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Doc # 33471

328 LaPorte Road
Waterloo, Iowa 50702
www.atcassociates.com
Phone: 319.233.0441
Fax: 319.233.3269

ENVIRONMENTAL SITE ASSESSMENT WORK PLAN

ROSE SPUR QUARRY
HERBER ROAD
DUBUQUE, IOWA

ATC PROJECT # 204EM01430

Prepared for:

River City Stone
PO Box 809
Onalaska, WI 54650

Prepared by:

ATC Group Services LLC
328 LaPorte Road
Waterloo, Iowa 50702
(319) 233-0441
(319) 233-3269 fax

August 8, 2017

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Waterloo, Iowa 50702
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Fax: 319.233.3269

1.0 INTRODUCTION

1.1 INTRODUCTION

Previous assessment activities conducted on site in July 2017 indicate elevated Lead contaminants in soil exceeding applicable statewide standards. See ATC Group Services LLC (ATC) prior report for specific soil concentrations and locations. Therefore, the IDNR is requiring River City Stone to submit a Site Assessment Work Plan outlining further field activities, sample analysis and reporting to investigate and assess the potential risk the identified contamination presents to the environment and public health.

The rock quarry has been utilized by the local law enforcement as a gun range for several years. An "L-shaped" soil berm has been the area used for target shooting and measures approximately 15 feet by 230 feet by 15 feet high. ATC performed soil sampling at five locations within the soil berm, with samples collected from the upper 6 inches of the berm and at depths of 1 to 2 feet and 3 to 4 feet below the surface of the berm. Analytical data indicates the majority of the surface of berm is impacted with Lead over statewide standards, while lesser areas of the berm at depth are impacted with Lead. The Iowa DNR is requiring further site assessment for Lead and Antimony in soil, and possibly groundwater, based on review of ATC's report and is requesting a Work Plan be submitted for review.

2.0 SITE ASSESSMENT PROCEDURES

2.1 SAMPLING PLAN

ATC proposes the following work to be performed as part of the Site Assessment at the referenced facility in Dubuque, Iowa:

- ATC will establish a site specific Health and Safety Plan covering all related field activities.
- Prior to any subsurface penetrations ATC will notify the Iowa One-Call utility locating service. In addition, the property owner will be asked to mark any private utility lines not marked via the Iowa One-Call service.
- To identify the horizontal extent of Lead and Antimony in the soil ATC proposes to mobilize necessary equipment, personnel and supplies to the site to advance thirteen soil borings for soil assessment. In general, borings will be advanced via direct push rig using 5-foot samplers with acetate liners. Boring locations will be one per every 25 foot of the soil berm or one boring for every 25' x 15' area. Boring depths will be approximately 5 to 10 feet below grade or to auger refusal.

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ATC anticipates the average boring depth to be 5 to 8 foot to account for the mid-line of the berm face. To investigate the floor of the firing range ATC proposes to collect samples of the quarry base from every 30-foot square area. Due to the quarry base being mostly weathered bedrock ATC anticipates sample collection via hand tools and shovels. See Figure 1 for proposed boring locations.

- During boring advancement, at the thirteen boring locations, ATC will continuously collect soil samples, at one foot intervals, to the proposed boring depths. Field analysis of each sample will be conducted using a XRF spectrometer for the presence of Lead and Antimony. ATC will utilize a Thermo Scientific Niton XL3t GOLDD+ analyzer, or similar model, to screen soil in the field (see Product Specifications attached). The surface soils (upper 12 inches) at each boring location will be collected and screened through a No. 10 sieve screen to remove any bullet or shot fragments.
- The XRF data will be used to delineate those soils exceeding 400 ppm from those soils that are below the standard. This data will be used for confirmation laboratory analysis of select soil samples along with future corrective actions at the quarry.
- Of the soil intervals screened using the XRF, ATC proposes that 10% of the samples be containerized and submitted to a State of Iowa certified laboratory for analysis of Lead and Antimony in accordance with EPA method 6010C. All soil sampling will be performed per applicable ASTM Standards. Two of the samples, with the highest concentrations of Lead and Antimony, will be analyzed for TCLP per applicable EPA Method 6010/1311 for future disposal permitting, if needed.
- ATC will collect two additional soil samples from areas outside the former shooting range to establish background Lead and Antimony levels. These samples will be from the same clearing within the quarry that the shooting range is located but near the entrance and from soil representative of the same material present in the berm. The sample will be collected using a stainless steel soil probe and will be from below any organic material at the surface.
- ATC proposes installation of one on-site monitoring well to sample groundwater if the field and lab data indicates Lead in soil is in contact with the quarry floor (ie exposed bedrock). According to client information a prior monitoring well was installed to a depth of 110 feet. Recent observations by the client indicates the well is no longer present. ATC will survey all soil borings surface and well casing elevations to either an existing benchmark or establish a temporary benchmark on site. All measurements will be reported to the nearest 0.01 foot.
- If deemed necessary for the assessment of the site, ATC will use a disposable, plastic bottom loading bailer to purge three to five well volumes from the monitoring well. After groundwater in the monitoring well has recharged to 90% of the originally recorded depth, ATC will collect water and transfer the water samples into laboratory prepared 1 Liter amber glass jars. Samples will be submitted to a State of Iowa certified laboratory for analysis of Lead and

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Antimony in accordance with EPA 6020C. All samples collected will be cooled during field activities and en route to the laboratory by storing them on ice in a portable cooler. Upon completion of the sampling procedure, a chain of custody log will be initiated. The chain of custody record included the following information: project name, work order number, shipped by, shipped to, sampling point, location, field ID number, date and time taken, sample type, number of containers, analysis required, sampler(s) signature(s), etc. As few people as possible handled the samples. Ambient air temperature, sample condition inside of shipping/travel container will be recorded upon receipt at the laboratory or recorded as "shipped on ice".

2.2 REPORTING

- ATC will research and document sensitive receptors within select distances from the site. For the purpose of this Work Plan ATC proposes to utilize the receptor criteria per Iowa Code 567-135.2(455B) as utilized by the UST Section of IDNR (i.e. 1,000 ft for water wells, 500 ft for confined spaces, 200 ft for water transmission lines and 200 ft for surface water bodies).
- ATC proposes to compile all field data, receptor information and analytical reports into a Site Assessment Report outlining our findings and recommendations. The report will include Lead and Antimony field screening and laboratory results in tabular format along with TCLP data. Site maps depicting borings locations and soil boring logs will also be included in the report. The evaluation will result in recommendations for site closure if no soil exceeding the applicable action limits are identified or corrective action (i.e. soil berm removal and disposal) if elevated levels in soil are identified.

3.0 QUALITY CONTROL

3.1 QUALITY CONTROL PLAN

- **Decontamination**

Cross-contamination of soil samples will be reduced by incorporating decontamination procedures during sampling. The field equipment used to sample soil (shovels, spoons, auger, rods, etc.) will be decontaminated with an Alconox soap and potable water wash followed by a water rinse between each boring location. Furthermore, use of single-use PPE and laboratory provided sample containers at each boring location will also be used to minimize cross-contamination.

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- **Investigation Derived Waste**

Soil remaining upon completion of each boring will be segregated on plastic based on the XRF field screening for potential future disposal off site. Bentonite chips will be used to backfill the representative boreholes. Decontamination fluids (wash and rinse water) will be discharged to the ground surface within the shooting range area. Disposal of PPE and other project generated waste will be collected and disposed of at a local sanitary landfill. Material not passing the No. 10 sieve will be containerized for later disposal by the client with their non-hazardous solid waste.

4.0 PROJECT TIMETABLE

4.1 SCHEDULING OF TASKS

Scheduling of events will proceed upon approval from DNR and client. ATC will agree to act in good faith to satisfy the terms and conditions / deadlines set forth by the IDNR. Estimated time for field activities is 15 to 20 days from the date the Work Plan is approved by IDNR. Upon completion of laboratory analysis (standard turn around) site assessment reporting is anticipated to take 30 to 45 days for submittal of a report to the client. Upon review and approval by the client ATC will submit the Work Plan within 3 days to IDNR for review and comment.

ATC employs qualified engineering and environmental professionals. Resumes of select staff that would be involved with this project are attached. If you have any questions or need additional information regarding this Work Plan, please contact us at (319) 233-0441.

Sincerely,

ATC GROUP SERVICES LLC

Gaylen Hiesterman, CGP
Branch Manager
gaylen.hiesterman@atcassociates.com

Angela Erhardt, CGP
Project Manager
angela.erhardt@atcassociates.com

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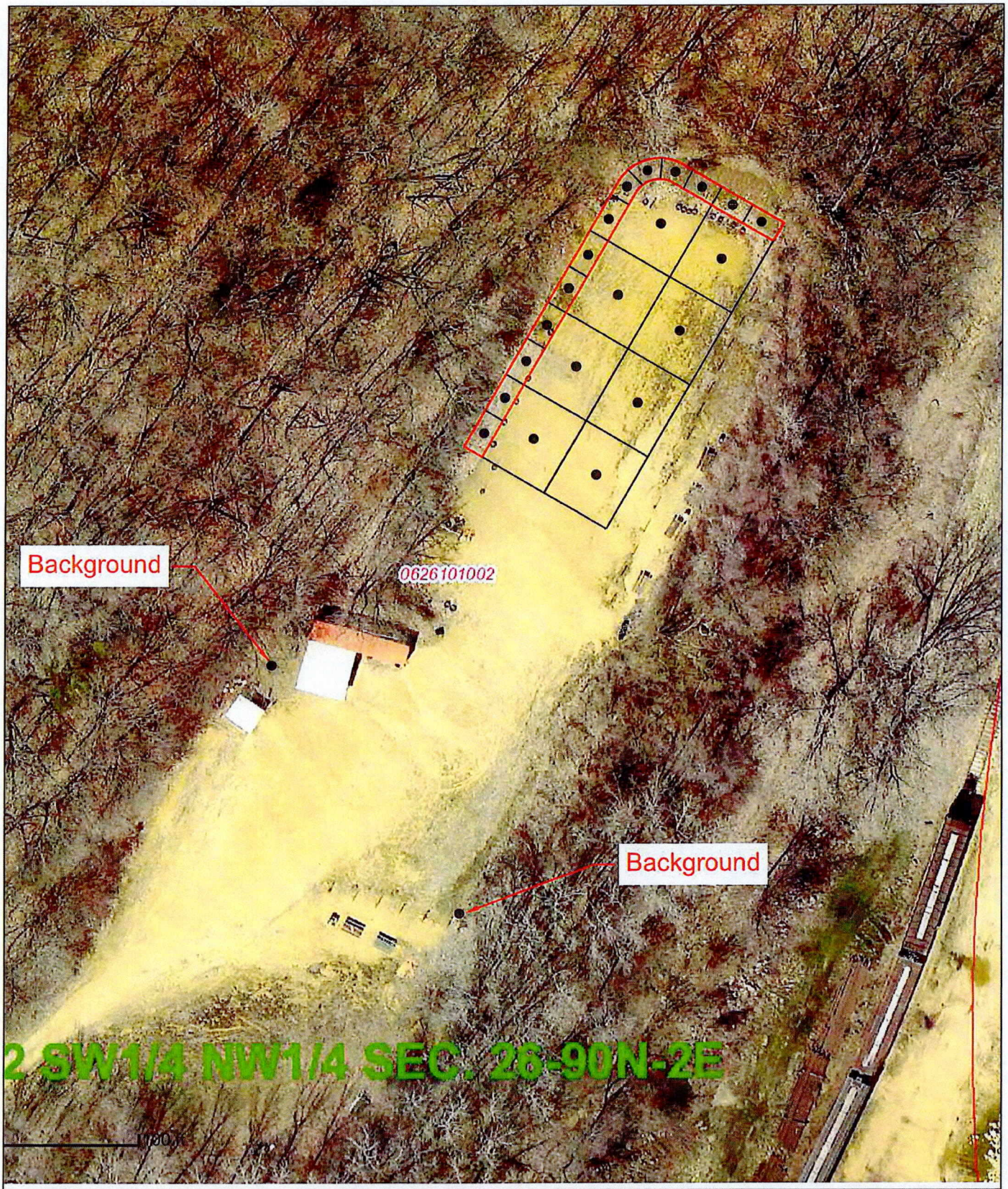
FIGURE 1

SITE MAP



N

LEGEND

- Approximate Sample Location

ATC
328 La Porte Road
Waterloo, IA 50702
Ph. (319) 233-0441

Rose Spur Quarry
Herber Road
Dubuque, IA

DWN BY	SCALE	
JJD	NONE	
DATE	JOB NUMBER	SHEET
8/15/2017	204EM01430	1

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RESUMES

GAYLEN HIESTERMAN
Branch Manager

PROFESSIONAL SUMMARY

Mr. Hiesterman is a Project Manager for ATC Group Services serving the Midwest from the Waterloo, Iowa office. He has over 24 years of experience in environmental services. Mr. Hiesterman has extensive experience in managing and conducting environmental projects including site geologic, hydrogeologic and contaminant characterization for a variety of contaminants including petroleum, chlorinated solvents, metals and agricultural chemicals. Additional responsibilities include evaluation of remedial alternatives and development and implementation of Remedial Action Plans. He also provides professional review and assists in risk evaluation for numerous Phase I and Phase II Environmental Site Assessments. State and federal programs he has had regulatory involvement in include the LUST program of Iowa and Nebraska, Voluntary Cleanup Programs in Iowa and Nebraska, Pre-CERCLA Land Recycling Program in Iowa and RCRA and Superfund with US EPA Region 7.

PROJECT EXPERIENCE

Petroleum Remediation

- **Petroleum remediation, Former Myers Service, Ridgeway, IA** Project Manager responsible for managing petroleum remediation, free product recovery and site monitoring at the LUST site. Project included initial use of low flow oxygen injection system to passively remediate petroleum contaminants. Additional remediation tasks included excavation of petroleum impacted material from the site and the adjoining city streets and land applying the soil allowing natural degradation to occur.

- **Petroleum Remediation, Holiday Oil Distributing, Dubuque, IA** Project Manager responsible for managing chemical injection events for LUST site. Project included multiple event of chemical oxidation and ISCO products as part of reducing petroleum contamination below applicable Iowa DNR site specific target levels.

- **Petroleum remediation, MRP Properties, Various Location**s in Iowa Project Manager responsible for managing soil vapor extraction system and chemical injection events for various LUST sites. Projects included installation and operation of soil vapor extraction system and multiple events of chemical oxidation and ISCO products as part of reducing petroleum contamination below applicable Iowa DNR site specific target levels at the various sites in Iowa.

- UST/LUST Investigations

- **UST and LUST Assessments, Farmers Win-Coop, Decorah, Iowa** Project Manager responsible for managing UST Closure at Win-Coop facility north of Decorah. Conducted fieldwork and Iowa DNR reporting for closure of several gasoline and diesel USTs. Further LUST assessment work at the site consisted of Iowa DNR Tier 2 Bedrock Assessment. Managed bedrock drilling, fieldwork, soil and groundwater sampling and completion of the risk based corrective action report. Initial report review by Iowa DNR accepted as High Risk and further corrective action and monitoring is pending.

- **LUST Assessment, Rainbo Oil Company, Delaware, Iowa** Project Manager responsible for managing LUST assessment after petroleum release at Kwik Stop Food Mart facility in Delaware. Conducted assessment work at the site consisting of Iowa DNR Tier 2 Bedrock Assessment. Managed bedrock drilling, fieldwork, soil and groundwater sampling and completion of the risk based corrective action report. Initial report review by Iowa DNR accepted as High Risk and monitoring is pending.

- **LUST Assessment, Annis Petroleum, Waterloo, Iowa** Project Manager responsible for managing LUST assessment after petroleum release at Former Lambs 66 facility in Waterloo. Conducted assessment work at the site consisting of Iowa DNR Tier 2 Bedrock Assessment. Managed bedrock drilling, fieldwork, soil

and groundwater sampling and completion of the risk based corrective action report. Initial report review by Iowa DNR accepted as High Risk and monitoring conducted until risk criteria met. LUST facility achieved No Further Action status and site closure activities completed.

- **LUST Assessment, Various LUST Sites, Iowa & Nebraska** Project Manager responsible for managing LUST assessments at active or closed LUST facilities in various cities in Iowa and Nebraska. Conducted numerous site assessment work at the sites consisting of Iowa DNR or Nebraska DEQ Tier 1 or Tier 2 site assessments. Managed drilling and well installations, fieldwork, soil and groundwater sampling and completion of the risk based corrective action reports. Managed free product recovery at numerous sites including use of passive and active recovery technologies. Project Manager for site monitoring at >100 LUSTs as part of low risk or high risk corrective action. Site risks vary from High Risk to No Further Action with monitoring conducted until risk criteria met. LUST facilities that have achieved No Further Action status also had site closure activities completed. Extensive work and relationship with UST funding agency maximizing client reimbursement and minimizing delays on initiation of project tasks.

Phase I ESA / Phase II ESA

- **Phase I ESA, Elkco Properties, Various Locations** Project Manager responsible for managing Phase I ESA for various sites. Assessment of various commercial, industrial and undeveloped properties including former gas stations, dry cleaners and existing apartment complexes. Phase I's performed to current ASTM standard to meet client due diligence and reporting deadlines.

- **Phase II ESA, Elkco Properties, Various Locations** Project Manager responsible for managing soil, groundwater and vapor assessments for various sites. Testing included petroleum fuels, dry cleaning solvents and heavy metals.

RCRA/CERCLA Investigations

- **Site Assessment and Vapor Mitigation, Former Rainbow Cleaners, Des Moines, Iowa** Project Manager responsible for managing drilling and fieldwork for former dry cleaners. Managed soil, groundwater and sub-slab vapor sampling. Completed Iowa DNR Work Plan, Assessment Report and Remedial Action Plan for Iowa DNR review. Managed installation and operation of sub-slab vapor mitigation system.

- **Site Assessment, Former Dry Cleaners, UICCU, Cedar Rapids, Iowa** Project Manager responsible for managing drilling and fieldwork for former dry cleaners. Managed soil and groundwater sampling. Completed Iowa DNR Work Plan, Assessment Report and Remedial Action Plan for Iowa DNR review. Managed several years of groundwater monitoring and eventual site closure activities after Iowa DNR acceptance of No Further Action request.

PROFESSIONAL REGISTRATIONS

- Certified Groundwater Professional, Iowa, Certification #1619

EDUCATION

- University of Northern Iowa; BS, Geology, 1992

TRAINING AND CERTIFICATIONS

- OSHA 40 Hour Hazardous Waste Site Operations Health & Safety Course
- OSHA 8 Hour Annual Refresher Training for Hazardous Waste Site Operations

PROFESSIONAL AFFILIATIONS

- Environmental Professionals of Iowa, Member

SCOTT HANSON, PE
Project Manager

PROFESSIONAL SUMMARY

Mr. Hanson is a project manager with ATC, and is a licensed professional Civil Engineer in the State of Iowa, the State of Nebraska, the State of Kansas, and the State of Missouri. He is an Iowa licensed Asbestos Inspector/ Project Designer and Iowa Certified lead inspector/ Risk Assessor. His professional employment history consists of 12 years of experience in various fields. These fields have primarily Included Asbestos Inspections, Phase I Environmental Site Assessments, Property Condition Assessments, Spill Prevention Control and Countermeasures Plans, Leaking Underground Storage Tank Sites, Indoor Air Quality Assessments, CAD Drafting and Surveying, Geotechnical Engineering, and Construction Materials Engineering. Within these fields primary responsibilities have included writing proposals, project management, performance of various associated activities, analysis of data, report preparation, and report review.

PROJECT EXPERIENCE

Property Due Diligence

- **Phase I Environmental Site Assessments:** Mr. Hanson has performed various Phase I Environmental Site Assessments for various residential, retail, commercial, industrial facilities of various sizes across the country. Mr. Hanson has also prepared Phase I Environmental reports based on site observations and historic information, with any necessary recommendations.

- **Property Condition Assessment:** Mr. Hanson has performed various Property Condition Assessment for various residential, retail commercial, industrial facilities of various sizes across the country. This work involves observations of various properties for defective components, and estimating the remaining useful life of various building components. Upon completion of the site observations Mr. Hanson has prepared reports for the properties to identify immediate repair needs and future repair needs, and includes anticipated costs.

Building Sciences

- **Asbestos Inspections and Abatement Monitoring:** As an asbestos inspector Mr. Hanson has been responsible for performing asbestos inspection surveys of commercial and residential properties for Asbestos Containing Materials, collecting samples of suspect materials, preparing reports and bid specification documents based on lab data. As an abatement monitor Mr. Hanson has provided oversight during the abatement of asbestos containment materials to assure proper abatement procedures are followed. Upon completion of abatement Mr. Hanson has performed visual and air clearance testing to assure removal of asbestos containing materials and that the work area is same to the public. Mr. Hanson is certified to analyse PCM asbestos air clearance samples in the field.

- **Indoor Air Quality Assessments:** Mr. Hanson has performed indoor assessments of various commercial and residential properties to identify causes of poor indoor air quality, or water infiltration issues. This work is performed with visual observations, moisture content readings, thermal imaging, testing for various indoor air quality parameters, sampling of the air with spore traps, and sampling by tape lifts samples. Upon completion of site observation information Mr. Hanson has prepared reported with recommended remediation activities.

- **Lead Inspector:** Mr. Hanson has performed lead inspections of multi-tenant residential properties in Iowa. The inspections were performed by utilizing a direct read XRF to identify asbestos contents of various lead painted surfaces. Upon completion of the inspection Mr. Hanson has prepared reports with the results of the inspection activities.

Hazardous Material Storage

- **Spill Prevention, Control and Countermeasures (SPCC) Plans:** Mr. Hanson has performed site observations and repaired SPCC plans for various facilities that store oil products and are subject to SPCC regulations. As a Professional Engineer Mr. Hanson has also reviewed various SPCC plans for Engineer certification.

- **Leaking Underground Storage Tank (LUST):** Mr. Hanson has performed sampling of soil and groundwater for analysis, monitoring for free products, and prepared Site Monitoring Reports for various LUST sites in Iowa. Mr. Hanson has also assisted in the installation and abandonment of groundwater monitoring wells. Mr. Hanson has also assisted with site remediation activities including soil excavations, soil vapor extraction system, chemical treatment systems, and remediation report preparation.

Site Development Engineering

- **Geotechnical Engineering:** As a geotechnical engineer Mr. Hanson has been responsible for determining soil sampling locations, drilling and sample collection, performing analysis of collected soil samples to determine soil properties, and developing geotechnical reports with site recommendations for various projects, generally in Iowa. Typical projects have included cell towers, grain bins, utility installation projects, parking lots and roadways, and typical single story buildings of various sizes.

- **Construction Materials Engineering:** As a construction materials engineer Mr. Hanson has performed and/or overseen various lab activities and field activities associated with typical construction projects. Mr. Hanson has also periodically performed more specialized field testing and inspection services such as masonry thermal imaging, concrete penetrating radar to identify rebar placement, structural steel bolt and welding inspections, fireproofing thickness, paint thickness, floor flatness, Windsor probe testing, and general project progress inspections.

Site Plans

- **Site Plans and Survey:** Mr. Hanson has performed basic surveying for site plan development. Mr. Hanson has also utilized Auto Cad to prepare basic site sketches to full dimensioned construction plan documents.

PROFESSIONAL REGISTRATIONS

- Iowa Professional Engineer (#19702 exp. 12/31/2017)
- Nebraska Professional Engineer (#E-13388 exp. 12/31/2017)
- Kansas Professional Engineer (#23298 exp. 4/30/2018)
- Missouri Professional Engineer (PE-2014001628 exp. 12/31/2018)
- Iowa Asbestos Inspector (#17-8099 exp. 3/28/2018)
- Iowa Asbestos Project Designer (17-8507 exp. 6/2/2018)
- Iowa Certified Lead Inspector/ Risk Assessor (#0003479-INSP exp. 5/2/2018)

EDUCATION

- B.S. Studies, Civil Engineering, Iowa State University, 2004, with Distinction

TRAINING AND CERTIFICATIONS

- NRMCA Pervious Concrete Technician
- ACI Grade I Field Technician
- Microbial Investigation, Assessments and Remediation in the Indoor Environment
- NIOSH Equivalent PCM Certification
- ASTM E2018 – Property Condition Assessment
- 40 Hour HAZWOPER training

Michael A. Freese, REM
Sr. Project Manager

PROFESSIONAL SUMMARY

Mr. Freese is a senior project manager in the environmental division of ATC's Omaha, NE, branch. He has nearly 30 years of experience in environmental consulting, including air and water permitting and regulatory compliance and due diligence. Mr. Freese has completed air emission inventories, Title V and construction permitting; NPDES permitting, SDWA, SWPPP, and SPCC plans; and Phase I and Phase II environmental assessments.

PROJECT EXPERIENCE

- **Environmental Compliance Management / Major Financial/Insurance Firm / Des Moines, IA.** Managed environmental compliance programs, including RCRA, Title V, and underground storage tanks. Reviewed Phase I and II assessments and provided recommendations on risks and liabilities. Recovered money for clients under UST Financial Responsibility Program for cases under appeal at the Attorney General's Office.

- **Environmental Compliance Management / Vehicle Leasing Company / Des Moines, IA.** As environmental engineer, managed firm's RCRA, AST, OPA, CERCLA, EPCRA, SARA and CAA programs. Managed and trained 200 location managers to ensure compliance with environmental regulations and company policies. Assisted executive management in property acquisitions to determine potential environmental liabilities. Developed intricate fuel system databases to ensure environmental compliance, testing, repair and maintenance. Completed more than 40 UST upgrades and managed removal and installation of 35 fuel systems. Managed cleanup projects that resulted in nearly $500,000 in reimbursement from state UST funds. Developed financial responsibility program for company's fuel systems. Developed and implemented fuel quality program that resulted in an 88% reduction in fuel-related breakdowns and annual savings of approximately $350,000 per year. Developed and implemented more than 60 SPCC plans. Developed company's universal spill response procedure and managed cleanups for more than 800 spills. Conducted routine audits to ensure environmental compliance.

- **Environmental Management / Environmental Services Firm / West Des Moines, IA.** Completed construction air permits and emission inventory questionnaires. Conducted emission and ambient air monitoring for various contaminants and toxins. Developed SPCC plans, hazardous waste storage facility closure plans, and emergency response and Right-to-Know plans. Additional services included hazardous waste sampling, UST removal and remediation oversight, Phase I and II ESAs, completion of SARA Title III forms, and developing strategies for the reduction, reclamation and disposal of solid wastes.

- **Environmental Management / Jacobson Transportation / Des Moines, IA.** Served as Project Manager for coordinating Spill Prevention Control and Countermeasure (SPCC) Plans for company's facilities nationwide. Project included coordinating employees and Cardno ATC offices to complete approximately 20 SPCC Plans and reviewing plans for compliance with federal and state specific regulations. Project completed on time with company deadlines.

- **Environmental Management / US Department of Labor / Nationwide.** Served as Project Manager for coordinating National Environmental Policy Act (NEPA) Environmental Assessments for the US Department of Labor renewable energy projects. The project included evaluating over 30 sites nationwide for environmental impacts due to proposed renewable energy projects. Project completed prior to governmental deadlines.

- **Environmental Management / O'Reilly Auto Parts / Springfield, MO.** Served as Team Leader for an environmental due diligence project that included over 200 properties throughout the USA. As Team Leader was responsible for reviewing Phase I Environmental Site Assessments generated from Cardno ATC's Midwest offices for consistency and accuracy and provide guidance on recognized environmental conditions.

- **Air Permitting / US Cellular / Nationwide.** Performed an air compliance evaluation for over 7,000 facilities located throughout the United States. The evaluation included the review of applicable air permitting regulations within each facility's regulatory jurisdiction including thresholds for permitting, types of permits (construction and/or operating) and applicable requirements for mobile and permanent emission sources. The evaluation subsequently resulted in the completion of over 300 air permits which were completed within six months from the date of the evaluation. Also, responsible for maintaining an air compliance database which ensures completion of air permit renewals, annual air emission inventories and overall permit compliance.

PROFESSIONAL REGISTRATIONS

- Registered Environmental Manager (National Registry of Environmental Professionals, 1999)

EDUCATION

- B.S., Meteorology/Atmospheric Science, Iowa State University, Ames IA, 1986

TRAINING AND CERTIFICATIONS

- Industrial Chemical Spill Response Technician, Kirkwood Community College
- Liquid Storage Tank Certification, University of Wisconsin-Madison
- NIOSH 582, McCrone Research Center.
- Building Inspector, University of Illinois-Chicago

PROFESSIONAL AFFILIATIONS

- Member, Environmental Professionals of Iowa, 1990-2016
- Member, Iowa Chapter of Air & Waste Management Association, 1990-1994; 2002-2016
- Member, American Trucking Association, 1994-2002

PUBLICATIONS/AWARDS

- SPCC Presentation to Iowa Association of Municipal Utilities, 2005-2009 Annual Conference.
- Environmental Excellence Award 1999, American Trucking Association

Tim Jacobsen, MPH
Operations & Project Manager

PROFESSIONAL SUMMARY

Mr. Jacobsen is the Building Science Operations Manager for ATC in the Nebraska and Iowa offices. Mr. Jacobsen provides proposal preparation for building-related inspections and remediation for asbestos, mold, lead and indoor air quality. He provides technical review of data, reports, and sampling methods. Professional responsibilities include identifying hazards, and the mitigation of exposure to hazards in various occupational and non-occupational environmental. Duties include cradle to grave project management during projects involving industrial hygiene, indoor air quality, and hazard assessments related to buildings. As Operations Manager, he manages a staff of qualified environmental consulting professionals at multiple job sites and is a source of technical guidance for field personnel.

PROJECT EXPERIENCE

- **Lead Dust Hazard Assessment / Department of Administrative Service.** Provided indoor air quality and lead hazard assessment of state building. Directed sampling methodology and sampling plan. Identified high risk exposure areas and provided mitigation plan for a specialty contractor to remediate. Conducted final testing and clearance to ensure habitation is acceptable to industry standards prior to re-occupation.

- **Asbestos, PCB, Mold and Indoor Air Quality Testing / University of Nebraska-Lincoln / Nebraska.** On-call as a vendor for to University and Environmental Health and Safety department to prepare buildings for demolition, remediation, and to investigate IAQ complaints.

- **Mold and Indoor Air Quality Assessment / Energizer Battery / Maryville, Missouri.** Provided comprehensive mold and indoor air quality investigation of the heating, ventilation and air conditioning (HVAC) system of over 500,000 square feet of building space. Coordinated access into the duct system, documented mold growth, corrosion, and indoor air quality concerns. Provided technical support and on-going development for the remediation of the HVAC systems while plant continues manufacturing.

- **Industrial Hygiene Sampling / Various Nucor Sites, Norfolk, Nebraska** Conducted exposure monitoring for metals, noise and acids for OSHA compliance. Documented worker exposure risks and developed recommendations to senior management to reduce risks through engineering controls and personal protection equipment. Conducted personal exposure monitoring on a quarterly basis and interacted with employees to educate about exposures in the work place. Reviewed analytical data. Includes annual monitoring at the 3 plants over the past 8 years.

- **Iowa Lead Inspector/Risk Assessor / Multiple Clients / Iowa.** Conducted lead free inspections in multi-family housing buildings. Prepared budgets, conducted lead testing using XRF technology in the field and provided detailed reports of the results and testing.

- **Indoor Air Quality Testing / Union College Campus / Lincoln, Nebraska.** Provided consulting and testing to identify an odor in the Nursing Annex. Conducted a risk assessment for chlorine exposure at the new swimming pool in the Larson Lifestyle Center and multiple mold investigations of classrooms and dormitories.

- **Asbestos Project Management / Various Public and Private Iowa Schools / Iowa.** Managed asbestos inspections, abatement project designs, abatement bidding services, air monitoring, compliance oversight and abatement of multiple school districts in Iowa.

- **Asbestos & Lead Paint Project Management / Concordia University / Nebraska.** Conducted the asbestos and lead paint survey of multiple campus dormitory and facilities for renovations. Included asbestos bid management and specifications with drawings identifying asbestos and paint locations.

- **Asbestos Consulting / University of Nebraska / Lincoln, Nebraska.** Design of asbestos abatement documents and bidding management for multiple projects at the University of Nebraska-Lincoln. Major projects included removal of asbestos containing materials in preparation of the demolition of Ferguson Hall and basement renovation for the Behlen Laboratory.

- **Industrial Hygiene Sampling / Omaha Public Power District / Fort Calhoun and Omaha, Nebraska.** Performed various industrial hygiene sampling activities of the various construction trades for OSHA compliance. Coordinated schedules for sampling, identified test methods with the laboratory and recorded employee activities during monitoring. Other duties included trouble-shooting sampling challenges, communicating with monitored employees, maintaining sampling integrity, and discussing test methods with the laboratory.

- **PCB Testing and Remediation / UNL.** Provided testing for PCB contamination of the building and soil analysis. Compliance oversite for the remediation practices and disposal procedures according to EPA-approved work plan.

PROFESSIONAL REGISTRATIONS

- Licensed Asbestos Professional for Inspection, Management Planner, Project Designer and Supervisor (Multiple States)
- Licensed Lead-Based Paint Inspector/Risk Assessor (Iowa)
- OSHA 40-Hour HAZWOPER
- PLM Bulk Asbestos Analyst
- NIOSH 582 Microscopist

EDUCATION

- Master of Public Health, University of South Florida
- Bachelors of Arts, Environmental Studies, Dordt College

ANGELA ERHARDT
Project Manager

PROFESSIONAL SUMMARY

Ms. Erhardt is a Project Manager for ATC Group Services serving the Midwest from the Waterloo, Iowa office. She has over 17 years of experience in environmental consulting including Iowa RBCA assessments (Tier 1, Tier 2, Tier 2 Bedrock and Tier 3) Phase I and II environmental assessments, site characterizations, underground and aboveground storage tanks, compliance management, and remediation of petroleum and hazardous waste sites. Ms. Erhardt has worked extensively as a Certified Groundwater Professional for soil and groundwater remediation sites involving system O&M and monitoring, bioremediation, process optimization and site closure plans. State and federal programs she has had regulatory involvement in include the LUST program of Iowa, Contaminated Sites Section with the Iowa DNR, and Superfund with US EPA Region 7.

PROJECT EXPERIENCE

Petroleum Remediation

- **Petroleum Remediation, Hartland Fuels, Mason City, IA** Project Manager responsible for managing petroleum remediation and site monitoring at the LUST site. Project included excavation of petroleum impacted soil from the site with disposal at a nearby landfill. On-going activities include quarterly groundwater monitoring with submittal of annual Site Monitoring Reports.

- **Petroleum Remediation, Quasky Mart, Quasqueton, IA** Project Manager responsible for managing the use of a low flow oxygen injection system to passively remediate petroleum contaminants. Field work included the operation and maintenance of the system with semi-annual reporting.

- **Petroleum Remediation, OJ's Convenience Store, Oxford Junction, IA** Project Manager responsible for managing soil vapor extraction/air sparge system. Project included installation and operation of soil vapor extraction system and multiple air sparge injection points as part of reducing petroleum contamination below applicable Iowa DNR site specific target levels.

UST/LUST Investigations

- **UST and LUST Assessments, North Butler Community Schools, Greene, Iowa** Project Manager responsible for managing UST removal at former elementary school. Conducted fieldwork and Iowa DNR reporting for closure of 10,000 gallon heating oil UST. Further LUST assessment work at the site consisted of Iowa DNR Tier 2 Bedrock Assessment. Managed bedrock drilling, fieldwork, soil and groundwater sampling and completion of the risk based corrective action report.

- **UST and LUST Assessments, Rainbo Oil, Dubuque, Iowa** Project Manager responsible for overseeing product line replacement at active gas station. Conducted fieldwork and Iowa DNR reporting for product line closure sampling. Further LUST assessment work at the site consisted of Iowa DNR Tier 2 Bedrock Assessment. Managed bedrock drilling, fieldwork, soil and groundwater sampling and completion of the risk based corrective action report. Initial report review by Iowa DNR accepted as No Further Action and achieved site closure.

- **LUST Assessment, Various LUST Sites, Iowa** Project Manager responsible for managing LUST assessments at active or closed LUST facilities in various cities in Iowa. Conducted numerous site assessment work at the sites consisting of Iowa DNR Tier 1 or Tier 2 site assessments. Managed drilling and well installations, fieldwork, soil and groundwater sampling and completion of the risk based corrective action reports. Managed free product recovery at numerous sites including use of passive and active recovery technologies. Project Manager for site monitoring at over 100 LUSTs as part of low risk or high risk corrective action. Site risks vary from High Risk to No Further Action with monitoring conducted until risk criteria met. LUST facilities that have achieved No Further Action status also had site closure activities completed. Extensive work and relationship with UST funding agency maximizing client reimbursement and minimizing delays on initiation of project tasks.

Phase I ESA / Phase II ESA

- **Phase I ESA, Regions Bank, Waterloo, IA** Project Manager responsible for managing Phase I ESA for various sites. Assessment of various commercial, industrial and undeveloped properties including former gas stations, dry cleaners and existing apartment complexes. Phase I's performed to current ASTM standard to meet client due diligence and reporting deadlines.

- **Phase II ESA, Team Services, Various Locations** Project Manager responsible for managing soil, groundwater and vapor assessments for various sites. Testing included petroleum fuels, dry cleaning solvents and heavy metals.

RCRA/CERCLA Investigations

- **Site Assessment, Former Dry Cleaners, UICCU, Cedar Rapids, Iowa** Assistant Project Manager responsible for conducting drilling and fieldwork for former dry cleaners. Conducted soil and groundwater sampling. Assisted with completed of Iowa DNR Work Plan, Assessment Report and Remedial Action Plan for Iowa DNR review. Conducted several years of groundwater monitoring and eventual site closure activities after Iowa DNR acceptance of No Further Action request.

PROFESSIONAL REGISTRATIONS

- Certified Groundwater Professional, Iowa, Certification #1885
- Certified Well Driller, Operator ID # 8134

EDUCATION

- University of Northern Iowa; BS, Geology, 1998

TRAINING AND CERTIFICATIONS

- OSHA 40 Hour Hazardous Waste Site Operations Health & Safety Course
- OSHA 8 Hour Annual Refresher Training for Hazardous Waste Site Operations

PROFESSIONAL AFFILIATIONS

- Environmental Professionals of Iowa, Member
- Iowa Groundwater Association, Member

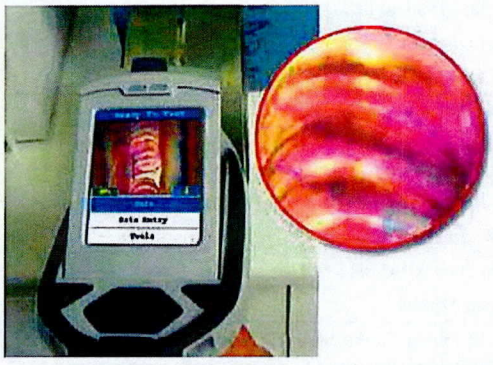
Product Specifications

Thermo Scientific Niton XL3t GOLDD+ XRF Analyzer

The Thermo Scientific Niton XL3t x-ray tube-based x-ray fluorescence (XRF) analyzer with GOLDD+ technology is purpose-built for your most demanding applications. Where low detection limits and high sample throughput are critical, our combination of hardware, software, features, and direct industry experience are combined to provide you with a solution to your most difficult analytical requirements.

Thermo Scientific Niton XL3t GOLDD+ analyzers provide you with many distinct advantages:

- **Superior light element detection (Mg, Al, Si, P, S) without helium purge or vacuum**
- **High count rate for lower detection limits and faster analysis**
- **True lab-quality performance in a handheld instrument, including tramp/trace elements**



CCD camera and small-spot feature isolates and stores small sample area measurements.

Breakthrough Technologies – The GOLDD Advantage

The Thermo Scientific Niton XL3t analyzer combines advanced electronics and materials technology with dynamic features and the most versatile x-ray tubes ever used in a handheld XRF instrument. When this power is harnessed to our groundbreaking GOLDD+™ technology, it takes your analytical capabilities to a whole new level. The direct benefits to you include: real-time results, advanced light element analysis, and ultimate performance in our robust, proven design. From their extraordinary speed and precision to the integrated, tilting, color, touch-screen display and the customizable menus for ease of use, ergonomic Niton® XL3t GOLDD+ analyzers are lightweight, ruggedly constructed, and fast.

What is the GOLDD advantage? GOLDD technology delivers vast improvements in sensitivity or measurement times – as much as 10-times faster than conventional Si-PIN detectors, and up to 3-times more precise than conventional silicon drift detectors (SDD). We achieved this improvement by uniquely combining an improved Niton XL3t 50kV, 200 µA x-ray tube, closely optimized geometry, and patented signal processing hardware and software. These advantages are coupled with our proprietary drift detector, one of the largest area drift detectors that is commercially available in a handheld XRF analyzer, providing you with superior performance in the form of faster analysis and lower detection limits. The final product is the Niton XL3t GOLDD+... a more versatile and technologically advanced handheld XRF analyzer, designed without compromise to make you more successful.

The Instrument of Choice

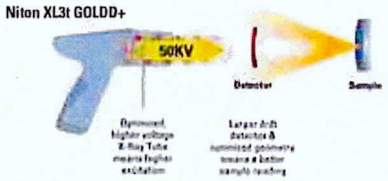
The Niton XL3t GOLDD+ is the instrument of choice when you require extreme accuracy, precision, and ease of use, with its faster analysis, higher precision, and the ability to measure light elements without helium or vacuum assistance. It is the ideal instrument to:

- Analyze metal alloys
- Carry out mining exploration and mapping
- Detect soil contaminants
- Test electronics and consumer goods for prohibited substances

For example, the Niton XL3t GOLDD+ delivers a new level of productivity for scrap metal recycling, with the ability to sort aluminum, titanium, and bronze alloys, as well as achieve superior performance for tramp and trace element analysis. Further, in mining exploration, the instrument's low detection limits allow you to identify anomalies near the averages naturally found in the earth's crust, something previously not possible with handheld XRF. Similarly, you will experience improved detection limits for all elements in environmental applications, including target elements such as chlorine and sulfur in sediment, and arsenic in soil. The improved limits of detection put the Niton XL3t GOLDD+ on par with most laboratory grade systems used in testing consumer products for toxic elements. Additionally, you can achieve enhanced Mg-S performance with the optional He purge.

The Niton XL3t GOLDD+ stands alone with its many standard features and available options.

Product Specifications



Large area drift detector and optimized geometry for more x-ray counts: you get faster and more precise readings.

You can pinpoint areas of interest on a sample using the integrated color CCD camera and the optional integrated 3 mm small-spot collimation, and then store the test area image along with the analysis data. Take advantage of the standard Thermo Scientific Niton Data Transfer (NDT©) PC software suite to customize the instrument. You can set user permissions, generate custom reports, print certificates of analysis personalized with your own company logo, or remotely monitor and operate the instrument hands-free from your PC. Integrated USB and Bluetooth™ communications provide direct data transfer to your PC or networked storage device, eliminating the cumbersome data synchronization procedures required by Windows Mobile®-based XRF analyzers.

Niton XL3t Analyzers – The GOLDD Standard

Whether you need an analyzer for metal alloy analysis, mining exploration, environmental applications, or electronics and consumer goods testing, the Thermo Scientific Niton XL3t GOLDD+ raises the bar – combining the outstanding analytical performance of lab-grade instrumentation with the high-speed performance, ease of use, and cutting-edge technology that you have come to expect from Thermo Scientific Niton XRF analyzers.

Thermo Scientific Niton XL3t GOLDD+ Specifications

Weight	< 3.0 lbs (< 1.3 kg)
Dimensions	9.60 x 9.05 x 3.75 in. (244 x 230 x 95.5 mm)
Tube	Ag anode (6-50 kV, 0-200 µA max)
Detector	Geometrically Optimized Large Area Drift Detector (GOLDD) Proprietary detector with 180,000 throughput cps Resolution: < 185 eV @ 60,000 cps @ 4µ sec shaping time
System Electronics	533 MHz ARM 11 CPU 300 MHz dedicated DSP 80 MHz ASICS DSP for signal processing 4096 channel MCA 32 MB internal system memory/128 MB internal user storage
Display	Tilting, color, touch-screen display
Standard Analytical Range	Up to 30 elements from Mg to U (varies by application)
Optional Light Elements	Ultra-low light element detection via He purge
Data Storage	Internal >10,000 readings with spectra
Data Transfer	USB, Bluetooth, and RS-232 serial communication
Security	Password-protected user security
Mode (Varies by application)	Alloy Modes: Metal Alloy, Electronics Alloy, Precious Metals Bulk Modes: Soil, Mining, TestAll™ Plastic Modes: RoHS Plastics, Toy & Consumer Goods Plastics, TestAll, Painted Products Custom Modes: Upon request (based on application feasibility)
Data Entry	Touch-screen keyboard User-programmable pick lists Optional wireless remote barcode reader
Standard Accessories	Integrated CCD camera for locating and storing images Locking shielded carrying caser Shielded belt holster Two lithium-ion battery packs 110/220 VAC battery charger/AC adaptor PC connection cables (USB and RS-232) Niton Data Transfer (NDT) PC software Safety lanyard Check samples/standards
Optional Features and Accessories	3 mm small-spot collimation Thermo Scientific SmartStand™ portable test stand, stationary (bench-top) test stand, mobile test stand, Field Mate™ Thermo Scientific Extend-a-Pole™ extension pole Welding mask Thermo Scientific HotFoot™ hot surface adapter Soil testing guard
Licensing/Registration	Varies by region. Contact your local distributor.
Compliance	CE, RoHS

Thermo Scientific Niton XL3t GOLDD+ analyzers represent just one of our handheld analyzer solutions, which include XRF tools for metal alloy identification, mining and exploration, lead-based paint testing, RCRA metals in soil, toy and consumer goods testing, RoHS and WEEE compliance screening, and many other analysis needs.

XRF Analyzers

Americas
Billerica, MA USA
+1 978 670 7460
niton@thermofisher.com

Europe, Middle East, Africa and South Asia
Munich, Germany
+49 89 3681 380
niton.eur@thermofisher.com

Asia Pacific
Central, Hong Kong
+852 2869 6669
niton.asia@thermofisher.com

www.thermoscientific.com/niton
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