APR-03 09:35
Receive Date: 23-APR-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.798	+/-0.171	0.0834	0.800	pCi/g		SRB	05/21/03	0740	246987	1
Americium-241	U	0.0596	+/-0.0618	0.110	0.200	pCi/g						
Antimony-124	U	-0.00386	+/-0.0164	0.030	0.100	pCi/g						
Antimony-125	U	0.0569	+/-0.0528	0.0628	0.200	pCi/g						
Barium-133	U	0.000173	+/-0.0161	0.0259	0.100	pCi/g						
Barium-140	U	-0.017	+/-0.205	0.382	0.500	pCi/g						
·llium-7	U	-0.0435	+/-0.130	0.241	0.700	pCi/g						
.uth-212		0.431	+/-0.226	0.215	0.500	pCi/g						
Bismuth-214		0.472	+/-0.0857	0.0439	0.200	pCi/g						
Cerium-139	U	-0.0058	+/-0.0114	0.0213	0.050	pCi/g						
Cerium-141	U	-0.00425	+/-0.0307	0.0586	0.100	pCi/g						
Cerium-144	U	-0.0256	+/-0.0726	0.138	0.500	pCi/g						
Cesium-134	U	-0.0028	+/-0.0136	0.0217	0.100	pCi/g						
Cesium-136	U	0.015	+/-0.0866	0.165	0.300	pCi/g						
Cesium-137	U	0.00227	+/-0.0132	0.0247	0.100	pCi/g						
Chromium-51	U	0.113	+/-0.184	0.347	0.600	pCi/g						
Cobalt-56	U	-0.00539	+/-0.0168	0.0296	0.100	pCi/g						
Cobalt-57	U	0.00505	+/-0.00909	0.018	0.050	pCi/g						
Cobalt-58	U	-0.00912	+/-0.0162	0.028	0.100	pCi/g						
Cobalt-60	U	0.000191	+/-0.0134	0.0251	0.100	pCi/g						
Europium-152	U	0.0142	+/-0.0357	0.0658	0.200	pCi/g						
Europium-154	U	-0.0062	+/-0.0486	0.0769	0.500	pCi/g						
Europium-155	UUI	0.00	+/-0.0914	0.0689	0.500	pCi/g						
Iridium-192	U	-0.00394	+/-0.014	0.0251	0.100	pCi/g						
Iron-59	U	-0.02	+/-0.0384	0.0685	0.300	pCi/g						
Lead-210	U	0.374	+/-1.58	2.76	4.00	pCi/g						
Lead-212		0.755	+/-0.101	0.0491	0.100	pCi/g						
Lead-214		0.505	+/-0.0882	0.0455	0.100	pCi/g						
Manganese-54	U	0.00333	+/-0.0154	0.0282	0.100	pCi/g						
Mercury-203	U	0.0275	+/-0.0344	0.0301	0.100	pCi/g						
Neodymium-147	U	-0.0444	+/-0.461	0.864	1000	pCi/g						
Neptunium-239	U	0.0118	+/-0.066	0.130	2.00	pCi/g						
Niobium-94	U	0.0123	+/-0.0123	0.0241	1.00	pCi/g						
Niobium-95	U	-0.0136	+/-0.0281	0.0422	0.050	pCi/g						
Potassium-40		8.86	+/-1.14	0.236	1.00	pCi/g						
Promethium-144	U	0.0036	+/-0.0134	0.0249	0.080	pCi/g						
Promethium-146	U	0.0156	+/-0.0199	0.0298	1.00	pCi/g						
Radium-226		0.472	+/-0.0857	0.0439		pCi/g						
·um-228		0.798	+/-0.171	0.0834	0.500	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-3
Sample ID: 78712003

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	-0.0287	+/-0.116	0.212	0.800	pCi/g					
Silver-110m	U	-0.00108	+/-0.0123	0.0227	0.080	pCi/g					
Sodium-22	U	-0.0022	+/-0.0175	0.0278	0.080	pCi/g					
Thallium-208		0.238	+/-0.0427	0.0251	0.080	pCi/g					
Thorium-230		0.472	+/-0.0857	0.0439	1.00	pCi/g					
Thorium-234		1.39	+/-0.995	0.913	2.00	pCi/g					
Tin-113	U	-0.00448	+/-0.0204	0.0318	0.100	pCi/g					
Uranium-235	U	0.0665	+/-0.0777	0.152	0.500	pCi/g					
Uranium-238		1.39	+/-0.995	0.913	1.00	pCi/g					
Yttrium-88	U	0.00411	+/-0.0141	0.028	0.100	pCi/g					
Z[illegible]-65	U	0.000529	+/-0.0371	0.0604	0.300	pCi/g					
[illegible]nium-95	U	0.0338	+/-0.0418	0.0584	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	04/25/03	1656	246759

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-3
Sample ID: 78712003

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-4
Sample ID: 78712004
Matrix: Soil
Collect Date: 22-APR-03 10:10
Receive Date: 23-APR-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.773	+/-0.170	0.0985	0.800	pCi/g		SRB 05/21/03	0740	246987	1
Americium-241	U	0.0133	+/-0.0646	0.118	0.200	pCi/g					
Antimony-124	U	0.00931	+/-0.0224	0.0362	0.100	pCi/g					
Antimony-125	U	0.011	+/-0.037	0.0698	0.200	pCi/g					
Barium-133	U	0.0188	+/-0.0186	0.0326	0.100	pCi/g					
Barium-140	U	0.178	+/-0.229	0.423	0.500	pCi/g					
llium-7	U	0.0191	+/-0.169	0.276	0.700	pCi/g					
uth-212		0.788	+/-0.250	0.189	0.500	pCi/g					
Bismuth-214		1.04	+/-0.154	0.0499	0.200	pCi/g					
Cerium-139	U	0.00422	+/-0.0131	0.0246	0.050	pCi/g					
Cerium-141	UUI	0.00	+/-0.0655	0.0641	0.100	pCi/g					
Cerium-144	U	-0.0799	+/-0.0873	0.159	0.500	pCi/g					
Cesium-134	U	0.00224	+/-0.0168	0.0266	0.100	pCi/g					
Cesium-136	U	-0.0604	+/-0.109	0.160	0.300	pCi/g					
Cesium-137	U	-0.0122	+/-0.017	0.0245	0.100	pCi/g					
Chromium-51	U	-0.00701	+/-0.211	0.401	0.600	pCi/g					
Cobalt-56	U	0.00411	+/-0.0167	0.0316	0.100	pCi/g					
Cobalt-57	UUI	0.00	+/-0.0198	0.0207	0.050	pCi/g					
Cobalt-58	U	-0.00858	+/-0.0173	0.031	0.100	pCi/g					
Cobalt-60	U	0.0161	+/-0.0216	0.028	0.100	pCi/g					
Europium-152	U	-0.00567	+/-0.037	0.0695	0.200	pCi/g					
Europium-154	U	0.0543	+/-0.051	0.0978	0.500	pCi/g					
Europium-155	UUI	0.00	+/-0.0871	0.0817	0.500	pCi/g					
Iridium-192	U	0.0172	+/-0.0156	0.0309	0.100	pCi/g					
Iron-59	U	-0.0033	+/-0.041	0.0738	0.300	pCi/g					
Lead-210	U	0.535	+/-1.57	2.96	4.00	pCi/g					
Lead-212		1.01	+/-0.125	0.0423	0.100	pCi/g					
Lead-214		1.32	+/-0.175	0.0525	0.100	pCi/g					
Manganese-54	U	0.0207	+/-0.0201	0.0258	0.100	pCi/g					
Mercury-203	U	0.0153	+/-0.0205	0.0401	0.100	pCi/g					
Neodymium-147	U	-0.261	+/-0.540	0.954	1000	pCi/g					
Neptunium-239	U	-0.0235	+/-0.0776	0.148	2.00	pCi/g					
Niobium-94	U	0.00514	+/-0.0137	0.0261	1.00	pCi/g					
Niobium-95	U	0.0133	+/-0.0313	0.0521	0.050	pCi/g					
Potassium-40		6.21	+/-0.816	0.263	1.00	pCi/g					
Promethium-144	U	0.00183	+/-0.0135	0.0256	0.080	pCi/g					
Promethium-146	U	0.0154	+/-0.0186	0.0356	1.00	pCi/g					
Radium-226		1.04	+/-0.154	0.0499		pCi/g					
ium-228		0.773	+/-0.170	0.0985	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-4
Sample ID: 78712004

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.00731	+/-0.157	0.247	0.800	pCi/g					
Silver-110m	U	-0.00383	+/-0.0139	0.0245	0.080	pCi/g					
Sodium-22	U	0.0198	+/-0.0184	0.0353	0.080	pCi/g					
Thallium-208		0.290	+/-0.0504	0.0266	0.080	pCi/g					
Thorium-230		1.04	+/-0.154	0.0499	1.00	pCi/g					
Thorium-234	U	0.496	+/-1.18	0.983	2.00	pCi/g					
Tin-113	U	0.00347	+/-0.0212	0.0354	0.100	pCi/g					
Uranium-235		0.302	+/-0.206	0.173	0.500	pCi/g					
Uranium-238	U	0.496	+/-1.18	0.983	1.00	pCi/g					
Yttrium-88	U	0.0107	+/-0.0151	0.0287	0.100	pCi/g					
Zinc-65	U	0.0191	+/-0.0402	0.0659	0.300	pCi/g					
' ium-95	U	-0.0207	+/-0.0325	0.058	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	04/25/03	1656	246759

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-4
Sample ID: 78712004

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy Cjamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-5
Sample ID: 78712005
Matrix: Soil
Collect Date: 22-APR-03 09:45
Receive Date: 23-APR-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.902	+/-0.181	0.0941	0.800	pCi/g		SRB	05/21/03	0740	246987	1
Americium-241	U	-0.0217	+/-0.0726	0.129	0.200	pCi/g						
Antimony-124	U	-0.00353	+/-0.0178	0.0323	0.100	pCi/g						
Antimony-125	U	0.0136	+/-0.0412	0.0699	0.200	pCi/g						
Barium-133	U	0.00561	+/-0.0185	0.0318	0.100	pCi/g						
Barium-140	U	-0.163	+/-0.211	0.361	0.500	pCi/g						
[illegible]lium-7	U	0.0313	+/-0.145	0.275	0.700	pCi/g						
[illegible]th-212		0.587	+/-0.236	0.198	0.500	pCi/g						
Bismuth-214		1.23	+/-0.177	0.0458	0.200	pCi/g						
Cerium-139	U	0.00663	+/-0.0135	0.0255	0.050	pCi/g						
Cerium-141	U	0.0146	+/-0.0484	0.0666	0.100	pCi/g						
Cerium-144	U	-0.0109	+/-0.0884	0.167	0.500	pCi/g						
Cesium-134	U	0.00159	+/-0.0147	0.0239	0.100	pCi/g						
Cesium-136	U	0.0308	+/-0.0761	0.147	0.300	pCi/g						
Cesium-137	U	0.000292	+/-0.0146	0.0236	0.100	pCi/g						
Chromium-51	U	-0.014	+/-0.218	0.390	0.600	pCi/g						
Cobalt-56	U	-0.00764	+/-0.017	0.0294	0.100	pCi/g						
Cobalt-57	U	0.00413	+/-0.0111	0.0214	0.050	pCi/g						
Cobalt-58	U	-0.0175	+/-0.0174	0.0287	0.100	pCi/g						
Cobalt-60	U	0.00772	+/-0.0137	0.0267	0.100	pCi/g						
Europium-152	U	0.00685	+/-0.0389	0.0747	0.200	pCi/g						
Europium-154	U	0.00187	+/-0.0396	0.0737	0.500	pCi/g						
Europium-155	U	0.0563	+/-0.0777	0.0848	0.500	pCi/g						
Iridium-192	U	-0.0023	+/-0.0163	0.029	0.100	pCi/g						
Iron-59	U	0.00215	+/-0.0404	0.0753	0.300	pCi/g						
Lead-210	U	-0.912	+/-1.75	3.13	4.00	pCi/g						
Lead-212		0.990	+/-0.122	0.0422	0.100	pCi/g						
Lead-214		1.46	+/-0.185	0.051	0.100	pCi/g						
Manganese-54	U	0.00647	+/-0.014	0.026	0.100	pCi/g						
Mercury-203	UUI	0.00	+/-0.0337	0.0361	0.100	pCi/g						
Neodymium-147	U	0.0376	+/-0.511	0.957	1000	pCi/g						
Neptunium-239	U	0.0347	+/-0.0804	0.156	2.00	pCi/g						
Niobium-94	U	0.00777	+/-0.0135	0.0253	1.00	pCi/g						
Niobium-95	U	0.0304	+/-0.0274	0.0473	0.050	pCi/g						
Potassium-40		5.66	+/-0.743	0.218	1.00	pCi/g						
Promethium-144	U	-0.000516	+/-0.0134	0.0242	0.080	pCi/g						
Promethium-146	U	-0.00802	+/-0.0165	0.0302	1.00	pCi/g						
Radium-226		1.23	+/-0.177	0.0458		pCi/g						
[illegible]m-228		0.902	+/-0.181	0.0941	0.500	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-5
Sample ID: 78712005

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	-0.0457	+/-0.119	0.212	0.800	pCi/g					
Silver-110m	U	0.00918	+/-0.0124	0.0239	0.080	pCi/g					
Sodium-22	U	0.000704	+/-0.0143	0.0266	0.080	pCi/g					
Thallium-208		0.313	+/-0.0544	0.024	0.080	pCi/g					
Thorium-230		1.23	+/-0.177	0.0458	1.00	pCi/g					
Thorium-234		3.22	+/-1.89	1.03	2.00	pCi/g					
Tin-113	U	0.00393	+/-0.0195	0.0372	0.100	pCi/g					
Uranium-235	U	0.0476	+/-0.157	0.170	0.500	pCi/g					
Uranium-238		3.22	+/-1.89	1.03	1.00	pCi/g					
Yttrium-88	U	0.00217	+/-0.0132	0.0255	0.100	pCi/g					
Zinc-65	U	0.0348	+/-0.0248	0.0388	0.300	pCi/g					
ium-95	U	-0.00665	+/-0.0328	0.0583	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	04/25/03	1656	246759

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-5
Sample ID: 78712005

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-6
Sample ID: 78712006
Matrix: Soil
Collect Date: 22-APR-03 11:10
Receive Date: 23-APR-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.814	+/-0.174	0.0814	0.800	pCi/g		SRB	05/21/03	0741	246987	1
Americium-241	U	-0.0411	+/-0.0974	0.159	0.200	pCi/g						
Antimony-124	U	-0.00513	+/-0.0172	0.031	0.100	pCi/g						
Antimony-125	U	-0.00396	+/-0.0323	0.0609	0.200	pCi/g						
Barium-133	U	0.0185	+/-0.0187	0.0291	0.100	pCi/g						
Barium-140	U	0.0724	+/-0.212	0.400	0.500	pCi/g						
[illegible]lium-7	U	-0.0227	+/-0.133	0.248	0.700	pCi/g						
[illegible]ith-212		0.651	+/-0.246	0.186	0.500	pCi/g						
Bismuth-214		0.734	+/-0.111	0.0458	0.200	pCi/g						
Cerium-139	U	-0.00598	+/-0.0135	0.0222	0.050	pCi/g						
Cerium-141	U	0.0294	+/-0.0696	0.0585	0.100	pCi/g						
Cerium-144	U	-0.0292	+/-0.0933	0.157	0.500	pCi/g						
Cesium-134	U	-0.0021	+/-0.0146	0.0233	0.100	pCi/g						
Cesium-136	U	-0.0695	+/-0.0839	0.136	0.300	pCi/g						
Cesium-137	U	0.0104	+/-0.0151	0.0246	0.100	pCi/g						
Chromium-51	U	-0.0205	+/-0.211	0.377	0.600	pCi/g						
Cobalt-56	U	-0.00707	+/-0.0155	0.0269	0.100	pCi/g						
Cobalt-57	U	0.00502	+/-0.0104	0.0202	0.050	pCi/g						
Cobalt-58	U	0.000822	+/-0.0195	0.0309	0.100	pCi/g						
Cobalt-60	U	0.0012	+/-0.0134	0.0253	0.100	pCi/g						
Europium-152	U	0.00275	+/-0.0361	0.0648	0.200	pCi/g						
Europium-154	U	0.013	+/-0.0405	0.0776	0.500	pCi/g						
Europium-155	U	0.0388	+/-0.0436	0.0865	0.500	pCi/g						
Iridium-192	U	-0.00152	+/-0.0155	0.0277	0.100	pCi/g						
Iron-59	U	0.00965	+/-0.0366	0.0703	0.300	pCi/g						
Lead-210	U	2.91	+/-2.99	5.72	4.00	pCi/g						
Lead-212		1.01	+/-0.121	0.0362	0.100	pCi/g						
Lead-214		0.942	+/-0.131	0.0438	0.100	pCi/g						
Manganese-54	U	-0.00753	+/-0.0149	0.0257	0.100	pCi/g						
Mercury-203	U	0.0183	+/-0.0221	0.0334	0.100	pCi/g						
Neodymium-147	U	-0.574	+/-0.514	0.876	1000	pCi/g						
Neptunium-239	U	0.0443	+/-0.0749	0.147	2.00	pCi/g						
Niobium-94	U	0.00338	+/-0.0129	0.0238	1.00	pCi/g						
Niobium-95	U	0.0165	+/-0.0275	0.046	0.050	pCi/g						
Potassium-40		4.53	+/-0.667	0.258	1.00	pCi/g						
Promethium-144	U	0.00324	+/-0.013	0.0242	0.080	pCi/g						
Promethium-146	U	0.00175	+/-0.0158	0.030	1.00	pCi/g						
Radium-226		0.734	+/-0.111	0.0458		pCi/g						
[illegible]m-228		0.814	+/-0.174	0.0814	0.500	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-6
Sample ID: 78712006

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.00373	+/-0.118	0.219	0.800	pCi/g					
Silver-110m	U	0.00264	+/-0.0126	0.0235	0.080	pCi/g					
Sodium-22	U	0.00466	+/-0.0146	0.028	0.080	pCi/g					
Thallium-208		0.273	+/-0.0441	0.0253	0.080	pCi/g					
Thorium-230		0.734	+/-0.111	0.0458	1.00	pCi/g					
Thorium-234	U	0.690	+/-1.50	1.24	2.00	pCi/g					
Tin-113	U	-0.0189	+/-0.0188	0.0311	0.100	pCi/g					
Uranium-235		0.509	+/-0.202	0.188	0.500	pCi/g					
Uranium-238	U	0.690	+/-1.50	1.24	1.00	pCi/g					
Yttrium-88	U	-0.00362	+/-0.0151	0.027	0.100	pCi/g					
Zinc-65	U	-0.00227	+/-0.0362	0.0583	0.300	pCi/g					
ıium-95	U	0.0292	+/-0.0345	0.0606	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	04/25/03	1656	246759

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-6
Sample ID: 78712006

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison
Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-7
Sample ID: 78712007
Matrix: Soil
Collect Date: 22-APR-03 11:35
Receive Date: 23-APR-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.726	+/-0.164	0.0792	0.800	pCi/g		SRB 05/21/03	0741	246987	1
Americium-241	U	-0.0418	+/-0.0617	0.102	0.200	pCi/g					
Antimony-124	U	-0.013	+/-0.0147	0.0255	0.100	pCi/g					
Antimony-125	U	0.027	+/-0.030	0.060	0.200	pCi/g					
Barium-133	U	-0.0174	+/-0.0164	0.0273	0.100	pCi/g					
Barium-140	U	-0.000815	+/-0.181	0.340	0.500	pCi/g					
P[illegible]lium-7	U	0.0745	+/-0.129	0.252	0.700	pCi/g					
[illegible]ith-212		0.351	+/-0.193	0.183	0.500	pCi/g					
bismuth-214		0.562	+/-0.094	0.0413	0.200	pCi/g					
Cerium-139	U	-0.00765	+/-0.0117	0.0193	0.050	pCi/g					
Cerium-141	U	0.0338	+/-0.0397	0.0549	0.100	pCi/g					
Cerium-144	U	-0.0514	+/-0.0678	0.127	0.500	pCi/g					
Cesium-134	U	-0.0884	+/-0.0185	0.0198	0.100	pCi/g					
Cesium-136	U	-0.0112	+/-0.0695	0.129	0.300	pCi/g					
Cesium-137	UUI	0.00	+/-0.0318	0.0231	0.100	pCi/g					
Chromium-51	U	-0.101	+/-0.184	0.324	0.600	pCi/g					
Cobalt-56	U	0.00872	+/-0.0156	0.0294	0.100	pCi/g					
Cobalt-57	U	-0.00222	+/-0.00854	0.0166	0.050	pCi/g					
Cobalt-58	U	-0.00744	+/-0.014	0.0242	0.100	pCi/g					
Cobalt-60	U	-0.00341	+/-0.0123	0.0221	0.100	pCi/g					
Europium-152	U	0.00698	+/-0.0322	0.059	0.200	pCi/g					
Europium-154	U	-0.00983	+/-0.0393	0.0708	0.500	pCi/g					
Europium-155	U	0.0109	+/-0.0635	0.0695	0.500	pCi/g					
Iridium-192	U	-0.00163	+/-0.0131	0.0237	0.100	pCi/g					
Iron-59	U	-0.012	+/-0.0434	0.0678	0.300	pCi/g					
Lead-210	U	1.64	+/-1.56	2.88	4.00	pCi/g					
Lead-212		0.862	+/-0.105	0.0333	0.100	pCi/g					
Lead-214		0.717	+/-0.103	0.0457	0.100	pCi/g					
Manganese-54	U	0.0221	+/-0.0186	0.0248	0.100	pCi/g					
Mercury-203	U	-0.00341	+/-0.0183	0.0295	0.100	pCi/g					
Neodymium-147	U	0.135	+/-0.445	0.854	1000	pCi/g					
Neptunium-239	U	-0.0281	+/-0.0607	0.117	2.00	pCi/g					
Niobium-94	U	0.00948	+/-0.0122	0.0233	1.00	pCi/g					
Niobium-95	U	9.250E-05	+/-0.0275	0.0433	0.050	pCi/g					
Potassium-40		5.97	+/-0.774	0.209	1.00	pCi/g					
Promethium-144	U	-0.00484	+/-0.0125	0.0222	0.080	pCi/g					
Promethium-146	U	0.0226	+/-0.0236	0.0278	1.00	pCi/g					
Radium-226		0.562	+/-0.094	0.0413		pCi/g					
[illegible]m-228		0.726	+/-0.164	0.0792	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-7
Sample ID: 78712007

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.152	+/-0.117	0.231	0.800	pCi/g					
Silver-110m	U	0.0056	+/-0.0127	0.0216	0.080	pCi/g					
Sodium-22	U	-0.00351	+/-0.0142	0.0255	0.080	pCi/g					
Thallium-208		0.240	+/-0.0439	0.024	0.080	pCi/g					
Thorium-230		0.562	+/-0.094	0.0413	1.00	pCi/g					
Thorium-234		1.17	+/-1.10	0.827	2.00	pCi/g					
Tin-113	U	0.000878	+/-0.0156	0.0281	0.100	pCi/g					
Uranium-235		0.182	+/-0.152	0.153	0.500	pCi/g					
Uranium-238		1.17	+/-1.10	0.827	1.00	pCi/g					
Yttrium-88	U	-0.00231	+/-0.0137	0.0259	0.100	pCi/g					
[illegible]-65	U	0.0159	+/-0.0291	0.0512	0.300	pCi/g					
[illegible]nium-95	U	-0.00943	+/-0.0292	0.0517	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	04/25/03	1656	246759

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-7
Sample ID: 78712007

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison
Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-8
Sample ID: 78712008
Matrix: Soil
Collect Date: 22-APR-03 11:25
Receive Date: 23-APR-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.632	+/-0.157	0.0791	0.800	pCi/g		SRB	05/21/03	0742	246987	1
Americium-241	U	0.00486	+/-0.054	0.106	0.200	pCi/g						
Antimony-124	U	-0.000625	+/-0.0163	0.0297	0.100	pCi/g						
Antimony-125	U	-0.0272	+/-0.031	0.055	0.200	pCi/g						
Barium-133	U	0.00353	+/-0.0168	0.0284	0.100	pCi/g						
Barium-140	U	-0.0943	+/-0.193	0.341	0.500	pCi/g						
' 'llium-7	U	0.0824	+/-0.129	0.249	0.700	pCi/g						
uth-212		0.488	+/-0.220	0.170	0.500	pCi/g						
bismuth-214		0.506	+/-0.0882	0.0431	0.200	pCi/g						
Cerium-139	U	0.00344	+/-0.0172	0.0224	0.050	pCi/g						
Cerium-141	U	0.0125	+/-0.0563	0.0577	0.100	pCi/g						
Cerium-144	U	0.0612	+/-0.0782	0.149	0.500	pCi/g						
Cesium-134	U	-0.00135	+/-0.0136	0.0216	0.100	pCi/g						
Cesium-136	U	-0.0313	+/-0.0722	0.130	0.300	pCi/g						
Cesium-137	U	0.00972	+/-0.0298	0.0231	0.100	pCi/g						
Chromium-51	U	-0.07	+/-0.189	0.353	0.600	pCi/g						
Cobalt-56	U	0.00313	+/-0.0161	0.0293	0.100	pCi/g						
Cobalt-57	UUI	0.00	+/-0.0164	0.0174	0.050	pCi/g						
Cobalt-58	U	-0.0164	+/-0.0177	0.0243	0.100	pCi/g						
Cobalt-60	U	0.00105	+/-0.0123	0.0233	0.100	pCi/g						
Europium-152	U	-0.0277	+/-0.0351	0.0637	0.200	pCi/g						
Europium-154	U	0.0125	+/-0.0411	0.0779	0.500	pCi/g						
Europium-155	U	0.0729	+/-0.0512	0.0733	0.500	pCi/g						
Iridium-192	U	0.015	+/-0.0142	0.0282	0.100	pCi/g						
Iron-59	U	-0.0398	+/-0.0451	0.0643	0.300	pCi/g						
Lead-210	U	-0.447	+/-1.53	2.69	4.00	pCi/g						
Lead-212		0.716	+/-0.0951	0.0436	0.100	pCi/g						
Lead-214		0.565	+/-0.101	0.0461	0.100	pCi/g						
Manganese-54	U	0.000628	+/-0.0124	0.0224	0.100	pCi/g						
Mercury-203	U	0.0161	+/-0.018	0.0357	0.100	pCi/g						
Neodymium-147	U	-0.0134	+/-0.492	0.908	1000	pCi/g						
Neptunium-239	U	-0.0132	+/-0.0705	0.132	2.00	pCi/g						
Niobium-94	U	-0.00546	+/-0.0124	0.0216	1.00	pCi/g						
Niobium-95	U	0.0279	+/-0.0238	0.0419	0.050	pCi/g						
Potassium-40		6.72	+/-0.824	0.205	1.00	pCi/g						
Promethium-144	U	0.00562	+/-0.0125	0.0233	0.080	pCi/g						
Promethium-146	U	0.00893	+/-0.0158	0.0303	1.00	pCi/g						
Radium-226		0.506	+/-0.0882	0.0431		pCi/g						
'um-228		0.632	+/-0.157	0.0791	0.500	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-8
Sample ID: 78712008

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	-0.00822	+/-0.113	0.205	0.800	pCi/g					
Silver-110m	U	-0.00621	+/-0.0131	0.0198	0.080	pCi/g					
Sodium-22	U	0.00463	+/-0.0148	0.0281	0.080	pCi/g					
Thallium-208		0.235	+/-0.0433	0.0222	0.080	pCi/g					
Thorium-230		0.506	+/-0.0882	0.0431	1.00	pCi/g					
Thorium-234		1.10	+/-1.12	0.846	2.00	pCi/g					
Tin-113	U	0.00109	+/-0.0187	0.0312	0.100	pCi/g					
Uranium-235	U	0.0515	+/-0.230	0.157	0.500	pCi/g					
Uranium-238		1.10	+/-1.12	0.846	1.00	pCi/g					
Yttrium-88	U	0.0155	+/-0.0152	0.0285	0.100	pCi/g					
Z[illegible]-65	U	-0.0568	+/-0.0367	0.0587	0.300	pCi/g					
[illegible]ium-95	U	0.00958	+/-0.0277	0.0515	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	04/25/03	1656	246759

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 22, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: WP-Soil-8
Sample ID: 78712008

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy Jamison

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: May 22, 2003

Client : IEM, Inc.
302 Westfield Road
Knoxville, Tennessee

Contact: Alan Duff

Workorder: 78712

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 246987										
QC1200413374 78712001 DUP										
Actinium-228		1.10 +/-0.215		1.29 +/-0.221	pCi/g	16 ^		(+/-0.800)	SRB	05/21/03 08:45
Americium-241	U	9.150E-06 +/-0.0903	U	0.0164 +/-0.0276	pCi/g	200 ^		(+/-0.200)		
Antimony-124	U	-0.019 +/-0.0187	U	-0.0104 +/-0.0227	pCi/g	N/A ^		(+/-0.100)		
Antimony-125	U	0.0266 +/-0.0382	U	0.0146 +/-0.0437	pCi/g	58 ^		(+/-0.200)		
Barium-133	U	0.0209 +/-0.0188	U	-0.0152 +/-0.0238	pCi/g	N/A ^		(+/-0.100)		
Barium-140	U	-0.0313 +/-0.200	U	-0.143 +/-0.288	pCi/g	N/A ^		(+/-0.500)		
Beryllium-7	U	0.0275 +/-0.144		0.402 +/-0.325	pCi/g	174 ^		(+/-0.700)		
th-212		0.679 +/-0.225		1.09 +/-0.285	pCi/g	46 ^		(+/-0.500)		
Bismuth-214		0.610 +/-0.106		0.619 +/-0.116	pCi/g	1 ^		(+/-0.200)		
Cerium-139	U	0.000551 +/-0.0166	U	-0.00567 +/-0.0155	pCi/g	N/A ^		(+/-0.050)		
Cerium-141	U	0.0443 +/-0.0541	UUI	0.00 +/-0.0652	pCi/g	49 ^		(+/-0.100)		
Cerium-144	U	-0.0863 +/-0.102	U	0.00321 +/-0.0977	pCi/g	N/A ^		(+/-0.500)		
Cesium-134	U	-0.00238 +/-0.0144	U	-0.00152 +/-0.0194	pCi/g	N/A ^		(+/-0.100)		
Cesium-136	U	-0.0244 +/-0.104	U	0.0372 +/-0.115	pCi/g	N/A ^		(+/-0.300)		
Cesium-137		0.0653 +/-0.0246		0.056 +/-0.0323	pCi/g	15 ^		(+/-0.100)		
Chromium-51	U	0.226 +/-0.220	U	0.0383 +/-0.248	pCi/g	142 ^		(+/-0.600)		
Cobalt-56	UUI	0.00 +/-0.0326	U	-0.0119 +/-0.0264	pCi/g	N/A ^		(+/-0.100)		
Cobalt-57	UUI	0.00 +/-0.0232	U	0.00245 +/-0.0111	pCi/g	0 ^		(+/-0.050)		
Cobalt-58	U	-0.0122 +/-0.0166	U	-0.0148 +/-0.0223	pCi/g	N/A ^		(+/-0.100)		
Cobalt-60	U	0.00081 +/-0.0132	U	-0.00126 +/-0.0191	pCi/g	N/A ^		(+/-0.100)		
Europium-152	U	-0.025 +/-0.0402	U	0.00596 +/-0.0456	pCi/g	N/A ^		(+/-0.200)		
Europium-154	U	-0.00845	U	0.000708	pCi/g	N/A ^		(+/-0.500)		

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 78712

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 246987											
		+/-0.046		+/-0.0551							
Europium-155	U	0.0472	UUI	0.00	pCi/g	0 ^		(+/-0.500)			
		+/-0.0836		+/-0.0786							
Iridium-192	U	-0.0087	U	0.00297	pCi/g	N/A ^		(+/-0.100)			
		+/-0.0159		+/-0.0183							
Iron-59	U	-0.0219	U	-0.0208	pCi/g	N/A ^		(+/-0.300)			
		+/-0.0423		+/-0.0679							
Lead-210	U	-1.11		1.54	pCi/g	N/A ^		(+/-4.00)			
		+/-2.66		+/-0.678							
Lead-212		1.36		1.21	pCi/g	12					
		+/-0.162		+/-0.165							
Lead-214		0.783		0.860	pCi/g	9					
		+/-0.124		+/-0.136							
Manganese-54	U	0.00639	U	0.0108	pCi/g	51 ^		(+/-0.100)			
		+/-0.0347		+/-0.0236							
Mercury-203	UUI	0.00	U	0.0174	pCi/g	0 ^		(+/-0.100)			
		+/-0.0314		+/-0.0251							
Neodymium-147	U	0.128	U	-0.181	pCi/g	N/A ^		(+/-1000)			
		+/-0.508		+/-0.679							
Neptunium-239	U	-0.119	U	0.141	pCi/g	N/A ^		(+/-2.00)			
		+/-0.102		+/-0.134							
Niobium-94	U	-0.00271	U	0.00487	pCi/g	N/A ^		(+/-1.00)			
		+/-0.013		+/-0.0163							
Niobium-95	U	0.0218	U	0.0328	pCi/g	40 ^		(+/-0.050)			
		+/-0.0277		+/-0.036							
Potassium-40		15.7		13.9	pCi/g	12					
		+/-1.67		+/-1.48							
Promethium-144	U	0.00334	U	0.00917	pCi/g	93 ^		(+/-0.080)			
		+/-0.0138		+/-0.018							
Promethium-146	U	0.00733	U	0.0033	pCi/g	76 ^		(+/-1.00)			
		+/-0.0172		+/-0.0319							
Radium-226		0.610		0.619	pCi/g	1					
		+/-0.106		+/-0.116							
Radium-228		1.10		1.29	pCi/g	16 ^		(+/-0.500)			
		+/-0.215		+/-0.221							
Ruthenium-106	U	-0.0502	U	-0.0174	pCi/g	N/A ^		(+/-0.800)			
		+/-0.120		+/-0.165							
Silver-110m	U	0.0105	U	-0.0168	pCi/g	N/A ^		(+/-0.080)			
		+/-0.0133		+/-0.0214							
Sodium-22	U	-0.00322	U	9.980E-05	pCi/g	N/A ^		(+/-0.080)			
		+/-0.0166		+/-0.0199							
Thallium-208		0.352		0.404	pCi/g	14					
		+/-0.056		+/-0.068							
Thorium-230		0.610		0.619	pCi/g	1 ^		(+/-1.00)			
		+/-0.106		+/-0.116							
Thorium-234	U	1.30		1.74	pCi/g	29 ^		(+/-2.00)			
		+/-1.56		+/-0.835							

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 78712

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 246987										
Tin-113	U	0.0201 +/-0.0193	U	0.00967 +/-0.0218	pCi/g	70 ^		(+/-0.100)		
Uranium-235		0.227 +/-0.208		0.252 +/-0.220	pCi/g	10 ^		(+/-0.500)		
Uranium-238	U	1.30 +/-1.56		1.74 +/-0.835	pCi/g	29 ^		(+/-1.00)		
Yttrium-88	U	-0.0013 +/-0.0138	U	0.00409 +/-0.0157	pCi/g	N/A ^		(+/-0.100)		
Zinc-65	U	0.00892 +/-0.0382	U	-0.022 +/-0.0549	pCi/g	N/A ^		(+/-0.300)		
Zirconium-95	U	0.0338 +/-0.0404	U	0.0379 +/-0.044	pCi/g	12 ^		(+/-0.200)		
QC1200413375 LCS										
Actinium-228			U	6.91 +/-6.07	pCi/g					05/21/03 10:10
Americium-241				1290 +/-141	pCi/g					
Antimony-124			U	-4.840E+12 +/-4.310E+12	pCi/g					
ony-125			U	-3.12 +/-8.65	pCi/g					
Barium-133			U	-0.25 +/-0.881	pCi/g					
Barium-140				1.000E+41 +/-1.530E+41	pCi/g					
Beryllium-7				1.430E+15 +/-2.200E+15	pCi/g					
Bismuth-212			U	34.2 +/-49.3	pCi/g					
Bismuth-214			U	0.278 +/-0.844	pCi/g					
Cerium-139			U	-34000 +/-1.270E+05	pCi/g					
Cerium-141				6.600E+21 +/-5.510E+23	pCi/g					
Cerium-144			U	-105 +/-997	pCi/g					
Cesium-134			U	0.633 +/-4.40	pCi/g					
Cesium-136				1.000E+41 +/-1.730E+41	pCi/g					
Cesium-137	441			470 +/-51.3	pCi/g		107			
Chromium-51				2.530E+28 +/-6.400E+28	pCi/g					
Cobalt-56			U	-7.570E+08 +/-5.320E+09	pCi/g					
Cobalt-57				539	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 78712

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 246987											
				+/-256							
Cobalt-58			U	-4.140E+10	pCi/g						
				+/-6.530E+10							
Cobalt-60				704	pCi/g						
				+/-60.1							
Europium-152			U	-0.469	pCi/g						
				+/-1.74							
Europium-154			U	-0.159	pCi/g						
				+/-1.52							
Europium-155			U	3.60	pCi/g						
				+/-2.56							
Iridium-192				1.630E+10	pCi/g						
				+/-1.460E+10							
Iron-59				1.350E+17	pCi/g						
				+/-5.130E+17							
Lead-210				16200	pCi/g						
				+/-2860							
Lead-212			U	-5.87	pCi/g						
				+/-7.48							
L[illegible]214			U	0.415	pCi/g						
				+/-0.883							
Manganese-54			U	-62.8	pCi/g						
				+/-182							
Mercury-203			U	-1.120E+16	pCi/g						
				+/-2.390E+16							
Neodymium-147				1.000E+41	pCi/g						
				+/-3.440E+41							
Neptunium-239			U	1.28	pCi/g						
				+/-1.63							
Niobium-94			U	-0.0706	pCi/g						
				+/-0.422							
Niobium-95			U	-4.340E+21	pCi/g						
				+/-1.340E+22							
Potassium-40			U	-0.279	pCi/g						
				+/-2.08							
Promethium-144			U	-5.89	pCi/g						
				+/-61.2							
Promethium-146			U	0.521	pCi/g						
				+/-1.83							
Radium-226			U	0.278	pCi/g						
				+/-0.844							
Radium-228			U	6.91	pCi/g						
				+/-6.07							
Ruthenium-106			U	-250	pCi/g						
				+/-551							
Silver-110m				1450	pCi/g						
				+/-762							

QC Summary

Workorder: 78712

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 246987											
Sodium-22			U	-0.225 +/-2.06	pCi/g						
Thallium-208			U	2.67 +/-5.98	pCi/g						
Thorium-230			U	0.277 +/-0.842	pCi/g						
Thorium-234			U	-2.15 +/-5.33	pCi/g						
Tin-113				7.090E+05 +/-3.750E+06	pCi/g						
Uranium-235			U	-0.178 +/-1.81	pCi/g						
Uranium-238			U	-2.15 +/-5.33	pCi/g						
Yttrium-88				3.690E+06 +/-5.420E+06	pCi/g						
Zinc-65				2500 +/-2340	pCi/g						
Zirconium-95				2.670E+11 +/-1.530E+12	pCi/g						
1200413373 MB											
Actinium-228			UUI	0.00 +/-0.0567	pCi/g					05/21/03	08:42
Americium-241			U	-0.059 +/-0.0944	pCi/g						
Antimony-124			U	-0.00539 +/-0.0188	pCi/g						
Antimony-125			U	0.0271 +/-0.0419	pCi/g						
Barium-133			U	-0.00353 +/-0.022	pCi/g						
Barium-140			U	0.120 +/-0.148	pCi/g						
Beryllium-7			U	-0.0158 +/-0.134	pCi/g						
Bismuth-212			U	-0.0873 +/-0.113	pCi/g						
Bismuth-214			U	0.0284 +/-0.0342	pCi/g						
Cerium-139			U	-0.00491 +/-0.013	pCi/g						
Cerium-141			U	-0.00467 +/-0.0306	pCi/g						
Cerium-144			U	-0.0143 +/-0.0885	pCi/g						
Cesium-134			U	-0.0139 +/-0.0157	pCi/g						
Cesium-136			U	-0.0679	pCi/g						

QC Summary

Workorder: 78712

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 246987											
				+/-0.0573							
Cesium-137			U	-0.0102	pCi/g						
				+/-0.0131							
Chromium-51			U	-0.0592	pCi/g						
				+/-0.189							
Cobalt-56			U	0.00649	pCi/g						
				+/-0.0176							
Cobalt-57			U	-0.00127	pCi/g						
				+/-0.011							
Cobalt-58			U	-0.00194	pCi/g						
				+/-0.0151							
Cobalt-60			U	-0.0051	pCi/g						
				+/-0.014							
Europium-152			U	-0.0182	pCi/g						
				+/-0.0402							
Europium-154			U	0.0498	pCi/g						
				+/-0.0409							
Europium-155			U	-0.0156	pCi/g						
				+/-0.0442							
Iridium-192			U	-0.000638	pCi/g						
				+/-0.0151							
Iron-59			U	-0.00623	pCi/g						
				+/-0.032							
Lead-210			U	-1.12	pCi/g						
				+/-3.09							
Lead-212			U	0.0203	pCi/g						
				+/-0.0557							
Lead-214			U	0.00987	pCi/g						
				+/-0.0447							
Manganese-54			U	0.00147	pCi/g						
				+/-0.0154							
Mercury-203			U	0.0135	pCi/g						
				+/-0.0194							
Neodymium-147			U	-0.0639	pCi/g						
				+/-0.328							
Neptunium-239			U	-0.0412	pCi/g						
				+/-0.0808							
Niobium-94			U	0.00059	pCi/g						
				+/-0.0139							
Niobium-95			U	0.0162	pCi/g						
				+/-0.0193							
Potassium-40			U	0.137	pCi/g						
				+/-0.155							
Promethium-144			U	0.00692	pCi/g						
				+/-0.0164							
Promethium-146			U	-0.00031	pCi/g						
				+/-0.0182							

GENERAL ENGINEERING LABORATORIES, LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 78712

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 246987											
Radium-226			U	0.0284 +/-0.0342	pCi/g						
Radium-228			UUI	0.00 +/-0.0567	pCi/g						
Ruthenium-106			U	-0.0408 +/-0.142	pCi/g						
Silver-110m			U	-0.00467 +/-0.0126	pCi/g						
Sodium-22			U	0.0179 +/-0.0146	pCi/g						
Thallium-208			U	0.00765 +/-0.028	pCi/g						
Thorium-230			U	0.0284 +/-0.0342	pCi/g						
Thorium-234			U	0.147 +/-0.972	pCi/g						
Tin-113			U	0.0176 +/-0.0169	pCi/g						
Uranium-235			U	-0.0496 +/-0.0897	pCi/g						
[illegible]um-238			U	0.147 +/-0.972	pCi/g						
Yttrium-88			U	-0.00124 +/-0.0129	pCi/g						
Zinc-65			U	0.0109 +/-0.0327	pCi/g						
Zirconium-95			U	0.00971 +/-0.0267	pCi/g						

Notes:
The Qualifiers in this report are defined as follows:

- < Actual result is less than amount reported
- > Actual result is greater than amount reported
- B Analyte found in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration exceeds instrument calibration range
- H Holding time exceeded
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D
- U Indicates the compound was analyzed for but not detected above the detection limit
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier - must be fully described in case narrative and data summary package
- Y QC Samples were not spiked with this compound.

GENERAL ENGINEERING LABORATORIES, LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 78712

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 27, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: #15 Geoprobe Tube Bottom
Sample ID: 79173001
Matrix: Misc Solid
Collect Date: 15-FEB-03 12:00
Receive Date: 29-APR-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		1.07	+/-0.172	0.0487	0.800	pCi/g		SRB	05/21/03	1912	248639	1
Americium-241	U	0.00448	+/-0.0262	0.0483	0.200	pCi/g						
Antimony-124	U	0.0112	+/-0.025	0.038	0.100	pCi/g						
Antimony-125	U	0.00248	+/-0.0209	0.0354	0.200	pCi/g						
Barium-133	U	0.00229	+/-0.0108	0.0164	0.100	pCi/g						
Barium-140	U	-2.47	+/-4.47	7.54	0.500	pCi/g						
Beryllium-7	U	0.115	+/-0.195	0.349	0.700	pCi/g						
Bismuth-212		0.767	+/-0.154	0.114	0.500	pCi/g						
muth-214		0.573	+/-0.0837	0.0258	0.200	pCi/g						
um-139	U	0.00188	+/-0.0107	0.0183	0.050	pCi/g						
cerium-141	U	0.0507	+/-0.115	0.142	0.100	pCi/g						
Cerium-144	U	0.0203	+/-0.0583	0.102	0.500	pCi/g						
Cesium-134	U	-0.00368	+/-0.00924	0.0136	0.100	pCi/g						
Cesium-136	U	0.269	+/-1.55	2.67	0.300	pCi/g						
Cesium-137	U	-0.00652	+/-0.00804	0.0133	0.100	pCi/g						
Chromium-51	U	0.0331	+/-0.617	1.07	0.600	pCi/g						
Cobalt-56	U	0.00424	+/-0.0189	0.0288	0.100	pCi/g						
Cobalt-57	U	-0.000111	+/-0.00741	0.0129	0.050	pCi/g						
Cobalt-58	U	-0.00555	+/-0.018	0.0313	0.100	pCi/g						
Cobalt-60	U	0.00716	+/-0.00848	0.0153	0.100	pCi/g						
Europium-152	U	-0.00441	+/-0.0215	0.0367	0.200	pCi/g						
Europium-154	U	0.00402	+/-0.0264	0.0446	0.500	pCi/g						
Europium-155	UUI	0.00	+/-0.0411	0.0442	0.500	pCi/g						
Iridium-192	U	0.0095	+/-0.0162	0.0284	0.100	pCi/g						
Iron-59	U	0.0563	+/-0.0592	0.114	0.300	pCi/g						
Lead-210		1.27	+/-0.966	0.831	4.00	pCi/g						
Lead-212		1.24	+/-0.133	0.0232	0.100	pCi/g						
Lead-214		0.672	+/-0.0823	0.0274	0.100	pCi/g						
Manganese-54	U	0.0138	+/-0.0109	0.0172	0.100	pCi/g						
Mercury-203	UUI	0.00	+/-0.051	0.0497	0.100	pCi/g						
Neodymium-147	U	-4.7	+/-19.8	0.00	1000	pCi/g						
Neptunium-239	U	-0.0401	+/-0.0442	0.0759	2.00	pCi/g						
Niobium-94	U	0.00388	+/-0.00784	0.0135	1.00	pCi/g						
Niobium-95	UUI	0.00	+/-0.0611	0.0939	0.050	pCi/g						
Potassium-40	UUI	0.00	+/-1.00	0.126	1.00	pCi/g						
Promethium-144	U	0.00279	+/-0.00916	0.0157	0.080	pCi/g						
Promethium-146	U	0.00905	+/-0.00936	0.0169	1.00	pCi/g						
Radium-226		0.573	+/-0.0837	0.0258		pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 27, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: #15 Geoprobe Tube Bottom
Sample ID: 79173001

Proiect: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Radium-228		1.07	+/-0.172	0.0487	0.500	pCi/g					
Ruthenium-106	U	-0.0181	+/-0.0805	0.138	0.800	pCi/g					
Silver-110m	U	0.00356	+/-0.009	0.0156	0.080	pCi/g					
Sodium-22	U	0.00148	+/-0.00985	0.0167	0.080	pCi/g					
Thallium-208		0.356	+/-0.0478	0.0134	0.080	pCi/g					
Thorium-230		0.573	+/-0.0837	0.0258	1.00	pCi/g					
Thorium-234		0.847	+/-0.543	0.415	2.00	pCi/g					
Tin-113	U	-0.00747	+/-0.0158	0.0265	0.100	pCi/g					
Uranium-235	U	0.0347	+/-0.0789	0.0902	0.500	pCi/g					
Uranium-238		0.847	+/-0.543	0.415	1.00	pCi/g					
Yttrium-88	U	0.00404	+/-0.0126	0.022	0.100	pCi/g					
Zinc-65	U	0.00138	+/-0.0266	0.0388	0.300	pCi/g					
Zirconium-95	U	0.0369	+/-0.0442	0.0665	0.200	pCi/g					

Following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep RAD A-021,A-021B,A-026	TCD	05/01/03	1003	248157

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Actual result is less than amount reported
> Actual result is greater than amount reported
B Analyte found in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration exceeds instrument calibration range
H Holding time exceeded
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D
U Indicates the compound was analyzed for but not detected above the detection limit
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier - must be fully described in case narrative and data summary package
Y QC Samples were not spiked with this compound.
h Holding time exceeded

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 302 Westfield Road
Knoxville, Tennessee 37919

Report Date: May 27, 2003

Contact: Alan Duff
Project: Routine Analysis

Client Sample ID: #15 Geoprobe Tube Bottom
Sample ID: 79173001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: North Trench #2
Sample ID: 100114002
Matrix: Soil
Collect Date: 14-OCT-03 09:10
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.497	+/-0.174	0.154	0.800	pCi/g		SRB 11/10/03	1308	286307	1
Americium-241	U	-0.22	+/-0.231	0.311	0.200	pCi/g					
Antimony-124	U	0.0134	+/-0.0333	0.0609	0.100	pCi/g					
Antimony-125	U	-0.0277	+/-0.0757	0.124	0.200	pCi/g					
Barium-133	U	0.0335	+/-0.0375	0.0605	0.100	pCi/g					
Barium-140	U	0.0281	+/-0.437	0.683	0.500	pCi/g					
Beryllium-7	U	0.0381	+/-0.286	0.490	0.700	pCi/g					
ıth-212	U	0.271	+/-0.254	0.397	0.500	pCi/g					
ıth-214		0.237	+/-0.104	0.0857	0.200	pCi/g					
Cerium-139	U	0.00235	+/-0.0297	0.0449	0.050	pCi/g					
Cerium-141	U	0.0525	+/-0.108	0.116	0.100	pCi/g					
Cerium-144	U	0.0311	+/-0.183	0.315	0.500	pCi/g					
Cesium-134	U	0.0185	+/-0.0286	0.0533	0.100	pCi/g					
Cesium-136	U	-0.0565	+/-0.139	0.235	0.300	pCi/g					
Cesium-137		0.239	+/-0.0522	0.0475	0.100	pCi/g					
Chromium-51	U	0.171	+/-0.418	0.726	0.600	pCi/g					
Cobalt-56	U	-0.025	+/-0.0317	0.0513	0.100	pCi/g					
Cobalt-57	U	-0.00163	+/-0.023	0.0393	0.050	pCi/g					
Cobalt-58	U	0.0152	+/-0.0341	0.0629	0.100	pCi/g					
Cobalt-60	U	-0.00668	+/-0.0292	0.0528	0.100	pCi/g					
Europium-152	U	0.0469	+/-0.0795	0.131	0.200	pCi/g					
Europium-154	U	0.0468	+/-0.0914	0.172	0.500	pCi/g					
Europium-155	U	0.0218	+/-0.0958	0.166	0.500	pCi/g					
Iridium-192	U	0.0184	+/-0.0327	0.0573	0.100	pCi/g					
Iron-59	U	0.0046	+/-0.0774	0.139	0.300	pCi/g					
Lead-210	U	9.80	+/-10.5	16.0	4.00	pCi/g					
Lead-212		0.550	+/-0.0924	0.0771	0.100	pCi/g					
Lead-214		0.307	+/-0.106	0.0976	0.100	pCi/g					
Manganese-54	U	0.00234	+/-0.0273	0.0488	0.100	pCi/g					
Mercury-203	U	0.0431	+/-0.0427	0.076	0.100	pCi/g					
Neodymium-147	U	-0.167	+/-0.885	1.56	1000	pCi/g					
Neptunium-239	U	0.0187	+/-0.171	0.294	2.00	pCi/g					
Niobium-94	U	-0.0096	+/-0.0262	0.0447	1.00	pCi/g					
Niobium-95	U	-0.0254	+/-0.044	0.0735	0.050	pCi/g					
Potassium-40		2.73	+/-0.699	0.601	1.00	pCi/g					
Promethium-144	U	0.0133	+/-0.0272	0.0499	0.080	pCi/g					
Promethium-146	U	0.000743	+/-0.0374	0.063	1.00	pCi/g					
Radium-226		0.237	+/-0.104	0.0857		pCi/g					
Radium-228		0.497	+/-0.174	0.154	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: North Trench #1
Sample ID: 100114001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Radium-228		0.604	+/-0.132	0.072	0.500	pCi/g					
Ruthenium-106	U	0.0242	+/-0.105	0.202	0.800	pCi/g					
Silver-110m	U	0.00731	+/-0.0124	0.022	0.080	pCi/g					
Sodium-22	U	-0.00684	+/-0.0134	0.0241	0.080	pCi/g					
Thallium-208		0.159	+/-0.0381	0.0228	0.080	pCi/g					
Thorium-230		0.361	+/-0.0759	0.0434	1.00	pCi/g					
Thorium-234	U	0.810	+/-1.14	0.816	2.00	pCi/g					
Tin-113	U	0.00929	+/-0.0162	0.0306	0.100	pCi/g					
Uranium-235		0.151	+/-0.150	0.149	0.500	pCi/g					
Uranium-238	U	0.810	+/-1.14	0.816	1.00	pCi/g					
Yttrium-88	U	0.00527	+/-0.0112	0.0241	0.100	pCi/g					
65	U	0.0055	+/-0.0359	0.0577	0.300	pCi/g					
ium-95	U	0.0254	+/-0.0293	0.0576	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXG1	10/17/03	1448	285107

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: North Trench #2
Sample ID: 100114002

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison
Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: North Trench #3
Sample ID: 100114003
Matrix: Soil
Collect Date: 14-OCT-03 09:30
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.350	+/-0.110	0.0789	0.800	pCi/g		SRB 11/10/03	1343	286307	1
Americium-241	U	-0.000615	+/-0.0537	0.0929	0.200	pCi/g					
Antimony-124	U	0.00152	+/-0.0163	0.0265	0.100	pCi/g					
Antimony-125	U	-0.0138	+/-0.0293	0.0529	0.200	pCi/g					
Barium-133	U	0.00895	+/-0.0135	0.024	0.100	pCi/g					
Barium-140	U	0.0283	+/-0.160	0.301	0.500	pCi/g					
Beryllium-7	U	-0.0348	+/-0.117	0.213	0.700	pCi/g					
uth-212	U	0.0787	+/-0.166	0.175	0.500	pCi/g					
uth-214		0.142	+/-0.0534	0.0426	0.200	pCi/g					
Cerium-139	U	-0.00157	+/-0.0113	0.0182	0.050	pCi/g					
Cerium-141	U	0.0259	+/-0.0434	0.0492	0.100	pCi/g					
Cerium-144	U	0.00524	+/-0.0668	0.124	0.500	pCi/g					
Cesium-134	U	0.0235	+/-0.0146	0.0296	0.100	pCi/g					
Cesium-136	U	-0.00781	+/-0.0602	0.113	0.300	pCi/g					
Cesium-137		0.0589	+/-0.0273	0.021	0.100	pCi/g					
Chromium-51	U	0.0879	+/-0.182	0.330	0.600	pCi/g					
Cobalt-56	U	0.0124	+/-0.0145	0.0284	0.100	pCi/g					
Cobalt-57	U	0.00483	+/-0.00848	0.0161	0.050	pCi/g					
Cobalt-58	U	0.00913	+/-0.0139	0.027	0.100	pCi/g					
Cobalt-60	U	-0.00666	+/-0.0116	0.0201	0.100	pCi/g					
Europium-152	U	0.00195	+/-0.0308	0.0582	0.200	pCi/g					
Europium-154	U	-0.0179	+/-0.0354	0.0622	0.500	pCi/g					
Europium-155	U	0.00568	+/-0.0346	0.0651	0.500	pCi/g					
Iridium-192	U	-0.00942	+/-0.0148	0.0247	0.100	pCi/g					
Iron-59	U	-0.00254	+/-0.0278	0.0527	0.300	pCi/g					
Lead-210	U	1.35	+/-1.38	2.54	4.00	pCi/g					
Lead-212		0.388	+/-0.0602	0.0374	0.100	pCi/g					
Lead-214		0.128	+/-0.0465	0.0419	0.100	pCi/g					
Manganese-54	U	0.00409	+/-0.0118	0.0222	0.100	pCi/g					
Mercury-203	U	0.00885	+/-0.0272	0.030	0.100	pCi/g					
Neodymium-147	U	-0.121	+/-0.371	0.670	1000	pCi/g					
Neptunium-239	U	-0.0181	+/-0.0617	0.113	2.00	pCi/g					
Niobium-94	U	-0.00101	+/-0.0109	0.0197	1.00	pCi/g					
Niobium-95	U	0.00465	+/-0.0207	0.0381	0.050	pCi/g					
Potassium-40		1.43	+/-0.338	0.215	1.00	pCi/g					
Promethium-144	U	-0.00304	+/-0.0129	0.0228	0.080	pCi/g					
Promethium-146	U	-0.00472	+/-0.0151	0.0273	1.00	pCi/g					
Radium-226		0.142	+/-0.0534	0.0426		pCi/g					
P ium-228		0.350	+/-0.110	0.0789	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: North Trench #3
Sample ID: 100114003

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.0135	+/-0.110	0.203	0.800	pCi/g					
Silver-110m	U	-0.0066	+/-0.0129	0.0192	0.080	pCi/g					
Sodium-22	U	-0.00663	+/-0.0127	0.0223	0.080	pCi/g					
Thallium-208		0.132	+/-0.0364	0.0214	0.080	pCi/g					
Thorium-230		0.142	+/-0.0534	0.0426	1.00	pCi/g					
Thorium-234	U	0.531	+/-0.958	0.823	2.00	pCi/g					
Tin-113	U	-0.0136	+/-0.0154	0.0271	0.100	pCi/g					
Uranium-235	U	0.129	+/-0.139	0.143	0.500	pCi/g					
Uranium-238	U	0.531	+/-0.958	0.823	1.00	pCi/g					
Yttrium-88	U	0.000844	+/-0.0142	0.0273	0.100	pCi/g					
Zinc-65	U	-0.0107	+/-0.0292	0.045	0.300	pCi/g					
›nium-95	U	0.0187	+/-0.0265	0.0514	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXG1	10/17/03	1448	285107

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: North Trench #3
Sample ID: 100114003

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #5
Sample ID: 100114004
Matrix: Soil
Collect Date: 14-OCT-03 09:55
Receive Date: 16-OCT-03
Collector: Client

Proiect: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.473	+/-0.131	0.0879	0.800	pCi/g		SRB	11/10/03	1343	286307	1
Americium-241	U	0.0465	+/-0.0684	0.129	0.200	pCi/g						
Antimony-124	U	0.000227	+/-0.0212	0.0331	0.100	pCi/g						
Antimony-125	U	-0.0272	+/-0.0359	0.0622	0.200	pCi/g						
Barium-133	U	-0.0192	+/-0.0202	0.030	0.100	pCi/g						
Barium-140	U	-0.0286	+/-0.207	0.369	0.500	pCi/g						
Beryllium-7	U	0.105	+/-0.145	0.276	0.700	pCi/g						
[illegible]th-212		0.374	+/-0.233	0.200	0.500	pCi/g						
[illegible]th-214		0.327	+/-0.0724	0.0497	0.200	pCi/g						
Cerium-139	U	0.0138	+/-0.0183	0.0295	0.050	pCi/g						
Cerium-141	UUI	0.00	+/-0.149	0.112	0.100	pCi/g						
Cerium-144	U	0.00192	+/-0.112	0.199	0.500	pCi/g						
Cesium-134	U	0.0211	+/-0.0175	0.0336	0.100	pCi/g						
Cesium-136	U	0.0188	+/-0.0777	0.147	0.300	pCi/g						
Cesium-137		0.137	+/-0.041	0.0257	0.100	pCi/g						
Chromium-51	U	-0.0953	+/-0.198	0.357	0.600	pCi/g						
Cobalt-56	U	-0.0132	+/-0.0168	0.0272	0.100	pCi/g						
Cobalt-57	UUI	0.00	+/-0.0266	0.0246	0.050	pCi/g						
Cobalt-58	U	0.00165	+/-0.0161	0.029	0.100	pCi/g						
Cobalt-60	U	-0.00328	+/-0.0142	0.0256	0.100	pCi/g						
Europium-152	U	0.0211	+/-0.039	0.0738	0.200	pCi/g						
Europium-154	U	0.0172	+/-0.0444	0.0849	0.500	pCi/g						
Europium-155	UUI	0.00	+/-0.0894	0.110	0.500	pCi/g						
Iridium-192	U	-0.0032	+/-0.0156	0.0285	0.100	pCi/g						
Iron-59	U	-0.00559	+/-0.0364	0.0668	0.300	pCi/g						
Lead-210	U	3.33	+/-3.72	3.35	4.00	pCi/g						
Lead-212		0.505	+/-0.0758	0.0411	0.100	pCi/g						
Lead-214		0.384	+/-0.0919	0.049	0.100	pCi/g						
Manganese-54	U	-0.00184	+/-0.0158	0.0275	0.100	pCi/g						
Mercury-203	U	0.00057	+/-0.020	0.0371	0.100	pCi/g						
Neodymium-147	U	-0.283	+/-0.488	0.842	1000	pCi/g						
Neptunium-239	U	-0.106	+/-0.102	0.176	2.00	pCi/g						
Niobium-94	U	0.000532	+/-0.0128	0.0229	1.00	pCi/g						
Niobium-95	U	0.0108	+/-0.0273	0.0441	0.050	pCi/g						
Potassium-40		5.87	+/-0.802	0.231	1.00	pCi/g						
Promethium-144	U	-0.00039	+/-0.0141	0.025	0.080	pCi/g						
Promethium-146	U	0.0246	+/-0.0216	0.0316	1.00	pCi/g						
Radium-226		0.327	+/-0.0724	0.0497		pCi/g						
R[illegible]ium-228		0.473	+/-0.131	0.0879	0.500	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #5
Sample ID: 100114004

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	-0.015	+/-0.126	0.225	0.800	pCi/g					
Silver-110m	U	0.00079	+/-0.0159	0.0251	0.080	pCi/g					
Sodium-22	U	0.00621	+/-0.016	0.0306	0.080	pCi/g					
Thallium-208		0.188	+/-0.0439	0.0231	0.080	pCi/g					
Thorium-230		0.327	+/-0.0724	0.0497	1.00	pCi/g					
Thorium-234		1.58	+/-1.04	1.09	2.00	pCi/g					
Tin-113	U	0.00202	+/-0.019	0.035	0.100	pCi/g					
Uranium-235		2.51	+/-0.539	0.191	0.500	pCi/g					
Uranium-238		1.58	+/-1.04	1.09	1.00	pCi/g					
Yttrium-88	U	-0.00167	+/-0.0161	0.0295	0.100	pCi/g					
Zinc-65	U	-0.00273	+/-0.0362	0.0576	0.300	pCi/g					
[illegible]nium-95	U	0.0245	+/-0.031	0.0589	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXG1	10/17/03	1448	285107

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #5
Sample ID: 100114004

Proiect: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #6
Sample ID: 100114005
Matrix: Soil
Collect Date: 14-OCT-03 10:15
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.486	+/-0.143	0.0788	0.800	pCi/g		SRB	11/10/03	1344	286307	1
Americium-241	UUI	0.00	+/-0.145	0.101	0.200	pCi/g						
Antimony-124	U	-0.00152	+/-0.0164	0.030	0.100	pCi/g						
Antimony-125	U	-0.0114	+/-0.034	0.0584	0.200	pCi/g						
Barium-133	U	0.0265	+/-0.0185	0.0269	0.100	pCi/g						
Barium-140	U	-0.0162	+/-0.174	0.323	0.500	pCi/g						
Beryllium-7	U	0.232	+/-0.137	0.278	0.700	pCi/g						
uth-212		0.523	+/-0.229	0.194	0.500	pCi/g						
.uth-214		0.374	+/-0.0774	0.0505	0.200	pCi/g						
Cerium-139	U	0.0163	+/-0.0412	0.0683	0.050	pCi/g						
Cerium-141	UUI	0.00	+/-3.67	0.298	0.100	pCi/g						
Cerium-144	U	0.0733	+/-0.303	0.510	0.500	pCi/g						
Cesium-134	U	0.0213	+/-0.0166	0.0298	0.100	pCi/g						
Cesium-136	U	-0.0769	+/-0.0763	0.128	0.300	pCi/g						
Cesium-137	U	0.0164	+/-0.0335	0.025	0.100	pCi/g						
Chromium-51	U	0.0585	+/-0.199	0.362	0.600	pCi/g						
Cobalt-56	U	-0.00666	+/-0.0166	0.0286	0.100	pCi/g						
Cobalt-57	UUI	0.00	+/-0.147	0.0794	0.050	pCi/g						
Cobalt-58	U	0.00205	+/-0.0166	0.0303	0.100	pCi/g						
Cobalt-60	U	0.000532	+/-0.0148	0.0242	0.100	pCi/g						
Europium-152	UUI	0.00	+/-0.0661	0.0665	0.200	pCi/g						
Europium-154	U	-0.0268	+/-0.045	0.0773	0.500	pCi/g						
Europium-155	UUI	0.00	+/-0.559	0.334	0.500	pCi/g						
Iridium-192	U	-0.00643	+/-0.0153	0.0269	0.100	pCi/g						
Iron-59	U	0.000579	+/-0.0413	0.0766	0.300	pCi/g						
Lead-210	U	0.737	+/-0.967	0.825	4.00	pCi/g						
Lead-212		0.627	+/-0.109	0.0427	0.100	pCi/g						
Lead-214		0.400	+/-0.0737	0.0413	0.100	pCi/g						
Manganese-54	U	-0.000677	+/-0.0144	0.0258	0.100	pCi/g						
Mercury-203	UUI	0.00	+/-0.0498	0.0329	0.100	pCi/g						
Neodymium-147	U	-0.332	+/-0.429	0.750	1000	pCi/g						
Neptunium-239	U	0.256	+/-0.291	0.496	2.00	pCi/g						
Niobium-94	U	-0.000514	+/-0.0123	0.0222	1.00	pCi/g						
Niobium-95	U	0.00271	+/-0.0231	0.0421	0.050	pCi/g						
Potassium-40		6.16	+/-0.774	0.227	1.00	pCi/g						
Promethium-144	U	0.000951	+/-0.0153	0.0246	0.080	pCi/g						
Promethium-146	U	0.00412	+/-0.0153	0.0293	1.00	pCi/g						
Radium-226		0.374	+/-0.0774	0.0505		pCi/g						
Radium-228		0.486	+/-0.143	0.0788	0.500	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #6
Sample ID: 100114005

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	-0.0524	+/-0.121	0.215	0.800	pCi/g					
Silver-110m	U	-0.0018	+/-0.0152	0.0242	0.080	pCi/g					
Sodium-22	U	-0.00975	+/-0.0162	0.0278	0.080	pCi/g					
Thallium-208		0.216	+/-0.0446	0.022	0.080	pCi/g					
Thorium-230		0.374	+/-0.0774	0.0505	1.00	pCi/g					
Thorium-234		1.09	+/-1.16	1.08	2.00	pCi/g					
Tin-113	U	0.0116	+/-0.0183	0.0306	0.100	pCi/g					
Uranium-235		68.4	+/-14.0	0.464	0.500	pCi/g					
Uranium-238		1.09	+/-1.16	1.03	1.00	pCi/g					
Yttrium-88	U	0.00649	+/-0.0138	0.0292	0.100	pCi/g					
Zinc-65	U	-0.0744	+/-0.0381	0.0568	0.300	pCi/g					
›nium-95	U	0.0108	+/-0.030	0.0561	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXG1	10/17/03	1448	285107

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #6
Sample ID: 100114005

Proiect: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #7
Sample ID: 100114006
Matrix: Soil
Collect Date: 14-OCT-03 10:40
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.202	+/-0.0985	0.122	0.800	pCi/g		SRB	11/10/03	1345	286307	1
Americium-241	U	0.0092	+/-0.0181	0.0352	0.200	pCi/g						
Antimony-124	U	0.0118	+/-0.0197	0.0386	0.100	pCi/g						
Antimony-125	U	0.0115	+/-0.0369	0.0687	0.200	pCi/g						
Barium-133	U	-0.002	+/-0.0186	0.0303	0.100	pCi/g						
Barium-140	U	0.0822	+/-0.231	0.422	0.500	pCi/g						
Beryllium-7	U	0.178	+/-0.162	0.317	0.700	pCi/g						
[illegible]th-212		0.292	+/-0.261	0.223	0.500	pCi/g						
[illegible]uth-214	UUI	0.00	+/-0.0683	0.0923	0.200	pCi/g						
Cerium-139	U	-0.00845	+/-0.0125	0.019	0.050	pCi/g						
Cerium-141	UUI	0.00	+/-0.0622	0.0606	0.100	pCi/g						
Cerium-144	U	0.0333	+/-0.0718	0.131	0.500	pCi/g						
Cesium-134	U	0.0189	+/-0.0184	0.0371	0.100	pCi/g						
Cesium-136	U	0.0171	+/-0.0905	0.169	0.300	pCi/g						
Cesium-137	U	0.0257	+/-0.0265	0.0316	0.100	pCi/g						
Chromium-51	U	-0.0103	+/-0.192	0.354	0.600	pCi/g						
Cobalt-56	U	-0.0129	+/-0.0205	0.0353	0.100	pCi/g						
Cobalt-57	U	0.00746	+/-0.00931	0.0174	0.050	pCi/g						
Cobalt-58	U	0.00697	+/-0.0182	0.0353	0.100	pCi/g						
Cobalt-60	U	5.570E-05	+/-0.0155	0.0299	0.100	pCi/g						
Europium-152	U	-0.00148	+/-0.036	0.0662	0.200	pCi/g						
Europium-154	U	-0.00235	+/-0.0441	0.0843	0.500	pCi/g						
Europium-155	U	0.0588	+/-0.0659	0.0675	0.500	pCi/g						
Iridium-192	U	-0.00795	+/-0.0145	0.0259	0.100	pCi/g						
Iron-59	U	0.00305	+/-0.0529	0.0849	0.300	pCi/g						
Lead-210		0.911	+/-0.488	0.303	4.00	pCi/g						
Lead-212		0.195	+/-0.0505	0.0421	0.100	pCi/g						
Lead-214		0.149	+/-0.0686	0.0466	0.100	pCi/g						
Manganese-54	U	-0.000776	+/-0.0176	0.0285	0.100	pCi/g						
Mercury-203	U	-0.00716	+/-0.0163	0.0297	0.100	pCi/g						
Neodymium-147	U	0.0308	+/-0.511	0.921	1000	pCi/g						
Neptunium-239	U	0.0305	+/-0.0648	0.120	2.00	pCi/g						
Niobium-94	U	0.000365	+/-0.0146	0.0274	1.00	pCi/g						
Niobium-95	U	-0.00466	+/-0.0268	0.0489	0.050	pCi/g						
Potassium-40		1.92	+/-0.497	0.273	1.00	pCi/g						
Promethium-144	U	-0.00941	+/-0.0158	0.0279	0.080	pCi/g						
Promethium-146	U	0.000324	+/-0.0187	0.0338	1.00	pCi/g						
Radium-226		0.188	+/-0.0683	0.0492		pCi/g						
[illegible]ium-228		0.202	+/-0.0985	0.122	0.500	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #7
Sample ID: 100114006

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	-0.0589	+/-0.141	0.256	0.800	pCi/g					
Silver-110m	U	-0.00123	+/-0.0181	0.0298	0.080	pCi/g					
Sodium-22	U	-0.000846	+/-0.0159	0.0304	0.080	pCi/g					
Thallium-208		0.0766	+/-0.0318	0.0269	0.080	pCi/g					
Thorium-230		0.188	+/-0.0683	0.0492	1.00	pCi/g					
Thorium-234		0.789	+/-0.525	0.321	2.00	pCi/g					
Tin-113	U	0.00387	+/-0.0187	0.0347	0.100	pCi/g					
Uranium-235		0.758	+/-0.196	0.129	0.500	pCi/g					
Uranium-238		0.789	+/-0.525	0.321	1.00	pCi/g					
Yttrium-88	U	0.0126	+/-0.0168	0.0377	0.100	pCi/g					
Zinc-65	U	0.0137	+/-0.0471	0.0773	0.300	pCi/g					
nium-95	U	-0.0015	+/-0.034	0.0633	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXG1	10/17/03	1448	285107

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #7
Sample ID: 100114006

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #8
Sample ID: 100114007
Matrix: Soil
Collect Date: 14-OCT-03 11:05
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228	UUI	0.00	+/-0.127	0.149	0.800	pCi/g		SRB 11/10/03	1514	286307	1
Americium-241	U	0.026	+/-0.0618	0.0642	0.200	pCi/g					
Antimony-124	U	-0.0072	+/-0.0202	0.036	0.100	pCi/g					
Antimony-125	U	0.00875	+/-0.0388	0.0743	0.200	pCi/g					
Barium-133	U	0.00445	+/-0.0195	0.0333	0.100	pCi/g					
Barium-140	U	-0.204	+/-0.234	0.380	0.500	pCi/g					
Beryllium-7	U	-0.0823	+/-0.181	0.325	0.700	pCi/g					
ıth-212	U	0.170	+/-0.132	0.278	0.500	pCi/g					
.uth-214	U	0.0495	+/-0.0717	0.0859	0.200	pCi/g					
Cerium-139	U	0.00424	+/-0.0172	0.0284	0.050	pCi/g					
Cerium-141	UUI	0.00	+/-0.109	0.100	0.100	pCi/g					
Cerium-144	U	-0.0308	+/-0.0996	0.182	0.500	pCi/g					
Cesium-134	U	-0.00346	+/-0.0169	0.0319	0.100	pCi/g					
Cesium-136	U	0.0816	+/-0.0986	0.200	0.300	pCi/g					
Cesium-137		0.0415	+/-0.0446	0.0321	0.100	pCi/g					
Chromium-51	U	0.140	+/-0.221	0.434	0.600	pCi/g					
Cobalt-56	U	0.0314	+/-0.0287	0.0364	0.100	pCi/g					
Cobalt-57	U	0.00085	+/-0.0131	0.0245	0.050	pCi/g					
Cobalt-58	U	0.00178	+/-0.0187	0.0364	0.100	pCi/g					
Cobalt-60	U	0.000975	+/-0.0187	0.0352	0.100	pCi/g					
Europium-152	U	0.00765	+/-0.042	0.0805	0.200	pCi/g					
Europium-154	U	0.0301	+/-0.0474	0.0971	0.500	pCi/g					
Europium-155	UUI	0.00	+/-0.0855	0.0985	0.500	pCi/g					
Iridium-192	U	-0.0266	+/-0.016	0.0269	0.100	pCi/g					
Iron-59	U	0.0181	+/-0.045	0.0894	0.300	pCi/g					
Lead-210	U	0.301	+/-0.817	0.745	4.00	pCi/g					
Lead-212		0.198	+/-0.0577	0.0447	0.100	pCi/g					
Lead-214		0.114	+/-0.0671	0.0603	0.100	pCi/g					
Manganese-54	U	-0.0221	+/-0.0159	0.0256	0.100	pCi/g					
Mercury-203	U	-0.0104	+/-0.0219	0.0356	0.100	pCi/g					
Neodymium-147	U	-0.338	+/-0.570	0.998	1000	pCi/g					
Neptunium-239	U	0.0013	+/-0.165	0.172	2.00	pCi/g					
Niobium-94	U	-0.00285	+/-0.0138	0.0247	1.00	pCi/g					
Niobium-95	U	0.0194	+/-0.0267	0.0542	0.050	pCi/g					
Potassium-40		1.27	+/-0.415	0.324	1.00	pCi/g					
Promethium-144	U	0.0224	+/-0.0163	0.0332	0.080	pCi/g					
Promethium-146	U	0.000329	+/-0.0189	0.0354	1.00	pCi/g					
Radium-226	U	0.0495	+/-0.0717	0.0568		pCi/g					
P-ıium-228	UUI	0.00	+/-0.127	0.149	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #8
Sample ID: 100114007

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	-0.0272	+/-0.139	0.252	0.800	pCi/g					
Silver-110m	U	-0.00192	+/-0.0188	0.0296	0.080	pCi/g					
Sodium-22	U	0.0111	+/-0.0171	0.0351	0.080	pCi/g					
Thallium-208		0.0407	+/-0.0295	0.0335	0.080	pCi/g					
Thorium-230	U	0.0495	+/-0.0717	0.0568	1.00	pCi/g					
Thorium-234		0.787	+/-0.659	0.583	2.00	pCi/g					
Tin-113	U	-0.0171	+/-0.020	0.0354	0.100	pCi/g					
Uranium-235		1.43	+/-0.353	0.184	0.500	pCi/g					
Uranium-238		0.787	+/-0.659	0.583	1.00	pCi/g					
Yttrium-88	U	-0.00989	+/-0.0167	0.0295	0.100	pCi/g					
Zinc-65	U	-0.0106	+/-0.0436	0.0681	0.300	pCi/g					
ium-95	U	0.000801	+/-0.0337	0.0653	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXG1	10/17/03	1448	285107

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #8
Sample ID: 100114007

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #9
Sample ID: 100114008
Matrix: Soil
Collect Date: 14-OCT-03 11:15
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.565	+/-0.459	0.292	0.800	pCi/g		SRB	11/11/03	0836	286307	1
Americium-241	U	-0.0543	+/-0.171	0.246	0.200	pCi/g						
Antimony-124	U	-0.026	+/-0.070	0.113	0.100	pCi/g						
Antimony-125	U	-0.0738	+/-0.130	0.197	0.200	pCi/g						
Barium-133	U	-0.027	+/-0.0621	0.0828	0.100	pCi/g						
Barium-140	U	0.511	+/-0.707	1.16	0.500	pCi/g						
Beryllium-7	U	0.536	+/-0.681	0.856	0.700	pCi/g						
Bismuth-212	U	0.718	+/-0.446	0.794	0.500	pCi/g						
Bismuth-214	U	0.169	+/-0.173	0.222	0.200	pCi/g						
Cerium-139	U	0.0274	+/-0.0564	0.0755	0.050	pCi/g						
Cerium-141	UUI	0.00	+/-0.282	0.259	0.100	pCi/g						
Cerium-144	U	0.0888	+/-0.325	0.480	0.500	pCi/g						
Cesium-134	U	0.0488	+/-0.0669	0.0969	0.100	pCi/g						
Cesium-136	U	0.130	+/-0.359	0.514	0.300	pCi/g						
Cesium-137		0.143	+/-0.0751	0.0789	0.100	pCi/g						
Chromium-51	U	-0.904	+/-0.735	1.05	0.600	pCi/g						
Cobalt-56	U	0.067	+/-0.0674	0.120	0.100	pCi/g						
Cobalt-57	U	0.0466	+/-0.0425	0.0643	0.050	pCi/g						
Cobalt-58	U	-0.0171	+/-0.0632	0.103	0.100	pCi/g						
Cobalt-60	U	0.0373	+/-0.060	0.101	0.100	pCi/g						
Europium-152	U	0.0341	+/-0.135	0.217	0.200	pCi/g						
Europium-154	U	0.00911	+/-0.155	0.274	0.500	pCi/g						
Europium-155	UUI	0.00	+/-0.252	0.257	0.500	pCi/g						
Iridium-192	U	0.0623	+/-0.0572	0.0936	0.100	pCi/g						
Iron-59	U	0.160	+/-0.161	0.247	0.300	pCi/g						
Lead-210	U	5.20	+/-6.60	5.58	4.00	pCi/g						
Lead-212		0.490	+/-0.164	0.121	0.100	pCi/g						
Lead-214		0.388	+/-0.169	0.145	0.100	pCi/g						
Manganese-54	U	0.0474	+/-0.0538	0.0951	0.100	pCi/g						
Mercury-203	U	-0.0197	+/-0.069	0.107	0.100	pCi/g						
Neodymium-147	U	1.22	+/-1.78	2.95	1000	pCi/g						
Neptunium-239	U	-0.0824	+/-0.286	0.413	2.00	pCi/g						
Niobium-94	U	-0.0223	+/-0.0475	0.0759	1.00	pCi/g						
Niobium-95	U	0.00273	+/-0.0853	0.142	0.050	pCi/g						
Potassium-40		4.33	+/-1.48	0.897	1.00	pCi/g						
Promethium-144	U	0.0578	+/-0.0511	0.0901	0.080	pCi/g						
Promethium-146	U	0.020	+/-0.0592	0.0959	1.00	pCi/g						
Radium-226	U	0.169	+/-0.173	0.187		pCi/g						
Thorium-228		0.565	+/-0.459	0.292	0.500	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #9
Sample ID: 100114008

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	-0.218	+/-0.442	0.707	0.800	pCi/g					
Silver-110m	U	-0.00724	+/-0.0525	0.0752	0.080	pCi/g					
Sodium-22	U	0.00258	+/-0.0558	0.0984	0.080	pCi/g					
Thallium-208		0.129	+/-0.0816	0.0793	0.080	pCi/g					
Thorium-230	U	0.169	+/-0.173	0.187	1.00	pCi/g					
Thorium-234	UUI	0.00	+/-1.90	2.65	2.00	pCi/g					
Tin-113	U	-0.0298	+/-0.0775	0.104	0.100	pCi/g					
Uranium-235		3.82	+/-0.915	0.466	0.500	pCi/g					
Uranium-238	UUI	0.00	+/-1.90	2.65	1.00	pCi/g					
Yttrium-88	U	0.00226	+/-0.0638	0.118	0.100	pCi/g					
Zinc-65	U	-0.0695	+/-0.128	0.211	0.300	pCi/g					
·nium-95	U	-0.0247	+/-0.104	0.170	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXG1	10/17/03	1448	285107

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #9
Sample ID: 100114008

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #10
Sample ID: 100114009
Matrix: Soil
Collect Date: 14-OCT-03 13:20
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.598	+/-0.118	0.0915	0.800	pCi/g		SRB	11/10/03	1544	286307	1
Americium-241	U	-0.0853	+/-0.262	0.477	0.200	pCi/g						
Antimony-124	U	0.0148	+/-0.0157	0.0312	0.100	pCi/g						
Antimony-125	U	0.011	+/-0.034	0.0624	0.200	pCi/g						
Barium-133	U	-0.0697	+/-0.0202	0.0296	0.100	pCi/g						
Barium-140	U	0.101	+/-0.180	0.354	0.500	pCi/g						
Beryllium-7	U	-0.109	+/-0.145	0.243	0.700	pCi/g						
[illegible]ith-212		0.631	+/-0.259	0.168	0.500	pCi/g						
[illegible]uth-214		0.350	+/-0.057	0.0419	0.200	pCi/g						
Cerium-139	U	0.0662	+/-0.052	0.0888	0.050	pCi/g						
Cerium-141	UUI	0.00	+/-0.345	0.376	0.100	pCi/g						
Cerium-144	U	0.412	+/-0.561	0.617	0.500	pCi/g						
Cesium-134	U	0.0218	+/-0.0262	0.0303	0.100	pCi/g						
Cesium-136	U	-0.022	+/-0.0825	0.144	0.300	pCi/g						
Cesium-137		0.0619	+/-0.0253	0.0245	0.100	pCi/g						
Chromium-51	U	-0.109	+/-0.193	0.341	0.600	pCi/g						
Cobalt-56	U	0.00939	+/-0.0149	0.029	0.100	pCi/g						
Cobalt-57	UUI	0.00	+/-0.101	0.0787	0.050	pCi/g						
Cobalt-58	U	0.0236	+/-0.0262	0.027	0.100	pCi/g						
Cobalt-60	U	0.0125	+/-0.0158	0.0315	0.100	pCi/g						
Europium-152	UUI	0.00	+/-0.0805	0.0638	0.200	pCi/g						
Europium-154	U	0.007	+/-0.0448	0.0847	0.500	pCi/g						
Europium-155	UUI	0.00	+/-0.354	0.383	0.500	pCi/g						
Iridium-192	U	0.00961	+/-0.0146	0.0277	0.100	pCi/g						
Iron-59	U	0.0215	+/-0.0433	0.0728	0.300	pCi/g						
Lead-210	U	-0.0119	+/-10.7	18.4	4.00	pCi/g						
Lead-212		0.744	+/-0.0619	0.0464	0.100	pCi/g						
Lead-214		0.424	+/-0.0629	0.0474	0.100	pCi/g						
Manganese-54	U	0.00312	+/-0.0138	0.0229	0.100	pCi/g						
Mercury-203	UUI	0.00	+/-0.0343	0.0365	0.100	pCi/g						
Neodymium-147	U	-0.36	+/-0.426	0.764	1000	pCi/g						
Neptunium-239	U	-0.0546	+/-0.308	0.590	2.00	pCi/g						
Niobium-94	U	-0.0029	+/-0.0116	0.0212	1.00	pCi/g						
Niobium-95	U	0.0233	+/-0.0272	0.0472	0.050	pCi/g						
Potassium-40		10.6	+/-0.649	0.234	1.00	pCi/g						
Promethium-144	U	-0.00104	+/-0.0121	0.0222	0.080	pCi/g						
Promethium-146	U	0.0138	+/-0.0189	0.0306	1.00	pCi/g						
Radium-226		0.350	+/-0.057	0.0419		pCi/g						
[illegible]um-228		0.598	+/-0.118	0.0915	0.500	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #10
Sample ID: 100114009

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	-0.00693	+/-0.112	0.209	0.800	pCi/g					
Silver-110m	U	-0.0233	+/-0.015	0.025	0.080	pCi/g					
Sodium-22	U	0.00228	+/-0.0161	0.0304	0.080	pCi/g					
Thallium-208		0.220	+/-0.0426	0.0225	0.080	pCi/g					
Thorium-230		0.350	+/-0.057	0.0419	1.00	pCi/g					
Thorium-234	U	1.26	+/-2.02	3.70	2.00	pCi/g					
Tin-113	U	0.00349	+/-0.0258	0.0268	0.100	pCi/g					
Uranium-235		62.3	+/-0.881	0.575	0.500	pCi/g					
Uranium-238	U	1.26	+/-2.02	3.70	1.00	pCi/g					
Yttrium-88	U	0.000541	+/-0.0114	0.0225	0.100	pCi/g					
Zinc-65	U	0.00536	+/-0.0376	0.0596	0.300	pCi/g					
nium-95	U	0.018	+/-0.0278	0.0542	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXG1	10/17/03	1449	285107

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #10
Sample ID: 100114009

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #11
Sample ID: 100114010
Matrix: Soil
Collect Date: 14-OCT-03 14:00
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228	UUI	0.00	+/-0.0697	0.0952	0.800	pCi/g		SRB	11/10/03	1547	286307	1
Americium-241	U	0.016	+/-0.112	0.209	0.200	pCi/g						
Antimony-124	U	-0.00908	+/-0.0123	0.0216	0.100	pCi/g						
Antimony-125	U	0.016	+/-0.0242	0.0452	0.200	pCi/g						
Barium-133	U	-0.0137	+/-0.014	0.0202	0.100	pCi/g						
Barium-140	U	0.071	+/-0.115	0.221	0.500	pCi/g						
Beryllium-7	U	0.0972	+/-0.147	0.179	0.700	pCi/g						
uth-212	UUI	0.00	+/-0.198	0.122	0.500	pCi/g						
.nuth-214		0.109	+/-0.041	0.0329	0.200	pCi/g						
Cerium-139	UUI	0.00	+/-0.0264	0.0442	0.050	pCi/g						
Cerium-141	UUI	0.00	+/-0.512	0.202	0.100	pCi/g						
Cerium-144	U	0.122	+/-0.155	0.293	0.500	pCi/g						
Cesium-134	U	0.00711	+/-0.0103	0.0195	0.100	pCi/g						
Cesium-136	U	-0.0104	+/-0.0562	0.0844	0.300	pCi/g						
Cesium-137		0.129	+/-0.029	0.0169	0.100	pCi/g						
Chromium-51	U	-0.0309	+/-0.136	0.246	0.600	pCi/g						
Cobalt-56	U	-0.0023	+/-0.0109	0.0193	0.100	pCi/g						
Cobalt-57	UUI	0.00	+/-0.0531	0.0379	0.050	pCi/g						
Cobalt-58	U	-0.0135	+/-0.0107	0.0171	0.100	pCi/g						
Cobalt-60	U	0.00676	+/-0.0102	0.0178	0.100	pCi/g						
Europium-152	U	-0.0146	+/-0.0279	0.0491	0.200	pCi/g						
Europium-154	U	0.0247	+/-0.0282	0.0554	0.500	pCi/g						
Europium-155	UUI	0.00	+/-0.175	0.184	0.500	pCi/g						
Iridium-192	U	-0.0059	+/-0.0109	0.0194	0.100	pCi/g						
Iron-59	U	-0.00697	+/-0.0241	0.0418	0.300	pCi/g						
Lead-210	U	-3.26	+/-3.95	6.46	4.00	pCi/g						
Lead-212		0.249	+/-0.0448	0.0309	0.100	pCi/g						
Lead-214		0.147	+/-0.0413	0.0343	0.100	pCi/g						
Manganese-54	U	-0.00217	+/-0.00946	0.0168	0.100	pCi/g						
Mercury-203	U	0.00621	+/-0.0211	0.0258	0.100	pCi/g						
Neodymium-147	U	-0.188	+/-0.290	0.519	1000	pCi/g						
Neptunium-239	U	-0.0659	+/-0.166	0.277	2.00	pCi/g						
Niobium-94	U	0.00954	+/-0.00846	0.0165	1.00	pCi/g						
Niobium-95	U	0.0137	+/-0.0211	0.0257	0.050	pCi/g						
Potassium-40		2.06	+/-0.308	0.114	1.00	pCi/g						
Promethium-144	U	-0.00429	+/-0.00904	0.016	0.080	pCi/g						
Promethium-146	U	-0.00137	+/-0.0112	0.0198	1.00	pCi/g						
Radium-226		0.109	+/-0.041	0.0329		pCi/g						
ium-228	UUI	0.00	+/-0.0697	0.0952	0.500	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #11
Sample ID: 100114010

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.0788	+/-0.0817	0.159	0.800	pCi/g					
Silver-110m	U	0.0107	+/-0.0103	0.0179	0.080	pCi/g					
Sodium-22	U	0.00892	+/-0.0101	0.020	0.080	pCi/g					
Thallium-208		0.0407	+/-0.0196	0.0168	0.080	pCi/g					
Thorium-230		0.109	+/-0.041	0.0329	1.00	pCi/g					
Thorium-234	U	0.665	+/-1.65	1.76	2.00	pCi/g					
Tin-113	U	-0.00854	+/-0.0142	0.0211	0.100	pCi/g					
Uranium-235		13.7	+/-2.46	0.270	0.500	pCi/g					
Uranium-238	U	0.665	+/-1.65	1.76	1.00	pCi/g					
Yttrium-88	U	-0.00703	+/-0.00972	0.0159	0.100	pCi/g					
Zinc-65	U	0.0021	+/-0.021	0.0344	0.300	pCi/g					
›nium-95	U	0.0225	+/-0.0231	0.0341	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXG1	10/17/03	1449	285107

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: South Trench #11
Sample ID: 100114010

Proiect: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 9-3
Sample ID: 100114011
Matrix: Soil
Collect Date: 13-OCT-03 12:15
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.551	+/-0.112	0.0542	0.800	pCi/g		SRB 11/10/03	1548	286307	1
Americium-241	U	-0.00938	+/-0.0297	0.061	0.200	pCi/g					
Antimony-124	U	-0.00192	+/-0.0108	0.0203	0.100	pCi/g					
Antimony-125	U	-0.00547	+/-0.022	0.0405	0.200	pCi/g					
Barium-133	U	0.00158	+/-0.012	0.0201	0.100	pCi/g					
Barium-140	U	0.0465	+/-0.130	0.240	0.500	pCi/g					
Beryllium-7	U	-0.0179	+/-0.0945	0.172	0.700	pCi/g					
uth-212		0.332	+/-0.137	0.114	0.500	pCi/g					
uth-214		0.421	+/-0.0654	0.0293	0.200	pCi/g					
Cerium-139	U	-0.00638	+/-0.00874	0.0161	0.050	pCi/g					
Cerium-141	U	0.026	+/-0.0416	0.0425	0.100	pCi/g					
Cerium-144	U	0.0307	+/-0.0579	0.113	0.500	pCi/g					
Cesium-134	UUI	0.00	+/-0.0204	0.0211	0.100	pCi/g					
Cesium-136	U	0.0885	+/-0.0498	0.103	0.300	pCi/g					
Cesium-137	U	-0.000618	+/-0.0086	0.0161	0.100	pCi/g					
Chromium-51	U	0.0234	+/-0.132	0.254	0.600	pCi/g					
Cobalt-56	U	0.00222	+/-0.0108	0.0199	0.100	pCi/g					
Cobalt-57	U	0.00162	+/-0.00686	0.0135	0.050	pCi/g					
Cobalt-58	U	-0.00749	+/-0.0102	0.0178	0.100	pCi/g					
Cobalt-60	U	0.00222	+/-0.00826	0.0156	0.100	pCi/g					
Europium-152	U	-0.0127	+/-0.0235	0.0436	0.200	pCi/g					
Europium-154	U	0.00241	+/-0.0319	0.0507	0.500	pCi/g					
Europium-155	U	0.0248	+/-0.0282	0.057	0.500	pCi/g					
Iridium-192	U	0.0015	+/-0.00948	0.0183	0.100	pCi/g					
Iron-59	U	-0.00685	+/-0.0262	0.0457	0.300	pCi/g					
Lead-210	U	0.790	+/-1.52	1.25	4.00	pCi/g					
Lead-212		0.689	+/-0.0821	0.0279	0.100	pCi/g					
Lead-214		0.512	+/-0.0771	0.0313	0.100	pCi/g					
Manganese-54	U	0.0137	+/-0.0144	0.0168	0.100	pCi/g					
Mercury-203	U	0.00734	+/-0.0121	0.024	0.100	pCi/g					
Neodymium-147	U	-0.228	+/-0.312	0.540	1000	pCi/g					
Neptunium-239	U	-0.0252	+/-0.0505	0.0972	2.00	pCi/g					
Niobium-94	U	0.00228	+/-0.00807	0.0152	1.00	pCi/g					
Niobium-95	U	0.0162	+/-0.0171	0.0293	0.050	pCi/g					
Potassium-40		6.11	+/-0.568	0.139	1.00	pCi/g					
Promethium-144	U	-0.0013	+/-0.0083	0.0153	0.080	pCi/g					
Promethium-146	U	-0.0058	+/-0.0107	0.0191	1.00	pCi/g					
Radium-226		0.421	+/-0.0654	0.0293		pCi/g					
Radium-228		0.551	+/-0.112	0.0542	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 9-3
Sample ID: 100114011

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	-0.014	+/-0.0752	0.141	0.800	pCi/g					
Silver-110m	U	0.000674	+/-0.00807	0.0153	0.080	pCi/g					
Sodium-22	U	0.000819	+/-0.0115	0.0183	0.080	pCi/g					
Thallium-208		0.170	+/-0.0284	0.0168	0.080	pCi/g					
Thorium-230		0.421	+/-0.0654	0.0293	1.00	pCi/g					
Thorium-234		1.35	+/-0.740	0.524	2.00	pCi/g					
Tin-113	U	0.00506	+/-0.0121	0.023	0.100	pCi/g					
Uranium-235	U	0.0762	+/-0.122	0.115	0.500	pCi/g					
Uranium-238		1.35	+/-0.740	0.524	1.00	pCi/g					
Yttrium-88	U	0.00257	+/-0.00948	0.0161	0.100	pCi/g					
Zinc-65	U	0.014	+/-0.0212	0.0364	0.300	pCi/g					
›nium-95	U	0.0228	+/-0.0219	0.0379	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXG1	10/17/03	1449	285107

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 9-3
Sample ID: 100114011

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 9-3 (3-4)
Sample ID: 100114015
Matrix: Soil
Collect Date: 13-OCT-03 12:15
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.504	+/-0.128	0.106	0.800	pCi/g		SRB	11/10/03	1725	286307	1
Americium-241	U	0.0275	+/-0.165	0.219	0.200	pCi/g						
Antimony-124	U	-0.00413	+/-0.0188	0.0347	0.100	pCi/g						
Antimony-125	U	0.0208	+/-0.0414	0.0776	0.200	pCi/g						
Barium-133	U	0.000677	+/-0.0229	0.0366	0.100	pCi/g						
Barium-140	U	0.091	+/-0.232	0.446	0.500	pCi/g						
Beryllium-7	U	-0.15	+/-0.182	0.305	0.700	pCi/g						
uth-212		0.406	+/-0.203	0.254	0.500	pCi/g						
.uth-214		0.280	+/-0.0728	0.0605	0.200	pCi/g						
Cerium-139	U	-0.0129	+/-0.0162	0.0297	0.050	pCi/g						
Cerium-141	U	0.0186	+/-0.0429	0.0829	0.100	pCi/g						
Cerium-144	U	-0.0112	+/-0.110	0.211	0.500	pCi/g						
Cesium-134	UUI	0.00	+/-0.0319	0.0403	0.100	pCi/g						
Cesium-136	U	-0.0159	+/-0.113	0.201	0.300	pCi/g						
Cesium-137	U	0.00489	+/-0.0188	0.0313	0.100	pCi/g						
Chromium-51	U	0.205	+/-0.259	0.494	0.600	pCi/g						
Cobalt-56	U	0.00495	+/-0.0204	0.0382	0.100	pCi/g						
Cobalt-57	U	-0.000412	+/-0.0133	0.0256	0.050	pCi/g						
Cobalt-58	U	-0.00177	+/-0.0198	0.0363	0.100	pCi/g						
Cobalt-60	U	0.00381	+/-0.0205	0.0342	0.100	pCi/g						
Europium-152	U	-0.00729	+/-0.0476	0.086	0.200	pCi/g						
Europium-154	U	-0.00159	+/-0.0608	0.108	0.500	pCi/g						
Europium-155	U	0.0159	+/-0.0579	0.113	0.500	pCi/g						
Iridium-192	U	-0.00689	+/-0.0192	0.0344	0.100	pCi/g						
Iron-59	U	0.0426	+/-0.0552	0.106	0.300	pCi/g						
Lead-210	U	2.73	+/-5.85	10.1	4.00	pCi/g						
Lead-212		0.618	+/-0.082	0.0526	0.100	pCi/g						
Lead-214		0.546	+/-0.0991	0.0624	0.100	pCi/g						
Manganese-54	U	-0.00635	+/-0.0178	0.0315	0.100	pCi/g						
Mercury-203	U	0.0257	+/-0.0251	0.0484	0.100	pCi/g						
Neodymium-147	U	0.128	+/-0.574	1.10	1000	pCi/g						
Neptunium-239	U	-0.0388	+/-0.102	0.193	2.00	pCi/g						
Niobium-94	U	-0.0171	+/-0.0145	0.0243	1.00	pCi/g						
Niobium-95	U	0.0128	+/-0.0304	0.0572	0.050	pCi/g						
Potassium-40		9.57	+/-0.908	0.336	1.00	pCi/g						
Promethium-144	U	-0.00335	+/-0.0167	0.0304	0.080	pCi/g						
Promethium-146	U	0.00731	+/-0.0214	0.0392	1.00	pCi/g						
Radium-226		0.280	+/-0.0728	0.0605		pCi/g						
Radium-228		0.504	+/-0.128	0.106	0.500	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 9-3 (3-4)
Sample ID: 100114015

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	-0.0264	+/-0.142	0.262	0.800	pCi/g					
Silver-110m	U	-0.00581	+/-0.0158	0.0286	0.080	pCi/g					
Sodium-22	U	-0.000529	+/-0.0219	0.0388	0.080	pCi/g					
Thallium-208		0.223	+/-0.0495	0.0297	0.080	pCi/g					
Thorium-230		0.280	+/-0.0728	0.0605	1.00	pCi/g					
Thorium-234	U	1.65	+/-1.90	1.75	2.00	pCi/g					
Tin-113	U	0.00428	+/-0.0219	0.0402	0.100	pCi/g					
Uranium-235	U	0.0429	+/-0.109	0.211	0.500	pCi/g					
Uranium-238	U	1.65	+/-1.90	1.75	1.00	pCi/g					
Yttrium-88	U	0.00729	+/-0.0162	0.0336	0.100	pCi/g					
Zinc-65	U	-0.000133	+/-0.0469	0.0728	0.300	pCi/g					
' ium-95	U	-0.000475	+/-0.036	0.0665	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXG1	10/17/03	1449	285107

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 9-3 (3-4)
Sample ID: 100114015

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 16
Sample ID: 100114012
Matrix: Soil
Collect Date: 13-OCT-03 13:30
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.638	+/-0.126	0.0916	0.800	pCi/g		SRB	11/10/03	1549	286307	1
Americium-241	U	0.0185	+/-0.0556	0.111	0.200	pCi/g						
Antimony-124	U	-0.000385	+/-0.0154	0.0289	0.100	pCi/g						
Antimony-125	U	0.0012	+/-0.0331	0.0607	0.200	pCi/g						
Barium-133	U	-0.00457	+/-0.0185	0.0294	0.100	pCi/g						
Barium-140	U	-0.00572	+/-0.196	0.371	0.500	pCi/g						
Beryllium-7	U	0.0401	+/-0.145	0.267	0.700	pCi/g						
›uth-212		0.421	+/-0.199	0.173	0.500	pCi/g						
.uth-214		0.368	+/-0.0726	0.0453	0.200	pCi/g						
Cerium-139	U	0.00443	+/-0.0123	0.0227	0.050	pCi/g						
Cerium-141	U	0.0184	+/-0.0321	0.0603	0.100	pCi/g						
Cerium-144	U	0.113	+/-0.0899	0.155	0.500	pCi/g						
Cesium-134	U	0.0253	+/-0.0235	0.0346	0.100	pCi/g						
Cesium-136	U	0.0217	+/-0.0773	0.143	0.300	pCi/g						
Cesium-137	U	-0.000512	+/-0.0135	0.0251	0.100	pCi/g						
Chromium-51	U	0.0294	+/-0.195	0.366	0.600	pCi/g						
Cobalt-56	UUI	0.00	+/-0.0525	0.033	0.100	pCi/g						
Cobalt-57	U	-0.0117	+/-0.0102	0.0182	0.050	pCi/g						
Cobalt-58	U	-0.00446	+/-0.0147	0.0264	0.100	pCi/g						
Cobalt-60	U	0.015	+/-0.0149	0.030	0.100	pCi/g						
Europium-152	U	-0.0179	+/-0.0344	0.0622	0.200	pCi/g						
Europium-154	U	0.0445	+/-0.0413	0.0834	0.500	pCi/g						
Europium-155	U	0.0543	+/-0.0679	0.0734	0.500	pCi/g						
Iridium-192	U	-0.0044	+/-0.0142	0.0261	0.100	pCi/g						
Iron-59	U	0.0272	+/-0.0447	0.0861	0.300	pCi/g						
Lead-210	U	2.19	+/-2.70	2.51	4.00	pCi/g						
Lead-212		0.763	+/-0.0787	0.0391	0.100	pCi/g						
Lead-214		0.384	+/-0.0691	0.048	0.100	pCi/g						
Manganese-54	U	0.00484	+/-0.0138	0.0258	0.100	pCi/g						
Mercury-203	U	0.00644	+/-0.0182	0.0348	0.100	pCi/g						
Neodymium-147	U	0.017	+/-0.512	0.919	1000	pCi/g						
Neptunium-239	U	0.0523	+/-0.071	0.137	2.00	pCi/g						
Niobium-94	U	0.00964	+/-0.0126	0.0243	1.00	pCi/g						
Niobium-95	U	-0.021	+/-0.0239	0.0409	0.050	pCi/g						
Potassium-40		8.82	+/-0.819	0.199	1.00	pCi/g						
Promethium-144	U	-0.00148	+/-0.0132	0.0243	0.080	pCi/g						
Promethium-146	U	0.0154	+/-0.0162	0.0311	1.00	pCi/g						
Radium-226		0.368	+/-0.0726	0.0453		pCi/g						
Radium-228		0.638	+/-0.126	0.0916	0.500	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 16
Sample ID: 100114012

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.00995	+/-0.118	0.222	0.800	pCi/g					
Silver-110m	U	0.00958	+/-0.0152	0.0259	0.080	pCi/g					
Sodium-22	U	0.016	+/-0.0148	0.030	0.080	pCi/g					
Thallium-208		0.240	+/-0.0382	0.0229	0.080	pCi/g					
Thorium-230		0.368	+/-0.0726	0.0453	1.00	pCi/g					
Thorium-234		1.00	+/-1.07	0.874	2.00	pCi/g					
Tin-113	U	0.000276	+/-0.0179	0.033	0.100	pCi/g					
Uranium-235	U	0.0226	+/-0.0811	0.151	0.500	pCi/g					
Uranium-238		1.00	+/-1.07	0.874	1.00	pCi/g					
Yttrium-88	U	-0.00885	+/-0.0141	0.0246	0.100	pCi/g					
Zinc-65	U	-0.0395	+/-0.0441	0.0632	0.300	pCi/g					
nium-95	U	0.0158	+/-0.0319	0.0604	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXG1	10/17/03	1449	285107

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 16
Sample ID: 100114012

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 16 0-1
Sample ID: 100114016
Matrix: Soil
Collect Date: 13-OCT-03 13:30
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		1.03	+/-0.141	0.0885	0.800	pCi/g		SRB 11/10/03	1750	286307	1
Americium-241	U	-0.00286	+/-0.0777	0.132	0.200	pCi/g					
Antimony-124	U	0.00871	+/-0.0181	0.0344	0.100	pCi/g					
Antimony-125	U	0.027	+/-0.0324	0.0649	0.200	pCi/g					
Barium-133	U	-0.0212	+/-0.0186	0.0315	0.100	pCi/g					
Barium-140	U	0.056	+/-0.207	0.395	0.500	pCi/g					
Beryllium-7	U	-0.0956	+/-0.141	0.257	0.700	pCi/g					
[illegible]ith-212		0.640	+/-0.218	0.207	0.500	pCi/g					
[illegible]uth-214		0.574	+/-0.0754	0.0455	0.200	pCi/g					
Cerium-139	U	-0.000347	+/-0.0157	0.0268	0.050	pCi/g					
Cerium-141	UUI	0.00	+/-0.103	0.0898	0.100	pCi/g					
Cerium-144	U	-0.0432	+/-0.0934	0.179	0.500	pCi/g					
Cesium-134	UUI	0.00	+/-0.0275	0.0394	0.100	pCi/g					
Cesium-136	U	0.128	+/-0.0877	0.161	0.300	pCi/g					
Cesium-137	U	0.00176	+/-0.0136	0.0254	0.100	pCi/g					
Chromium-51	U	0.0127	+/-0.195	0.357	0.600	pCi/g					
Cobalt-56	U	-0.000139	+/-0.0194	0.0307	0.100	pCi/g					
Cobalt-57	U	0.00469	+/-0.0123	0.0243	0.050	pCi/g					
Cobalt-58	U	-0.00765	+/-0.0178	0.0312	0.100	pCi/g					
Cobalt-60	U	-0.0101	+/-0.0146	0.0252	0.100	pCi/g					
Europium-152	U	0.0435	+/-0.0499	0.073	0.200	pCi/g					
Europium-154	U	-0.00431	+/-0.049	0.0893	0.500	pCi/g					
Europium-155	U	0.0746	+/-0.0734	0.0946	0.500	pCi/g					
Iridium-192	U	-0.0027	+/-0.0153	0.0277	0.100	pCi/g					
Iron-59	U	0.00469	+/-0.0534	0.0871	0.300	pCi/g					
Lead-210	U	0.635	+/-2.02	3.55	4.00	pCi/g					
Lead-212		1.19	+/-0.0639	0.039	0.100	pCi/g					
Lead-214		0.760	+/-0.0688	0.0462	0.100	pCi/g					
Manganese-54	U	0.0163	+/-0.0176	0.0272	0.100	pCi/g					
Mercury-203	U	0.0351	+/-0.0379	0.0357	0.100	pCi/g					
Neodymium-147	U	-0.0217	+/-0.489	0.920	1000	pCi/g					
Neptunium-239	U	0.0309	+/-0.0857	0.170	2.00	pCi/g					
Niobium-94	U	0.0117	+/-0.0129	0.025	1.00	pCi/g					
Niobium-95	U	0.0272	+/-0.0621	0.0443	0.050	pCi/g					
Potassium-40		12.5	+/-0.718	0.233	1.00	pCi/g					
Promethium-144	U	6.760E-05	+/-0.0136	0.0249	0.080	pCi/g					
Promethium-146	U	0.0129	+/-0.0314	0.0311	1.00	pCi/g					
Radium-226		0.574	+/-0.0754	0.0455		pCi/g					
[illegible]ium-228		1.03	+/-0.141	0.0885	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 16 0-1
Sample ID: 100114016

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.0901	+/-0.132	0.230	0.800	pCi/g					
Silver-110m	U	-0.00124	+/-0.0132	0.0243	0.080	pCi/g					
Sodium-22	U	-0.00165	+/-0.0176	0.0322	0.080	pCi/g					
Thallium-208		0.349	+/-0.0413	0.0234	0.080	pCi/g					
Thorium-230		0.573	+/-0.0754	0.0455	1.00	pCi/g					
Thorium-234		1.27	+/-1.49	1.11	2.00	pCi/g					
Tin-113	U	0.0171	+/-0.0185	0.0304	0.100	pCi/g					
Uranium-235		1.68	+/-0.256	0.176	0.500	pCi/g					
Uranium-238		1.27	+/-1.49	1.11	1.00	pCi/g					
Yttrium-88	U	-4.180E-05	+/-0.018	0.0287	0.100	pCi/g					
Zinc-65	U	0.0488	+/-0.0292	0.0625	0.300	pCi/g					
nium-95	UUI	0.00	+/-0.0575	0.0655	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXG1	10/17/03	1449	285107

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 16 0-1
Sample ID: 100114016

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 17
Sample ID: 100114013
Matrix: Soil
Collect Date: 13-OCT-03 14:45
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		1.13	+/-0.198	0.100	0.800	pCi/g		SRB	11/10/03	1655	286307	1
Americium-241	U	0.0254	+/-0.0804	0.118	0.200	pCi/g						
Antimony-124	U	-0.00843	+/-0.0174	0.0305	0.100	pCi/g						
Antimony-125	U	-0.0269	+/-0.0425	0.0663	0.200	pCi/g						
Barium-133	U	0.0115	+/-0.0173	0.030	0.100	pCi/g						
Barium-140	U	-0.153	+/-0.219	0.372	0.500	pCi/g						
Beryllium-7	U	0.0552	+/-0.156	0.292	0.700	pCi/g						
uth-212		0.640	+/-0.315	0.212	0.500	pCi/g						
.uth-214		0.855	+/-0.122	0.0452	0.200	pCi/g						
Cerium-139	U	-0.00266	+/-0.0126	0.0233	0.050	pCi/g						
Cerium-141	UUI	0.00	+/-0.0625	0.0595	0.100	pCi/g						
Cerium-144	U	-0.0513	+/-0.0828	0.153	0.500	pCi/g						
Cesium-134	UUI	0.00	+/-0.0304	0.0393	0.100	pCi/g						
Cesium-136	U	0.0279	+/-0.0856	0.161	0.300	pCi/g						
Cesium-137	U	0.0108	+/-0.0159	0.0297	0.100	pCi/g						
Chromium-51	U	0.113	+/-0.203	0.395	0.600	pCi/g						
Cobalt-56	U	0.00689	+/-0.0186	0.0314	0.100	pCi/g						
Cobalt-57	U	0.0094	+/-0.0101	0.0199	0.050	pCi/g						
Cobalt-58	U	-0.0105	+/-0.017	0.0304	0.100	pCi/g						
Cobalt-60	U	-0.024	+/-0.0181	0.028	0.100	pCi/g						
Europium-152	U	-0.0367	+/-0.0372	0.0671	0.200	pCi/g						
Europium-154	U	-0.0343	+/-0.052	0.0874	0.500	pCi/g						
Europium-155	UUI	0.00	+/-0.0812	0.0732	0.500	pCi/g						
Iridium-192	U	-0.00605	+/-0.015	0.028	0.100	pCi/g						
Iron-59	U	-0.00628	+/-0.045	0.0808	0.300	pCi/g						
Lead-210	U	-0.509	+/-1.86	3.39	4.00	pCi/g						
Lead-212		1.25	+/-0.144	0.0414	0.100	pCi/g						
Lead-214		0.961	+/-0.135	0.0488	0.100	pCi/g						
Manganese-54	U	0.0108	+/-0.027	0.0262	0.100	pCi/g						
Mercury-203	UUI	0.00	+/-0.0381	0.0353	0.100	pCi/g						
Neodymium-147	U	0.419	+/-0.541	1.03	1000	pCi/g						
Neptunium-239	U	-0.00623	+/-0.0739	0.141	2.00	pCi/g						
Niobium-94	U	0.00977	+/-0.0144	0.0267	1.00	pCi/g						
Niobium-95	U	0.0157	+/-0.0288	0.0467	0.050	pCi/g						
Potassium-40		10.3	+/-0.964	0.276	1.00	pCi/g						
Promethium-144	U	0.00544	+/-0.0148	0.0269	0.080	pCi/g						
Promethium-146	U	0.0117	+/-0.017	0.0327	1.00	pCi/g						
Radium-226		0.855	+/-0.122	0.0452		pCi/g						
R dium-228		1.13	+/-0.198	0.100	0.500	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 17
Sample ID: 100114013

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.0312	+/-0.141	0.258	0.800	pCi/g					
Silver-110m	U	-0.0229	+/-0.0157	0.0252	0.080	pCi/g					
Sodium-22	U	-0.0125	+/-0.0187	0.0315	0.080	pCi/g					
Thallium-208		0.317	+/-0.0511	0.0265	0.080	pCi/g					
Thorium-230		0.855	+/-0.122	0.0452	1.00	pCi/g					
Thorium-234	UUI	0.00	+/-1.41	0.967	2.00	pCi/g					
Tin-113	U	-0.003	+/-0.0192	0.0357	0.100	pCi/g					
Uranium-235		0.186	+/-0.183	0.166	0.500	pCi/g					
Uranium-238	UUI	0.00	+/-1.41	0.967	1.00	pCi/g					
Yttrium-88	U	0.00261	+/-0.0146	0.0284	0.100	pCi/g					
Zinc-65	U	-0.00415	+/-0.0393	0.061	0.300	pCi/g					
nium-95	U	0.0148	+/-0.0377	0.0681	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXG1	10/17/03	1449	285107

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 17
Sample ID: 100114013

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 18
Sample ID: 100114014
Matrix: Soil
Collect Date: 13-OCT-03 15:15
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.747	+/-0.162	0.0843	0.800	pCi/g		SRB	11/10/03	1724	286307	1
Americium-241	U	0.0138	+/-0.0529	0.110	0.200	pCi/g						
Antimony-124	U	0.000667	+/-0.0162	0.0305	0.100	pCi/g						
Antimony-125	U	0.00409	+/-0.0341	0.062	0.200	pCi/g						
Barium-133	U	0.000358	+/-0.0175	0.0284	0.100	pCi/g						
Barium-140	U	0.00415	+/-0.183	0.350	0.500	pCi/g						
Beryllium-7	U	0.0306	+/-0.131	0.254	0.700	pCi/g						
[illegible]th-212		0.465	+/-0.157	0.185	0.500	pCi/g						
[illegible]uth-214		0.581	+/-0.0965	0.0423	0.200	pCi/g						
Cerium-139	U	-0.00114	+/-0.0115	0.022	0.050	pCi/g						
Cerium-141	U	0.0321	+/-0.0487	0.0549	0.100	pCi/g						
Cerium-144	U	0.0471	+/-0.0768	0.152	0.500	pCi/g						
Cesium-134	UUI	0.00	+/-0.0252	0.0332	0.100	pCi/g						
Cesium-136	U	-0.0107	+/-0.0755	0.136	0.300	pCi/g						
Cesium-137	U	0.00964	+/-0.0132	0.0235	0.100	pCi/g						
Chromium-51	U	0.117	+/-0.197	0.371	0.600	pCi/g						
Cobalt-56	U	0.0107	+/-0.0149	0.0292	0.100	pCi/g						
Cobalt-57	U	0.00357	+/-0.0095	0.0188	0.050	pCi/g						
Cobalt-58	U	-0.00742	+/-0.015	0.0265	0.100	pCi/g						
Cobalt-60	U	0.0138	+/-0.0129	0.0273	0.100	pCi/g						
Europium-152	U	-0.00631	+/-0.0348	0.0629	0.200	pCi/g						
Europium-154	U	-0.00526	+/-0.039	0.0731	0.500	pCi/g						
Europium-155	U	0.0424	+/-0.0539	0.0726	0.500	pCi/g						
Iridium-192	U	0.00657	+/-0.0146	0.0273	0.100	pCi/g						
Iron-59	U	-0.023	+/-0.0391	0.0663	0.300	pCi/g						
Lead-210	U	0.590	+/-1.59	2.80	4.00	pCi/g						
Lead-212		0.841	+/-0.110	0.0593	0.100	pCi/g						
Lead-214		0.711	+/-0.113	0.045	0.100	pCi/g						
Manganese-54	U	0.0196	+/-0.0264	0.0235	0.100	pCi/g						
Mercury-203	UUI	0.00	+/-0.0372	0.0313	0.100	pCi/g						
Neodymium-147	U	0.0438	+/-0.425	0.821	1000	pCi/g						
Neptunium-239	U	-0.0155	+/-0.0689	0.134	2.00	pCi/g						
Niobium-94	U	0.0112	+/-0.0131	0.0232	1.00	pCi/g						
Niobium-95	U	0.00505	+/-0.0252	0.0418	0.050	pCi/g						
Potassium-40		7.85	+/-0.938	0.209	1.00	pCi/g						
Promethium-144	U	-0.00563	+/-0.015	0.0236	0.080	pCi/g						
Promethium-146	U	0.011	+/-0.0149	0.0299	1.00	pCi/g						
Radium-226		0.581	+/-0.0965	0.0423		pCi/g						
P[illegible]um-228		0.747	+/-0.162	0.0843	0.500	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 18
Sample ID: 100114014

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.0766	+/-0.112	0.221	0.800	pCi/g					
Silver-110m	U	-0.015	+/-0.0122	0.0206	0.080	pCi/g					
Sodium-22	U	-0.00196	+/-0.0141	0.0263	0.080	pCi/g					
Thallium-208		0.270	+/-0.0478	0.0226	0.080	pCi/g					
Thorium-230		0.581	+/-0.0965	0.0423	1.00	pCi/g					
Thorium-234		1.45	+/-0.932	0.847	2.00	pCi/g					
Tin-113	U	0.00108	+/-0.019	0.0308	0.100	pCi/g					
Uranium-235	U	0.109	+/-0.163	0.155	0.500	pCi/g					
Uranium-238		1.45	+/-0.932	0.847	1.00	pCi/g					
Yttrium-88	U	0.00521	+/-0.0117	0.0248	0.100	pCi/g					
Zinc-65	U	-8.020E-05	+/-0.030	0.0543	0.300	pCi/g					
nium-95	U	0.0026	+/-0.0295	0.0552	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXG1	10/17/03	1449	285107

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 18
Sample ID: 100114014

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Sewer-3
Sample ID: 100114017
Matrix: Soil
Collect Date: 15-OCT-03 10:30
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.983	+/-0.214	0.139	0.800	pCi/g		SRB 11/10/03	1746	286307	1
Americium-241	U	-0.0224	+/-0.113	0.180	0.200	pCi/g					
Antimony-124	U	0.00437	+/-0.027	0.0478	0.100	pCi/g					
Antimony-125	U	0.0109	+/-0.0559	0.101	0.200	pCi/g					
Barium-133	U	-0.00144	+/-0.0296	0.0438	0.100	pCi/g					
Barium-140	U	0.172	+/-0.339	0.557	0.500	pCi/g					
Beryllium-7	U	0.406	+/-0.401	0.465	0.700	pCi/g					
[illegible]uth-212		0.697	+/-0.302	0.324	0.500	pCi/g					
[illegible]uth-214		0.563	+/-0.114	0.0723	0.200	pCi/g					
Cerium-139	U	0.00362	+/-0.024	0.0371	0.050	pCi/g					
Cerium-141	UUI	0.00	+/-0.107	0.115	0.100	pCi/g					
Cerium-144	U	-0.0468	+/-0.144	0.246	0.500	pCi/g					
Cesium-134	UUI	0.00	+/-0.0379	0.0589	0.100	pCi/g					
Cesium-136	U	0.0222	+/-0.112	0.209	0.300	pCi/g					
Cesium-137		0.625	+/-0.080	0.0387	0.100	pCi/g					
Chromium-51	U	0.0395	+/-0.334	0.563	0.600	pCi/g					
Cobalt-56	U	0.0121	+/-0.0292	0.0471	0.100	pCi/g					
Cobalt-57	U	0.0177	+/-0.0291	0.0303	0.050	pCi/g					
Cobalt-58	U	0.00244	+/-0.0244	0.0433	0.100	pCi/g					
Cobalt-60	U	0.0231	+/-0.0255	0.0508	0.100	pCi/g					
Europium-152	U	-0.0377	+/-0.0635	0.102	0.200	pCi/g					
Europium-154	U	0.00708	+/-0.063	0.117	0.500	pCi/g					
Europium-155	U	0.0589	+/-0.0889	0.127	0.500	pCi/g					
Iridium-192	U	-0.00717	+/-0.0241	0.0397	0.100	pCi/g					
Iron-59	U	0.0132	+/-0.0609	0.113	0.300	pCi/g					
Lead-210	UUI	0.00	+/-5.18	5.23	4.00	pCi/g					
Lead-212		0.988	+/-0.114	0.0606	0.100	pCi/g					
Lead-214		0.719	+/-0.130	0.0711	0.100	pCi/g					
Manganese-54	U	-0.000485	+/-0.0228	0.0395	0.100	pCi/g					
Mercury-203	U	0.0261	+/-0.0325	0.0569	0.100	pCi/g					
Neodymium-147	U	0.424	+/-0.740	1.36	1000	pCi/g					
Neptunium-239	U	-0.0321	+/-0.127	0.218	2.00	pCi/g					
Niobium-94	U	0.00823	+/-0.0221	0.0395	1.00	pCi/g					
Niobium-95	U	-0.00923	+/-0.0397	0.0673	0.050	pCi/g					
Potassium-40		4.54	+/-0.688	0.382	1.00	pCi/g					
Promethium-144	U	0.00292	+/-0.0221	0.0388	0.080	pCi/g					
Promethium-146	U	-0.00909	+/-0.0271	0.047	1.00	pCi/g					
Radium-226		0.563	+/-0.114	0.0723		pCi/g					
[illegible]ium-228		0.983	+/-0.214	0.139	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Sewer-3
Sample ID: 100114017

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.306	+/-0.218	0.384	0.800	pCi/g					
Silver-110m	U	0.000904	+/-0.0251	0.0387	0.080	pCi/g					
Sodium-22	U	0.00244	+/-0.0227	0.0421	0.080	pCi/g					
Thallium-208		0.343	+/-0.0593	0.0421	0.080	pCi/g					
Thorium-230		0.563	+/-0.114	0.0723	1.00	pCi/g					
Thorium-234		2.84	+/-1.60	1.40	2.00	pCi/g					
Tin-113	U	0.00824	+/-0.0307	0.0521	0.100	pCi/g					
Uranium-235		1.70	+/-0.379	0.251	0.500	pCi/g					
Uranium-238		2.84	+/-1.60	1.40	1.00	pCi/g					
Yttrium-88	U	-0.00763	+/-0.0264	0.0461	0.100	pCi/g					
Zinc-65	U	-0.0318	+/-0.0594	0.0862	0.300	pCi/g					
·nium-95	U	0.0862	+/-0.102	0.0949	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXG1	10/17/03	1449	285107

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Sewer-3
Sample ID: 100114017

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Sewer-4
Sample ID: 100114018
Matrix: Soil
Collect Date: 15-OCT-03 11:00
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.656	+/-0.140	0.085	0.800	pCi/g		SRB	11/10/03	1747	286307	1
Americium-241	UUI	0.00	+/-0.135	0.124	0.200	pCi/g						
Antimony-124	U	-0.0138	+/-0.0161	0.0279	0.100	pCi/g						
Antimony-125	U	-0.0137	+/-0.0328	0.0605	0.200	pCi/g						
Barium-133	U	-0.000278	+/-0.0163	0.0275	0.100	pCi/g						
Barium-140	U	-0.04	+/-0.172	0.315	0.500	pCi/g						
Beryllium-7	U	-0.0429	+/-0.153	0.247	0.700	pCi/g						
uth-212		0.578	+/-0.231	0.176	0.500	pCi/g						
.uth-214		0.449	+/-0.0857	0.0492	0.200	pCi/g						
Cerium-139	U	0.00456	+/-0.0143	0.0242	0.050	pCi/g						
Cerium-141	UUI	0.00	+/-0.0836	0.0584	0.100	pCi/g						
Cerium-144	U	-0.00664	+/-0.0845	0.160	0.500	pCi/g						
Cesium-134	U	0.0303	+/-0.0153	0.0309	0.100	pCi/g						
Cesium-136	U	-0.0343	+/-0.0662	0.101	0.300	pCi/g						
Cesium-137		0.233	+/-0.0514	0.0272	0.100	pCi/g						
Chromium-51	U	0.0256	+/-0.177	0.320	0.600	pCi/g						
Cobalt-56	U	0.0141	+/-0.0159	0.0305	0.100	pCi/g						
Cobalt-57	U	0.00161	+/-0.0109	0.021	0.050	pCi/g						
Cobalt-58	U	-0.00717	+/-0.0151	0.0262	0.100	pCi/g						
Cobalt-60	U	0.00731	+/-0.0143	0.0276	0.100	pCi/g						
Europium-152	U	0.00897	+/-0.0328	0.0638	0.200	pCi/g						
Europium-154	U	0.0245	+/-0.0376	0.074	0.500	pCi/g						
Europium-155	UUI	0.00	+/-0.0826	0.0891	0.500	pCi/g						
Iridium-192	U	0.00662	+/-0.0137	0.0252	0.100	pCi/g						
Iron-59	U	0.00697	+/-0.036	0.0683	0.300	pCi/g						
Lead-210	U	3.03	+/-3.90	3.12	4.00	pCi/g						
Lead-212		0.849	+/-0.107	0.037	0.100	pCi/g						
Lead-214		0.510	+/-0.0918	0.0449	0.100	pCi/g						
Manganese-54	U	0.00176	+/-0.0143	0.0259	0.100	pCi/g						
Mercury-203	UUI	0.00	+/-0.027	0.0311	0.100	pCi/g						
Neodymium-147	U	-0.291	+/-0.424	0.753	1000	pCi/g						
Neptunium-239	U	-0.00147	+/-0.0779	0.149	2.00	pCi/g						
Niobium-94	U	-0.000217	+/-0.012	0.0219	1.00	pCi/g						
Niobium-95	U	0.00663	+/-0.0228	0.0419	0.050	pCi/g						
Potassium-40		9.42	+/-1.05	0.214	1.00	pCi/g						
Promethium-144	U	0.000262	+/-0.0122	0.0223	0.080	pCi/g						
Promethium-146	U	0.00352	+/-0.0162	0.0307	1.00	pCi/g						
Radium-226		0.449	+/-0.0857	0.0492		pCi/g						
Radium-228		0.656	+/-0.140	0.085	0.500	pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Sewer-4
Sample ID: 100114018

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.0852	+/-0.109	0.212	0.800	pCi/g					
Silver-110m	U	0.0117	+/-0.0143	0.0247	0.080	pCi/g					
Sodium-22	U	0.00875	+/-0.0135	0.0266	0.080	pCi/g					
Thallium-208		0.234	+/-0.0438	0.0264	0.080	pCi/g					
Thorium-230		0.449	+/-0.0857	0.0492	1.00	pCi/g					
Thorium-234		4.78	+/-2.07	1.04	2.00	pCi/g					
Tin-113	U	-0.00476	+/-0.0166	0.0311	0.100	pCi/g					
Uranium-235		0.834	+/-0.260	0.217	0.500	pCi/g					
Uranium-238		4.78	+/-2.07	1.04	1.00	pCi/g					
Yttrium-88	U	0.00929	+/-0.0146	0.0235	0.100	pCi/g					
Zinc-65	U	-0.0075	+/-0.0333	0.0525	0.300	pCi/g					
onium-95	U	0.0131	+/-0.0301	0.0561	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXG1	10/17/03	1449	285107

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Sewer-4
Sample ID: 100114018

Proiect: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Small Trench
Sample ID: 100114019
Matrix: Soil
Collect Date: 15-OCT-03 08:30
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Actinium-228		0.355	+/-0.111	0.121	0.800	pCi/g		SRB 11/10/03	1748	286307	1
Americium-241	U	0.0997	+/-0.173	0.302	0.200	pCi/g					
Antimony-124	U	-0.0132	+/-0.0192	0.0319	0.100	pCi/g					
Antimony-125	U	0.00261	+/-0.0389	0.0701	0.200	pCi/g					
Barium-133	U	-0.00156	+/-0.0219	0.0344	0.100	pCi/g					
Barium-140	U	-0.227	+/-0.224	0.340	0.500	pCi/g					
Beryllium-7	U	0.111	+/-0.179	0.331	0.700	pCi/g					
[illegible]uth-212	U	0.215	+/-0.184	0.251	0.500	pCi/g					
[illegible]nuth-214	UUI	0.00	+/-0.0677	0.107	0.200	pCi/g					
Cerium-139	UUI	0.00	+/-0.050	0.0763	0.050	pCi/g					
Cerium-141	UUI	0.00	+/-0.880	0.360	0.100	pCi/g					
Cerium-144	U	0.180	+/-0.293	0.494	0.500	pCi/g					
Cesium-134	U	0.0293	+/-0.028	0.0366	0.100	pCi/g					
Cesium-136	U	0.0645	+/-0.0877	0.156	0.300	pCi/g					
Cesium-137		0.0674	+/-0.0384	0.0302	0.100	pCi/g					
Chromium-51	U	-0.000974	+/-0.221	0.397	0.600	pCi/g					
Cobalt-56	U	-0.00645	+/-0.0163	0.0276	0.100	pCi/g					
Cobalt-57	UUI	0.00	+/-0.0769	0.0615	0.050	pCi/g					
Cobalt-58	U	0.00561	+/-0.0203	0.0365	0.100	pCi/g					
Cobalt-60	U	-0.0142	+/-0.0148	0.0234	0.100	pCi/g					
Europium-152	U	0.0723	+/-0.0655	0.0805	0.200	pCi/g					
Europium-154	U	0.0737	+/-0.042	0.0898	0.500	pCi/g					
Europium-155	UUI	0.00	+/-0.249	0.310	0.500	pCi/g					
Iridium-192	U	0.00108	+/-0.0172	0.031	0.100	pCi/g					
Iron-59	U	-0.0275	+/-0.0447	0.0766	0.300	pCi/g					
Lead-210	U	-1.15	+/-5.23	8.11	4.00	pCi/g					
Lead-212		0.410	+/-0.0727	0.0484	0.100	pCi/g					
Lead-214		0.295	+/-0.0814	0.0572	0.100	pCi/g					
Manganese-54	U	-0.00217	+/-0.0165	0.0285	0.100	pCi/g					
Mercury-203	U	0.0447	+/-0.0325	0.0512	0.100	pCi/g					
Neodymium-147	U	-0.0948	+/-0.540	0.944	1000	pCi/g					
Neptunium-239	U	-0.0752	+/-0.272	0.456	2.00	pCi/g					
Niobium-94	U	-0.0127	+/-0.0155	0.0251	1.00	pCi/g					
Niobium-95	U	0.0102	+/-0.0291	0.0521	0.050	pCi/g					
Potassium-40		4.47	+/-0.656	0.285	1.00	pCi/g					
Promethium-144	U	0.00641	+/-0.0163	0.0295	0.080	pCi/g					
Promethium-146	U	0.00293	+/-0.0202	0.0363	1.00	pCi/g					
Radium-226		0.254	+/-0.0677	0.0533		pCi/g					
[illegible]ium-228		0.355	+/-0.111	0.121	0.500	pCi/g					

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Small Trench
Sample ID: 100114019

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gamma Spec Analysis											
Gammaspec, Gamma, Solid (Standard List)											
Ruthenium-106	U	0.0187	+/-0.148	0.264	0.800	pCi/g					
Silver-110m	U	0.0149	+/-0.0181	0.0306	0.080	pCi/g					
Sodium-22	U	0.0265	+/-0.015	0.0318	0.080	pCi/g					
Thallium-208	UUI	0.00	+/-0.0423	0.0573	0.080	pCi/g					
Thorium-230		0.254	+/-0.0677	0.0533	1.00	pCi/g					
Thorium-234	U	-0.188	+/-1.43	2.46	2.00	pCi/g					
Tin-113	U	-0.00426	+/-0.0251	0.0387	0.100	pCi/g					
Uranium-235		25.2	+/-4.46	0.453	0.500	pCi/g					
Uranium-238	U	-0.188	+/-1.43	2.46	1.00	pCi/g					
Yttrium-88	U	0.00887	+/-0.021	0.0412	0.100	pCi/g					
Zinc-65	U	0.0052	+/-0.0415	0.0676	0.300	pCi/g					
nium-95	U	0.0193	+/-0.0338	0.063	0.200	pCi/g					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	AXG1	10/17/03	1449	285107

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EML HASL 300, 4.5.2.3	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on a dry weight basis except where prohibited by the analytical procedure.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Small Trench
Sample ID: 100114019

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 9-3 Metals
Sample ID: 100114020
Matrix: Soil
Collect Date: 13-OCT-03 12:15
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Mercury Analysis-CVAA											
TCLP Hg in Solid											
Mercury	U	ND	0.000472	0.002	mg/L	1	NOR1	11/03/03	1310	286208	1
Metals Analysis-ICP											
TCLP ICP Metals for Solid											
Arsenic	U	ND	0.0238	0.050	mg/L	10	BAS	11/04/03	2312	286105	2
Barium		0.468	0.00393	0.200	mg/L	10					
Cadmium		0.182	0.00386	0.050	mg/L	10					
Chromium	U	ND	0.00735	0.050	mg/L	10					
Copper		137	0.0117	0.050	mg/L	10					
Lead		0.282	0.0266	0.050	mg/L	10					
Selenium	U	ND	0.0338	0.050	mg/L	10					
Silver	J	0.018	0.0118	0.050	mg/L	10					
Zinc		273	0.209	1.00	mg/L	100	BAS	11/05/03	1259	286105	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 1311	SW846 1311 TCLP Leaching	BXB1	10/20/03	1530	285563
SW846 3010A	ICP-TRACE TCLP by SW846 3010A	ARG1	11/04/03	0900	286104
SW846 7470A Prep	EPA 7470A Mercury Prep TCLP Liquid	ETL	10/31/03	1400	286207

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 7470A	
2	SW846 3010/6010B	
3	SW846 3010/6010B	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 9-3 Metals
Sample ID: 100114020

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.
UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the r 'rements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 17 Metals
Sample ID: 100114021
Matrix: Soil
Collect Date: 13-OCT-03 14:45
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Mercury Analysis-CVAA										
TCLP Hg in Solid										
Mercury	U	ND	0.000472	0.002	mg/L	1	NOR1 11/03/03	1320	286208	1
Metals Analysis-ICP										
TCLP ICP Metals for Solid										
Arsenic	U	ND	0.0238	0.050	mg/L	10	BAS 11/04/03	2340	286105	2
Barium		0.707	0.00393	0.200	mg/L	10				
Cadmium	U	ND	0.00386	0.050	mg/L	10				
[illegible]mium	U	ND	0.00735	0.050	mg/L	10				
[illegible]r		0.242	0.0117	0.050	mg/L	10				
Lead	U	ND	0.0266	0.050	mg/L	10				
Selenium	U	ND	0.0338	0.050	mg/L	10				
Silver	U	ND	0.0118	0.050	mg/L	10				
Zinc		7.61	0.0209	0.100	mg/L	10				

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 1311	SW846 1311 TCLP Leaching	BXB1	10/20/03	1530	285563
SW846 3010A	ICP-TRACE TCLP by SW846 3010A	ARG1	11/04/03	0900	286104
SW846 7470A Prep	EPA 7470A Mercury Prep TCLP Liquid	ETL	10/31/03	1400	286207

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 7470A	
2	SW846 3010/6010B	

Notes:
The Qualifiers in this report are defined as follows :

< Result is less than amount reported.
> Result is greater than amount reported.
B Target analyte was detected in the sample as well as the associated blank.
BD Flag for results below the MDC or a flag for low tracer recovery.
E Concentration of the target analyte exceeds the instrument calibration range.
H Analytical holding time exceeded.
J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
P The response between the confirmation column and the primary column is >40%D.
U Indicates the target analyte was analyzed for but not detected above the detection limit.

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: Geoprobe 17 Metals
Sample ID: 100114021

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

UI Uncertain identification for gamma spectroscopy.
X Lab-specific qualifier-please see case narrative, data summary package or contact your project manager for details.
Y QC Samples were not spiked with this compound.
h Sample preparation or preservation holding time exceeded.

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

T' ' data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC . ırd operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Reviewed by Amy C Jamison

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: North Trench #1
Sample ID: 100114001
Matrix: Soil
Collect Date: 14-OCT-03 09:00
Receive Date: 16-OCT-03
Collector: Client

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Solid (Standard List)												
Actinium-228		0.604	+/-0.132	0.072	0.800	pCi/g		SRB	11/10/03	1307	286307	1
Americium-241	U	0.0278	+/-0.0467	0.0978	0.200	pCi/g						
Antimony-124	U	0.0149	+/-0.0145	0.0291	0.100	pCi/g						
Antimony-125	U	0.00211	+/-0.0308	0.056	0.200	pCi/g						
Barium-133	U	-0.000405	+/-0.0152	0.0247	0.100	pCi/g						
Barium-140	U	0.00784	+/-0.158	0.304	0.500	pCi/g						
'lium-7		0.669	+/-0.290	0.212	0.700	pCi/g						
ıth-212		0.403	+/-0.204	0.186	0.500	pCi/g						
Bismuth-214		0.361	+/-0.0759	0.0434	0.200	pCi/g						
Cerium-139	U	0.00693	+/-0.0113	0.020	0.050	pCi/g						
Cerium-141	U	0.0294	+/-0.0369	0.0519	0.100	pCi/g						
Cerium-144	U	-0.0745	+/-0.0696	0.128	0.500	pCi/g						
Cesium-134	U	0.0211	+/-0.0231	0.0305	0.100	pCi/g						
Cesium-136	U	0.052	+/-0.064	0.128	0.300	pCi/g						
Cesium-137		0.0796	+/-0.0275	0.0234	0.100	pCi/g						
Chromium-51	U	0.128	+/-0.173	0.331	0.600	pCi/g						
Cobalt-56	U	-0.00499	+/-0.0131	0.0234	0.100	pCi/g						
Cobalt-57	U	0.002	+/-0.00872	0.0172	0.050	pCi/g						
Cobalt-58	U	0.00394	+/-0.0135	0.0259	0.100	pCi/g						
Cobalt-60	U	-0.00459	+/-0.0126	0.0231	0.100	pCi/g						
Europium-152	U	-0.00867	+/-0.0332	0.0597	0.200	pCi/g						
Europium-154	U	-0.0191	+/-0.0371	0.0668	0.500	pCi/g						
Europium-155	U	-0.0119	+/-0.0358	0.0698	0.500	pCi/g						
Iridium-192	U	-0.00343	+/-0.0125	0.0227	0.100	pCi/g						
Iron-59	U	0.00606	+/-0.0365	0.0675	0.300	pCi/g						
Lead-210		2.28	+/-2.78	2.27	4.00	pCi/g						
Lead-212		0.597	+/-0.0799	0.0344	0.100	pCi/g						
Lead-214		0.523	+/-0.0865	0.0403	0.100	pCi/g						
Manganese-54	U	0.00564	+/-0.0133	0.0254	0.100	pCi/g						
Mercury-203	U	0.000619	+/-0.0162	0.0302	0.100	pCi/g						
Neodymium-147	U	-0.086	+/-0.380	0.718	1000	pCi/g						
Neptunium-239	U	0.0146	+/-0.0627	0.124	2.00	pCi/g						
Niobium-94	U	0.00397	+/-0.0106	0.0205	1.00	pCi/g						
Niobium-95	UUI	0.00	+/-0.0363	0.0328	0.050	pCi/g						
Potassium-40		7.66	+/-0.919	0.211	1.00	pCi/g						
Promethium-144	U	-0.00102	+/-0.0118	0.022	0.080	pCi/g						
Promethium-146	U	0.0065	+/-0.0143	0.0283	1.00	pCi/g						
Radium-226		0.361	+/-0.0759	0.0434		pCi/g						

GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : IEM, Inc.
Address : 6711 Kingston Pike
Suite 103
Knoxville, Tennessee 37919
Contact: Alan Duff
Project: Routine Analysis

Report Date: November 12, 2003

Client Sample ID: North Trench #1
Sample ID: 100114001

Project: IEMI00100
Client ID: IEMI001

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Amy Jamison.

Amy C Jamison

Reviewed by

Appendix H - Disposal Records for the Trash Pile

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: N / A

Manifest Document No.:

2. Page 1 of 1

3. Generator's Name and Mailing Address
GE Engine Service UNC Holdings, Inc.
71 Shelton Ave., New Haven, CT 06511

SAME

4. Generator's Phone (315) 374-2813

5. Transporter 1 Company Name: US Bulk Transport

6. US EPA ID Number: P.A.D.9.8.7.3.4.7.5.1.5

A. Transporter's Phone: 800-642-8910

7. Transporter 2 Company Name:

8. US EPA ID Number:

B. Transporter's Phone:

9. Designated Facility Name and Site Address
Minerva Enterprises, Inc.
9000 Minerva Road
Waynesburg, OH 44688

10. US EPA ID Number: N/A

C. Facility's Phone: 330-866-3435

11. Waste Shipping Name and Description	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol
a. Non Friable Asbestos (NF ACM Roofing Debris)	001	DT	EST. 0022	T
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above: L

15. Special Handling Instructions and Additional Information

Emergency Contact: CMS (866) 734-2553

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name: KEITH BALBUENA
Signature: Keith Balbuena
Month Day Year: 04/21/03

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: FFL Log.
Signature: [illegible]
Month Day Year: 04/10/03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name:
Signature:
Month Day Year:

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: Peggy Myers
Signature: Peggy Myers
Month Day Year: 04 22 03

ORIGINAL - RETURN TO GENERATOR

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: N / A
Manifest Document No.:
2. Page 1 of 1
#001

3. Generator's Name and Mailing Address
GE Engine Service UNC Holdings, Inc.
71 Shelton Ave., New Haven, CT 06511
4. Generator's Phone (315) 374-2813

SAME

5. Transporter 1 Company Name: US Bulk Transport
6. US EPA ID Number: P.A.D.9.8.7.3.4.7.5.1.5
A. Transporter's Phone: 800-642-8910

7. Transporter 2 Company Name: Sunshine Bulk Com.
8. US EPA ID Number: NYR000007577.0
B. Transporter's Phone: 315-548-2583

9. Designated Facility Name and Site Address
Minerva Enterprises, Inc.
9000 Minerva Road
Waynesburg, OH 44688
10. US EPA ID Number: N/A
C. Facility's Phone: 330-866-3435

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. Non Friable Asbestos (NF ACM Roofing Debris)	001	DT	EST. 0022	T
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above: L

15. Special Handling Instructions and Additional Information

Emergency Contact: CMS (866) 734-2553

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name: Keith Balbuena
Signature: Keith Balbuena
Month Day Year: 10 / 21 / 03

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Jim Wheeler
Signature: [illegible]
Month Day Year: 10 / 21 / 03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name:
Signature:
Month Day Year:

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19

Printed/Typed Name: Karen Solenthaler
Signature: K. Solenthaler
Month Day Year: 4 / 22 / 03

ORIGINAL - RETURN TO GENERATOR

85402

Minerva Enterprises, Inc.

9000 Minerva Road • P.O. Box 709 • Waynesburg, Ohio 44688
Phone: (330) 866-3435 Fax: (330) 866-3488

Date: 4-22-03 Time: _____

Customer No.: 467 Customer Name: Corbitt Mgmt

Generator: UNC Holdings

Location: New Haven, CT

Transporter: Sunshine Bulk

Purchase Order No: _____ Job No: _____

Waste Name: NFACM

Waste Type (Circle One): 4 (C&D) 15 (Asb-Friable) 14 (Asb-Non-Friable) Other: _____ (Check List)

Vehicle Type (Circle One):

Mason Dump Trailer Dump Pick-Up Roll-Off

Boxed Trailer Tandem Dump Single Axle Other: _____

Disposal Volume:

Cubic Yards: _____

Tons: 10.51

Manifest or Bill of Lading No.: 001

I certify that all materials meet Stark County/Ohio EPA specifications.

Driver's Signature

☒ **This certifies that the waste specified on this ticket has been properly disposed of in accordance with all local, state and federal regulations.**

☐ **This material has been rejected for the following reason:**

_____

_____

Karen Sorthel

Minerva Enterprises' Representative

85438

Minerva Enterprises, Inc.

9000 Minerva Road • P.O. Box 709 • Waynesburg, Ohio 44688
Phone: (330) 866-3435 Fax: (330) 866-3488

Date: 4/22/03 Time: _____

Customer No.: 407 Customer Name: CORbett Mgmt

Generator: UNC Holdings

Location: New Haven CT

Transporter: LFL

Purchase Order No: _____ Job No: 2000

Waste Name: NFACM

Waste Type (Circle One): 4 (C&D) 15 (Asb-Friable) (14) (Asb-Non-friable) Other: _____ (Check List)

Vehicle Type (Circle One):

Mason Dump (Trailer Dump) Pick-Up Roll-Off

Boxed Trailer Tandem Dump Single Axle Other: _____

Disposal Volume:

Cubic Yards: _____

Tons: 14.86

Manifest or Bill of Lading No.: _____

I certify that all materials meet Stark County/Ohio EPA specifications.

Driver's Signature

☒ **This certifies that the waste specified on this ticket has been properly disposed of in accordance with all local, state and federal regulations.**

☐ **This material has been rejected for the following reason:**

_____

_____

Minerva Enterprises' Representative

This report was prepared under the direction of
UNC Naval Products

by:

R. Alan Duff, R.R.P.T.
Integrated Environmental Management, Inc.
6711Kingston Pike
Suite 103
Knoxville, Tennessee 37919
(865) 588-9180
RADuff@IEM-Inc.com

Billy R. Thomas, CHP, CIH
Integrated Environmental Management, Inc.
2705 North Main Street
Suite 202
Findlay, Ohio 45840
(419) 423-4701
BRThomas@IEM-Inc.com

William Songer
AAA Environmental, Inc.
6679 Moore Road
Syracuse, New York 13211
(315) 454-2000
aaa-exec@worldnet.att.net